

A comprehensive study on prevalence of cyberbullying and its impact on youths and adults

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Abstract

The upsurge of cyberbullying is one of the major causes of emotional distress among youths and adults in this rapidly advancing technological era. Over the last decade, our society had a newfound addiction to social media. Despite the pros of social media, its usage has a large spectrum of cons. A recent study in 2021 stated that over 330 million people might potentially suffer Internet addiction by the year 2023. With such alarming numbers, it's time to realize how it will lead to a sudden elevation in cyberbullying across the globe. Cyberbullying is now an international public health concern among adolescents. Researchers are now more concerned about the mental health and social well-being of people around them. The subject of cyberbullying among tweens, teens, and youths has always been the center of attention, but now there is an advent of a new add-on workplace cyberbullying. There is a need to perform more longitudinal work to understand the effects of cyberbullying and to identify possible prevention and intervention efforts to reduce its impact.

Subject Classification: 68T50, 68T05.

Keywords: Cyberbullying, Social media, Workplace cyberbullying, Mental-health, Social well-being.

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Introduction

Cyberbullying is when someone is bullied via use of technology. Youths and adults, who use these networks for vulnerable assaults, find fertile ground on social networking sites. Bullies might be anonymous or come from a small group of friends. Cyberbullying can be explained as a “Willful and repetitive harm committed via the use of computers, mobile phones, and other electronic devices” (Forssell, 2016; Hinduja, n.d.). Harassing, threatening, degrading, or shaming someone else via an internet platform are examples of it. Statistics on cyberbullying uncovers that majorly teenagers who are victims of it, are more likely to develop social anxiety and depression. Figure 1 illustrates the worldwide Google Search Trends of last ten years for the term cyberbullying. During the summer and winter break, the number of persons looking for “cyberbullying” drops dramatically. This might imply that cyberbullies are at their most aggressive during the school year compared to vacation time. Despite this trend continuing for several years, there was a significant drop in “cyberbullying” searches in fall 2020. This might be due to the significant amount of disruption in students’ lives during COVID-19 pandemic and the shift to e-learning. The search traffic has restored to its normal pattern following the first decrease (“Cyberbullying Statistics and Facts for 2022,” n.d.; Maurya and Jain, 2020). The Google search trends of the term Cyberbullying clearly show a consistent presence of cyberbullying-related searches in the last ten years.

As per the literature review it has been observed that different authors have proposed machine learning based techniques for the detection of the cyberbullying text. Table 1 shows the comparative analysis of varied publications on prevalence of cyberbullying that will help to provide a

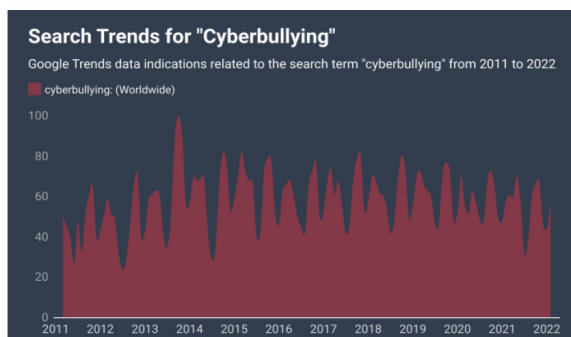


Figure 1

Worldwide Google Search Trends for the Term - Cyberbullying

Table 1
Literature Review Cyberbullying Prevalence

References	Dataset	Method	Limitation
Patchin and Hinduja (Hinduja and Patchin, n.d.)	Social Networking Sites	Identification of cyberbullying via surveys.	Theoretical analysis.
Alim et. al. (Alim, 2016)	Social Networking Sites	Analysis of existing cyberbullying case studies.	No automated solution is proposed.
Khairy et. al. (Khairy et. al., 2021)	Twitter, YouTube and Facebook	Offensive language identification in Arabic social networks.	Most of the used datasets are imbalanced.
Casas et. al. (Casas et. al., 2013)	Secondary School Students	Survey data implies the influence of personal and contextual factors.	Limited factors for the identification of cyberbullying.
Hamm et. al. (Hamm et. al., 2015)	Social media platforms	Characterized issues of cyberbullying to develop prevention strategies.	Excluded studies that did not include a social media component.
Thun et. al. (Thun et. al., 2021)	Mobiles Apps	Comparative analysis of features in existing cyberbullying Apps.	Image and Video based cyberbullying detection is not supported.
Khokale et. al. (Khokale et. al., 2021)	Twitter, YouTube, Reddit	Literature survey analysis and model proposed.	No testing of proposed model.
Islam et. al. (Islam et. al., 2020)	Twitter, Facebook	Application of feature engineering and machine learning algorithms.	Language limitation for text classification.
Talpur and Sullivan (Talpur and O'Sullivan, 2020)	Twitter tweets	Framework for severity detection.	Meta analysis of tweets has not been performed.
Muneer and Fati (Muneer and Fati, 2020)	Twitter tweets	Performance accuracy of machine learning algorithms.	Lack of a real-time detection platform.

better solution to the significant rise in it across the globe. Exhaustive research is required for finding out the prevalence of cyberbullying not only in schools and colleges but also in organizations. In this paper, a background of traditional bullying in contrast to cyberbullying shows the rise in the latter (“Cyberbullying Statistics and Facts for 2022,” n.d.; Narwal et. al., 2019).

Cyberbullying versus Traditional Bullying

In traditional bullying there is face-to-face interaction between the victim and the perpetrator, and it is distinguished by several features. Typical forms of bullying include calling someone names and embarrassing them in front of others (Alim, 2016). Cyberbullying has the following characteristics (Alim, 2016; McLean, 2009): (a) it can happen anywhere at any time; (b) instant circulation of embarrassing information about a person to a large audience; (c) the behavior of cyberbully can be repetitive or hostile; (d) feeling of guilt doesn't bother cyberbullies as they don't face their victims; (e) it is challenging for victims to deal with bullies in real life, and (f) they have difficulty in socializing. As it occurs online, unlike conventional bullying, cyberbullying creates a veil of anonymity between the victim and the aggressor (Thun et. al., 2021). In contrast to conventional bullying, cyberbullying might be more emotionally charged (Thun et. al., 2021). Due to its impact, cyberbullying is more alluring than traditional bullying. The behaviors of a cyberbully can be witnessed by a wide and captive audience. Most of the times victims feel powerless in the online world since it is more difficult to avoid anything placed online (Gaharwar and Gupta, 2020; Hinduja and Patchin, n.d.). While cyberbullying and bullying are frequently similar in terms of form and approach, there are significant differences between the two that might make the latter far more dangerous. Targets of cyberbullying may not be aware of who is attacking them or why. Anonymous accounts and pseudonymous screen names might be used by the attacker to hide his or her identity.

Common Types and Impacts of Cyberbullying

To effectively combat cyberbullying, it is necessary to be aware of the many varieties of online bullying, and to grasp the problem, one must be aware of the various difficulties that may arise (Hamm et. al., 2015). Bullying via instant messenger can take many forms (cycles and Text, n.d.; McLean, 2009), including (a) sharing personal messages with a group of people who aren't involved in the conversation, (b) imitate others,

(c) posting hurtful things on instant messengers that would not be said in real life (Thun et. al., 2021). Victims of flaming, harassment, denigration, cyberstalking, masquerading, and trolling usually show notable warning signs that generally include (Alim, 2016): withdrawal from social activities, avoiding college/school, dropping grades, or appearing anxious or sad after going online. As online communication tools have become such an integral part of young people's lives, it's not any surprise that some may use gadgets, applications, and platforms to harm or threaten others.

Prevalence of Cyberbullying among Tweens, Teens and Youths

Unless we are ready to recognise and stop it, the prevalence of cyberbullying won't decrease. Social networks must develop strict methods for identifying and reporting cyberbullying out of moral obligation and caring for its members. Voice/text chat is popular, as are video-sharing, streaming, and community websites, as the bulk of young people are migrating towards social media platforms. The statistics on student cyberbullying by various surveys carried out by different organizations make it abundantly evident that immediate actions must be taken to stop and prevent student cyberbullying as it has negative impacts on their mental health. 38% of people says there is a presence of cyberbullying ("Internet trolling on media sites U.S. 2017," n.d.) and 25% of youngsters turns to self help to deal with it ("Internet trolling on media sites U.S. 2017," n.d.). Many youths have reported that they are misunderstood on social media (Hinduja, 2020) and 9% confirmed that without their concern embarrassing pictures have been posted on social networking sites (Lenhart, 2007). 42% of adolescents have experienced cyberbullying on Instagram compared to other social media platforms ("Ditch the Label | Youth Charity | Mental Health, Anti-Bullying & Relationships," n.d.) and 37% of them experienced bullying on Facebook ("Enough Is Enough," n.d.). Compared to other countries 37% of Indian parents reports the cyberbullying happened to their child (Dhiraj, 2018) and risk of developing social anxiety is among 41% of students ("The Annual Bullying Survey 2020," n.d.). In a survey it was reported that 37% of students have developed depression after they have been cyberbullied. ("Ditch the Label | Youth Charity | Mental Health, Anti-Bullying & Relationships," n.d.) and mostly females felt powerlessness in ability to respond to abuse (cycles and Text, n.d.).

Objectives & Need

This study will examine the possible prevalence and effects on youths and adults through data collected by regional surveys and open source data available on the internet. A legitimate critical analysis of regional data is discussed in this paper, which clearly states potential risk factors associated with cyberbullying.

Methodology

To identify the current level of cyberbullying happening across the nation, an online survey consisted of 12 multiple-choice questions was conducted through Google Forms among the students of secondary and senior-secondary government/private schools, higher education institutes, colleges, and universities. Total 356 students responded in which 205 were Male and 148 were Female. In parallel for the identification of workplace cyberbullying a survey comprised of 18 items scored on a 5-point Likert scale was conducted through Google Forms among the employees of government/private higher education institutes/colleges/universities and industry. Total 116 employees responded and work-related and person-related cyberbullying factors at workplace were explored having 35 Females and 81 Males. Both surveys were conducted during the winter break of 2021.

Student Cyberbullying Survey Analysis

As social media platforms is playing a major role in cyberbullying, with the survey analysis it has been seen that some social network sites are more exposed to it compared to others (Sharma et. al., 2020). The different layers in Figure 2 represent the most to least cyberbullying-prone platforms from bottom to top. In the survey analysis, it has been seen that Facebook is the majorly affected social media site where 40.3% of respondents have faced some type of cyberbullying compared to other platforms. Commonly, disabled people are more prone to cyberbullying than normal people. Through survey data in total, 4.2% of respondents have some kind of disability in which almost 40% of them have been the victim of cyberbullying, while 49.4% of the total respondents have experienced some type of cyberbullying. Many cyberbullying surveys show a correlation with the survey data analysis and according to the stats it has been observed that females (54.2%) are more cyberbullied than males (46.8%). Cyberbullying harms all age groups, whether they are tweens,

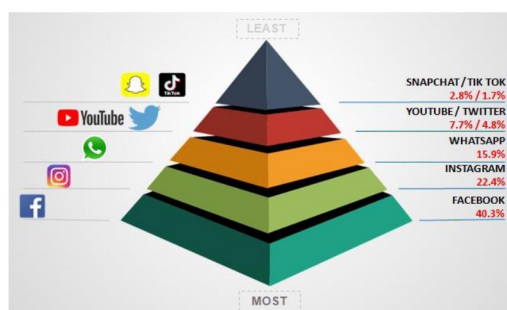


Figure 2
Cyberbullying Prone Social Media Platforms

teens, or youths. Those who have experienced cyberbullying mostly have developed social anxiety or disconnected themselves from social networks. Measured by the percentage of respondents, 40.7% have cyberbullied someone online and 82.6% have been the victim of cyberbullying which shows the existence of activeness of perpetrators and its effects on victims.

The survey was conducted at a national level in which respondents from 23 different states have participated and only 65.1% of them knew the proper meaning of cyberbullying and 82.9% of respondents have agreed on the fact that the use of social media has been increased after the Covid-19 pandemic. When asked respondents what type of cyberbullying they faced online and what is the frequency of its occurrence then the results depict that its presence ranges from daily to yearly occurrence. Figure 3 shows a group column chart where different types of cyberbullying are plotted according to the frequency of its occurrence. Although the symptoms of cyberbullying vary, the following are common among children and adolescents who have been bullied (Hamm et. al., 2015): (a) Obsession towards digital life (b) Disconnect with close ones and general routine activities (c) Avoiding school (d) Decreased academic performance (e) Aggressive behavior at home (f) Constant fluctuations in mood, behavior, sleep, and appetite (Lin et. al., 2009). Figure 4 shows a range plot of impacts of Cyberbullying by the survey data analysis in males and females.

Schools and colleges must implement cyberbullying prevention schemes as the negative impacts are directly targeting the mental health and social well-being of a victim. To be sure, it might be difficult for a single teen to advocate for others. It is, however, far easier to do with the assistance and support of one or two additional pals. If students are

Types of Cyberbullying with Frequency

When asked respondents what has happened to them and how frequently it happens.

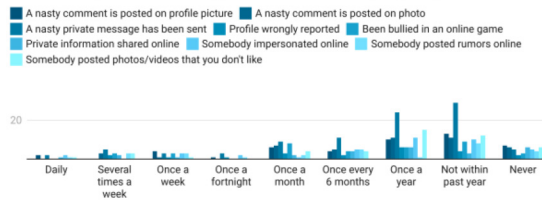


Figure 3

Types of Cyberbullying with Frequency

Impacts of Cyberbullying

When asked respondents what impacts did it have on them?

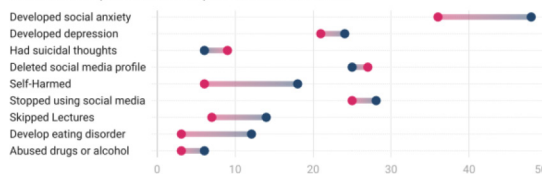


Figure 4

Impacts of Cyberbullying in Males (Blue color) and Females (Pink color)

concerned about intervening or responding on their own, forming a group is a better option. In addition to the existence of cyberbullying victims, sometimes a person can also act as a cyberbully either out of frustration or just for annoying some friend or unknown (Muneer and Fati, 2020). When respondents of the survey were asked if they have done any of this Figure 5 illustrates the responses.

Mostly the perpetrator applies traits that cannot be tracked easily on social media platforms and online games. But social networking sites must enhance their existing system to prevent cyberbullying. Through awareness programs at the school and college levels, students can be educated on the steps that they can take to prevent cyberbullying. When asked respondents what they have done to stop cyberbullying, the responses show a decent awareness among the students for the prevention of the same. Figure 6 shows the responses against some actions that can stop cyberbullying.

To effectively deal with cyberbullies (McLean, 2009) Parents can get involved and be aware of what their children are doing online, where they go, and who they talk to. An individual must be encouraged to report any online incident that makes them feel uncomfortable or threatened. They

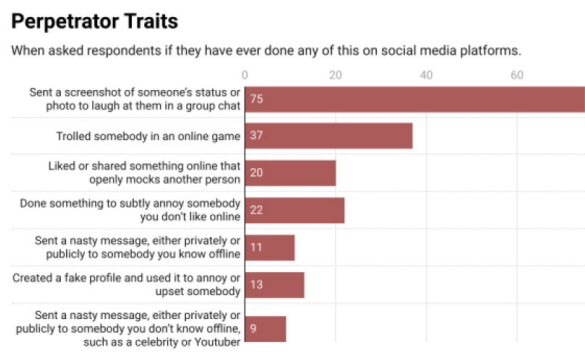


Figure 5

Perpetrator Cyberbullying Traits

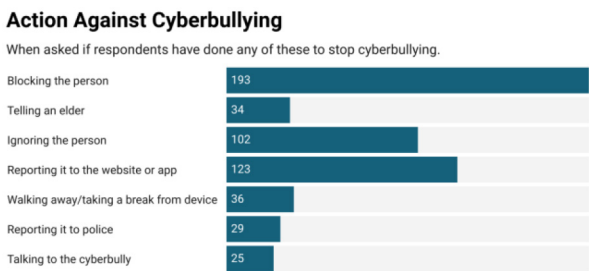


Figure 6

Action Taken To Stop Cyberbullying

should develop their moral code so that they will choose to behave ethically online. Parents and teachers can lookout for signs that a person is being bullied online and intervene if necessary. Teachers, parents, and students must be educated about the seriousness of cyberbullying. The School/College Board’s policy must be updated to include harassment conducted through mobile and internet technologies and the computer use policy must include cyberbullying penalties. Students must keep their contact information private. If they are being harassed or bullied online, it’s always better to inform a trusted adult. Blocking the sender’s communications is the best solution and in Figure 6 it can be clearly seen that most of the respondents prefer the same. It is advised to save any harassing messages and transmit them to internet service providers and inform the police if the bullying involves a physical threat.

Prevalence of Workplace Cyberbullying

Since the early 2000s, cyberbullying perpetrated by children and adolescents has been the subject of research. There is evidence that

cyberbullying happens in the workplace and has harmful consequences for people who are subjected to it. Despite the difficulty of dealing with circumstances that occur outside of working hours, these qualities have led human resources professionals to recognize cyberbullying as a workplace stressor (Scholtz et. al., 2015), (Farley et. al., 2016). Even though workplace cyberbullying is becoming more widely recognized, the phenomenon's present quantification remains restricted. The emphasis of the research is either limited to email harassment or similar but conceptually separate subjects. The current study details the construction of a workplace cyberbullying measure in an attempt to meet the measuring demand (Hinduja, n.d.). Another contrast is that many cyberbullying acts are permanent, unlike most traditional bullying behaviors, which are transient. When cyberbullying happens, the target audience might be substantially larger. Private confrontations can be viewed by all members of the organization, including members of the public, thanks to online conversations that can transcend the limits of a workgroup. Employees utilize social networking sites to vent their frustrations with their bosses. Employees make remarks regarding their bosses' working techniques, personal traits, and personal relationships. Each post elicited further responses from passersby, many of whom were unfamiliar with the person being addressed (Escartín et. al., 2019; Farley et. al., 2021).

Comparative Critical Analysis of Workplace Cyberbullying Survey

Adapting the widely used Negative Actions Questionnaire (NAQ) to measure workplace cyberbullying has been a common method. The virtual NAQ has a high construct validity, which captures repetition and power imbalance. As NAQ was initially created to evaluate conventional bullying, and it might not adequately capture the full scope of workplace cyberbullying (Farley et. al., 2016). As a result, distinctive cyberbullying behaviors (e.g., carbon copying, posting of personal information online) are not included in the scale, implying that the cyber NAQ (Alim, 2016; Li, 2010) lacks content validity. The workplace Cyber-bullying Scale (WCbS) includes a 18-item metric which is intended specifically to deal with workplace cyberbullying (cycles and Text, n.d.; McLean, 2009). The survey respondents were asked to state the frequency of certain behavior while virtual interactions which includes receiving of emails or messages that have a discourteous tone. Sometime the colleagues at workplace also shares personal information without the concern of an individual. The items are scored on a 5-point Likert scale, 0 (Never), 1 (Now and then), 2

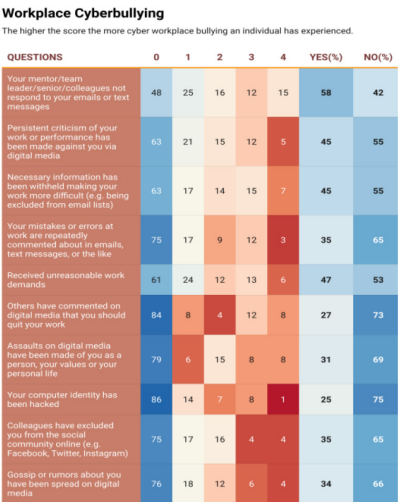


Figure 7
(a) Workplace Cyberbullying 10 Items & Responses

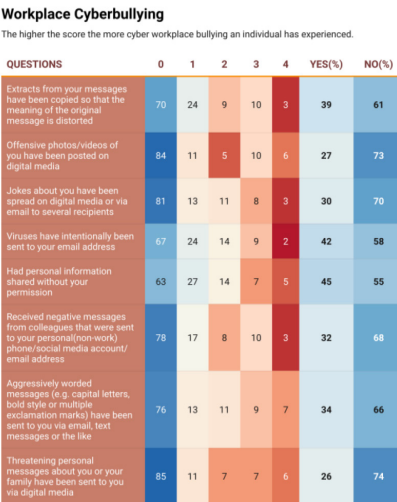


Figure 7
(b) Workplace Cyberbullying 8 Items & Responses

(Monthly), 3 (Weekly), and 4 (Daily) (Visinskaite, n.d.). The 18 items for measuring workplace cyberbullying were taken from the literature (Forssell, 2016), (Visinskaite, n.d.), (Privitera and Campbell, 2009). With the total score of all items, it is derived that if the total score is high then possibility of workplace bullying to an individual is higher. Figure 7 (a) shows the first 10 items and (b) lists the rest 8 items of the Workplace Cyber-bullying Scale (WCbS) with the responses of working professionals on the Likert Scale (Privitera and Campbell, 2009).

In some previous studies it has been seen that cyberbullying at work increased employees' perceptions of stress, which in turn predicted their job unhappiness. The findings also showed that female employees were more likely cyberbullied than male employees and have higher perceived stress levels and job dissatisfaction (Loh and Snyman, 2020). One study suggested that the organizations must consider the importance of healthy social relationships in the workplace when establishing bystander intervention tactics (Madden and Loh, 2020). Further one research findings has clearly stated that cyberbullying reduces creativity by causing more psychological anguish (Kalyar et. al., 2020; Lin et. al., 2018). In one study the four attributes of workplace cyberbullying have been recognized : (a) persistent unwanted act stemming from the workplace, (b) the delivery of

the negative act is mostly via digital technology, (c) the faceless perpetrator, and (d) the boundaryless ("Workplace cyberbullying exposed: A concept analysis - Symons - 2021 - Nursing Forum - Wiley Online Library," n.d.). To study the current prevalence of cyberbullying at workplace a survey is conducted via Google form to obtain responses, and in total 116 respondents have completed the survey. The majority of responders were men (69.8%), while 30.2 percent were women, according to the survey findings. Their ages varied from 24 to 55, with a 35-year average. Respondents' occupations spanned teachers, instructors, industrial leaders, and software engineers. The behavioral descriptions of the questionnaire were categorized using an inductive technique. Glamour, exclusion, harsh job expectations, emails at unsociable hours, photographs, and humor were among the types of questions generated. As for academic qualification, 44.8% of respondents' highest qualification was Ph.D. and 43.1% were Post Graduates, and the rest were Under Graduates. In total 62.9% of respondents was less than 40 years old age group and 37.1% were above that age group. As per the survey analysis, 54.3% of respondents were having up to 10 years of working experience which shows the correlation with the age group for validating the attentiveness of respondents while attempting the survey. Table 2 shows the statistical analysis of the workplace cyberbullying survey where the Number of Responses (N) is 116. Through the critical analysis we can clearly state the factors that are responsible for workplace bullying and how frequently it is happening with an individual. The values obtained on likert scale through responders are computed for determining the different components of statistics. Result shows that the workplace cyberbullying is still under control in most of the cases.

As per the responses taken on the Likert Scale, 62.93% have never experienced any work-related or personal cyberbullying. The maximum value pertains to the fact that the respondents had their personal information shared without their permission in the workplace. In total 37.06% of the respondents have experienced workplace cyberbullying in which majority of them (Hinduja, 2020) have experienced the following: (a) Work-Related Cyberbullying: Important information has been kept back resulting in more challenges in work, their mentor/team leader/senior do not respond to their messages or emails. Person-Related Cyberbullying: Personal information was shared without their permission. Colleagues have socially excluded them on social media. Figure 8 illustrates the linear relationship between both factors.

Table 2
Statistical Analysis of WCbS (N=116)

STATISTICAL ANALYSIS					
Frequency	Never (0)	Now & Then (1)	Monthly (2)	Weekly (3)	Daily (4)
Formula					
Σ (Sum)	1314	307	199	172	96
Mean	73	17.06	11.05	9.55	5.33
Max	86	27	16	15	15
Min	48	6	4	4	1
Standard Deviation	10.35	6.15	3.80	2.77	3.16
Variance	107.06	37.82	14.41	7.67	10
Percentage	62.93%	14.7%	9.53%	8.24%	4.6%

It can be understood from the above graph that both factors strongly contribute to the assessment of the severity of workplace cyberbullying where work-related items have a greater influence in comparison to person-related items. The major outcomes of this survey analysis are as follows: (a) successful in determining the contrast between victims and non-victims of workplace in respect of both factors: work-related and person-related cyberbullying at the workplace. (b) It also added to the body of evidence concerning workplace cyberbullying (Forssell, 2016). (c) In connection with the factors in question, statistical analysis revealed substantial disparities between the two groups. (d) The statistical research confirmed the presence of cyberbullying, showing that its prevalence is on the rise. This work adds to the existing literature by providing more information and evidence; nevertheless, more research to address the

Workplace Cyberbullying Factors

Linear relation of Workplace Cyber-bullying Scale (WCbS)

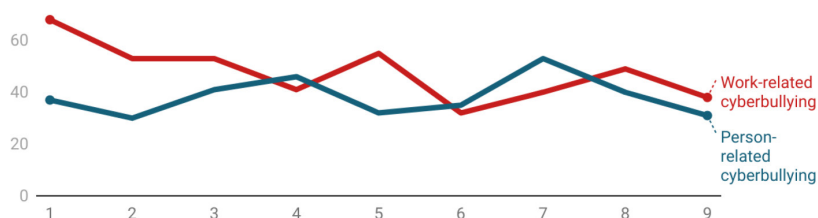


Figure 8

Linear Relation of Workplace Cyberbullying Scale

limitations of the current study is required (Lenhart, 2007; Sadia et. al., 2022).

Discussion and Conclusion

Recent upsurge of social media has created an online environment for everyone that has both positive and negative aspects. According to the survey analysis Facebook and Instagram social networking platforms are more vulnerable in terms of cyberbullying. Those who have experienced cyberbullying have developed social anxiety, and depression, and disconnected themselves from social media. The majority of respondents have reported that social media platforms must be made more secure for users. Whereas workplace cyberbullying is a new face of cyberbullying affecting people working in the public and private sectors. Factors like work-related and person-related have shown major concerns where workplace cyberbullying is happening the most (Kowalski and Limber, 2007). The survey has responses from all types of age groups Tweens, Teens, Youths, and Adults for identifying the prevalence of cyberbullying across the nation. After analyzing the responses, victims have faced common types of cyberbullying like Flaming, Harassment, Denigration, Cyberstalking, Masquerade, Trolling, etc (Alim, 2016). Organizational management needs to be aware of the workplace cyberbullying exists and must ensure safeguard of working professionals health, safety, and welfare by implementing policies and procedures to address such issues (Forssell, 2016, p.).

Future Scope

A system can be made that will focus on detecting and predicting the presence of cyberbullying activity in schools/colleges/companies and social networks using machine learning approach. In the future, detection and prediction system can also categorize the precise type of cyberbullying activity which will be helpful to prevent cyberbullying among tweens, teens, youths, and adults.

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