

# Assessment of Anxiety and Depression in School Children Exposed to Cyberbullying in Mumbai

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**Abstract**—The study was conducted in 10 schools across different locations in Mumbai. From an initial sample of 1624, the top 10% students exposed to cyberbullying were included in the study based on their scores on the Cyberbullying scale by Stewart and John Young. There was no significant difference in the exposure to cyberbullying among male (M= 27.51, SD= 4.84, N= 105) and female (M= 27.19, SD= 4.14, N= 57) school students  $t(160) = 0.42, p > 0.05$ . This shows that cyberbullying does not appear to be impacted by gender and that both male and female students are equally vulnerable. However, a significant difference in anxiety was observed among the same students with female students (M=11.75, SD= 3.49, N= 57) experiencing higher anxiety than male students (M= 10.03, SD= 4.13, N= 105) with  $t(160) = 2.57, p < 0.01$ . Similarly, there was a difference in the level of depression with female students (M=11.13, SD= 3.06, N=57) experiencing more depression than male students (M=9.98, SD= 3.86, N= 105) with  $t(160) = 2.03, p < 0.05$ . The Hospital Anxiety and Depression Scale (HADS) by Zigmond and Snaith (1983) was used for this purpose. The finding throw light on the different ways in which anxiety and depression issues need to be dealt with among male and female school victims of cyberbullying. While both genders experience similar levels of cyberbullying, the underlying mental health issues are different. This could be related to the social structure, expectations, and blaming surrounding gender in issues like cyberbullying and the limitations in scope for expression and support.

**Index Terms**—Cyberbullying, significant difference, gender, anxiety, depression, social structure.

## I. INTRODUCTION

Emergence of Cyberbullying due to digitization  
Due to the rapid growth of digital communication technologies, there is a transformation in the social

lives of adolescents. They now try to interact with everyone via smartphones or social media platforms. Even when it comes to studies or communicating with friends and family with whom you interact daily, the young generation take the help of smartphone. The usage of smartphones is so frequent nowadays in the adolescents that they have easy access to online platforms like messaging applications, gaming platforms and discussion forums. While these technologies offer us a numerous benefit, they also create new areas to commit crimes in. This has led to the young generation becoming easy targets for cybercrimes especially cyberbullying. Cyberbullying has become one of the most frequent online offence committed. It is due to the fact that those who bully others don't consider it as bullying, they consider it as teasing or playing. Cyberbullying basically refers to the harm done intentionally via electronic communication or internet as the media (Hinduja & Patchin, 2018).

Cyberbullying is not like traditional bullying, due to its anonymity and ability to reach out to a larger audience, permanence of the contents and absence of any physical boundaries make it a unique type of crime (Nixon, 2014). Due to this, perpetrators may remain anonymous even after committing a crime, however victim is exposed. Victims are highly exploited as they get continuous harassment that may follow them beyond the school premises. Due to these features, cyberbullying has emerged as a significant public health concern affecting adolescents worldwide (Kowalski et al., 2014).

The studies indicate that adolescents spend large amount of their time in engagement on social media, making them easily accessible for the bullies and

vulnerable to online victimization (Smith et al., 2008). As adolescents navigate complex developmental stages involving identity formation, peer acceptance and emotional regulation, exposure to cyberbullying can have severe psychological consequences on them.

#### Psychological consequences of cyberbullying

Cyberbullying has led the adolescents to have a wide range of negative psychological consequences such as emotional distress, low self-esteem, academic issues, behavioural problems and socially isolated (Hamm et al., 2015). The consequences that are most common and reported frequently are anxiety and depression amongst the adolescents. Anxiety is the frequent feeling of worry, nervousness and fear that may interfere with an individual's daily mobility and functioning. Depression is the prolonged sadness, reduced motivation, loss of interest in activities and hopelessness in life (American Psychiatric Association, 2013). There are studies supporting the statement that adolescents exposed to cyberbullying generally show higher levels of anxiety and depression compared to those not victimized (Hu et al., 2021; Molero et al., 2022).

There is strong evidence for the same present in the studies. Hu et al. (2021) conducted a meta-analysis of number of international studies and they found that there is a direct association between cyberbullying victimization and depressive symptoms among adolescents. Similarly, Molero et al. (2022) also reported that cyber victimization significantly helps in prediction of both anxiety and depression among adolescents, emphasizing that the psychological consequences often increase with the frequency and severity of online harassment. Another study has also indicated that prolonged exposure to cyberbullying may lead to much more severe mental health issues such as suicidal ideation, self-harm behaviours and substance abuse (Maurya et al., 2022).

#### Cyberbullying and its effect on Adolescent Mental Health

Adolescence is a developmental stage characterized by rapid emotional, psychological, and social changes. During this period, peer relationships play a crucial role in shaping self-identity and emotional well-being. Negative peer interactions, such as bullying or online harassment, can therefore significantly disrupt

adolescents' psychological development (Kowalski et al., 2014).

Cyberbullying differs from traditional bullying in several ways that intensify its psychological effects. The anonymity provided by online platforms often encourages perpetrators to engage in aggressive behaviours without fear of immediate consequences (Patchin & Hinduja, 2015). Furthermore, harmful messages, images, or videos can be shared repeatedly across digital platforms, prolonging the victimization process. This persistent exposure can create feelings of helplessness, humiliation, and emotional distress among victims.

Studies have shown that cyberbullying victims often experience internalizing psychological problems such as sadness, anxiety, and depressive symptoms, as well as externalizing behaviours such as aggression and withdrawal from social interactions (Hamm et al., 2015). These emotional difficulties may also affect academic performance and interpersonal relationships, thereby impacting the overall development of adolescents.

#### Cyberbullying in the Indian Context

Cyberbullying has become increasingly prevalent in the recent years. This can be seen amongst the adolescents in India due to the widespread access to internet and smartphones. In India, adolescents can be seen using social media platforms frequently such as WhatsApp, Instagram, Facebook including online gaming communities. These platforms may provide greater opportunities and exposure but it also creates space where cyberbullying may (Ranjith et al., 2023). One study conducted in India by Vijayarani et al. (2024) shows us that cyberbullying is an emerging crime that creates social problem affecting the adolescents as the victims face psychological distress, emotional instability and lower confidence in self due to online trolling or harassment on appearance. There are other factors too present in its such as cultural factors that may increase these effects due to stigma present in the society on mental health issues. This can discourage adolescents from seeking help or reporting cyberbullying incidents. Consequently, many adolescents continue to suffer psychological distress without adequate measures taken.

### Gender Differences in Psychological Responses to Cyberbullying

Several studies have examined gender differences in cyberbullying experiences and their psychological outcomes. While research suggests that both male and female adolescents experience similar levels of cyberbullying exposure, the psychological responses to victimization often differ between genders (Barlett & Coyne, 2014).

Female adolescents are more likely to exhibit internalizing emotional responses such as anxiety, sadness, and depressive symptoms following cyberbullying victimization. In contrast, male adolescents may be more likely to display externalizing responses such as aggression or emotional suppression (Khadka et al., 2024). These differences may be influenced by socialization patterns, cultural expectations, and gender-specific coping mechanisms.

Identifying how cyberbullying affects boys and girls differently can assist educators, counsellors, and policymakers in developing gender-sensitive prevention programs that address the unique needs of adolescents.

Despite increasing recognition of cyberbullying as a serious issue in India, empirical research examining its specific psychological consequences remains limited, particularly in urban metropolitan settings such as Mumbai. Understanding the mental health outcomes associated with cyberbullying is therefore essential for developing effective prevention strategies in educational institutions. Also, studying gender-based differences in psychological outcomes is essential for designing targeted mental health interventions.

## II. REVIEW OF LITERATURE

### Cyberbullying- A contemporary form of adolescent victimization

Cyberbullying is a form of peer victimization in the world of digitization, where harm is intended and inflicted via digital communication. It was highlighted by Patchin and Hinduja (2020) in their research that cyberbullying is nothing like traditional bullying, it is persistent, borderless and anonymous in nature. This makes it more psychologically influential and damaging. The authors demonstrated that the victims of cyberbullying experience emotional distress due to continuous exposure without safe spaces for escape. It

was further supported by Grunin et al. (2020) who in their study reported that due to permanence of materials posted on social media and public visibility of online contents lead to prolonged victimization, which in turn gives the adolescents chronic psychological strain. Their findings suggest that cyberbullying should be considered a serious psychosocial risk factor amongst adolescents that requires immediate structured intervention.

Kumar and Goldstein (2020) reviewed the profound clinical and psychological impacts of cyberbullying on the adolescent population, establishing its association with an increased prevalence of anxiety disorders, depressive symptoms, substance abuse, and self-harm behaviours. The review noted that victims often suffer enduring emotional distress because digital platforms offer perpetrators relentless access, creating a constant threat environment. The study also pinpointed risk elements, namely excessive social media reliance and insufficient parental oversight. The authors highlighted the necessity of timely intervention and prevention efforts within educational settings to mitigate psychological harm effectively.

### Cyberbullying, depression and suicidal risks

There are several studies that have established a strong association between cyberbullying and mental health risks. The longitudinal analysis done by Englander (2023) found that adolescents exposed to cyberbullying exhibited significant increases in anxiety, depressive symptoms and emotional dysregulation over time. The study highlighted that repeated exposure exacerbates psychological vulnerability.

Another study conducted on school going children by Campbell et al. (2012) showed that victims of cyberbullying reported higher levels of emotional distress, fear and reduced academic engagement. The findings suggest that cyberbullying negatively affects both psychological well-being and daily- routine functional outcomes in adolescents. This indicates that cyberbullying is not merely an extension of offline bullying but a distinct contributor to mental health issues. A meta- analysis review conducted by Tokunaga (2010) confirmed a consistent and robust relationship between cyberbullying victimization and depression. The study identified mediating factors such as social isolation, reduced self-esteem and lack of perceived social support.

The relationship between cyberbullying and psychological consequences has been widely studied throughout the world. One study found that adolescents who experienced cyberbullying were more likely to report depressive symptoms and exhibit self-harm behaviours (Dempsey et al., 2009). This study emphasized on the effect of repeated online victimization. Another study reported that there is a strong connection between cyberbullying and increased risk of suicidal ideation among adolescents (Wright, 2015). These findings suggest that longer exposure to cyberbullying can lead to severe mental health issues if it's not addressed through timely interventions.

Cross-cultural studies suggest that cyberbullying is a universal phenomenon with consistent psychological consequences across different regions. Ybarra et al. (2011) found that adolescents across multiple countries reported similar associations between cyberbullying and mental health issues, including anxiety and depression. Smith et al. (2008) also noted that while prevalence rates vary globally, the psychological impact of cyberbullying remains consistent, reinforcing its classification as a global mental health concern.

#### Cyberbullying in the Indian context

When it comes to India, cyberbullying has gained increasing attention due to rapid digitalization and widespread smartphone usage. Studies indicate that Indian adolescents are highly active on social media platforms leading to increase in their vulnerability to online harassment.

The study conducted by Balakrishnan (2018) highlighted that the Indian adolescents often do not report cyberbullying due to fear, stigma and lack of awareness. This underreporting contributes to prolonged psychological distress and limits access to support systems. Sengupta and Chaudhuri (2011) in their study found that cyberbullying significantly impacts emotional well-being among Indian adolescents, with victims showing higher levels of depression and loneliness. The study also emphasized the influence of cultural factors, such as stigma around mental health, which discourages help-seeking behaviour.

#### Gender differences in Psychological impact of cyberbullying

Gender differences in responses to cyberbullying have been widely explored. One such study reported that while exposure rates are similar across genders, female adolescents are more likely to experience internalizing symptoms such as anxiety and depression while, male adolescents tend to exhibit externalizing behaviours or suppress emotional responses (Modecki et al., 2014). Lenhart (2018) similarly observed that female adolescents report higher emotional distress due to cyberbullying, possibly due to greater sensitivity to peer evaluation and social relationships. These findings highlight the need for gender-sensitive mental health interventions.

#### Protection against cyberbullying- Coping, social support and resilience

Recent researches has focused on factors that may mitigate the negative psychological effects of cyberbullying. Wachs et al. (2018) found that adolescents with strong peer and family support systems reported lower levels of anxiety and depression despite exposure to cyberbullying. Emotional regulation skills were identified as a key protective factor. Livingstone et al. (2016) emphasized the importance of digital literacy and coping strategies in reducing harm. Adolescents who actively engaged in problem-solving behaviours, such as blocking perpetrators or seeking help, experienced lesser long-term psychological consequences.

#### Research gap

There is plenty of study done on International population, however, there is a scarcity of empirical research done on the cyberbullying and its psychological outcomes amongst Indian urban teenagers. There is also not much focus on specific mental health issues related to cyberbullying such as Depression and Anxiety. Adding gender differences along with general health in these outcomes is also not studied extensively. The present study addresses these gaps by examining the psychological impact of cyberbullying on anxiety and depression amongst the adolescent students with emphasis on gender differences in the metropolitan area, Mumbai.

## HYPOTHESIS

There is a statistically significant difference pertaining to anxiety and depression in school children exposed to cyberbullying in Mumbai.

## OBJECTIVES

1. Assessing anxiety disparities (HADS-A scores) between cyber victims and non-cyber victims among secondary school boys and girls in Mumbai secondary schools.
2. To analyse the potential interaction effect of cyberbullying exposure and gender on depression levels (HADS-D scores) among secondary school boys and girls in Mumbai.

## III. METHODOLOGY

### Research design-

The current research study utilized a quantitative, cross-sectional comparative research design to study the role of cyberbullying on psychological well-being, anxiety, and depression among boys and girls of secondary school students in Mumbai. Two psychological tests have been used for this that quantified measuring mental health objectively that supported a statistical analysis comparing students who reported cyberbullying experiences to those who reported none.

### Participants-

The total number of students in the initial sample were 1624 from 10 secondary school students of Mumbai, out of which the top 10% students exposed to cyberbullying identified via the cyberbullying scale by Stewart and John Young (2014) aged between 13 and 15 of grades 8<sup>th</sup> and 9<sup>th</sup> participated in this study. Subsequent to obtaining authorization from school officials and acquiring the informed, voluntary agreement of participants, data were accumulated. Participation was uncoerced, and their privacy was maintained.

### Instruments-

Two standardized instruments were used in the study to evaluate boys and girls for cyberbullying exposure, anxiety, depression.

1. Cyberbullying assessment scale (Stewart and John Young, 2014). Researchers administered the Cyberbullying assessment scale (Stewart and

John Young, 2014) to identify students who had experienced cyberbullying. Students were classified into two groups (high cyberbullying exposure and low cyberbullying exposure) based on their self-reported responses.

2. The Hospital Anxiety and Depression scale (HADS) developed by A.S Zigmond and R. P. Snaith in the year 1983 was used to measure symptoms of anxiety and depression. The HADS consists of 14 items divided into two subscales: HADS-A (Anxiety subscale) comprising 7 items assessing anxiety symptoms and HADS-D (Depression scale) comprising 7 items assessing depression symptoms. Items are rated on a 4-point Likert-type scale (0-3), yielding subscale scores from 0-21, with higher scores indicating more intense negative feelings.

### Ethical considerations

The study followed ethical requirements for psychological research involving minors. Participants provided informed consent, replies were kept anonymous, and they could withdraw from assessment session at any time. No identifiable information was gathered, and the data were presented simply in aggregate form.

### PROCEDURE

The study was conducted under the aegis and approval of the school principal and class coordinator. Data collection was conducted within the student's regular classrooms. The administration of the tests was preceded by a brief orientation in which students were informed of the study's purpose and the absence of definitive right or wrong answers. Students were advised that the results would be primarily used for research and that their responses would be kept anonymous. The first instrument administered was the cyberbullying assessment scale, with the HADS administered subsequently.

### DATA ANALYSIS

Statistical analysis was executed with SPSS (Statistical package for the social sciences) software. The psychological status of the students was quantified using descriptive measures, including the calculation of means, standard deviations, and relevant indices for anxiety and depression.

The researchers utilized inferential statistics to determine the statistical significance of their findings relative to the initial hypothesis. Differences in anxiety

and depression scores between boys and girls were assessed using an independent-samples t-test.

IV. RESULTS AND DISCUSSION

Table 1- Independent t-test statistical analysis

Variable	Gender	N	Mean (M)	SD	t	df	p-value	Inference
Cyberbullying Score	Male	105	27.51	4.84	0.42	160	>0.05	Not significant
	Female	57	27.19	4.14				
Anxiety (HADS-A)	Male	105	10.03	4.13	2.57	160	<0.01	Significant
	Female	57	11.75	3.49				
Depression (HADS-D)	Male	105	9.98	3.86	2.03	160	<0.05	Significant
	Female	57	11.13	3.06				

The current research paper examined how cyberbullying exposure correlates with anxiety and depression among school students in Mumbai, focusing on gender disparities. The top 10% of students exposed to cyberbullying -identified via the cyberbullying scale by Stewart and John Young (2014) were selected from a pool of 1624 students across 10 schools. Of cyberbullying, this study By specifically focusing on students experiencing high levels of cyberbullying, this study ensures a more meaningful investigation into the resulting mental health outcomes.

The findings reveal no statistically significant gender disparity in the exposure to cyberbullying among the surveyed students population, where male (M= 27.51, SD= 4.84, N= 105) and female (M= 27.19, SD= 4.14, N= 57) school students  $t(160) = 0.42, p>0.05$ . Cyberbullying acts as a gender-neutral phenomenon, with exposure rates failing to vary significantly between male and female students. Data indicates that the risk of cybervictimization is not bound by gender; both male and female students in high-risk categories report high, comparable levels of exposure to digital harassment. Gender differences in psychological outcomes, as measured by Hospital Anxiety and Depression Scale (HADS) by Zigmond and Snaith (1983), emerged despite comparable exposure levels where male students (M= 10.03, SD= 4.13, N= 105) and female students (M=11.75, SD= 3.49, N= 57) with  $t(160) = 2.57, p< 0.01$ . Similarly, there was a difference in the level of depression with female students (M=11.13, SD= 3.06, N=57) experiencing

more depression than male students (M=9.98, SD= 3.86, N= 105) with  $t(160) = 2.03, p<0.05$ . It is evident from the readings that despite similar exposure rates, female students experience notably higher anxiety from cyberbullying than males, also, female students exhibit increased susceptibility to depressive symptoms following cyberbullying, as evidenced by high scores.

These results are critical because they focus on the mental and emotional toll of anxiety and depression, moving beyond physical symptomology. Elevated mean scores among female students suggest a higher tendency toward internalizing distress, often manifested as feelings of sadness and loss of interest. Conversely, while male students reported slightly lower mean levels of anxiety and depression, their data exhibited greater variance – particularly in anxiety scores (SD = 4.13) – suggesting a wider range of experiences in how males report psychological distress. Although online victimization affects all genders equally, the resulting impacts differ, suggesting distinct psychological consequences for females and males. These variations may be attributed to social expectations, coping mechanisms, and emotional expression styles. Specifically, female students often internalize distress. Whereas male students may suppress or under-report emotional difficulties, despite similar exposure levels.

Cyberbullying affects boys and girls equally in frequency, but the mental health impact is markedly different for each. Research demonstrates that gender-differentiated support is crucial-offering tailored,

intensive mental health care for female victims and supportive, emotion -focused spaces for male students. By examining statistical trends, we better understand how cyberbullying impacts mental health differently across genders.

## V. CONCLUSION

The primary objective of this research paper was to evaluate how cyberbullying affects anxiety AND depression among secondary school boys and girls in Mumbai. Gender variations in mean anxiety and depression scores were negligible and failed to reach statistical significance, supporting the conclusion that emotional vulnerability to cyberbullying is consistent across genders. Cyberbullying exposure shows higher levels of online harassment are associated with poorer overall psychological health among adolescents, highlighting mental health implications irrespective of gender, it also spotlights cyberbullying as a critical, gender-neutral risk factor during adolescence.

A key takeaway is the mounting peril for young students in digital environments that defy easy regulation and oversight emphasizing the fact that young students are put to risks in a ubiquitous and poorly regulated cyber domain. Given the lack of significant interaction between gender and cyberbullying, it is clear that prevention strategies and intervention programs need to be comprehensive for all students, addressing a universal set of needs rather than those specific to certain demographics. The research indicates a strong need for integrated policy and practice, where schools, parents, and government bodies collaborate on comprehensive digital literacy programs and expand the provision of psychological counselling services within educational settings.

Recognizing the limitations is a key that the study's valuable insights are constrained by its reliance on self-report measures and a cross-sectional design, which impedes the inference of causality. A valuable next step for research would be to utilize longitudinal methods to study the long-term impact of protective factors (resilience, social support) and the influence of teacher and parent involvement (awareness, monitoring). Addressing the urgent need for effective cyberbullying intervention, the findings support the implementation of holistic, evidence-based mental health strategies throughout schools to protect adolescent well-being.

Overall, it can be said that the present study contributes to the growing body of research on cyberbullying by highlighting its association with anxiety and depression among adolescents in Mumbai and emphasizing the need for targeted mental health interventions within school environments.

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