CYBERBULLYING VICTIMIZATION ON SOCIAL NETWORKING SITES AND ITS ASSOCIATION WITH MEASURES OF SELF-ESTEEM IN 18-25 YEAR OLDS IN SUBURBAN MUMBAI

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DECLARATION

I hereby declare that this dissertation titled ***'Cyberbullying Victimization on Social Networking Sites and its association with Measures of Self-Esteem in 18-25 Year Olds in Suburban Mumbai'*** is the bonafide record of my original research. It has not been submitted to any other university or institution for the award of any degree or diploma. Information derived from the published or unpublished work of others has been duly acknowledged in the text.

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CERTIFICATE

Certified that the dissertation titled "Cyberbullying Victimization on Social Networking Sites and its association with Measures of Self-Esteem in 18-25 Year Olds in Suburban Mumbai" is a record of the research work undertaken by **AARATHI AJAYAKUMAR** in partial fulfilment of the requirements for the award of the degree of "Master of Public Health" under my guidance and supervision.

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Glossary of Abbreviations

ICT	Information and Communication Technology
WHO	World Health Organization
SNS	Social Networking Sites
CB	Cyberbullied
SE	Self-Esteem
CDC	Centers for Disease Control
SD	Standard Deviation
C.I	Confidence Interval
OR	Odds Ratio
SD	Standard Deviation

ABSTRACT

Background

The youth today spend most of their time on the internet making virtual connections rather than real life ones creating many potentially harmful dynamics for social relationships – one of which is cyberbullying. Cyberbullying has been linked to social, physical & psychological problems for adolescent victims. The study aims to assess the prevalence of cyberbullying and its' association with measures of self-esteem among college students in the zone 4 of Sub-urban Mumbai.

Methods

A cross sectional survey was conducted among 652 college students in the age group 18-25 from ten selected colleges from the zone 4 of Sub-Urban Mumbai. Data was collected using a self-administered questionnaire. Self-esteem was measured using Rosenberg self-esteem scale. Data was analysed using SPSS version 25.

Results

The mean age of the students was 20.76 years (SD 1.37). Of the 652, 62.0 percent were females and 37.7 percent were males. The prevalence of cyberbullying in the sample was 33.4 percent. The prevalence of cyber-harassment was 18.9 percent, masquerading was 17.9 percent, outing was 68 percent & exclusion 9.8 percent. A significant association was seen between marital status of parents of the students and being cyberbullied, OR: 2.78 (95% C.I: 1.53-5.04). The proportion of males and females who experienced any of these forms of cyberbullying were almost similar. Over 77.5 percent of the students who had been subjected to cyberbullying reported a negative impact on their mental health. Feeling worried, low self-esteem, sleep disturbances, and being irritated with others were the most reported negative impacts. The mean score for self-esteem amongst the students subjected to cyberbullying was 17.97 (SD, 4.89) while amongst those who were not it was 19.45 (SD, 4.18). Internet use greater than 4 hours per day and not being subjected to cyberbullying were significantly associated with low self-esteem with adjusted OR 0.51 (0.33-0.80) & 0.54 (0.35-0.84), respectively, after controlling for gender and marital status of the parents of students.

Conclusions

The social circle of today's youth is changing from real-time connections to virtual social interactions. Cyberbullying thus has become prevalent. Community needs to be sensitized about the serious mental health implications of cyberbullying. A grievance redressal cell which only looks after cyber harassment of college students could be set up in the premises so that the victim would have access to a proper reporting channel. Further investigation should also be undertaken to identify patterns of cyberbullying and its' impact on students to understand the phenomenon better.

Chapter 1

Introduction

1.1 Background

Disease isn't the only factor that is making our youth sick. The WHO definition "Health is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity" reiterates this fact ("Preamble to the Constitution of WHO as adopted by the International Health Conference, New York, 19 June - 22 July 1946;," 1948). India, with 356 million 10-24 year olds, ranks first in the world with the highest number of young people, even though our population is smaller than China. The young population is growing exponentially, especially, in the poorest of nations (Population Fund, 2014). Youth being the formative period of an individual, is one of the prime phases of life, and exposures faced during this period have major implications in their future. Youth, thus becomes a crucial period for the onset of many mental health problems. Per the National Mental Health Survey of India, 2016, the current prevalence of mental disorders in the 18-29 year old age group is 7.39 percent and the lifetime prevalence is 9.54 percent (Chadda, 2018; Gururaj, G., et al. 2016).

The world today is transforming and expanding rapidly with inventions of speedy connectivity, be it the faster modes of transport, easy migration to other countries or the revolutionary development: Information and Communication Technology (ICTs). The advent of the web 2.0 age has sure made connectivity easier, but the downside of it has been ill effects like reduced physical activity, reduction in "in-person" social interactions, and a more sedentary lifestyle. Real life interactions with people are increasingly being replaced by virtual interactions through the social networking sites* (SNS), especially among the youth. Adolescents, instead of using these SNS as just an "add-on" to in-person communication prefer using these sites as their "primary" mode of communication (Chadda, 2018; Sathyanarayana Rao et al., 2018).

*Social Networking Site: an online platform that allows users to create a public profile and interact with other users on the website.

The youth today spend most of their time on the internet making virtual connections rather than real life ones which has created many unique and potentially harmful dynamics for social relationships – one of which is cyberbullying (Sathyanarayana Rao et al., 2018). To understand the phenomena of cyberbullying it is imperative to understand the difference between traditional bullying and cyberbullying.

1.2 Traditional Bullying

The term bullying is considered to be a form of harassment with unprovoked aggression towards an individual or a group of individuals (S Hinduja, 2008). In January 2014, the department of education & health resources at the Center for Disease Control and Prevention developed a uniform definition of bullying:

Bullying is any unwanted aggressive behavior(s) by another youth or group of youths who are not siblings or current dating partners that involves an observed or perceived power imbalance and is repeated multiple times or is highly likely to be repeated. Bullying may inflict harm or distress on the targeted youth including physical, psychological, social, or educational harm ("Preventing Bullying |Violence Prevention|Injury Center|CDC," 2019).

An inherent concept in bullying is the differential levels of power between the offender and the target. The offender would generally have an upper hand socially, physically, or otherwise over the target to perpetrate an act of bullying. Popularity, physical strength or appearance, quick wit, social competence, extroversion, confidence, intelligence, age, sex, race, ethnicity or socio economic status are characteristics that give a bully a superior sense of power (perceived or actual) over a victim. An act of bullying can occur anywhere, but amongst adolescent peers, it is mostly limited to the boundaries of educational institution (S Hinduja, 2008).

1.3 New Age Bullying: Cyber-Bullying

Rapid expansion of ICTs has made internet use and other forms of communication technologies a convenient means of interaction especially through SNS like Facebook, Whatsapp, Instagram, etc. (Blaya et al., 2018; Mukherjee et al., 2019). The ICT revolution has enabled people to collaborate and share information on the internet (online) via SNS, blogging and web-based communities. It enables constant connection across the globe giving rise to a platform for new opportunities through forms of knowledge & culture sharing, communication & socialization; this has revolutionized inter-individual relationships (Blaya et al., 2018). The Internet surely has provided many benefits, but it also may be responsible for a host of negative outcomes (Holfeld & Grabe, 2012). One third amongst the youth who venture online, report being contacted by someone unknown via the Internet, and many report that this contact make them uncomfortable (Kowalski et al., 2012). Research has found a link between duration of Internet use and psychiatric problems, wherein those reporting higher Internet use experience more depression, obsessive compulsion disorders, and anxiety (Kelleci and İnal, 2010; Madden, M & Jones, S, 2008). Furthermore, the Internet has also become an avenue where counterproductive behaviours like cyber-hacking – using the Internet to gain access to information or resources illegally, cyber-stalking– using the Internet to spy on or watch another person), and various forms of cyber aggression one of which is cyberbullying– using the Internet to harm another person, are prevalent (Kowalski et al., 2012).

1.4 Traditional Bullying vs. Cyberbullying

Traditional bullying is asserting power through physical, social or emotional sources of aggression, and would be confined to a particular area, as opposed to cyber bullying. Cyberbullying is beyond physical boundaries, could be anonymous, and may be asserted from any part of the world with just a click of a button (Siddiqui, 2017).

Rumor spreading, harassing, threatening, exclusion, etc. are all indirect forms of traditional bullying. Similarly, cyberbullying also could occur in similar formats like threats, exclusion & name-calling but the context and platform are usually different; it can occur via social networking sites or mobile phones (Hinduja & Patchin, 2010; Patchin & Hinduja, 2006; Willard, N. E., 2007). Unlike traditional bullying, cyberbullying allows the offender to be "virtually" anonymous and hide their identity behind a computer. This anonymity makes it easier for the offender to strike blows against a victim without having to face the victim's physical response. The freedom of being "anonymous" that technological devices offer to todays' youth persuades them to say and do crueler things as compared to what is typical in a traditional face-to-face bullying situation (Donegan, 2012; Hinduja & Patchin, 2010).

There are certain features of online communication that aid in the perpetration of cyberbullying, they are reproducibility, relative permanency, perceived uncontrollability, lack of emotional reactivity, and 24/7 accessibility (Kiesler et al., 1984; Pearson et al., 2005). The core issue with regards to reproducibility, is that a message or a gossip can be easily copy pasted and forwarded by a person to all the contacts in his or her address book. This reproducibility makes it easier for aberrant individuals to harm others and even repeat the harm over and over again with a mere click of a mouse. The second feature is relative permanency; online posts or blogs, comments on discussion boards, messages, can remain online indefinitely or until someone deletes them. Hence, the chances of an unpleasant message or post could to resurface on the web are very high, which may cause mental stress to an individual. The third feature that contributes to the perpetration of online bullying is the perception of uncontrollability. Most of the modes of online communications (SNS, chat rooms, emails etc.) do not really have a moderator who could intervene if an interaction becomes aggressive, however, in a face-to-face context, other people might step in to calm down the situation (Kowalski et al., 2014). The perception of the bully that their identity can be kept anonymous and no authority could question their actions give them the

leeway to act (negatively) according to their wish. Emotional reactivity is another feature that online communications offer. In face-to-face communications many verbal and nonverbal cues can be provided about the general "feeling" of the communication; a frown or an eyebrow raise are common nonverbal cues that is used when conversation upsets the receiver. However, in online conversations communicators do not have this instant emotional reactivity, and could often offend others through their communications (Kowalski et al., 2014). Secondly, it is easier for a communicator to be cruel and spiteful through a text message, e-mail, a posted photo or a video, or another form of digital harassment (Patchin and Hinduja, 2010). Finally, online communications provides 24/7 accessibility that makes it easily possible to send and receive harmful messages at any hour of the day, which may make it seem like one cannot escape (Kowalski et al., 2014).

1.5 Youth and Self-Esteem

Youth is the period in which an individual is in the process of forming an identity for themselves. This process is influenced by cues they get from their social environment (Chadda, 2018; Patchin and Hinduja, 2010b). Therefore they try to avoid exposures that tend to make them feel bad about who they are or the ones that impact their self-esteem. Youth of today are considered to be natives of digital media platforms, wherein they thrive on social connections on social media and also look up to it to offer self-discovering opportunities to enhance their self-esteem; all this at a cost of exposing themselves to risk of cyberbullying (Sharma and Seshadri, 2020). Bullying offline or online is known to impact the self-esteem of an individual and hence becomes a health concern that needs to be researched further (Nansel et al., 2001; Patchin and Hinduja, 2010).

1.6 Rationale

A remarkable change in the development of today's youth has been brought about by the rapid development of technology. Today's tech savvy youth has made socializing on social networking

sites their primary mode of communication (Sathyanarayana Rao et al., 2018). Hence, it is of utmost importance to understand the internet and the sources of online communication it offers, to understand the different exposures the youth are being subjected to. The youth is vulnerable and could be exposed to the dark underbelly of the internet-cyberbullying (Sathyanarayana Rao et al., 2018). The study of the relationship between age and victimization provides important insights as to which educational level (primary school, secondary, higher secondary, colleges, etc.) does a target usually face cyberbullying. Studying this relationship will help to bring clarity on the level at which an intervention to prevent cyberbullying can be implemented to achieve the most effective response. Research on cyberbullying among young individuals started in North America, followed by Europe later, with psychology being the area of research, but, most of it is limited to school settings (Kowalski et al., 2012b; Li, 2007; Shariff, 2008; Smith et al., 2008; Ybarra & Mitchell, 2004). This study attempts to analyse the extent of cyberbullying prevalent in colleges. Also, there is a paucity of information regarding cyberbullying in the Indian setting. This study thus aims to find out the online behaviours, the frequency of being cyberbullied, cyberbullying patterns, and the mental health implications of the cyberbully victimization, in college students of Mumbai.

1.7 Research Questions

1. What is the frequency of the cyberbully victimization in college students?

2. Do those who have been subjected to cyberbullying report low levels of self-esteem than those who have not?

1.8 Objectives

Primary Objective:

1. To estimate the proportion of cyberbullying on social networking sites among 18-25 year old college students in the select colleges of Zone-4 of Sub-urban Mumbai
2. To analyze the nature and extent of cyberbullying on social networking sites
3. To understand the impact of the cyberbully victimization on an individuals' mental health

Secondary Objective:

1. To study the association of cyberbullying with measures of self-esteem in adults in the age group of 18-25 year old college students in the select colleges of Zone-4 of Sub-urban Mumbai

1.9 Chapters

The first chapter introduces the issue of cyberbullying and its effect on young adults and their mental health. The second chapter includes a review of literature relevant to cyberbullying and measures of self-esteem. The third chapter consists of a description of the methodology used in the study and the ethical considerations of the study. The fourth chapter lists the findings of the study systematically, and the last chapter discusses these findings and their implications.

Chapter 2
Review of Literature

2.1 Definition of cyberbullying

The term "cyberbullying" was first coined in 1999. Researchers have not been able to come to a general consensus on a standard definition, but the different versions that are used usually include 'the use of digital technology to inflict harm repeatedly or to bully'(Englander et al., 2017). To date, the most frequently cited definition of cyberbullying is where cyberbullying is defined as 'an aggressive, intentional act carried out by a group or individual, using electronic forms of contact, repeatedly and over time against a victim who cannot easily defend him or herself' (Smith et al., 2006). It is noted that most of the definitions of cyberbullying are modeled around the widely accepted definition of traditional bullying, however, researchers have questioned if the three criteria of offline bullying: intentionality, repetition, and power-imbalance hold true even in the technological sphere (Englander et al., 2017; Modecki et al., 2014). Even a single act can constitute cyberbullying perpetration. For example if the perpetrator posts a picture to demean the victim on the internet or SNS, it can at a later stage be viewed and shared by other people and not necessary the initial perpetrator. Thus even a single act of perpetration by the cyberbully may be repeated many times by others but experienced many times by the victim. The act of cyberbullying can 'snowball' out of the initial control of a cyberbully by virtue of the internet. Unlike traditional bullying the perpetrator does not need to have specific attributes eg, physical dominance or popularity to bully a person. The cyberbully just needs to have good technical abilities with ICTs to mask their identity. So power imbalance in cyberbullying cannot be explained like in traditional bullying (Slonje et al., 2013). Hence, researchers have suggested that the criteria of repetition and power imbalance should be modified and the definition of cyberbullying needed to be revised (Slonje et al., 2013; Tokunaga, 2010).

Some researchers simply define cyberbullying as the use of electronic communication technologies (e.g., e-mail, social networking sites, blogs, instant messages, text messages) to bully others (Kowalski et al., 2014). In 2006, Patchin and Hinduja defined cyberbullying as "willful and repeated harm inflicted through the use of computers, cell phones, or other electronic device" (Justin W Patchin and Hinduja, 2006). Another definition is that is used is "Cyberbullying consists of covert, psychological bullying, conveyed through the electronic mediums such as cell-phones, web-logs and web-sites, on-line chat rooms, 'MUD' rooms (multi-user domains where individuals take on different characters)"(Shariff, 2005). According to Nancy Willard, Director for the Center for Safe and Responsible Internet Use, cyberbullying is a speech that is "defamatory, constitutes bullying, harassment, or discrimination, discloses personal information, or contains offensive, vulgar or derogatory comments" (Willard, 2003). A definition that has been used in the Indian context is "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 telecommunication networks such as mobile phones (SMS/MMS) and Internet (Chat rooms, emails, notice boards and groups)"(Jaishankar, 2009) . Thus, cyberbullying does seem to have definitional issues and there isn't one standard operational definition that is used by researchers to assess this phenomena. Most of the definitions are tailored based on the researchers understanding and the objectives of the study.

2.2 Cyberbullying: A Worldwide Issue

The prevalence of cyberbullying is highly variable across studies due to the variety in the methodological research opted which include: different operational definitions for cyberbullying, differences in the ages and locations of the individuals sampled, the reporting time frame being assessed e.g., lifetime, one year, 6 months, 2 months, etc. and the frequency rate by which a person is classified as a perpetrator or victim e.g., at least once, several times a week (Kowalski

et al., 2014). Research on cyberbullying among young individuals started in North America, followed by Europe later, with psychology being the area of research and most of it being limited to cyberbullying in school settings (Kowalski et al., 2012; Li, 2007; Shariff S, 2008; Smith et al., 2008; Ybarra and Mitchell, 2004). In a study designed to identify online harassment at a university, it was found that 1-in-10 university students had experienced a form of online harassment (Finn, 2004). In general, the prevalence estimates for cyberbullying victimization range approximately between 10 and 40 percent (Hinduja and Patchin, 2010b; Kowalski et al., 2014b; Lenhart, 2010; Litwiller and Brausch, 2013; O'Brennan et al., 2009; Patchin and Hinduja, 2010b; Schneider et al., 2012; Sourander et al., 2010; Wang et al., 2011; Ybarra, 2004; Ybarra et al., 2006). A study conducted in 12-17 year old school students stated that 72 percent of their respondents reported being victimized. However, the study did not specifically use the term cyberbullying, instead asked participants the extent to which they had experienced "mean things" online, which was defined as "anything thing that someone else does that upsets or offends someone"(Juvonen and Gross, 2008). A survey in middle school students of the U.S. found that 9 percent had been cyberbullied in the last 30 days, 17 percent in their lifetime. It also found that 32 percent of boys and 36 percent of girls were victims (S Hinduja, 2008b). Similarly, in a survey of students from Grades 6 to 8 (n = 3,767), 18 percent had been cyberbullied at least once within the previous 2 months; 11 percent had cyberbullied others within the 2 months prior to completing the survey (Kowalski and Limber, 2007). In a study conducted in school children of grade 6-9 in British Columbia, Canada, nearly half of the participants (46 percent; n = 365) in the reported that cyber-bullying is a normal part of the online experience (Cassidy et al., 2009). In a later study they also found that 30 percent of their respondents had experienced repeated online attacks(Hinduja and Patchin, 2010b). A study conducted in 9-12 grade students in a school in Dhaka city, Bangladesh, reported a prevalence of 32 percent of cyberbully victimization (Mallik,

2020). In spite of the variance in prevalence across studies, the fact remains that cyberbullying is a serious problem confronting youth today.

2.3 Cyberbullying and India

Internet and smartphone usage has grown rapidly in India in recent years. Policies like "Digital India" by the government have driven this growth. Multinational companies have used the "potential" of the Indian market and engaged in promoting the development of ICTs in the country (Smith et al., 2018). The Internet and Mobile Association of India (IAMAI) reported 385 million internet subscribers who are 12 years & above. Two-third of these internet users belong to the 12-29 year old age group. There is no difference in the rural and urban divide of internet users (IAMAI, 2019). With such high access to the internet, it is very likely that Indian youth are vulnerable to being cyberbullied.

Microsoft Corporation conducted the 'Global Youth Online Behaviour Survey' in 2012 to understand the global pervasiveness of cyberbullying among 8–17-year olds across 25 countries. The survey found India to have the third highest rate of online bullying after China and Singapore. Among the Indian young people who responded, 53 percent had experienced cyberbullying. Girls and boys were found equally likely to be bullied online (53 percent vs 52 percent) (Microsoft Corporation, 2012). Another study conducted by Ipsos-a global market research company which included more than 500 parents reported that 47 percent Indian parents believed that a child they knew was being cyberbullied (Ipsos, 2018). A study based amongst 90 school going children as well as undergraduate college students of Chennai reported that 9.8 percent (n =8) of them had experienced cyberbullying while 46.2 percent (n = 42) agreed that they have been made fun of on SNS (Venkataraghavan, 2015). A study conducted in adolescents of the age group 15-19 years reported a 5.51 percent prevalence (16/290)(Lavanya & Kalpana, 2014). A study conducted in 360 students of Delhi University, reported that 17 percent of them

had experienced online harassment personally (Tripathi, 2017). A recent cross sectional study in Kolkata in two higher secondary schools (n =254) in pupils aged 15-19 years found that the prevalence of cyberbullying was 10.5 percent among the 210 internet users (Mukherjee et al., 2019). A survey conducted on 18-35 year old undergraduate students from different cosmopolitan cities like New Delhi, Mumbai, Kolkata, Chennai and Bengaluru revealed that 15.5 percent (93/600) experienced cyberbullying 3-6 times in the past 6 months, while over 70.5 percent (423/600) experienced it 1-3 times in the past 6 months (Sivakumar, 2013).

2.4 Nature of cyberbullying

The issue in conceptualizing cyberbullying is the fact that cyberbullying could be perpetrated through many different forms and can occur through multiple venues. Based on literature the taxonomy of types of cyberbullying include (Kowalski et al., 2014; Willard, 2007):

i) Flaming (an online fight)

ii) Harassment (repetitive, offensive messages sent to a target)

iii) Outing and trickery (retrieving personal information from someone and then electronically sharing that information with others without the individual's consent)

iv) Exclusion (blocking an individual from buddy lists),

v) Masquerading/impersonation (posing as the victim and electronically communicating negative or inappropriate information with others as if it were coming from the victim),

vi) Cyber-stalking (using electronic communication to stalk another person by sending repetitive threatening communications), and

vii) Sexting (distributing nude pictures of another individual without that person's consent) (Kowalski et al., 2014; Willard, 2007).

The types of cyberbullying that students experience vary greatly. Researchers have reported that victims often received a range of threats which included either threatening them to physical assault or outright death threats (S Hinduja, 2008b). The most common form of attack included writing embarrassing rumours or comments, shaming, various forms of exclusion, hacking into someone's account to impersonate and tarnish their reputation. Online fights, harassment, and willful harm to a target's reputation are also added to the above list (Calvete et al., 2010). A survey conducted in the U.K. in over 500 students belonging to the age group of 12-15 years reported that one in ten had experienced cyberbullying, with exclusion from online conversations, or spread of rumours being the most common form of cyberbully victimization (Jaishankar and Shariff, 2009). Another study conducted in China that analysed content threads of public forums and chat rooms reported that an overwhelming majority of cyberbullying incidents involved denigration, outing, and flaming. Individuals regularly made comments about the physical appearance, intelligence, or sexual activities of other students (Su and Holt, 2010).

Other types of cyberbullying include posting hate speeches, publishing defamatory content about a victim (child or the adult), creating visually offensive graphical cartoons/videos of the target victim, or teasing the victim, group bullying and trolling etc. In India the present trend includes targeting victim on their class, community, their religious beliefs, their body, skin colour, etc along with sexual orientation (Halder, 2015). A study conducted in cosmopolitan cities of India: New Delhi, Mumbai, Kolkata, Chennai and Bengaluru, revealed that cyberbullying forms like calling names, receiving threatening messages, spreading rumors, pretending to be someone else, distributing personal information was prevalent among undergraduate students (Sivakumar, 2013). A study conducted in Chennai among women who had reported online victimization reported that out of 205 respondents, 54 respondents were outed (26.3 percent) that is their photos and personal information had been posted on the internet. Of these 18 of the respondents said that revenge was the cause for their victimization (Mala, 2010).

2.5 Cyberbullying in College Students and Social Networking Sites (SNS)

Cyberbullying is not restricted by age and may emerge from elementary school to college. Other researchers suggest the method by which the cyberbullying occurs is different for different age groups. It was found that text messaging, picture bullying, and instant messaging were more common in the older age group than the younger (Kowalski et al., 2014; Smith et al., 2018). Although cyberbullying is prevalent among all age groups with a difference in magnitude, forms and frequency, research is targeted primarily in children and teens(Kowalski et al., 2014). In a recent press release by UNICEF it was reported that 70.6 percent of young people aged 15 to 24 years who are active online globally could be subjected to online violence, cyberbullying and digital harassment (UNICEF, 2019). According to the Teens, Tweens and Technology study conducted in 2015, out of the 500 children surveyed, more than half (56 percent) 8-16 year olds were active on social media; children 8-12 years of age had an account on Facebook, Twitter & Instagram, despite the legal age clause of 13 years required to join these SNS. Of these children, 43 percent claimed to have witnessed cruel behaviour on social networks sites (Intel Security Teens Tweens and Technology, 2015; Lenhart, 2010). The Ipsos study reported that 4 out of 5 Indian parents (66 percent) claimed that cyberbullying was most prevalent on SNS (Ipsos, 2018). The Ditch the Label organization, one of the largest anti-bullying organizations in the world, conducted the 'Annual Bullying Survey 2017'on more than 10,000 youths in the U.K. According to the survey, 17 percent of teens and young adults between ages 12-20 had experienced online bullying, with more youths experiencing it on Instagram (42 percent) and Facebook (37 percent). Snapchat ranked third at 31 percent. While the survey participants use YouTube more than any other platform, the video-focused social media was only responsible for 10 percent of the reported cyberbullying (ditchthelabel.org, 2017).

Research on cyberbullying among college students are recent. Available research on cyberbullying victimization in college students are mainly focused on the prevalence of

cyberbullying, characteristics of cyberbullies, and the negative outcomes in the victims (Bonanno and Hymel, 2013; Gibb and Devereux, 2014; MacDonald and Roberts-Pittman, 2010). Studies have found that cyberbullying incidents among college students can range from 9 percent to 34 percent (Baldasare et al., 2012). A study conducted in the northwestern university of U.S. assessed cyberbullying victimization on SNS in 196 college students. The study reported that around 19 percent were cyberbullied on a SNS. However, the study did not define the time frame of the victimization (eg, lifetime, past six months, past two months, etc.) (Gahagan et al., 2016). A study conducted in the U.S among 439 college students revealed that 22 percent self-reported being victims of cyberbullying(MacDonald and Roberts-Pittman, 2010).

In one study, it was found that over 30 percent of college student respondents indicated that their first experience with cyberbullying was in college. Even including those who had been cyberbullied in middle and high school, 43 percent of the respondents indicated that the majority of the cyberbullying they had experienced had occurred during college (Kowalski et al., 2012d). Cyberbullying and cyber stalking among 471 college students in New Jersey, U.S.A, reported prevalence rates of 10 percent for cyberbullying victims and 10 percent for cyber stalking victims (Kraft and Wang, 2010). A study conducted among Turkish university students reported much higher prevalence rates of cyberbully victimization (at least once in their life time), 55.3% of the 666 students in the sample (Dilmac, 2009). A study conducted in the U.S among 439 college students revealed that 22 percent self-reported being victims of cyberbullying; the prevalence rates for males and females were also similar: 21.9 vs 22 percent (MacDonald and Roberts-Pittman, 2010). A study in India was conducted among undergraduate students of five cosmopolitan cities, Chennai, Kolkata, Mumbai, Delhi & Bangalore, which looked at cyberbullying victimization and patterns; 90 percent of the sample belonged to the 18-25 year old age group. It was reported that 13.9 percent were bullied on SNS like facebook/orkut (Sivakumar, 2013). There are very few studies that have focused on occurrences of

cyberbullying on specific platforms like SNS (Shultz et al., 2014). A vast majority of young adults are active users of SNS and hence more research is required on cyberbullying prevalent on SNS amongst college students.

2.6 Cyberbullying and Impact of Victimization:

2.6.1 Psychological Impacts

The impacts on cyberbully victims that have been observed are found to be diverse in nature either due to the factors that characterize the cyberbullying event or due to differences in the resilience of the victims (Fenaughty and Harré, 2013; Ortega et al., 2012; Vandoninck et al., 2012; Ybarra et al., 2006). Though cyberbullying is relatively a newer field, research by far has suggested that cyberbullying exposure and perpetration are associated with depression, low self-esteem, behavioural problems, and substance abuse (Hamm et al., 2015). A potential relationship between cyberbullying and self-harm or suicide ideation has also been studied (Hamm et al., 2015; Hinduja and Patchin, 2010b). Some studies suggest that cyberbullying is often related to several emotional, psychological and physical problems. Individuals who perpetrate and are victims of cyberbullying were found to have high scores of depression and anxiety and lower on measures of self-esteem (Kowalski et al., 2014). A study conducted in a large sample of Canadian and American university students (n = 1,368), reported that, amongst the cyber-harassed victims, approximately, two in five felt angry (31.62 percent), one in five-felt sad/hurt, embarrassed & anxious (21.37 percent, 20.23 percent and 18.23 percent, respectively) because of the experience. Other reported psychological impacts were feeling afraid (12.8 percent), crying (12.55 percent), and blaming themselves (9.12 percent) (Beran et al., 2012). An Australian study among 548 youth reported that cyberbullying has negative personal impacts on the victimized youth. 'The most common areas of personal impacts due to the victimization that were reported

included self-confidence (78 percent), self-esteem (70 percent) and friendships (42 percent) (Price and Dalgleish, 2010).

2.6.2 Academic Impacts

Poor academic performance was also one of the outcomes of cyberbullying that has been studied. Victims of online bullying tend to have lower school commitment, dislike school more, and report lower grades (Ybarra and Mitchell, 2004). The study conducted in Canadian and American university students (n = 1,368) also reported similar findings with 35 percent reporting a negative effect on their school grades and 28 percent reporting a negative impact on their attendance in school due to cyberbully victimization (Beran et al., 2012).

2.7 Cyberbullying and Self-Esteem

Self-esteem is an attitude towards self. It depends on how a person values himself/herself based on their skills, abilities, social relationships and future outcomes (Patchin and Hinduja, 2010b; Rosenberg et al., 1995a). It is also one of the pillars which is used to assess psychological well-being and healthy personality development. A person‘s experiences/exposures in life are one of the major contributors of their self-esteem. Successful acceptance among peers and successful ventures during identity explorations are considered to be the predictors of high self-esteem among adolescents and emerging adults. One such relationship that has garnered attention is the effect of bullying on self-esteem. Rosenberg defined self-esteem as ‘‘a favorable or unfavorable attitude toward the self’’ (Rosenberg et al., 1995a). Leary and Downs considered self-esteem to be “an internal representation of social acceptance and rejection and a psychological gauge which monitors the degree to which a person is included versus excluded by others” (Leary and Downs, 1995). Based on these, it can be said that, self-esteem is a perception of one’s belief of their personal value. This personal values could be influenced by the social environment of the individual, wherein there could be inter-personal conflicts which could lead to bullying, and

since the past decade, cyberbullying. Interestingly, the relationship between bullying offending and self-esteem is much less consistent. Researchers studying the impact of social media platforms such as Facebook, Instagram, and Snapchat on adolescent development and behavior have linked increased social media usage has been linked to diminished self-esteem and body satisfaction, elevated risk of cyber-bullying (Shah et al., 2019). Cyberbullying was found to be correlated with lower self-esteem in a couple of studies. However, these studies reported certain limitations in terms of generalizability (Brighi et al., 2012; Patchin and Hinduja, 2010b). Hence, further research needs to be done to strongly support this evidence.

2.8 Measures of Self-Esteem

2.8.1 Gender: A study conducted among adolescents in 8th, 10th & 12th grade reported studying in an elementary school in San Francisco Bay area, reported that boys enjoy slightly higher global self-esteem levels than girls (Quatman & Watson, 2001). This result was seconded other researchers wherein it was observed that even through adulthood this difference remains similar where men continue having higher self-esteem than their female peers (Kling et al., 1999).

2.8.2 Medium of instruction: Amongst 360 students who participated in a study conducted in India, 180 students belonged to the English medium while 180 to Vernacular. It was observed that English medium school students have favourable attitude towards self than those from the vernacular medium (Pathan & Shiakh, 2012).

2.8.3 Family Type: A study conducted in rural adolescent girls of age 14-15 years in Kangra district of Himachal Pradesh reported that girls who stayed in a nuclear family reported higher self-esteem (Nagar et al., 2008).

An investigation on this type of exposure in an urban setting in both males and females would help us understand this association better.

2.8.4 Number of siblings: In a sample of 346 students studying in Punjab University, Lahore Pakistan, Rosenberg self-esteem scale was administered to explore association of self-esteem and socio-demographic factors. The study observed that a negative relationship existed between self-esteem and number of siblings (less than one, between one and two, between two and three & greater than three) (ul Haq, 2016).

2.8.5 Marital status of Parents: In a high school in north central Kansas (n = 131) children with divorced parents reported low self-esteem; children of divorced parents scored significantly lower than children of non-divorced parents, on self-esteem and GPA (Brubeck and Beer, 1992).

2.8.6 Birth order: The research findings on the relationship between self-esteem and other birth categories have been contradictory. Some researchers suggest that the oldest child had the highest self-esteem within a while some said the oldest male child had a higher self-esteem (Coopersmith, 1967; M. Rosenberg, 1965). Research has also pointed out that, that last-born males were more likely to have higher self-esteem levels than the middle, first-born, or only children. Other studies reported the trend of first-borns having higher self-esteem than last-born, especially with females (Falbo, 1981).

From the above section it is observed that there are a lot of determinants that impact self-esteem negatively, few of these have been mentioned above. Cyberbullying being a newer phenomenon there aren't many studies that study the association of cyberbullying with measures of self-esteem.

Based on this review it is believed that there are three pressing issues that need to be addressed: i) the lack of research amongst college students, ii) contextual issues that may hamper to improve our understanding of cyber-bullying iii) lack of Indian studies on cyberbullying. Lastly, even though there are studies that look at the psychological impact of cyberbullying not many focus explicitly on its' impact on self-esteem and its' measures. This study aims to fill these gaps in the literature on cyberbullying.

Chapter 3

Methodology

3.1 Study Design:-

The study design was a cross-sectional survey. A qualitative study design would be apt to understand the cyberbullying phenomena better. However, due to time constraints and feasibility issues a cross-sectional design was adopted. Many studies that assess the proportion of cyberbullying or study the patterns of cyberbully victimization in school/college settings have used a cross-sectional design (Kowalski et al., 2014).

3.2 Study Setting:-

For administrative purposes, Mumbai is divided into seven zones while for the purpose of revenue it is divided into two parts: Greater Mumbai and Sub-Urban Mumbai. For the purpose of this study one of the seven zones, Zone 4 was selected. The P and the R wards in this zone fall in Sub-Urban Mumbai (BMC, Mumbai, 2014). The study was conducted in degree colleges that offered undergraduate and postgraduate courses in this area.

3.3 Sample Size: Estimation and Justification:-

Assuming a prevalence of 50 percent the sample size was calculated using OpenEpi version 3.01.

The estimated sample size was multiplied by 1.5 to adjust for the design effect of the varied sample. With an assumed precision of 5 percent, at 95 percent confidence interval (CI) the sample size was 576. Assuming a non-response rate of 30 percent the sample size was rounded up to 800.

3.4 Study Population:-

The study was conducted in 18-25 year old college students pursuing either an undergraduate or postgraduate course in the randomly selected colleges of selected zone 4 of Suburban Mumbai.

3.5 Selection of participant:-

3.5.1 Inclusion criteria:

1. The students who had completed 18 years of age at the time of data collection and not older than 25 years were included in the study.
2. Students aged 18-25 years who were present in the college and consented to be part of the study at the time of visit to the college were included in the study.

3.5.2 Exclusion Criteria:

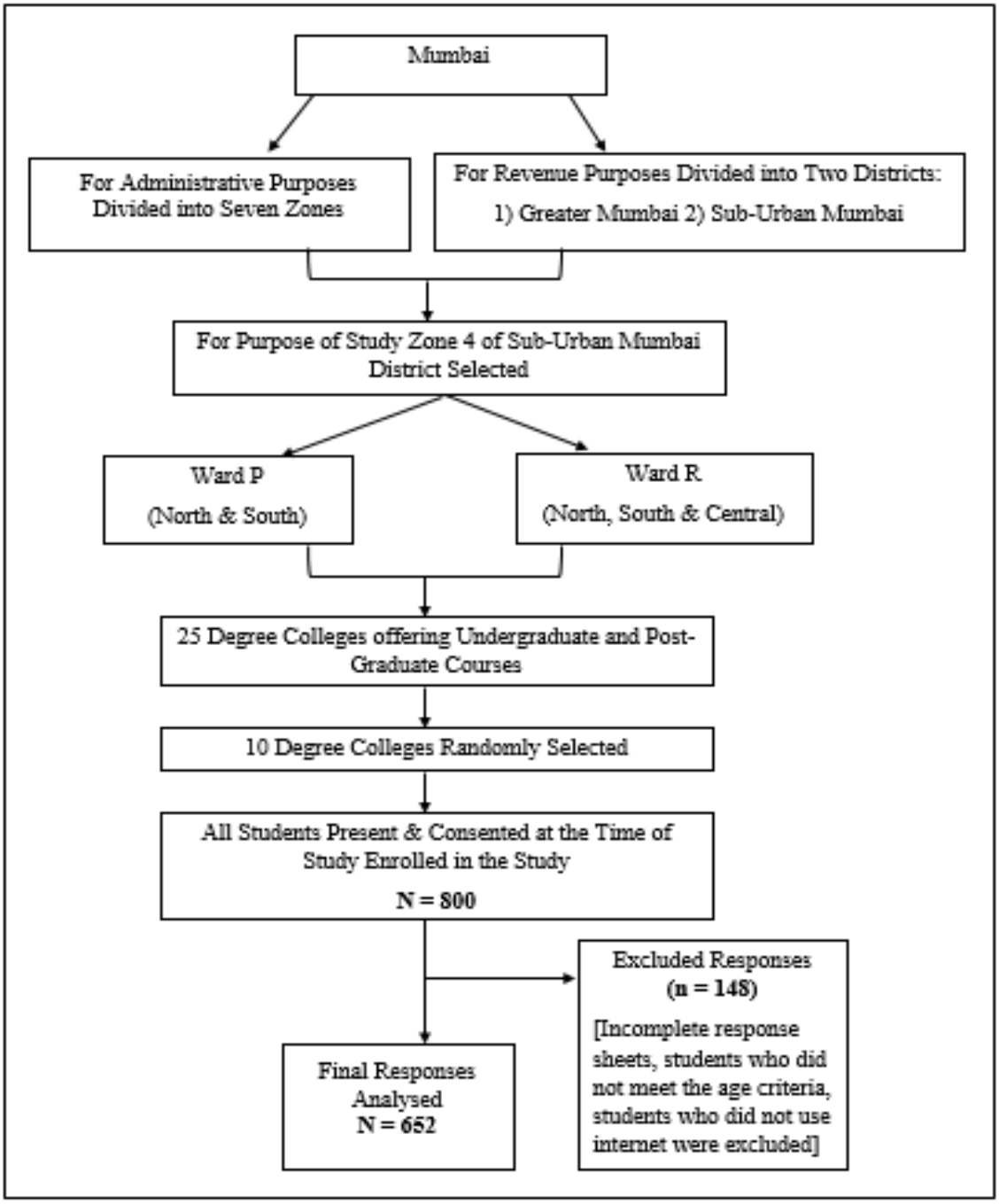
1. Students who did not use the internet
2. Students who did not have any account on social networking sites
3. Students who provided incomplete response sheets

3.6 Sample Selection Procedures:-

Multistage sampling procedure was used for the sample selection. For the purpose of the study out of the seven administrative zones of Mumbai, Zone 4 having P & R wards were selected. Degree colleges offering undergraduate and postgraduate courses in either arts, science or commerce from these wards were included in the study.

The colleges offering professional courses (law colleges, hotel management colleges, aviation, B.Ed. colleges) and night colleges were excluded. The detailed sample selection procedure is given in the figure below.

Figure 3.1: Sample Selection Procedure



3.7 Data Collection Techniques:-

Permissions from the head of institutions of the 10 colleges were sought prior to data collection.

A pre-tested questionnaire, having five sections, was used to collect the data. The questionnaire was self-administered.

The first section of questionnaire recorded the demographic characteristics of the students which included their age (D.O.B recorded), sex, course pursued in the college, medium of instruction during schooling, type of family, place of stay, parents' marital status, sibling status & position (if they had a sibling).

In the second section responses on patterns of internet & social media use of the students were recorded. Questions on the time a student spent on the internet & social media, the gadgets they used to access internet & social media, purpose of internet usage, the social media platforms they frequently used, all the personal information that the students have provided on their profile on the social media websites they used, were assessed to understand the students' online behaviour.

Section 3 included questions on:

i) The nature of cyber-bullying victimization: various forms of cyberbully victimization- cyber harassment, masquerading, outing & exclusion

ii) The extent of victimization: degree of victimization measured by the total frequencies of different forms of cyberbully victimizations

iii) Victim-Offender relationship: known or unknown offender, the sex of the known offender and the relationship between the victim and the offender-friend, acquaintance, etc.

iv) Reporting behaviour of the victim

Section 4 recorded the impact of the victimization: psychological impact, impact on internet use & academic impact.

Section 5 assessed the outcome variable self-esteem:

Self–esteem was assessed using the globally accepted and commonly used Rosenberg self-esteem scale, which is a 10-item scale that measures self-worth by measuring both positive and negative feelings about the self (Patchin & Hinduja, 2010).

All items were answered using a 4-point Likert scale ranging from strongly agrees to strongly disagree (Rosenberg, 1965). The scale comprised of both positively and negatively worded statements about self. In India the English/Hindi version of the scale was validated among two hundred college students in 2005. The reliability score Cronbach‘s alpha of Rosenberg scale validated in India was 0.80 (Schmitt & Allik, 2005).

Section 6 included questions that assessed the general perceptions on cyberbullying.

3.8 Data storage:-

All the data were kept safely with the PI. The data was coded to mask the identity and this file was used for further analysis.

3.9 Variables in the study:-

3.9.1 Dependent Variables:

Victim of Cyberbully: This was a derived/inferred dichotomous variable wherein if the student agreed to have experienced any one form of cyberbullying i.e. cyber harassment, masquerading, outing or exclusion, then they were categorized as a cyberbully victim.

Nature of cybercrime victimization: Nature of victimization referred to the various forms of cybercrime victimization i.e. either cyber harassment, masquerading, outing or exclusion.

Extent of cyberbully victimization: Extent of victimization referred to the degree of victimization. The extent of victimization was measured by the total frequency (once, 3-4 times,

more than 4 times) of the cyberbully incident(s). These were further combined to make a binary variable with categories, bullied less than and equal to 4 times and bullied more than 4 times.

Victim-offender relationship: This binary variable assessed if the cyberbully was either an anonymous/unknown person or a known person. If the bully were known, characteristics of the relationship with bully was explored (sex of the bully, relationship with the bully etc.)

Reporting behaviour: The victims' reporting behaviour was studied to see if they reported the cyberbullying incident or not.

Impact of victimization: The concept of "Impact of cybercrime victimization" is construed as an outcome resulting from the cyberbully victimization. Psychological impact referred to change in the mental state of the victim immediately after the cyberbullying incident. Academic impact referred to issues faced by the students in their studies due to cyberbully victimization while impact on internet/social media use referred to any change they made after in their internet/social media use immediately after the cyberbully incident.

During analysis the dependent variable "victim of cyberbully" was analysed against independent variables: age, sex, course pursued in the college, medium of instruction during schooling, type of family, place of stay, parents' marital status, sibling status, online behaviour to understand the correlation between them.

Self-esteem: Another outcome variable of the study is self-esteem is an attitude towards self. It depends on how a person values oneself based on his or her skills, abilities, social relationships and future outcomes(Robins et al., 2002; Rosenberg et al., 1995b).

Self-esteem was measured as an ordinal variable based on the score obtained in Rosenberg self-esteem scale. The scoring pattern is: Strongly agree = 3, Agree =2, Disagree =1, Strongly Disagree = 0. For questions 2,5,6,8,9, the score is reversed. The scale ranges from 0-30 (30-

highest); Low self- esteem = 0-15, Normal self-esteem = 15-25, High self-esteem = 25-30. The higher the score, the higher the self-esteem.

During analysis the dependent variable "self-esteem" was analysed against independent variables: age, sex, course pursued in the college, medium of instruction during schooling, type of family, place of stay, parents' marital status, sibling status, online behaviour, victim of cyberbully, nature of cybercrime victimization, & extent of the victimization, to understand the correlation between them

3.9.2 Independent variables:

Independent variables included individual characteristics defined as follows:

1. Age: Age in completed years as reported by the student.

2. Sex: Male, female or transgender as reported. Transgender students were later clubbed in the male category for the purpose of analysis

3. Course pursued in college: Undergraduate or post-graduate course pursued as reported

4. Medium of instruction during schooling: English or Vernacular as reported by the student

5. Current Stay: there were three categories under this variable, residing with parents, residing with relatives & staying in hostel/PG rent. At the time of analysis these were combined to two categories, stay with parents & stay without parents.

6. Type of family: Joint family or nuclear family as reported by the student

7. Marital status of parents: as reported by the student. The categories included married, separated, divorced, and widowed. These at the time of analysis were merged into two categories i.e. either married or divorced/separated/widowed.

8. Sibling Status: It included no sibling, one, two, three or more than three as reported by the student. These at the time of analysis were grouped as no sibling, one or more than one sibling.

9. Sibling position: As reported by the student. The categories included, single child, oldest, youngest and middle child.

10. Years of internet use: The categories the student selected from included: 1-5 years, 6-10 years and 11-15 years which was at the time of analysis merged to two, less than 6 years of internet use and greater than and equal to six years of internet use.

11. Hours of internet use: The categories included 0-2 hours, 2-4 hours, 4-6 hours and greater than 6 hours as reported by the student. These were then merged to two categories: less than equal to 4 hours of internet use daily and more than 4 hours of internet use daily.

12. Number of accounts on social networking sites: The student selected all the social media accounts they had an account from the options Whatsapp, Facebook, Instagram, Twitter, Snapchat, Tik-Tok, You Tube, Reddit and others. These were then categorized to a binary variable at the time of analysis: Less than or equal to 4 social media accounts and more than 4 social media accounts.

Variables 10, 11, 12 combined together assessed the online behavior of the student.

3.10 Operational Definition:-

Social Networking Site: A social networking site is an online platform that allows users to create a public profile and interact with other users on the website/through a mobile application.

The operational definition of cyberbully victimization that is used for the purpose of the study is based on the various forms of cyberbullying. There are certain over laps in the forms of

cyberbullying that has been discussed in the literature (Calvete et al., 2010; Kowalski et al., 2014) eg:

Flaming is sending angry, rude, vulgar messages about a person to an online group or on social media websites.

Online harassment is repeatedly sending offensive messages via social media websites.

Denigration is sending harmful, untrue, or cruel statements about a person to other people or posting such material online.

Cyber stalking is sending threatening or excessively intimidating messages.

There thus seems to be an overlap between these forms as the essence of all the three forms is the same – offensive messaging. Hence, for the purpose of this study these four forms are clubbed to "Cyber Harassment".

Cyberbullying in this study is a derived variable defined as an event that had occurred in the past 6 months at the time of data collection, which could be any one of the four forms:

1) Cyber harassment: defined as receiving an angry, rude, vulgar, offensive, harmful, untrue, cruel, threatening or excessively intimidating messages, on a social networking site

2) Masquerading: a person pretending to be someone else has sent or posted material about the student in bad light on a social networking site

3) Outing: posting/uploading sensitive, private, or embarrassing information, about the student on a social networking site without consent

4) Exclusion: cruelly being excluded from an online group on a social networking site (Kowalski et al., 2014; Li, 2010).

3.11 Data Collection:-

Data was collected from 1st January, 2020 to 3rd March, 2020.

3.12 Data Analysis:-

Data was entered in Microsoft Excel 2013 (v 15.0). Data was cleaned and analysed using SPSS version 25.

3.13 Framework for Analysis:-

Descriptive statistics was performed to understand the basic characteristics of the sample, to assess the prevalence of cyberbullying and its forms and the prevalence of low self-esteem. To understand the distribution of these outcome variables across different categories.

Univariate analysis was conducted to estimate the prevalence of cyberbullying and low self-esteem across socio-demographic factors, gender and patterns of internet use & social media use.

In Bivariate analysis chi-square tests was performed to identify if there are significant associations between the outcome and the predictor variable. Binary logistic regression was conducted to determine the odds ratio.

Multivariate analysis to understand how much of the difference in the outcome variable can be explained by the predictor variables. To identify factors significantly associated with low self-esteem adjusted to other variables.

3.14 Ethical considerations:-

There were no direct benefits from the study to the students, but the information provided by them would be helpful for making improvements in mental health programmes for emerging adults. Information sheet and consent forms were distributed first to the students prior to administering the questionnaire. The students had the freedom to refuse participation at the

outset or during any stage of the data collection. Confidentiality of the student will be safeguarded during and after the study. All the copies of filled questionnaires and consent forms will be kept under the custody of the principal investigator. All of these copies would be destroyed upon completion of five years from the date of acceptance of the thesis in keeping with the regulatory requirements. The Institutional Ethics Committee of Sree Chitra Tirunal Institute for Medical Sciences and Technology, Thiruvananthapuram, Kerala reviewed the study and provided clearance to conduct the study.

The IEC clearance certificate is attached (ref- Annexure IV)

Chapter 4

Results

The results of the data analysis undertaken to meet the objectives of the study have been presented in this chapter. A total of 800 students from ten randomly selected colleges were approached to be a part of the study. Out of these, 652 students (81.5 percent) were enrolled as they satisfied the inclusion criteria, consented to be a part of the study, and submitted completely filled questionnaires. Therefore, the non-response rate in the study was 18.5 percent as opposed to the anticipated rate of 30 percent.

4.1 Socio-Demographic Characteristics:

Out of the 652 students who responded to the study, 37.7 percent (n = 246) were males, more than half of the respondents were females, 62.0 percent (n = 404) and 0.3 percent were transgender (n = 2). The mean age of the sample was 20.76 years (SD 1.37) with a 95 percent C.I of 20.65–20.86 years. More than three quarter of the students were pursuing undergraduate courses, 82.2 percent (n = 536) while 17.8 percent were pursuing a post graduate course (n = 116). Table 4.1 describes the socio-demographic characteristics of the students enrolled in the study.

Table 4.1 Socio-demographic Characteristics of Students Enrolled in the Study

Variable	Frequency (%), N = 652
Gender	
Male	246 (37.7)
Female	404 (62.0)
Transgender	2 (0.3)
Age	
Mean Age in years (SD)	20.76 (1.37)
95% C.I	20.65-20.86 years
Course	
UG	536 (82.2)
PG	116 (17.8)
Current Residence	
Reside with Parents	578 (88.6)
Reside with Relatives	17 (2.6)
Stay in Hostel/PG/Rent	57 (8.7)
Medium of Instruction in School	
English	520 (79.8)
Vernacular	132 (20.2)
Type of Family	
Joint Family	172 (26.3)
Nuclear Family	480 (73.6)
Marital Status of Parents	
Married	604 (92.6)
Divorced, Separated, Widowed/Single Parent	48 (7.4)
Siblings	
No Sibling	93 (14.3)
One	299 (46.0)
More than one sibling	260 (39.9)
Siblings-Position	
Oldest	196 (30.1)
Middle One	99 (15.2)
Youngest	264 (40.5)
Single child	93 (14.3)

4.2 Patterns of Internet Use:

On an average more than half of the students in the sample have been using the internet for more than six years, 52.5 percent (n = 342). The daily internet use of the respondents was greater than four hours for 53.5 percent (n = 349) of the students. Most of the students preferred using mobile phones for their internet activities like chatting, playing games, viewing adult content and college work as compared to other devices like laptop, desktop or tablet. For other activities like listening to music, surfing the internet, news, watching movies/videos etc. also, mobile phones were the preferred gadget. Detailed description of patterns of internet use is given in the table below.

Table 4.2: Patterns of Internet Use

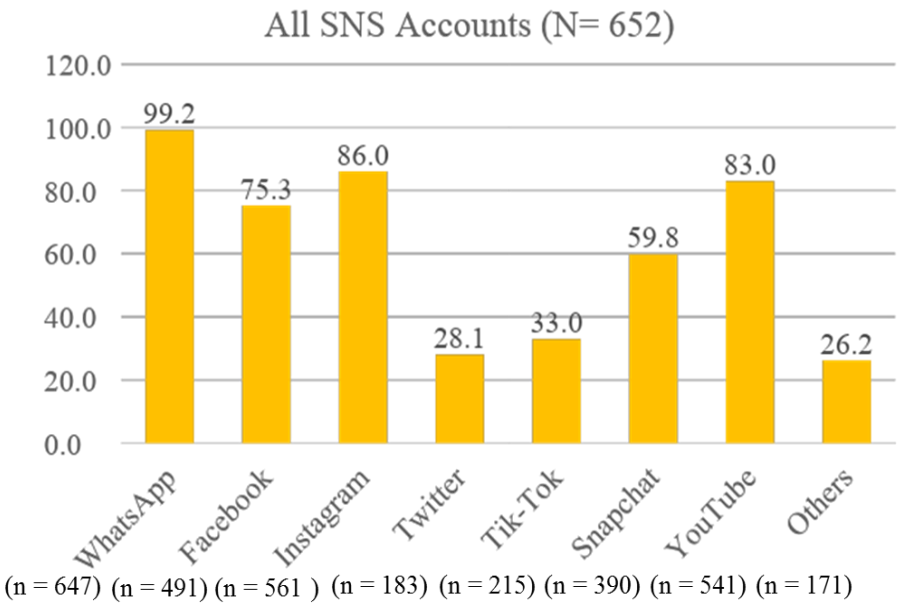
Patterns of Internet Use	**N = 652, n**
Years of Internet Use	
< 6 years	310 (47.5)
≥ 6 years	342 (52.5)
Daily Internet Use	
≤ 4 hours	303 (46.4)
> 4 hours	349 (53.5)
Device used for Chatting*	
Mobile	648 (99.4)
Other Devices	132 (20.2)
Devices used for Playing Games*	
Mobile	507 (77.8)
Other Devices	235 (36.0)
Devices used for Viewing Adult Content*	
Mobile	310 (47.5)
Other Devices	129 (19.8)
Devices used for College Work*	
Mobile	512 (78.5)
Other Devices	236 (36.2)
Devices used for Other Activities*	
Mobile	83 (12.7)
Other Devices	54 (8.3)

*Multiple response question; the total in categories does not add up to 100 percent.

4.3 Activity on Social Networking Sites:

Majority of the students had accounts on more than four social networking sites 62.3 percent (n = 406). The most used social networking site was Whatsapp as mostly all of the students had an account on it (647/652). This was followed by Instagram and You Tube, with more than 80 percent students having an account on these SNS. The details of the students and their accounts on various social networking sites are given in the figure below.

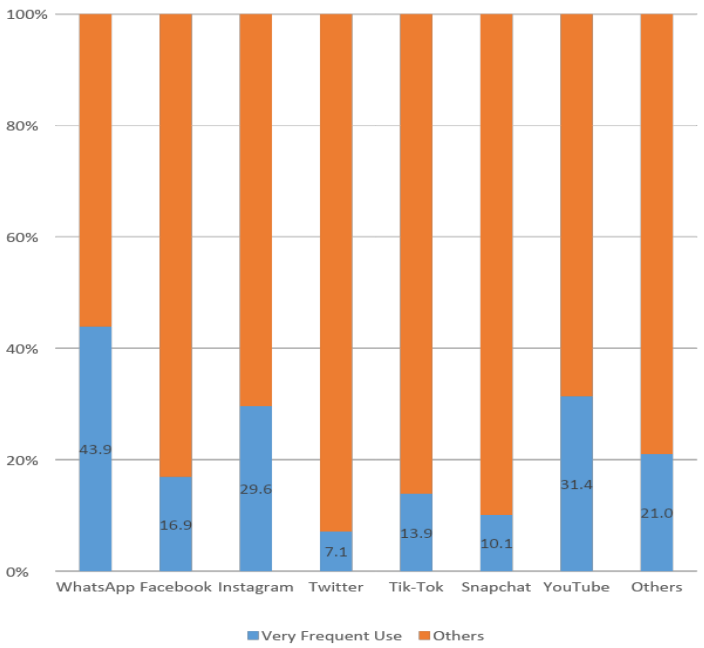
Figure 4.1 SNS Accounts of Students



Out of the participants who reported having an account on any of these sites, the percentage of people who used it frequently have been given in graph below. Very frequent use was defined as use of the social networking site for more than 6 hours a day.

WhatsApp was the most frequently used account with 44 percent of the participants agreeing to use it for more than 6 hours a day, this was followed by You Tube (31.4 percent) and Instagram (30 percent).

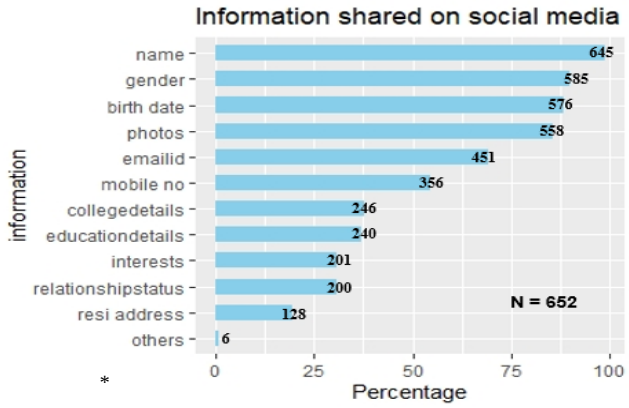
Figure 4.2: Frequency of Use of Accounts on SNS



4.4 Information on SNS Accounts:-

Most of the students had provided their name (98.9 percent), gender (89.7 percent), and birth date (88.3 percent) on their SNS accounts. Over 50 percent had provided their email id (69.2 percent) & mobile numbers (54.6 percent). The complete details of the information provided by students on their SNS accounts is given in the figure below.

Figure 4.3: Information Provided on SNS Accounts



*Others: location (n = 3), bio on self (n = 1), friend lists (n = 1) & current mood (n = 1)

4.5 Prevalence of Cyberbullying and Different Forms of Cyberbullying

Cyberbullying was a derived variable. If a student had been subjected to any one form of cyberbullying i.e. cyber harassment, masquerading, outing or exclusion then the student would be considered as a "victim of cyberbully" or cyberbullied. The prevalence of cyberbullying in the sample was 33.4 percent (218/652). The mean age of the students subjected to cyberbullying was 20.82 years (SD 1.42). The details of the prevalence of other forms of cyberbullying is given in the table below.

Table 4.3 Prevalence of Cyberbullying and Various Forms

	n	Prevalence (N=652)	95% C.I
Cyberbullied	218	33.4 %	29.9 - 37.2
Cyber Harassment	123	18.9 %	16.0 - 22.0
Masquerading	117	17.9 %	15.1 - 21.0
Outing	68	10.4 %	8.3-13.0
Exclusion	64	9.8 %	7.7-12.3

4.6 Cyberbullying across Various Socio-demographic Characteristics

When cyberbullying was analysed across the different socio-demographic factors, it is noted that a higher proportion of students whose parents were divorced/separated or widowed were cyberbullied, as compared to the students whose parents were in an intact marriage. This difference was statistically significant ($p < 0.01$). The odds of being cyberbullied were almost 3 times higher in the former group, as compared to the latter. The table below denotes the proportion of students' cyberbullied across different socio-demographic factors.

Table 4.4 Cyberbullying across Different Socio-demographic Characteristics

Variable	Cyberbullied, n (%) (n = 218)	Not Cyberbullied, n (%) (n = 434)	OR (95% C.I)	Total N = 652
Course				
UG	182 (34.0)	354 (66.0)	0.87 (0.56-1.34)	536
PG	36 (31.0)	80 (69.0)		116
	Chi-Square = 0.366, df, 1, P value = 0.58			
Current Residence				
Without Parents	27 (36.5)	47 (63.5)	0.85 (0.51-1.42)	74
With Parents	191 (33.0)	387 (67.0)		578
	Chi-Square = 0.349, df, 1, P value = 0.60			
Medium of Instruction in School				
English	172 (33.1)	348 (66.9)	1.08 (0.72-1.61)	520
Vernacular	46 (34.8)	86 (65.2)		132
	Chi-Square = 0.148, df, 1, P value = 0.75			
Type of Family				
Nuclear Family	157 (32.7)	623 (67.3)	1.13 (0.78-1.63)	480
Joint Family	61 (35.5)	111 (64.5)		172
	Chi-Square = 0.432, df, 1, P value = 0.572			
Marital Status of Parents				
Married	**191 (31.6)**	413 (68.4)	**2.78 (1.53-5.04)**	604
Divorced, Separated, Widowed/Single Parent	**27 (56.3)**	21 (43.8)		48
	***Chi-Square = 12.118, df, 1, P value =* 0.001**			

Variable	Cyberbullied, n (%) (n = 218)	Not Cyberbullied, n (%) (n = 434)	OR (95% C.I)	Total N = 652
Siblings				
No Sibling	34 (36.6)	59 (63.4)	NA*	93
One	92 (30.8)	207 (69.2)		299
More than one sibling	92 (35.4)	168 (64.6)		260
	Chi-Square = 1.807, df, 2, P value = 0.41			
Siblings-Position**,				
Oldest	70 (35.7)	126 (64.3)	NA*	196
Middle One	36 (36.4)	63 (63.6)		99
Youngest	78 (29.5)	186 (70.5)		264
	Chi-Square = 2.586, df, 2, P value = 0.27			

*NA: Not Applicable; **N=559, only people with siblings are considered in this category

4.7 Cyberbullying and Patterns of Internet & SNS Use

The proportion of students were cyberbullied across the various categories were more or less similar. Details of which are given in the table below.

Table 4.5 Cyberbullying and Patterns of Internet & SNS Use

Variable	CB n (%) (n = 218)	Not CB n (%) (n = 434)	OR (95% C.I)	Total N = 652
Years of Internet Use				
< 6 years	95 (30.6)	215 (69.4)	1.27 (0.91-1.76)	310
≥ 6 years	123 (36.0)	219 (64.0)		342
	Chi-Square = 2.068, df, 1, P value = 0.15			
Daily Internet Use				
≤ 4 hours	102 (33.7)	201 (66.3)	0.98 (0.70-1.35)	303
> 4 hours	116 (33.2)	233 (66.8)		349
	Chi-Square = 0.013, df, 1, P value = 0.93			
SNS Accounts				
≤ 4 SNS accounts	78 (31.7)	168 (68.3)	0.88 (0.62-1.23)	246
> 4 SNS accounts	140 (34.5)	266 (65.5)		406
	Chi-Square = 0.530, df, 1, P value = 0.49			

4.8 Cyberbullying and its' forms across Different Genders*

The mean age of the males who were cyberbullied was 21.11 years (SD 1.35) while that of the females who were cyberbullied was 20.65 years (SD 1.44). The proportion of males and females subjected to any form of cyberbullying were more or less similar. Even if there were differences in some groups, eg, males who have been subjected to cyber harassment (15.7 percent) vs. the females (20.8 percent), these differences were not statistically significant. The details of the male and female prevalence of cyberbullying and its forms have been given in the table below.

*for the ease of analysis the transgender student who had been cyberbullied (n = 1) is combined in the male category

Table 4.6: Prevalence of Cyberbullying and its' forms across Different Genders

	Male n (%) (n = 248)	**Female n(%) (n=404)**	**OR (95% C.I)**
Cyberbullying	80 (32.2)	138 (34.2)	1.08 (0.77-1.52)
Chi-Square = 0.109, df, 1, P value = 0.66			
Forms of Cyberbullying			
Cyber Harassment	39 (15.7)	84 (20.8)	1.40 (0.92-2.13)
Chi-Square = 2.577, df, 1, P value = 0.12			
Masquerading	51 (20.6)	66 (16.3)	0.75 (0.50-1.13)
Chi-Square = 1.865, df, 1, P value = 0.20			
Outing	24 (9.7)	44 (10.8)	1.14 (0.67-1.92)
Chi-Square = 0.242, df, 1, P value = 0.69			
Exclusion	31 (12.7)	33 (8.2)	0.62 (0.37-1.04)
Chi-Square = 3.257, df, 1, P value = 0.07			

4.9 Nature, Extent, Victim-Offender Relationship & Reporting Behavior of Students Subjected to Different forms of Cyberbully Victimization

This section analyses the characteristics of cyberbully victimization. The characteristics include, the frequency of the cyberbullying event, the victim-offender relationship and the reporting behavior of the victims across various forms.

4.9.1 Cyber Harassment:

Overall, 123 students in the sample were subjected to cyber harassment out of 652 (18.9 percent). Around 1 in 5 students in the sample were subjected to cyber harassment. A higher proportion of female students were subjected to cyber harassment i.e. around one in five (84/404), refer table 4.5. The proportion of males who were subjected to cyber harassment greater than four times in the last six months was higher as compared to the females (20.5 percent vs. 15.5 percent). This difference was not statistically significant.

Out of the 84 females who were cyber harassed, more than two third were bullied by an unknown perpetrator, 67.9 percent (n = 57) while out of the 39 males, more than half were bullied by an unknown perpetrator, 59 percent (n = 23). The reporting behavior in males and females who were subjected to cyber harassment were almost similar. Detailed description is given in the table below.

Table 4.7: Details of Students Subjected to Cyber Harassment

Frequency of Cyber Harassment (n =123)				
Gender	> 4 times in 6 months	<= 4 times in 6 months	Total	OR (95% CI)
Male, n (%)	8 (20.5)	31 (79.5)	39 (100)	1.40 (0.53-1.88)
Female, n (%)	13 (15.5)	71 (84.5)	84 (100)	
Aware of the Bully (n =123)				
	Unknown	Known	Total	OR (95% CI)
Male, n (%)	23 (59.0)	16 (41.0)	39 (100)	0.68 (0.31-1.49)
Female, n (%)	57 (67.9)	27 (32.1)	84 (100)	
Bully Report (n =123)				
	No	Yes	Total	OR (95% CI)
Male, n (%)	20 (51.3)	19 (48.7)	39 (100)	0.87 (0.40-1.86)
Female, n (%)	46 (54.8)	38 (45.2)	84 (100)	

4.9.2 Masquerading

The prevalence of masquerading was 17.9 percent (n =117) in the sample with a higher proportion of males being subjected to masquerading (51/248), refer table 4.5. The proportion of males who were subjected to masquerading greater than four times in the last six months was higher as compared to females (15.7 percent vs. 6.1 percent). However, this difference was not statistically significant. Over three quarter of both male and female students were unaware of the bully who masqueraded them. Detailed description given in the table below.

Table 4.8: Details of Students Subjected to Masquerading

Frequency of Masquerading (n =117)				
Gender	> 4 times in 6 months	<= 4 times in 6 months	Total	OR (95% CI)
Male, n (%)	8 (15.7)	43 (84.3)	51 (100)	2.88 (0.81-10.18)
Female, n (%)	4 (6.1)	62 (93.9)	66 (100)	
Aware of the Bully (n =117)				
	Unknown	Known	Total	OR (95% CI)
Male, n (%)	39 (76.5)	12 (23.5)	51 (100)	1.12 (0.48-2.63)
Female, n (%)	49 (74.2)	17 (25.8)	66 (100)	
Bully Report (n =117)				
	No	Yes	Total	OR (95% CI)
Male, n (%)	27 (52.9)	24 (47.1)	51 (100)	1.96 (0.93-4.14)
Female, n (%)	24 (36.4)	42 (63.6)	66 (100)	

4.9.3 Outing

Out of the 652 students, 68 (10.4 percent) were subjected to outing wherein their private messages/information/photos were leaked on to a SNS. A slightly higher proportion of females were subjected to outing as compared to males (10.8 percent vs. 9.7 percent), refer table 4.5. All the males and over 75 percent of the females who were outed, were subjected to it less than four times in the last 6 months, (100 percent vs. 79.5 percent). Further details given in the table below.

Table 4.9: Details of Students Subjected to Outing

Frequency of Outing (n = 68)				
Gender	> 4 times in 6 months	<= 4 times in 6 months	Total	OR (95% CI)
Male, n (%)	0	24 (100)	24 (100)	NA
Female, n (%)	9 (20.5)	35 (79.5)	44 (100)	
Aware of the Bully (n = 68)				
	Unknown	Known	Total	OR (95% CI)
Male, n (%)	7 (29.2)	17 (70.8)	24 (100)	1.23 (0.40-3.76)
Female, n (%)	11 (25.0)	33 (75.0)	44 (100)	
Bully Report (n = 68)				
	No	Yes	Total	OR (95% CI)
Male, n (%)	7 (29.2)	17 (70.8)	24 (100)	0.72 (0.24-2.10)
Female, n (%)	16 (36.4)	28 (63.6)	44 (100)	

4.9.4 Exclusion:

Out of the 652, 64 students have been subjected to exclusion with a higher proportion of males being excluded cruelly from groups on SNS than females (12.7 percent vs. 8.2 percent), refer table 4.5. The odds of being cruelly excluded from an online SNS group by an unknown perpetrator was over four times higher in males as compared to females. The OR was statistically significant. Further details are provided in the table below.

Table 4.10: Details of Students Subjected to Exclusion

Frequency of Exclusion (n = 64)				
Gender	> 4 times in 6 months	<= 4 times in 6 months	Total	OR (95% CI)
Male, n (%)	3 (9.7)	28 (90.3)	31 (100)	1.07 (0.19-5.75)
Female, n (%)	3 (9.1)	30 (90.9)	33 (100)	
Aware of the Bully (n = 64)				
	Unknown	Known	Total	OR (95% CI)
Male, n (%)	11 (35.5)	20 (64.5)	31 (100)	**3.98 (1.11-14.31)**
Female, n (%)	4 (12.1)	29 (87.9)	33 (100)	
Bully Report (n = 64)				
	No	Yes	Total	OR (95% CI)
Male, n (%)	19 (61.3)	12 (38.7)	31 (100)	1.02 (0.37-2.81)
Female, n (%)	20 (60.6)	13 (39.4)	33 (100)	

4.10 Immediate Impact of Cyberbully victimization:

4.10.1 Psychological Impact:

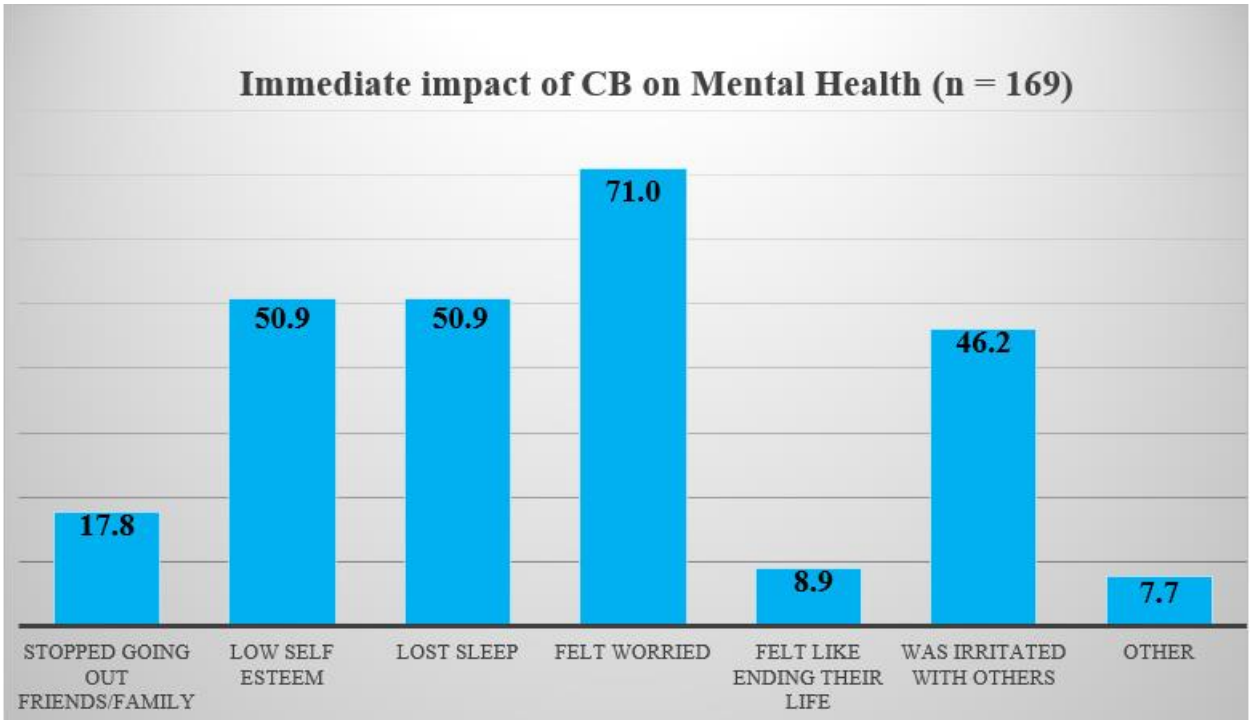
Over 77.5 percent (169/218) i.e. more than three quarter of the students who had been subjected to cyberbullying reported a negative impact on their mental health. This data when stratified to males and females there does not seem to be a significant difference between the two groups.

Table 4.11: Immediate Impact of Victimization on Mental Health

	Immediate Impact of Victimization on Mental Health		**OR (95% C.I)**
Gender	**Yes**	**No**	
Male	63 (78.8)	17 (21.3)	0.89 (0.45-1.73)
Female	106 (76.8)	32 (23.2)	
	Chi-Square = 0.109, df,1, P value, 0.86		

Most of the students reported that they felt worried after the victimization, 71 percent (120/169) while 50 percent felt that the incident negatively impacted their self-esteem (86/169) and they lost sleep (86/169). The graph below enlists all the negative effects on mental health that the students reported.

Figure 4.4: Immediate Impact of Cyberbullying on Mental Health



4.10.2 Impact on SNS use:

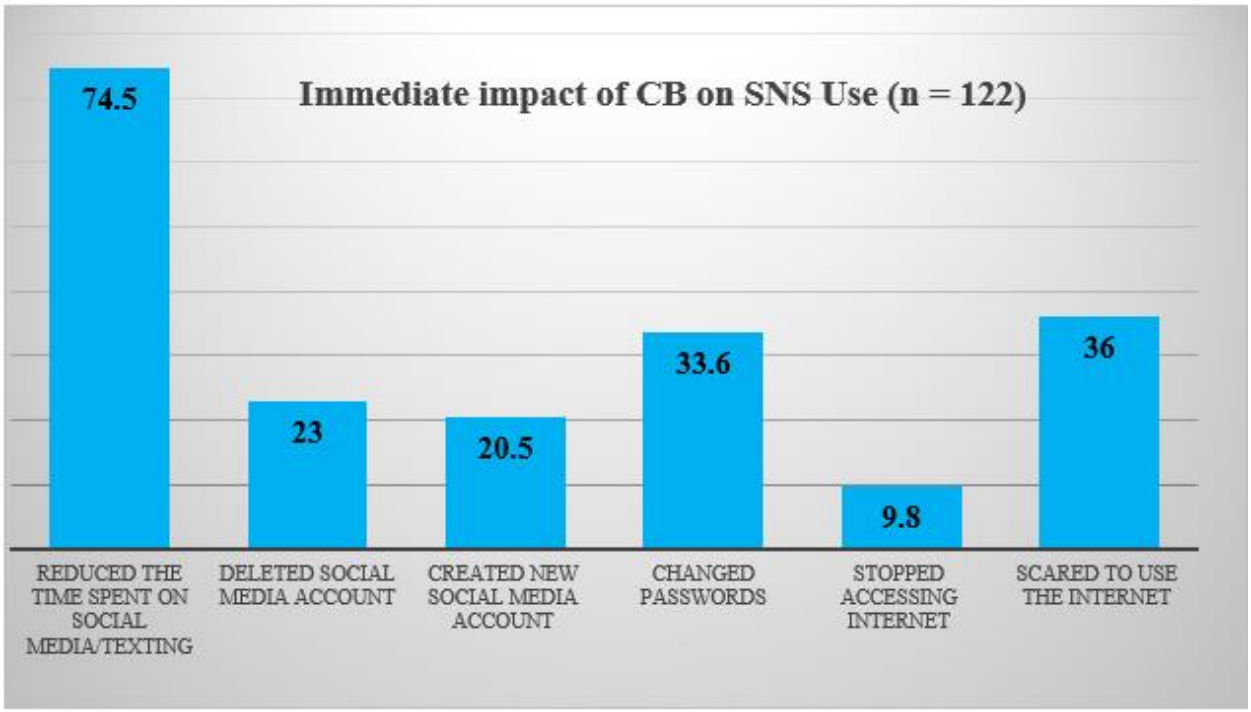
More than half of the students who had been cyberbullied reported that the incident(s) affected their SNS use (122/218). Over 60 percent females (82/138) reported that being subjected to cyberbullying affected their activity on SNSs. There wasn't a significant difference in the male and female proportions who reported a negative impact in their social media usage.

Table 4.12: Immediate Impact of Victimization on SNS Use

	Immediate Impact of Victimization on SNS Use		OR (95% C.I)
Gender	**Yes**	**No**	
Male	40 (50)	40 (50)	1.46 (0.84-2.55)
Female	82 (59.4)	56 (40.6)	
	Chi-Square =1.824, df,1, P value 0.2		

Seventy five percent of the students who reported a negative impact on their SNS use reported that they had reduced their time spent on SNS. Over a quarter of the students changed their passwords and were scared to use the internet.

Figure 4.5: Immediate Impact of Cyberbullying on SNS Use



4.10.3 Academic Impact:

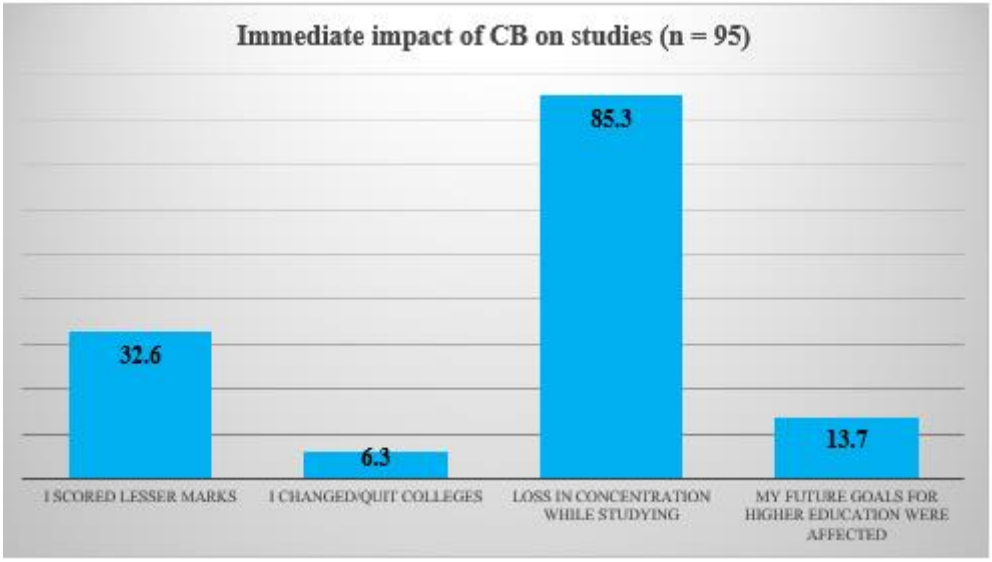
Around 45 percent of the students who had been cyberbullied reported that the incident(s) affected their studies (95/218). There wasn't a significant difference in the male and female proportions who reported a negative impact in academics.

Table 4.13: Immediate Impact of Victimization on Academics

	Immediate Impact of Victimization on Academics		OR (95% C.I)
Gender	**Yes**	**No**	
Male	36 (45.0)	44 (55.0)	0.91 (0.52-1.59)
Female	59 (42.8)	79 (57.2)	
	Chi-Square =0.104, df,1, P value 0.7		

Loss in concentration while studying was the most reported negative impact on academics by the students who have been cyberbullied. Other impacts on academics have been described on the graph below.

Figure 4.6: Immediate Impact of Cyberbullying on Academics



4.11 Self-Esteem

Self-esteem was measured using the Rosenberg self-esteem scale. The scale ranges from 0-30 (30-highest); Low self- esteem = 0-14, High self-esteem = 15-30. The higher the score, the higher the self-esteem. Self-Esteem was assessed in all the students who enrolled in the study (N =652). The mean score for self-esteem in the sample is 18.96 (SD, 4.48).

Figure 4.7: Distribution of Self-Esteem Score in the Sample

The table provides the prevalence of the self-esteem levels of the students in the sample. It can be inferred that approximately one in five students have low self-esteem in the sample.

Table 4.14 Prevalence of Low & High Self-Esteem in the Sample

Self-Esteem	Total, n	N = 652, Prevalence (n/N)	95 % CI
High	543	83.3 %	80.2-85.9
Low	109	16.7 %	14.0-19.7

4.12 Self Esteem Across Different Socio-Demographic Characteristics

When self-esteem was analysed across the different socio-demographic factors, it is noted that a higher proportion of students whose parents were divorced/separated or widowed had low self-esteem levels, as compared to the students whose parents were in an intact marriage. This difference was statistically significant ($p < 0.05$). Intact marriage of the parents was a protective factor for developing low self-esteem levels, with 55 percent lesser odds of developing low self-esteem in students whose parents were in an intact marriage as compared to students whose parents were divorced/separated or widowed. The table below denotes the proportion of students' having low & high self-esteem levels across different socio-demographic factors.

Table 4.15: Self-Esteem and Socio-demographic Characteristics

Variable	Low SE, n (%) (n = 109)	High SE, n (%) (n = 543)	OR (95% C.I)	Total N = 652
Course				
UG	91 (17.0)	445 (83.0)	1.11 (0.64-1.93)	536
PG	18 (15.5)	98 (84.5)		116
	Chi-Square =0.146 , df, 1, P value =0.78			
Current Residence				
Without Parents	15 (20.3)	59 (79.7)	1.30 (0.71-2.40)	74
With Parents	94 (16.3)	484 (83.7)		578
	Chi-Square =0.757 , df, 1, P value =0.40			
Medium of Instruction in School				
English	89 (17.1)	431 (82.9)	1.15 (0.68-1.96)	520
Vernacular	20 (15.2)	112 (84.8)		132
	Chi-Square =0.292 , df, 1, P value =0.60			
Type of Family				
Nuclear Family	81 (16.9)	399 (83.1)	1.04 (0.65-1.67)	480
Joint Family	28 (16.3)	144 (83.7)		172
	Chi-Square =0.032 , df, 1, P value =0.90			
Marital Status of Parents				
Married	**95 (15.7)**	509 (84.3)	**0.45 (0.23-0.87)**	604
Divorced, Separated, Widowed/Single Parent	**14 (29.2)**	34 (70.8)		48
	Chi-Square =5.767 , df, 1, P value =0.025			

Variable	Low SE, n (%) (n = 109)	High SE, n (%) (n = 543)	OR (95% C.I)	Total N = 652
Siblings				
No Sibling	14 (15.1)	79 (84.9)	NA	93
One	54 (18.1)	245 (81.9)		299
More than one sibling	41 (15.8)	219 (84.2)		260
	Chi-Square =0.740 , df, 2, P value =0.68			
Siblings-Position*,				
Oldest	32 (16.3)	164 (83.7)	NA	196
Middle One	13 (13.1)	86 (86.9)		99
Youngest	50 (18.9)	214 (81.1)		264
	Chi-Square =1.817 , df, 2, P value =0.41			

*N=559, only people with siblings are considered in this category. NA = not applicable; SE = self-esteem

4.13 Self-Esteem and Patterns of Internet & Social Media Use

Self-esteem was analysed with patterns of internet and social media use of the students. A higher proportion of students who used the internet for greater than 4 hours per day were found to have low self-esteem levels as compared to those who used them for less than 4 hours per day. This difference was statistically significant (p = 0.002). The odds of developing low self-esteem was 49 percent lower in students who used the internet for 4 or less than 4 hours per day as compared to those who used it for more than 4 hours.

Table 4.16: Self-Esteem and Patterns of Internet & Social Media Use

Variable	Low SE, n (%) (n = 109)	High SE, n (%) (n = 543)	OR (95% C.I)	Total N = 652
Years of Internet Use				
< 6 years	47 (15.2)	263 (84.8)	0.80 (0.53-1.22)	310
≥ 6 years	62 (18.1)	280 (81.9)		342
	Chi-Square =1.028 , df, 1, P value = 0.34			
Daily Internet Use				
≤ 4 hours	**36 (11.9)**	267 (88.1)	**0.51 (0.33-0.78)**	303
> 4 hours	**73 (20.9)**	276 (79.1)		349
	Chi-Square = 9.511 , df, 1, P value = 0.002			
SNS Accounts				
≤ 4 SNS accounts	68 (16.7)	338 (83.3)	1.00 (0.65-1.53)	246
> 4 SNS accounts	41 (16.7)	205 (83.3)		406
	Chi-Square = 0.001, df, 1, P value = 1.00			

4.14 Self-Esteem Levels Across Different Genders*

The mean age of the males who had low self-esteem was 20.82 years (SD 1.27) while that of females who had low self-esteem was 20.58 years (SD 1.48). The mean age of the males who had high self-esteem was 20.97 years (SD 1.28) while that of the females who had high self-esteem was 20.65 years (SD 1.39).

Out of the 248 males in the sample, 39 i.e. 15.7 percent had low self-esteem while from the 404 female students in the sample, 70 i.e. 17.3 percent had low self-esteem. The differences in the proportions were not statistically significant. Details are given in the table below.

*for the ease of analysis the transgender students who were part of the study (n = 2) are combined in the male category

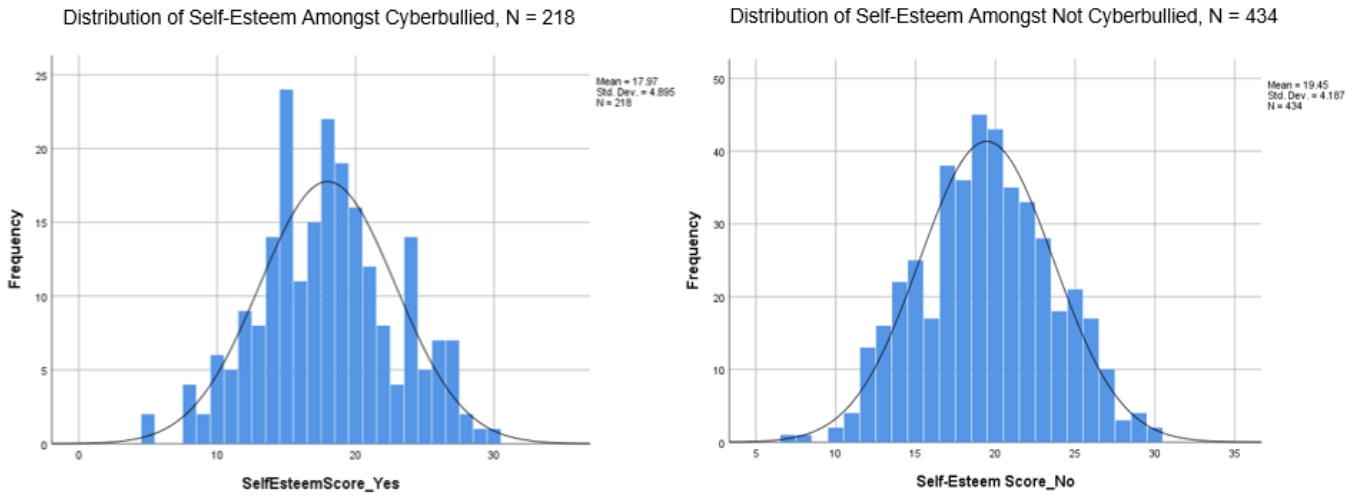
Table 4.17: Self-Esteem across Gender

Gender	**Low SE, n (%) (n = 109)**	**High SE, n (%) (n = 543)**	**OR (95% C.I)**
Male	39 (15.7)	209 (84.3)	0.89 (0.58-1.36)
Female	70 (17.3)	334 (82.7)	
	Chi-Square =0.283 , df, 1, P value =0.66		

4.15 Self-Esteem and Cyberbullying

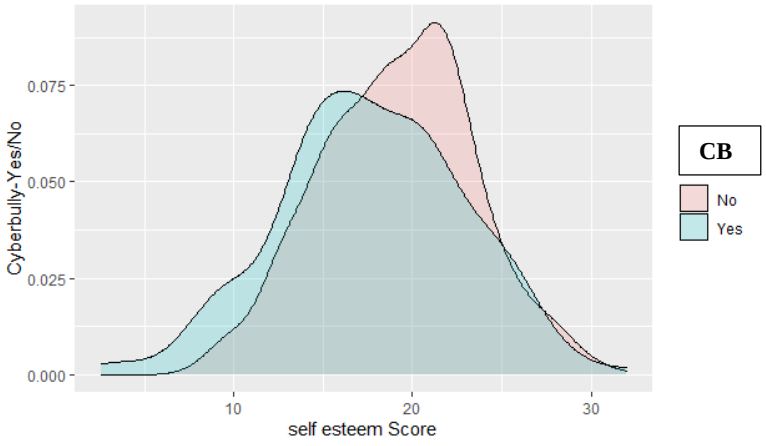
The mean score for self-esteem amongst the students subjected to cyberbullying was 17.97 (SD, 4.89) while amongst those who were not it was 19.45 (SD, 4.18). The figure below depicts the distribution of the score in these two groups.

Figure 4.8: Distribution of Self-Esteem Score amongst the Cyberbullied and Not Cyberbullied Students



When the self-esteem scores are compared among the students who have been subjected to cyberbullying and those who have not, it is noted that a higher proportion of students who have been cyberbullied have low self-esteem levels. The density curve in the graph below gives more clarity on this.

Figure 4.9: Density Curve for Cyberbullied & Not Cyberbullied and Self-Esteem



The difference in proportions of low self-esteem levels in the groups that have been subjected to cyberbullying and those who have not are statistically significant (p = 0.002). The odds of having low self-esteem was 48 percent lower in those who had not been subjected to cyberbullying as compared to those who had been cyberbullied. A statistically significant difference was also observed in the proportion of students who had low self-esteem levels in the cyber harassed and exclusion groups. Details of self-esteem across different forms of cyberbullying is given in the table below.

Table 4.18: Self-Esteem and its' Association with Cyberbully and its' forms

Cyberbully and its' forms	**Self Esteem**			
Cyberbully	**Low n (%)**	**High n (%)**	**Total**	OR (95% CI)
Ref Category: Yes	**50 (22.9)**	168 (77.1)	218	**0.52 (0.34-0.80)**
No	**59 (13.6)**	375 (86.4)	434	
	Chi-Square =9.095 , df, 1, P value =0.002			
Cyber Harassment				
Ref Category: Yes	**34 (27.6)**	89 (72.4)	123	**0.43 (0.27-0.68)**
No	**75 (14.2)**	454 (85.8)	529	
	Chi-Square =12.995 , df, 1, P value =0.001			
Masquerading				
Ref Category: Yes	25 (21.4)	92 (78.6)	117	0.68 (0.41-1.13)
No	84 (15.7)	451 (84.3)	535	
	Chi-Square =2.214 , df, 1, P value =0.17			
Outing				
Ref Category: Yes	17 (25.0)	51 (75.0)	68	0.56 (0.31-1.01)
No	92 (15.8)	492 (84.2)	584	
	Chi-Square =3.740 , df, 1, P value =0.060			
Exclusion				
Ref Category: Yes	**20 (31.3)**	44 (68.8)	64	**0.39 (0.22-0.69)**
No	**89 (15.1)**	499 (84.9)	588	
	Chi-Square =10.764 , df, 1, P value =0.002			

4.16 Gender of the cyberbully Victims and Its Association with Self-Esteem

There was no significant difference in the proportion of males and females who were subjected to cyberbullying or any of its forms with low self-esteem levels. The details are given in the table below.

Table 4.19: Gender of the Cyberbully Victim and Its Association with Self-Esteem

	Self-Esteem			
Cyberbully	**Low n (%)**	**High n (%)**	**Total**	**OR (95% CI)**
Male	17 (21.3)	63 (78.8)	80	0.85 (0.44-1.66)
Female	33 (23.9)	105 (76.1)	138	
	Chi-Square =0.203 , df, 1, P value =0.73			
Forms of Cyberbullying				
Cyber Harassment				
Male	11 (28.2)	28 (71.8)	39	1.04 (0.44-2.42)
Female	23 (27.4)	61 (72.6)	84	
	Chi-Square =0.009 , df, 1, P value =1.00			
Masquerading				
Male	9 (17.6)	42 (82.4)	51	0.67 (0.26-1.67)
Female	16 (24.2)	50 (75.8)	66	
	Chi-Square =0.745 , df, 1, P value =0.49			
Outing				
Male	5 (20.8)	19 (79.2)	24	0.70 (0.21-2.30)
Female	12 (27.3)	32 (72.7)	44	
	Chi-Square =0.343 , df, 1, P value =0.77			
Exclusion				
Male	8 (25.8)	23 (74.2)	31	0.60 (0.20-1.77)
Female	12 (36.4)	21 (63.6)	33	
	Chi-Square =0.829 , df, 1, P value =0.42			

4.17 Gender, Cyberbully, and Self-Esteem

Out of the 80 males who had been subjected to cyberbullying, 21.3 percent (17/80) had low self-esteem while of those who weren't, 13.1 percent (22/168) had low self-esteem. However, there is not much statistical evidence to say that there is a significant difference between these proportions (p = 0.134). Out of the 138 females who had been subjected to cyberbullying, 23.9 percent (33/138) had low self-esteem while from those who weren't, 13.9 percent (37/266) had low self-esteem. This difference in the proportion was significant (p = 0.013), with not being subjected to cyberbullying being a protective factor to develop low self-esteem. The odds of developing low self-esteem in females who were not subjected to cyberbullying was 49 percent lower as compared to females who had been subjected to cyberbullying. Complete details are given in the table below.

Table 4.20: Gender, Cyberbully, and Self-Esteem and their Association

		Self-Esteem			
Gender	**Cyberbully**	**Low n (%)**	**High n (%)**	**Total**	**OR (95% CI)**
Male	Ref Category: Yes	17 (21.3)	63 (78.8)	80	0.55 (0.27-1.12)
	No	22 (13.1)	146 (86.9)	168	
		Chi-Square =2.719 , df, 1, P value =0.134			
Female	Ref Category: Yes	**33 (23.9)**	105 (76.1)	138	**0.51 (0.30-0.86)**
	No	**37 (13.9)**	229 (86.1)	266	
		Chi-Square = 6.347, df, 1, P value =0.013			

4.18 Multivariate Analysis with Outcome Variable: Self-Esteem

A logistic regression was done to analyse the association of self-esteem with cyberbullying. The outcome variable self –esteem was pitted against independent variables that had a statistically significant association with it in the bivariate analysis, which were, cyberbullying status, marital status of parents & daily internet use. Gender was also considered as an independent variable based on data from previous studies that analysed self-esteem as an outcome variable. The details of these are given in the table below.

Table 4.21: Multivariate Analysis with Outcome Variable: Self-Esteem

Variable	Categories	Crude OR	95% CI	Adjusted OR	95 % CI
Gender	Male vs. Female	0.89	0.58-1.36	0.89	0.58-1.39
Cyberbully Status	Not cyberbullied vs. Cyberbullied	0.52	0.34-0.80	**0.54**	**0.35-0.84**
Marital Status of Parents	Married vs. Divorced	0.45	0.23-0.87	0.56	0.28-1.11
Daily Internet Use	≤ 4 hours use/day vs. > 4 hours use/day	0.51	0.33-0.78	**0.51**	**0.33-0.80**

The log of odds i.e. the adjusted odds ratio in the multivariate analysis suggest that, cyberbullying status as well as daily internet use have a significant association with that of self-esteem when controlled for gender and marital status of parents. The odds of developing low self-esteem is 46 percent lower in those who have not been subjected to cyberbullying as compared to those who have been cyberbullied, when controlled for factors like gender, marital status of parents as well as daily internet use of the student. Not being cyberbullied is thus a protective factor for developing low self-esteem.

4.19 General Perceptions on Cyberbullying

Out of the 652 who answered the question, ‘In your opinion does cyberbullying have psychological impact’ 87.1 percent (568/652) felt it did. Out of these 568, 79.7 percent thought it could cause depression/anxiety (453/568), 68.6 percent (390/568) thought that it impacted their self-esteem while 35.5 percent (202/568) and leads to suicide. Other psychological problems (24/568) the students listed were sleep disturbances, emotional distress, psychological disturbances, self-harm, body image issues, trust issues, inferiority complex, fear, irritation, eating disorders, anger issues & drug addiction problems.

Chapter 5

Discussion

5.1 Summary of results:

This cross-sectional study was conducted among 652 college students aged 18-25, of which 37.7 percent were males (n = 246), 62 percent were females (n = 404), and 0.3 percent were transgender (n = 2) in selected colleges of zone 4 of Suburban Mumbai. The primary objective was to estimate the proportion of cyberbullying victimization on social networking sites (SNS), to analyze the nature and extent of cyberbullying on SNS and to understand the impact of cyberbully victimization on the students' mental health. The secondary objective was to study the association of cyberbullying with various measures of self-esteem. On an average more than half of the students in the sample have been using the internet for more than six years and for more than four hours per day (52.5 percent & 53.5 percent). Most of the students preferred using the mobile phones for their daily internet activities like chatting, playing games, viewing adult content, college work & other activities like watching movies/videos or listening to music. Majority of the students had accounts on more than four SNS (62.3 percent); the most used SNS was Whatsapp followed by Instagram, You Tube and Facebook. The information that most of the students provided on the internet were their name, gender & birth date which are pre-requisites for making an account in most SNS. Some of them had even provided their mobile number, email id, college details & residential address. Cyberbullying was a derived/inferred variable wherein a student who had been subjected to any one form of cyberbullying i.e. cyber harassment, masquerading, outing or exclusion would be considered as a "victim of cyberbully" or cyberbullied. The prevalence of cyberbullying in the sample was 33.4 percent i.e. around one in three students were subjected to any one form of cyberbullying. A significant association was seen between the marital status of parents of the students and being subjected to cyberbullying,

with three times higher odds of being cyberbullied in students whose parents were divorced/separated/widowed or were single parents as compared to students whose parents were in intact marriages.

The most prevalent forms of cyberbullying were cyber harassment and masquerading (18.9 & 17.9 percent) with around one in five students being subjected to these forms. The prevalence of cyberbullying forms such as outing and exclusion was similar (around 10 percent). The proportion of males and females who experienced any of these forms of cyberbullying were almost similar, and hence, no significant association was seen between the genders and the forms of cyberbullying that the students had been subjected to. However, an interesting finding is that a higher percentage of males had been subjected to cyber harassment, masquerading & exclusion (20.5, 15.7 & 9.7) more than four times in the past 6 months as compared to females (15.5, 6.1 & 9.1); though, these differences were not significant. Females had been subjected to outing greater than four times with around one in five females being subjected to it in the past 6 months. The odds of being cruelly excluded from an online SNS group by an unknown perpetrator was over four times higher in males as compared to females. This OR was statistically significant. Cyberbullying had negatively impacted the victimized students' mental health, academic performance and their usage of SNS. Feeling worried, low self-esteem, sleep disturbances, and being irritated with others were the most reported negative impact on mental health. The cyberbullying victimization hampered the students' concentration in studies and also reduced their social media use.

The prevalence of low self-esteem in the sample was 16.7 percent i.e. around one in five students had a low self-esteem level. Marital status of parents and hours of internet use per day were significantly associated with low self-esteem levels. A significant association was seen between being subjected to cyberbullying and low self-esteem levels even after controlling for factors like gender, marital status of parents as well as daily internet use of the student.

Based on these findings, it was noted that “not being cyberbullied” was a protective factor for developing low self-esteem.

5.2 Prevalence of cyberbullying on SNS in college students:

The prevalence of cyberbullying on SNS in college students in the present study was 33.4 percent. These findings seem to be comparable with other studies that were conducted in college settings. Previous studies have found that cyberbullying incidents among college students can range from 9 percent to 34 percent (Baldasare et al., 2012). A study conducted in the northwestern university of U.S. assessed cyberbullying victimization on SNS in 196 college students. The study reported that around 19 percent were cyberbullied on a SNS. However, the study did not define the time frame of the victimization unlike the present study, which assesses the prevalence of cyberbullying in the past 6 months. The sample size of the study (n = 196) was also limited compared to the present study (n = 652) (Gahagan et al., 2016).

The present study showed almost similar rates of cyberbully victimization between males and females (32.2 vs 34.2 percent). A study conducted in the U.S among 439 college students revealed that 22 percent self-reported being victims of cyberbullying; the prevalence rates for males and females were also similar: 21.9 vs 22 percent, respectively which was in line with the present study (MacDonald and Roberts-Pittman, 2010). A study conducted in 9-12 grade students in a school in Dhaka city, Bangladesh, reported a prevalence of 32 percent of cyberbully victimization. However, the sampling frame as compared to the present study is different (schools vs colleges) (Mallik, 2020). A study in India was conducted among undergraduate students of five cosmopolitan cities, Chennai, Kolkata, Mumbai, Delhi & Bangalore, which looked at cyberbullying victimization and patterns; 90 percent of the sample belonged to the 18-25 year old age group. It was reported that 13.9 percent were bullied on SNS like facebook/orkut

(Sivakumar, 2013). However, the study had considered bullying over online chat groups, negative posts or blogs, virtual world as separate categories. The present study however, includes all of these categories as one- cyberbullying over any SNS, and hence the percentage of cyberbullying is higher. Both male students and female students were moderately victimized by cyberbullying (Sivakumar, 2013). This is similar to the findings of the present study.

From these findings it can be inferred that cyberbullying amongst 18-25 year old college students on SNS sites is highly prevalent. There seems to be no difference in the prevalence of cyberbullying in males and females. Both genders are equally vulnerable to being cyberbullied on a SNS.

5.3 Nature and extent of cyberbullying on SNS in college students:

The most prevalent forms of cyberbullying in the present study were cyber harassment and masquerading (18.9 & 17.9 percent). The prevalence of cyberbullying forms such as outing and exclusion was similar (around 10 percent). A study conducted in China that analysed content threads of public forums and chat rooms reported that an overwhelming majority of cyberbullying incidents involved denigration, outing, and flaming. Individuals regularly made comments about the physical appearance, intelligence, or sexual activities of other students. No exclusionary bullying was found in the Chinese study however it was noted that since only public forums were analysed, it was difficult to find instances of cyberbullying through exclusion as it occurs more in private online groups/threads etc. (Su and Holt, 2010). These findings are comparable with the present study, though it should be noted that cyber harassment in the present study was defined by clubbing different forms of cyberbullying like denigration, flaming & cyber stalking due to the great overlap between them and hence the exact percentages for denigration & flaming cannot be compared. A survey conducted in the U.K. in over 500 students belonging to the age group of 12-15 years reported that one in ten had experienced

cyberbullying, with exclusion from online conversations, or spread of rumours being the most common form of cyberbully victimization (Jaishankar and Shariff, 2009).

Similar results were also reported in the study conducted in cosmopolitan cities of India; cyberbullying forms like calling names, receiving threatening messages, spreading rumors, together was over 50 percent in the sample, pretending to be someone else (masquerading) was 14.0 percent, outing was around 9.0 percent (Sivakumar, 2013). Although, the prevalence of masquerading and outing were almost similar with the present study, the prevalence of cyber harassment is higher, than that of the present study. This could again be due to the fact that, the Indian study had separate categories i.e. calling names and spreading rumors were two mutually exclusive categories, which could explain the difference in the prevalence. As mentioned earlier, the present study had combined all of this to one category: cyber harassment.

The findings of the present study point to the fact that there are many different forms of cyberbullying that todays' youth are being subjected to. The modes and methods of cyberbullying victimization are scattered in various mediums (eg, different SNS). Because of this the cumulative prevalence of cyberbullying victimization may be low. However, the youth today have active accounts on many SNS and their chances of being cyberbullied at the same time, on different platforms, and through different forms of cyberbullying could lead to compounding (negative) effects on the victim being cyberbullied.

The proportion of males and females who experienced any of these forms of cyberbullying in the present study were almost similar, and hence, no significant association was seen between the genders and the forms of cyberbullying that the students had been subjected to. As far as frequency was concerned even though the number of males enrolled in the present study were lower than that of females, it was observed that a higher percentage of males had been subjected to cyber harassment, masquerading & exclusion, more than four times in the past 6 months (20.5,

15.7 & 9.7) as compared to females (15.5, 6.1 & 9.1); though, these differences were not significant. The study conducted in school students of Bangladesh showed a similar preponderance of cyberbullying victimization in boys i.e. 37.36 percent in boys & 21.28 percent in girls. However, it should be noted that the boy-girl ratio in the study was 1.9:1 (Mallik, 2020). Only females had been subjected to outing greater than four times with around one in five females being subjected to it in the past 6 months. A study conducted in Chennai among women who had reported online victimization reported that out of 205 respondents, 54 respondents were outed that is their photos and personal information had been posted on the internet. Of these 18 of the respondents said that revenge was the cause for their victimization (Mala, 2010).

The general assumption (stereotype) in society is that physical bullying is more common in males while offline bullying often occurs in females, this study reveals that cyberbully victimization is almost equal in both the groups. In fact, when frequency is considered (being bullied more than four times in the last 6 months) in some of the forms of cyberbullying victimization, there seems to be a male preponderance. Outing - wherein personal images and photos of an individual is posted on the internet however seems to be a gendered issue with females being more outed than males. The frequency of outing, more than four times in the last 6 months, was higher in females. This could be because of the societal trend of sexually objectifying women, and also because it is easy to tarnish a woman's character in society or bully them by floating a "personal" picture of them on the internet. The recent 'Bois Locker Room' controversy on the social media app- Instagram can be a witness to this fact (TheHindu, 2020).

5.4 Impact of victimization and Cyberbullying

Over three quarter of the students (77.5 percent) who had been subjected to any of the forms of cyberbullying felt that the victimization had an immediate negative impact on their mental

health. Feeling worried (71.0 percent), low self-esteem & sleep disturbances (50.9 percent each), being irritated with others (46.2 percent), stopped going out with friends/family (17.8 percent) and felt like ending their life (8.9 percent) were the reported negative impacts on mental health. Anger issues, felt anxious/depressed, emotional distress were some of the other findings that were reported but very few students reported them. These findings could be compared with other studies. A study conducted in a large sample of Canadian and American university students, reported that, amongst the cyber-harassed victims, approximately, two in five felt angry (31.62 percent), one in five-felt sad/hurt, embarrassed & anxious (21.37 percent, 20.23 percent and 18.23 percent, respectively) because of the experience. Other reported psychological impacts were feeling afraid (12.8 percent), crying (12.55 percent), and blaming themselves (9.12 percent) (Beran et al., 2012). An Australian study among 548 youth examined the impact of victimization of cyberbullying, and had certain similarities with the results of the present study. 'The most common areas of personal impacts due to the victimization that were reported included self-confidence (78 percent), self-esteem (70 percent) and friendships (42 percent) (Price and Dalgleish, 2010). In the present study, cyberbullying victimization also impacted the students' academically with around 45 percent of the students reporting that the cyberbully incident(s) affected their studies. Loss in concentration while studying and scoring lesser marks were the negative impacts on academics reported by the students. The study conducted in Canadian and American university students also reported similar findings with 35 percent reporting a negative effect on their school grades and 28 percent reporting that it affected their attendance in school (Beran et al., 2012).

'How people feel is not an elusive or abstract concept, but a significant public health indicator; as significant as rates of smoking, obesity and physical activity' (Friedli, 2009). From the findings of the present study it is clear that, cyberbullying victimization in youth can give rise to negative feelings, like feeling worried, negative feeling towards the self, and even a feeling to

end their lives, especially immediately after the episode has occurred. Other feelings like feeling anxious, emotional distress, sleep disturbances, being worried or upset are also serious mental health problems associated with cyberbullying. Adolescent coping mechanisms are still at its developmental stage and could be one of the reasons that they find it difficult to cope with the cyberbullying incident. The magnitude and the frequency of the cyberbullying victimization are also determining factors that could hinder with coping with the incident. Thus, it is necessary to identify cyberbully victims and intervene as early as possible so that the incident does not have future (negative) implications.

5.5 Cyberbullying and Measures of Self-Esteem:

Cyberbullying was analysed across different measured of self-esteem, that is gender, type of family, medium of instruction in school, marital status of parents of the students, number of siblings as well as birth order. However, no significant association was seen between cyberbully and these variables, except for the marital status of parents. A significant association was seen between the marital status of parents of the students and being subjected to cyberbullying, with three times higher odds of being cyberbullied in students whose parents were divorced/separated/widowed or were single as compared to students whose parents were in intact marriages. In a large sample of 18,341 Chinese students aged 15–17, association between various kinds of family victimization and adolescent cyberbullying were investigated; parents' divorce and separation was significantly associated with cyberbullying victimization (Chen et al., 2018). These findings is comparable with that of the present study, however, it is noted that the age group assessed in both the studies are different.

Based on this, it could be inferred that, family support could also be one of the correlates for cyberbullying victimization.

5.6 Cyberbullying and Self-Esteem Levels:

The present study reported that a higher proportion of students who had been cyberbullied had low self-esteem levels. The difference in proportions of low self-esteem levels in the groups that had been subjected to cyberbullying and those who hadn't were statistically significant ($p = 0.002$). The odds of having low self-esteem was 48 percent lower in those who had not been subjected to cyberbullying as compared to those who had been cyberbullied. A statistically significant difference was also observed in the proportion of students who had low self-esteem levels in the cyber harassed and exclusion groups. A multivariate analysis between self-esteem and cyberbullying provided an adjusted odds ratio of 0.54 (0.35-0.84) i.e. the odds of developing low self-esteem was 46 percent lower in those who had not been subjected to cyberbullying as compared to those who had been cyberbullied, when controlled for factors like gender, marital status of parents as well as daily internet use of the student. Our findings revealed that cyberbullying victims had low levels of self-esteem. This result is consistent with previous investigations, which pointed out the different implications on self-esteem in cyberbullying victims, confirming that cyberbullying could pose as a risk factor for lower levels of-self-esteem in young people (Brighi et al., 2012; Patchin and Hinduja, 2010).

It is safe to infer from the findings of the study that cyberbullying could be one of the risk factors for a host of mental health problems, including low self-esteem levels.

5.7 Strengths:

The study is a unique study conducted in Mumbai, which looks into both cyberbully victimization as well as its' impact on self-esteem as well as its' measures. Data was collected from ten different colleges which ensured the variance in the sample. The sample size was large. The study also contributes to the much needed literature in college students with specifically focusing on the phenomenon of cyberbullying that occur on SNS.

5.8 Limitations:

The study does have certain limitations. First, the findings of the study may not be possible to generalize to a large population, as the participants were recruited through a sampling of convenience procedure. It is thus limited only to the universe: 18-25 year old college students in the selected colleges of zone 4 of Suburban Mumbai. Due to the cross-sectional design, temporality is also an issue with respect to cyberbullying and self-esteem. Hence, no causal claims can be made. The use of self-reported cyberbully rates for analysis is another limitation of the study. However, the findings can be taken to be broadly indicative.

5.9 Conclusion:

The social circle of today's youth is changing from real-time connections to virtual social interactions. Social media thus has become an inseparable part of their lives. One inevitable part of these virtual social interactions, is this phenomenon of cyberbullying. Youth could fall prey to the dark underbelly of the internet, where an anonymous person could have the power to perpetrate an act of bullying with just a click of a button. This perpetrator could be sitting miles away from the victim but can easily scar their self-esteem. The internet is now turning in to a huge playground which is dangerous & unmonitored. It wouldn't be wrong to say that the youth today are completely dependent on the internet for most of their needs, be it for entertainment, college work, or socializing & communication. Invariably, the incidences of cyberbullying will only keep increasing over the next few years especially in this group, thereby creating a completely new and unique social problem for which there are not many public policies in place. Explicit legislations on cyberbullying in India do not exist, however, some sections of the Information Technology Act (IT Act, 2000) prescribe punishments for some forms, example Section 67 of the IT Act mentions- a jail term up to five years and also a fine which may extend to ten lakh rupees for publishing or transmitting obscene material in electronic form, section 507 IPC states that if anyone receives criminal intimidation through an anonymous communication

then the person giving threats could be punished with imprisonment up to two years (myadvo.in, 2019). Cyberbully victims need to be made aware of these provisions that the legislation provides to ensure their safety. There is a need to create awareness in the community about the serious mental health implications of cyberbullying. Along with the community, the educational institutions that youth are associated with for most of their early & late adolescent years, need to create interventions to tackle this problem. There are not many properly functioning online-abuse reporting systems available in India; a grievance redressal cell which only looks after cyber harassment of college students could be set up in the premises so that the victims would have an access to a proper reporting channel. These cells must also take up measures to ensure the confidentiality and safety of the cyber victims. Offering free psychiatric counseling in the college itself for students who have been cyberbullied could be another measure. Special training could be given to teachers and professors which would make them aware of the various cyberbullying trends. They could then act as an approachable portal for students to share their ordeals with, before the students let the victimization take a toll on their mental health and at worse, their lives. The aim of the interventions should be to empower "netizens" and create a hospitable online world for them. These efforts will have indirect effects on the over-all well-being of the youth of todays' times.

References

Baldasare, A., Bauman, S., Goldman, L., Robie, A., 2012. Chapter 8 cyberbullying? Voices of college students. Misbehavior Online High. Educ. 127–155.

Beran, T.N., Rinaldi, C., Bickham, D.S., Rich, M., 2012. Evidence for the need to support adolescents dealing with harassment and cyber-harassment: Prevalence, progression, and impact. Sch. Psychol. Int. 33, 562–576.

Blaya, C., Kaur, K., Sandhu, D., 2018. Cyberviolence and Cyberbullying in Europe and India: A Literature Review, in: Smith, P.K., Sundaram, S., Spears, B.A., Blaya, C., Schäfer, M., Sandhu, D. (Eds.), Bullying, Cyberbullying and Student Well-Being in Schools. Cambridge University Press, pp. 83–106. https://doi.org/10.1017/9781316987384.006

BMC Mumbai Ward Information [WWW Document], 2014. URL https://web.archive.org/web/20140309172011/http://www.bmc-mumbai.org.in/ward-information.htm (accessed 4.28.20).

Bonanno, R.A., Hymel, S., 2013. Cyber bullying and internalizing difficulties: Above and beyond the impact of traditional forms of bullying. J. Youth Adolesc. 42, 685–697.

Brighi, A., Melotti, G., Guarini, A., Genta, M.L., Ortega, R., Mora-Merchán, J., Smith, P.K., Thompson, F., 2012. Self-esteem and loneliness in relation to cyberbullying in three European countries. Cyberbullying Glob. Play. Res. Int. Perspect. 32–56.

Brubeck, D., Beer, J., 1992. Depression, self-esteem, suicide ideation, death anxiety, and GPA in high school students of divorced and nondivorced parents. Psychol. Rep. 71, 755–763.

Calvete, E., Orue, I., Estévez, A., Villardón, L., Padilla, P., 2010. Cyberbullying in adolescents: Modalities and aggressors' profile. Comput. Hum. Behav. 26, 1128–1135.

Cassidy, W., Jackson, M., Brown, K.N., 2009. Sticks and stones can break my bones, but how can pixels hurt me? Students' experiences with cyber-bullying. Sch. Psychol. Int. 30, 383–402.

Chadda, R., 2018. Youth & mental health: Challenges ahead. Indian J. Med. Res. 148, 359. https://doi.org/10.4103/ijmr.IJMR_1585_18

Chen, Q., Lo, C.K., Zhu, Y., Cheung, A., Chan, K.L., Ip, P., 2018. Family poly-victimization and cyberbullying among adolescents in a Chinese school sample. Child Abuse Negl. 77, 180–187.

Coopersmith, S., 1967. The antecedents of self-esteem San Francisco. H Freeman Co.

Cyberbullying- A global advisory survey, 2018.

Dilmac, B., 2009. Psychological needs as a predictor of cyber bullying: A preliminary report on college students. Educ. Sci. Theory Pract. 9, 1307–1325.

Englander, E., Donnerstein, E., Kowalski, R., Lin, C.A., Parti, K., 2017. Defining cyberbullying. Pediatrics 140, S148–S151.

Falbo, T., 1981. Relationships between birth category, achievement, and interpersonal orientation. J. Pers. Soc. Psychol. 41, 121.

Fenaughty, J., Harré, N., 2013. Factors associated with distressing electronic harassment and cyberbullying. Comput. Hum. Behav. 29, 803–811.

Finn, J., 2004. A survey of online harassment at a university campus. J. Interpers. Violence 19, 468–483.

Friedli, L., 2009. Future directions in mental health promotion and public mental health. In The art and science of mental health nursing: A textbook of principles and practice (pp. 43-61). McGraw-Hill Education UK.

Gahagan, K., Vaterlaus, J.M., Frost, L.R., 2016. College student cyberbullying on social networking sites: Conceptualization, prevalence, and perceived bystander responsibility. Comput. Hum. Behav. 55, 1097–1105.
Gibb, Z.G., Devereux, P.G., 2014. Who does that anyway? Predictors and personality correlates of cyberbullying in college. Comput. Hum. Behav. 38, 8–16.
Gururaj, G., Varghese, M., Benegal, V., Rao, G.N., Pathak, K., Singh, L.K., Mehta, R.Y., Ram, D., Shibukumar, T.M. and Kokane, A., 2016. National Mental Health Survey of India, 2015-16: prevalence, patterns and outcomes. Bengaluru: National Institute of Mental Health and Neuro Sciences, NIMHANS Publication, 129., n.d.
Halder, D., 2015. Children of internet era: A critical analysis of vulnerability of children in the darker sides of social media and WhatsApp. Presented at the Published in the Conference Proceedings on Accompanying Social Networking in Teacher Education,(6 March and 27 March). Loyola College of Education, Chennai, pp. 17–24.
Hamm, M.P., Newton, A.S., Chisholm, A., Shulhan, J., Milne, A., Sundar, P., Ennis, H., Scott, S.D., Hartling, L., 2015. Prevalence and effect of cyberbullying on children and young people: A scoping review of social media studies. JAMA Pediatr. 169, 770–777.
Hinduja, S., Patchin, J.W., 2010. Bullying, Cyberbullying, and Suicide. Arch. Suicide Res. 14, 206–221. https://doi.org/10.1080/13811118.2010.494133
Holfeld, B., Grabe, M., 2012. An Examination of the History, Prevalence, Characteristics, and Reporting of Cyberbullying in the United States, in: Li, Q., Cross, D., Smith, P.K. (Eds.), Cyberbullying in the Global Playground. Wiley-Blackwell, Oxford, UK, pp. 117–142. https://doi.org/10.1002/9781119954484.ch7
India Internet 2019- Report by Internet and Mobile Association of India, 2019.
Intel-Security-Teens-Tweens-and-Technology-Data-Sheet-2015.pdf, n.d.
Jaishankar, K., 2009. Cyber Bullying: Profile and Policy Guidelines. Tirunelveli India Dep. Criminol. Crim. Justice Manonmaniam Sundaranar Univ.
Jaishankar, K., Shariff, S., 2009. Cyber bullying: A transnational perspective. Crimes Internet Crimes Internet Of 66.
Juvonen, J., Gross, E.F., 2008. Extending the school grounds?—Bullying experiences in cyberspace. J. Sch. Health 78, 496–505.
Kelleci, M., İnal, S., 2010. Psychiatric Symptoms in Adolescents with Internet Use: Comparison without Internet Use. Cyberpsychology Behav. Soc. Netw. 13, 191–194. https://doi.org/10.1089/cyber.2009.0026
Kiesler, S., Siegel, J., McGuire, T.W., 1984. Social psychological aspects of computer-mediated communication. Am. Psychol. 39, 1123.
Kling, K.C., Hyde, J.S., Showers, C.J., Buswell, B.N., 1999. Gender differences in self-esteem: a meta-analysis. Psychol. Bull. 125, 470.
Kowalski, R.M., Giumetti, G.W., Schroeder, A.N., Lattanner, M.R., 2014. Bullying in the digital age: a critical review and meta-analysis of cyberbullying research among youth. Psychol. Bull. 140, 1073–1137. https://doi.org/10.1037/a0035618
Kowalski, R.M., Giumetti, G.W., Schroeder, A.N., Reese, H.H., 2012a. Chapter 14 Cyber Bullying Among College Students: Evidence from Multiple Domains of College Life, in: Wankel, L.A., Wankel, C. (Eds.), Cutting-Edge Technologies in Higher Education. Emerald Group Publishing Limited, pp. 293–321. https://doi.org/10.1108/S2044-9968(2012)0000005016
Kowalski, R.M., Limber, S., Agatston, P.W., 2012. Cyberbullying: bullying in the digital age, 2nd ed. ed. Wiley-Blackwell, Malden, MA..
Kowalski, R.M., Limber, S.P., 2007. Electronic bullying among middle school students. J. Adolesc. Health 41, S22–S30.

Kraft, E., Wang, J., 2010. An exploratory study of the cyberbullying and cyberstalking experiences and factors related to victimization of students at a public liberal arts college. Int. J. Technoethics IJT 1, 74–91.
Lavanya, R., Kalpana, G., 2014. A study on the prevalence of cyber bullying in Chennai. Middle-East J. Sci. Res. 22, 661–672.
Leary, M.R., Downs, D.L., 1995. Interpersonal functions of the self-esteem motive, in: Efficacy, Agency, and Self-Esteem. Springer, pp. 123–144.
Lenhart, A., 2010. "Cyberbullying 2010: What the Research is Telling Us". Pew Internet & American Life Project.
Li, Q., 2010. Cyberbullying in High Schools: A Study of Students' Behaviors and Beliefs about This New Phenomenon. J. Aggress. Maltreatment Trauma 19, 372–392. https://doi.org/10.1080/10926771003788979
Li, Q., 2007a. New bottle but old wine: A research of cyberbullying in schools. Comput. Hum. Behav. 23, 1777–1791. https://doi.org/10.1016/j.chb.2005.10.005
Litwiller, B.J., Brausch, A.M., 2013. Cyber bullying and physical bullying in adolescent suicide: the role of violent behavior and substance use. J. Youth Adolesc. 42, 675–684.
MacDonald, C.D., Roberts-Pittman, B., 2010. Cyberbullying among college students: Prevalence and demographic differences. Procedia-Soc. Behav. Sci. 9, 2003–2009.
Madden, M and Jones, S, 2008. Networked workers.
Mala, G., 2010. Cybercrime victimization a study among women victims in Chennai city. Ph.D Thesis. University of Madras, Chennai.
Mallik, C.I., 2020. Adolescent victims of cyberbullying in Bangladesh-prevalence and relationship with psychiatric disorders. Asian J. Psychiatry 48, 101893.
Modecki, K.L., Minchin, J., Harbaugh, A.G., Guerra, N.G., Runions, K.C., 2014. Bullying prevalence across contexts: A meta-analysis measuring cyber and traditional bullying. J. Adolesc. Health 55, 602–611.
Mukherjee, S., Sinha, D., De, A., Misra, R., Pal, A., Mondal, T., 2019. Cyberbullying among late adolescent: A cross-sectional study in two higher secondary schools of Kolkata, West Bengal. Indian J. Public Health 63, 86. https://doi.org/10.4103/ijph.IJPH_92_18
myadvo.in, 2019. What is Cyber Bullying or Anti-Bullying Laws in India. url: https://blog/must-read-what-is-cyber-bullying-or-anti-bullying-laws-in-india/ (accessed 9.22.19).
Nagar, S., Sharma, S., Chopra2, G., 2008. Self esteem among rural adolescent girls in Kangra District of Himachal Pradesh. The Anthropologist 10, 151–154.
Nansel, T.R., Overpeck, M., Pilla, R.S., Ruan, W.J., Simons-Morton, B., Scheidt, P., 2001. Bullying behaviors among US youth: Prevalence and association with psychosocial adjustment. Jama 285, 2094–2100.
O'Brennan, L.M., Bradshaw, C.P., Sawyer, A.L., 2009. Examining developmental differences in the social-emotional problems among frequent bullies, victims, and bully/victims. Psychol. Sch. 46, 100–115.
Microsoft Corporation. Online Bullying Among Youth 8-17 Years Old – India, 2012.
Ortega, R., Elipe, P., Mora-Merchán, J.A., Genta, M.L., Brighi, A., Guarini, A., Smith, P.K., Thompson, F., Tippett, N., 2012. The emotional impact of bullying and cyberbullying on victims: A European cross-national study. Aggress. Behav. 38, 342–356.
Patchin, J.W., Hinduja, S., 2010a. Cyberbullying and self-esteem. J. Sch. Health 80, 614–621; quiz 622–624. https://doi.org/10.1111/j.1746-1561.2010.00548.x
Patchin, Justin W., Hinduja, S., 2006. Bullies Move Beyond the Schoolyard: A Preliminary Look at Cyberbullying. Youth Violence Juv. Justice 4, 148–169. https://doi.org/10.1177/1541204006286288

Pathan, S.S., Shiakh, S., 2012. Students attitude in english and vernacular medium in secondary schools. Res. World 3, 136.
Pearson, C.M., Andersson, L.M., Porath, C.L., 2005. Workplace incivility.
Population Fund (Ed.), 2014. The power of 1,8 billion: adolescents, youth and the transformation of the future, State of world population. UNFPA, New York, NY.
Preamble to the Constitution of WHO as adopted by the International Health Conference, New York, 19 June - 22 July 1946;, n.d.
Preventing Bullying |Violence Prevention|Injury Center|CDC [WWW Document], 2019. URL https://www.cdc.gov/violenceprevention/youthviolence/bullyingresearch/fastfact.html (accessed 8.14.19).
Price, M., Dalgleish, J., 2010. Cyberbullying: Experiences, impacts and coping strategies as described by Australian young people. Youth Stud. Aust. 29, 51.
Quatman, T., Watson, C.M., 2001. Gender differences in adolescent self-esteem: An exploration of domains. J. Genet. Psychol. 162, 93–117.
Robins, R.W., Trzesniewski, K.H., Tracy, J.L., Gosling, S.D., Potter, J., 2002. Global self-esteem across the life span. Psychol. Aging 17, 423–434.
Rosenberg, M., 1965. Rosenberg self-esteem scale (RSE). Accept. Commit. Ther. Meas. Package 61, 18.
Rosenberg, M., Schooler, C., Schoenbach, C., Rosenberg, F., 1995a. Global self-esteem and specific self-esteem: Different concepts, different outcomes. Am. Sociol. Rev. 141–156.
Hinduja, S. and Patchin, J.W., 2014. Bullying beyond the schoolyard: Preventing and responding to cyberbullying. Corwin Press.
Sathyanarayana Rao, T., Bansal, D., Chandran, S., 2018. Cyberbullying: A virtual offense with real consequences. Indian J. Psychiatry 60, 3–5. https://doi.org/10.4103/psychiatry.IndianJPsychiatry_147_18
Schmitt, D.P., Allik, J., 2005. Simultaneous Administration of the Rosenberg Self-Esteem Scale in 53 Nations: Exploring the Universal and Culture-Specific Features of Global Self-Esteem. J. Pers. Soc. Psychol. 89, 623–642. https://doi.org/10.1037/0022-3514.89.4.623
Schneider, S.K., O'donnell, L., Stueve, A., Coulter, R.W., 2012. Cyberbullying, school bullying, and psychological distress: A regional census of high school students. Am. J. Public Health 102, 171–177.
Shah, J., Das, P., Muthiah, N., Milanaik, R., 2019. New age technology and social media: adolescent psychosocial implications and the need for protective measures. Curr. Opin. Pediatr. 31, 148–156.
Shariff, S., 2008. Cyber-Bullying: Issues and Solutions for the School, the Classroom and the Home [WWW Document]. Online Res. Libr. Questia. URL https://www.questia.com/library/120092787/cyber-bullying-issues-and-solutions-for-the-school (accessed 9.20.19).
Shariff, S., 2005. Cyber-dilemmas in the new millennium: School obligations to provide student safety in a virtual school environment. McGill J. Educ. Sci. Léducation McGill 40.
Sharma, E., Seshadri, S.P., 2020. Adolescence: Contemporary issues in the clinic and beyond. Asian J. Psychiatry 47, 101803.
Shultz, E., Heilman, R., Hart, K.J., 2014. Cyber-bullying: An exploration of bystander behavior and motivation. Cyberpsychology J. Psychosoc. Res. Cyberspace 8.
Siddiqui, S.A., 2017. Cyberbullying and Cyber- victimization: From Online Suicide Groups to "Blue Whale" Menace. Indian Pediatr. 54, 1056.
Singh, P.P., Kumar, V., Sadeeq, M., 2018. Cyber Bullying as an Outcome of Social Media Usage: A Literature Review. Indian J. Public Health Res. Dev. 9, 1706–1710.

Sivakumar, R., 2013. Computer mediated interpersonal crimes a study of cyber bullying among college students in cosmopolitan citie.Ph.D. Thesis. Manonmaniam Sundaranar University. Tirunelveli.
Slonje, R., Smith, P.K., Frisén, A., 2013. The nature of cyberbullying, and strategies for prevention. Comput. Hum. Behav. 29, 26–32.
Smith, P.K., Mahdavi, J., Carvalho, M., Fisher, S., Russell, S., Tippett, N., 2008. Cyberbullying: its nature and impact in secondary school pupils. J. Child Psychol. Psychiatry 49, 376–385. https://doi.org/10.1111/j.1469-7610.2007.01846.x
Smith, P.K., Mahdavi, J., Carvalho, M., Tippett, N., 2006. An investigation into cyberbullying, its forms, awareness and impact, and the relationship between age and gender in cyberbullying. Res. Brief No RBX03-06 Lond. DfES.
Smith, P.K., Sundaram, S., Spears, B.A., Blaya, C., Schäfer, M., Sandhu, D., 2018. Bullying, cyberbullying and student well-being in schools: Comparing European, Australian and Indian perspectives. Cambridge University Press.
Sourander, A., Klomek, A.B., Ikonen, M., Lindroos, J., Luntamo, T., Koskelainen, M., Ristkari, T., Helenius, H., 2010. Psychosocial risk factors associated with cyberbullying among adolescents: A population-based study. Arch. Gen. Psychiatry 67, 720–728.
Su, C., Holt, T.J., 2010. Cyber bullying in Chinese Web Forums: An examination of nature and extent. Int. J. Cyber Criminol. 4.
The Annual Bullying Survey 2017, Ditchthelabel organization. 2017 url :// https www.ditchthelabel.org/wp-content/uploads/2017/07/The-Annual-Bullying-Survey-2017-1.pdf
TheHindu, 2020. Boys R Us: on Bois Locker Room and the toxic masculinity raging in society today. The Hindu. url: https://www.thehindu.com/opinion/columns/on-bois-locker-room-and-the-toxic-masculinity-thats-raging-in-society-today/article31534388.ece
Tokunaga, R.S., 2010. Following you home from school: A critical review and synthesis of research on cyberbullying victimization. Comput. Hum. Behav. 26, 277–287.
Tripathi, V., 2017. Youth violence and social media. J. Soc. Sci. 52, 1–7.
ul Haq, M.A., 2016. Association between socio-demographic background and self-esteem of university students. Psychiatr. Q. 87, 755–762.
UNICEF, 2019. Safer Internet Day: UNICEF calls for concerted action to prevent bullying and harassment for the over 70 per cent of young people online worldwide.
Vandoninck, S., d'Haenens, L., De Cock, R., Donoso, V., 2012. Social networking sites and contact risks among Flemish youth. Childhood 19, 69–85.
Venkataraghavan, M., 2015. A study on the usage of mobile phones for cyber bullying among tweens & teens of Chennai, India. Online J. Commun. Media Technol. 19–30.
Wang, J., Nansel, T.R., Iannotti, R.J., 2011. Cyber and traditional bullying: Differential association with depression. J. Adolesc. Health 48, 415–417.
Willard, N., 2003. Off-campus, harmful online student speech. J. Sch. Violence 2, 65–93.
Willard, N.E., 2007. Cyberbullying and cyberthreats: Responding to the challenge of online social aggression, threats, and distress. Research press.
Ybarra, M.L., 2004. Linkages between depressive symptomatology and Internet harassment among young regular Internet users. Cyberpsychol. Behav. 7, 247–257.
Ybarra, M.L., Mitchell, K.J., 2004. Online aggressor/targets, aggressors, and targets: a comparison of associated youth characteristics. J. Child Psychol. Psychiatry 45, 1308–1316. https://doi.org/10.1111/j.1469-7610.2004.00328.x
Ybarra, M.L., Mitchell, K.J., Wolak, J., Finkelhor, D., 2006. Examining characteristics and associated distress related to Internet harassment: findings from the Second Youth Internet Safety Survey. Pediatrics 118, e1169–e1177.

ANNEXURE I

INFORMED CONSENT

I am Dr. Aarathi Ajayakumar, a postgraduate Student of Master of Public Health at Achutha Menon Centre for Health Sciences, Sree Chitra Tirunal Institute for Medical sciences and Technology in Thiruvananthapuram, Kerala. As part of my MPH course requirement, I am conducting this study. The aim of the study is to know the prevalence of cyberbullying and its association with measures of self-esteem in 18-25 yr. old college students in the selected colleges of Suburban Mumbai.

While there is no direct benefit for you individually by this survey, if you are found to have severe psychological impact due to a cyberbullying activity you will be referred to a counsellor/psychiatrist/psychologist or where-ever you are willing to go. If you have need for any health related information then I will be glad to provide it.

The information given by you will not be disclosed to anyone under any circumstances anywhere in the public at any time. All information obtained from this survey will remain confidential and will be used for research purpose only. You can choose to answer or not to answer any of the questions and you are free to quit the survey at any stage. Your participation in this study is purely voluntary.

The findings of this study will enhance scientific knowledge which may be used to improve the understanding of cyberbullying activities prevalent on different social media platforms and to understand the effect it has on the self-esteem of an individual. With this information better policies and programmes can be implemented to ensure safety on online social media platforms. However, you may yourself not experience any specific benefits.

The approximate time it will take to answer the questions in the survey is about 30-45 minutes. If you agree to participate in the survey, please indicate your agreement.

❑Yes, I agree to participate in the survey

❑ No, I do not agree to participate in the survey

I have read the information in the information sheet and understand the nature of the study and my role if I agree to take part in the study. By signing this consent form, I indicate that I understand what will be expected from me and that I am willing to participate in this study. I know that I can withdraw at any time. I have been informed who should be contacted if the need arises.

Respondent's Name:

Date:

Signature _____

For any clarification regarding the study, you can contact me and for any queries on the authentication and ethics of this study you can contact Dr. Mala Ramanathan, Member Secretary, Institutional Ethics Committee (IEC).

Name and address of Researcher:

Dr. Aarathi Ajayakumar, MPH student,

Achutha Menon Centre for Health Science

Studies, Thiruvananthapuram, Kerala – 695011.

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Name and address of IEC Member:

Dr. Mala Ramanathan, Member Secretary,

Institutional Ethics Committee (IEC),

Achutha Menon Centre for Health Science

Studies, Thiruvananthapuram,Kerala–695011

Email: iec.mem.sec@sctimst.ac.in

College Code:

Date:

Respondent id:

ANNEXURE II

CYBERBULLYING VICTIMIZATION ON SOCIAL NETWORKING SITES (SNS) AND IT'S ASSOCIATION WITH MEASURES OF SELF-ESTEEM IN 18-25 YR. OLDS IN SUBURBAN MUMBAI

PART I: DEMOGRAPHIC CHARACTERISTICS OF THE RESPONDENTS

This section includes questions on your basic background eg, your date of birth, the course you are currently pursuing etc. Kindly fill in or tick the applicable boxes.

1) What is your date of birth? _____Day of _____Month of _____ Year
2) Gender: ☐ Male ☐ Female ☐ Transgender ☐ Others
3) What course are you currently pursuing in this college?
   A) Undergraduate: Please mention Bachelors course: _____
   B) Post-graduate: please mention masters course: _____
4) What was the medium of instruction during your schooling?*(Tick only one option)*
   A) ☐ English B) ☐ Vernacular
5) Whom do you currently stay with?*(Tick only one option)*
   A) ☐ Reside with parents B) ☐ Reside with relatives C) ☐ Stay in Hostel, paying guest etc.
6) What type of family do you stay in? *(Tick only one option)*
   A) ☐ Joint Family B) ☐ Nuclear Family
7) What is the marital status of your parents? *(Tick only one option)*
   A) ☐ Married B) ☐ Divorced C) ☐ Separated D) ☐ Widowed (single parent)
8) How many siblings do you have? *(Tick only one option)*
   A) One ☐ B) Two ☐ C) Three ☐ D) More Than Three ☐ E) None ☐
9) If you have more than one sibling are you the: *(Tick only one option)*
   A) ☐ Oldest B) ☐ Youngest C) ☐ Middle One *(among the three)* D) ☐ Any other _____ (please mention)

PART II: Patterns of Internet Use

This section includes questions on the patterns of your internet usage: eg, how frequently do you use the internet; what are the gadgets you use to access the internet etc. Kindly fill in or tick the applicable boxes.

10) On an average, how many years have you been using the internet for? *(Tick only one option)*

A) ☐ 1-5 years B) ☐ 6-10 years C) ☐ 11-15 years

11) On an average, how many hours do you use the internet in a day? *(Tick only one option)*

A) 0-2 hours ☐ B) 2-4 hours ☐ C) 4-6 hours ☐ D) > 6hours ☐

12) Please rank the gadgets you use to access Internet from 1-4; 1 being the most frequently used 4 being the least used (eg, if you use laptops frequently rank it "1"; and you would least prefer desktop rank it "4")

A) Desktop: _____ B) Laptop: ____ C) Tablet: ____ D) Mobile phones: ____

13) Please tick the gadgets you would use for your internet activities (if you did not use these gadgets for any of the internet activity please leave blank)

Internet activity	**Desktop**	**Laptop**	**Tablet**	**Mobile Phones**
Chatting (Whatsapp. Instant messenger, Skype, facebook messenger, snap chat, instagram chat etc.)				
Emails				
Shopping				
Downloading Video/Movie				
Downloading Music/Songs				
Playing Games				
Surfing on Social Networking Sites (Facebook, Instagram, Tik-tok, Snap chat, etc.)				
Sharing Files				
Browsing Websites				
Viewing adult content				
College Work (download study material)				
Online Banking				
Forums/Blogs				
Others _____ (Specify)				

14) Indicate your favourite online activity: *(Tick only one option applicable for each activity; if the activity listed isn't your favourite activity please these leave blank)*

Internet activity	Rarely (1-2 times a day/ 0-2 hours a day)	Sometimes (3-4 times a day/ 2-4 hours a day)	Frequently (4-6 times a day/ 4-6 hours)	Very Frequently (More than 6 times a day/ more than 6 hours a day
Chatting (Whatsapp. Instant messenger, Skype, facebook messenger, snap chat, instagram chat etc.)				
Emails				
Shopping				
Downloading Video/Movie				
Downloading Music/Songs				
Playing Games				
Surfing on Social Networking Sites (Facebook, Instagram, Tik-tok, Snap chat, etc.)				
Sharing Files				
Browsing Websites				
Viewing adult content				
College Work (download study material)				
Online Banking				
Forums/Blogs				
Others _____ (Specify)				

15) Please select the social media websites you have an account on *(tick all that are applicable)*

A)Whatsapp ☐ B)Facebook ☐ C)Instagram ☐ D)Twitter ☐ E)Snapchat ☐ F) Tik-Tok ☐ G)You tube ☐ H) Reddit ☐ I)Any Other ☐ Please mention if any other: _____

16) How long have you been using these accounts for?

Social Media Website	Few weeks (1-2 weeks)	Months (1-2 months)	Year (1-2 years)	More than (1-2 years)
Whatsapp				

Facebook				
Instagram				
Twitter				
Snapchat				
Tik-Tok				
You Tube				
Reddit				
Any Other _____(specify)				

17) How often do you use the following social media platforms in a day (on an average)?
(Tick only one option applicable for each social media platform; if you don't have an account on any platform mentioned leave blank)

Social Media Platform	Rarely (1-2 times a day/ 0-2 hours a day)	Sometimes (3-4 times a day/ 2-4 hours a day)	Frequently (4-6 times a day/ 4-6 hours)	Very Frequently (More than 6 times a day/ more than 6 hours a day
Whatsapp				
Facebook				
Instagram				
Twitter				
You Tube				
Snapchat				
Tik-Tok				
Blog/Forums				
Reddit				
Other _____ (specify)				

18) Do you have alerts set up for notifications from social media apps on your mobile phone?

A) ☐ Yes B) ☐ No

19) What all information have you included on you social media account?

1) ☐ Name 2) ☐Birth Date 3) ☐ Relationship Status 4) ☐ Gender 5) ☐Address 6) ☐College Details 7) ☐ Educational Details 8) ☐ Email Id 9) ☐ Mobile No. 10) ☐ Interest 11) ☐ Photos 12) others _____ (specify)

20) What is your preferred way of interaction with friends who stay in the same city as yours? *(Tick only one option)*

A) ☐ Chatting on social media sites (whatsapp or Facebook, etc.) B) ☐ Meeting them in person C) ☐ Calling them over the phone

Part III Cyberbullying (Nature, extent, reporting behaviour, impact, etc.)

Social media platforms include- WhatsApp, Facebook, Twitter, Instagram, You Tube, snap chat, tik-tok etc.

Subsection 1:

Harassment on social media: sending/receiving angry, rude, vulgar, offensive, threatening or disturbing, harmful, cruel and false messages about you to an online group or directly to you

21) In the past 6 months has any one harassed you on social media?

A) ☐ Yes B) ☐ No

If the answer to the above question is yes, please answer the following (if no, you can skip to Subsection 2)

22) How often has this happened in the past 6 months?

A) ☐ Once or twice B) ☐ A few times (3-4 times) C) ☐ Many times (4 to 6 times)

D) ☐ Almost every day (more than 6 times)

23) Did you know the person who harassed you? A) ☐ Yes B) ☐ No

24) If yes, was this person: A) ☐ Male B) ☐ Female C) ☐ Transgender

25) Was this person: A) ☐ Family B) ☐ Friend C) ☐ Colleague

D) ☐ Acquaintance (friend of other friends)

26) Did you report the harassment? A) ☐ Yes B) ☐ No

27) If yes please tick whom all did you report to *(tick all that are applicable)*:

A) On the social media platform B) ☐ Friends C) ☐ College Authorities D) ☐ Parents E) ☐ Police F) Any other: _____

Subsection 2:

Masquerade: a person you may or may not know pretends to be someone else and sends or posts material that makes you look bad, on a social media platform

28) In the past 6 months did anyone pretend to be someone else (used a fake account) to post something bad about you on social media? A) ☐ Yes B) ☐ No

If the answer to the above question is yes, please answer the following (if no, you can skip to Subsection 3)

29) How often has this happened in the past 6 months?
A) ☐ Once or twice B) ☐ A few times (3-4 times) C) ☐ Many times (4 to 6 times) D) ☐ Almost every day (more than 6 times)

30) Did you know the person who did this to you? A) ☐ Yes B) ☐ No

31) If yes, was this person: A) ☐ Male B) ☐ Female C) ☐ Transgender

32) Did you report this? A) ☐ Yes B) ☐ No

33) If yes please tick whom all did you report to *(tick all that are applicable)*:

A) On the social media platform B) ☐ Friends C) ☐ College Authorities D) ☐ Parents E) ☐ Police F) Any other: _____

Subsection 3:

Outing: sending or posting material that is sensitive, private, or embarrassing or forwarding private messages or images of you on social media

34) In the past 6 months did someone post or forward your private/embarrassing messages on social media? A) ☐ Yes B) ☐ No

If the answer to the above question is yes, please answer the following (if no, you can skip to Subsection 4)

35) How often has this happened in the past 6 months?
A) ☐ Once or twice B) ☐ A few times (3-4 times) C) ☐ Many times (4 to 6 times) D) ☐ Almost every day (more than 6 times)

36) Did you know the person who did this to you? A) ☐ Yes B) ☐ No

37) If yes, was this person: A) ☐ Male B) ☐ Female C) ☐ Transgender

38) Did you report this incident? A) ☐ Yes B) ☐ No

39) If yes please tick whom all did you report to *(tick all that are applicable)*:

A) On the social media platform B) ☐ Friends C) ☐ College Authorities D) ☐ Parents E) ☐ Police F) Any other: _____

Subsection 4:

Exclusion: cruelly/rudely excluding you from an online group on a social media platform

40) In the past 6 months has someone removed you cruelly/rudely from an online group on social media? A) ☐ Yes B) ☐ No

If the answer to the above question is yes, please answer the following (if no, you can skip to the next section)

41) How often has this happened in the past 6 months?
A) ☐ Once or twice B) ☐ A few times (3-4 times) C) ☐ Many times (4 to 6 times) D) ☐ Almost every day (more than 6 times)

42) Did you know the person who did this to you? A) ☐ Yes B) ☐ No

43) If yes, was this person: A) ☐ Male B) ☐ Female C) ☐ Transgender

44) Did you report this incident? A) ☐ Yes B) ☐ No

45) If yes please tick whom all did you report to *(tick all that are applicable)*:

A) On the social media platform B) ☐ Friends C) ☐ College Authorities D) ☐ Parents E) ☐ Police F) Any other: _____

46) Did you answer yes to any of the forms of cyberbullying mentioned in this survey form?
A) Yes ☐ B) No ☐

47) If yes, did that/these incident(s) affect your mental health? A) ☐ Yes B) ☐ No

i) If yes, please tick all that are applicable: A) ☐ Lost sleep B) ☐ Stopped going out with friends/family C) ☐ Low self-esteem (negative attitude towards yourself) D) ☐ Felt Worried E) ☐ Felt like ending your life F) ☐ Was irritated with others G) Any other: _____ (please mention)

48) Did you ask for professional help after that/these incident(s)? A) ☐ Yes B) ☐ No

i) If yes then whom _____ (counselor, psychologist, psychiatrist, etc.)

49) Do you feel that the/these incident(s) happened because of your fault? A) ☐ Yes B) ☐ No

50) Did that/these incident(s) affect your Internet/Social media use? A) ☐ Yes B) ☐ No
i) If yes please tick all that are applicable:
A) Reduced the time spent on: a) ☐ Social media b) ☐ Texting
B) ☐ Deleted social media account C) ☐ Created new social media account D) ☐ Changed Passwords
E) ☐ Stopped accessing Internet F) ☐ Scared to use the internet G) Any other _____ (specify)

51) Did that/these incident(s) affect your studies? A) ☐ Yes B) ☐ No

i) If yes, please tick all that are applicable: A) ☐ I scored lesser marks B) ☐ I changed/quit colleges C) ☐ Loss in Concentration while studying D) ☐ My future goals for higher education were affected E) Others(specify) _____

Part IV: Assessment of Self-Esteem using Rosenberg Scale

Rosenberg self-esteem scale is a 10-item scale that measures self-worth by measuring both positive and negative feelings about the self.

Sr. No	Question	Strongly Agree	Agree	Disagree	Strongly Disagree
52	On the whole, I am satisfied with myself.				
53	At times I think I am no good at all.				
54	I feel that I have a number of good qualities.				
55	I am able to do things as well as most other people.				
56	I feel I do not have much to be proud of.				
57	I certainly feel useless at times.				
58	I feel that I'm a person of worth, at least on an equal plane with others.				
59	I wish I could have more respect for myself.				
60	All in all, I am inclined to feel that I am a failure.				
61	I take a positive attitude toward myself.				

Part V General Awareness on Cyberbullying

62. In your opinion does cyber-bullying have psychological impacts: A) ☐ Yes B) ☐ No

63. If yes, according to you what are the psychological impact (check all that apply) A) ☐ Self-esteem B) causes depression/anxiety C) lead to suicide

64. Would you report a cyberbullying incident to College officials/parents/police/other authorities? A) ☐ Yes B) ☐ No

65. If no, why do you think cyberbullying is not generally reported (check all that apply) Because…
    A) ☐ College officials/parents/police/other authorities do not take cyber bullying seriously
    B) ☐ The bullying is not that severe
    C) ☐ The victim could get into trouble, if they were at fault too
    D) ☐ The victim could get into trouble even if they had done nothing wrong
    E) ☐ The cyberbully could get back at the complainant and make things even worse
    F) ☐ Other students could mock the victim
    G) ☐ Parents of the victim might restrict their Internet access

    H) Please mention other reasons: _____

66. Are there any policies in India on cyberbullying that you are aware of? A) ☐ Yes B) ☐ No.
    If yes, please mention which one do you know about _____

Thank You!

ANNEXURE III

Achutha Menon Centre for Health Science Studies, SCTIMST, Thiruvananthapuram – 695011

Study Title: Cyberbullying on Social Networking Sites (SNS) And Its' association with measures of Self-Esteem in 18-25 yr. old college students of Suburban Mumbai

Participant information sheet

You are invited to take part in the research study: cyberbullying on social networking sites (SNS) and its' association with measures of self-esteem in 18-25 yr. old college students of Suburban Mumbai. Before you decide it is important for you to understand why the research is being done and what it will involve.

1. What is the purpose of the study?

I am a public health student at Achutha Menon Centre for Health Science Studies, Sree Chitra Tirunal Institute for Medical Sciences and Technology, Thiruvananthapuram, Kerala. Cyberbullying is bullying a person using electronic devices. In today's times when most of us are exposed to the online world, it is very highly likely that we would be exposed to cyberbullying at least once in our life time. **Please note: Cyberbullying is a crime in the country and is potentially punishable.** This research thus aims to study the nature extent of this issue.

The main aims of the research are:

- To assess the prevalence of cyberbullying among college students in selected colleges of Suburban Mumbai
- To study the nature and extent of cyberbullying and the associated factors
- To understand the impact of cyberbullying on college students
- To study the effects of cyberbullying on the college student's self-esteem

2. How is your college chosen?

The study will be conducted in colleges in Sub Urban Mumbai. Mumbai is divided into 7 zones of which one zone will be selected for this study- Zone 4. All the colleges which offer bachelor's as well as master's courses in this zone will be selected. Total number of colleges that offer these courses are 25 and out of these 25 colleges, 10 colleges were selected through a randomly selection process. This selection process ensures that your college will have an equal opportunity to be selected for the study.

3. Why have you been chosen?

College students in the age group 18-25 who are present in the college at the time of the survey are included for this study.

4. What will happen to me if I take part in the study?

You will be administered a survey questionnaire which you will answer on your own. The questions are divided into mainly four sections. In section 1 you will need to provide information regarding your age, sex, demographic profile, and other related factors. In section 2 details of your internet and social media usage will be captured. In section 3 details of the cyberbullying activities you have been through or witnessed another person go through, the

frequency of these activities and its impact on your self-esteem will be captured and finally section 4 will have questions related to your awareness on cyberbullying. This can take around 30-45 minutes.

There is no right or wrong answer. It is up to you to decide whether to take part in the study. If you do decide to take part you will be given this information sheet to keep. You will also be asked to sign a consent form. If you decide to take part, you would be still free to withdraw from the study at any time and without any reason.

5. Will your participation in the study be kept confidential?

All information collected during the course of this research will be kept strictly confidential. All personal information collected will be destroyed at the end of the research. Your personal information will not be included while writing the report.

6. What will be the benefit if you participate in the study?

The findings of this study will enhance scientific knowledge which may be used to create awareness on cyberbullying and the impact of it on mental health of individuals. However, you may yourself not experience any specific benefits if you choose to participate in the study.

7. Who is funding the research?

I am doing this research from my own expenses.

8. What will happen to the results of the study?

The results of the study will be used in my MPH thesis. The findings will be presented at academic and professional conferences and in academic journals. Findings from the study will help in designing better policy and programmes to ensure safety on online social media platforms.

ANNEXURE IV

श्री चित्रा तिरुनाल आयुर्विज्ञान और प्रौद्योगिकी संस्थान, त्रिवेन्द्रम
तिरुवनन्तपुरम - ६९५०११, केरल, इंडिया
SREE CHITRA TIRUNAL INSTITUTE FOR MEDICAL SCIENCES AND TECHNOLOGY, TRIVANDRUM
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(An Institute of National Importance under Govt. of India)
Grams : Chitramet, Phone : +91-471-2443152, Fax : +91-471-2550728 / 2446433, E-mail : sct@sctimst.ac.in, Website : www.sctimst.ac.in

Institutional Ethics Committee
(IEC Regn No. ECR/189/Inst/KL/2013/RR-16)

SCT/IEC/ 1454/NOVEMBER-2019 21.11.2019

Dr. Aarathi Ajayakumar
MPH Student, AMCHSS
SCTIMST, Thiruvananthapuram

Dear Dr. Aarathi Ajayakumar,

The Institutional Ethics Committee reviewed and discussed your application to conduct the study entitled "CYBERBULLYING ON SOCIAL NETWORKING SITES AND ITS' ASSOCIATION WITH MEASURES of SELF-ESTEEM IN 18-25 YEAR OLD COLLEGE STUDENTS IN SUB-URBAN MUMBAI (IEC/1454)" on 2nd November, 2019.

The following documents were reviewed:
Original submission

1. *Covering letter addressed to the Chairperson, IEC, SCTIMST dated 18.10.2019 with checklist forwarded by HOD and Guide*
2. *Full proposal.*
3. *IEC application form*
4. *TAC Approval letter*
5. *Study questionnaire in English*
6. *Participant Information Sheet and Informed Consent Form in English*
7. *CV of Principal Investigator*

Revised submission

1. *Covering letter addressed to the Chairperson, IEC, SCTIMST with checklist forwarded by HOD*
2. *Full proposal.*
3. *IEC application form*
4. *TAC Approval letter*
5. *Study questionnaire in English*
6. *Participant Information Sheet and Informed Consent Form in English*
7. *CV of Principal Investigator*

The following members of the Ethics Committee were present at the meeting held on 2nd November, 2019 G. Parthasarathi Board Room, AMCHSS, SCTIMST

SL. No.	Member Name	Highest Degree	Gender	Scientific /Non Scientific	Affiliation with Institution(s)
1.	Dr. Harikrishnan S	MD, DM (Cardiology) DNB (Cardiology)	Male	Clinician	Yes
2.	Dr. Kala Kesavan. P	MBBS, MD	Female	Basic Medical Scientist	Np
3.	Smt. Sathi Nair	MA (English Literature)	Female	Lay Person	No
4.	Dr. Christina George	MD Psychiatry	Female	Clinician	No
5.	Dr. Mala Ramanathan	PhD	Female	Social Scientist (Member Secretary)	Yes

IEC Decision

The IEC approved the conduct of the study in the present form.

Remarks:
The Institutional Ethics Committee expects to be informed about the progress of the study, any SAE occurring in the course of the study, any changes in the protocol and patient information/informed consent and asks to be provided a copy of the final report.

There was no member of the study team / Guide who participated in voting / decision making process. The ethics committee is organized and operated according to the requirements of Good Clinical Practice and the requirements of the Indian Council of Medical Research (ICMR).

Sincerely,

Mala Ramanathan
Member Secretary, IEC

ANNEXURE V

URKUND

Document Information

Analyzed document	Cyberbullying_Self-Esteem_7308_for_plagiarism check.docx (D71725397)
Submitted	5/18/2020 1:05:00 PM
Submitted by	Sankara Sarma
Submitter email	sarma@sctimst.ac.in
Similarity	4%
Analysis address	rasma.sctims@analysis.urkund.com