

Birth of Cyberbullying in Social Media

A
Mini
Project
Of
STAT 109 – Measures of Association and Probability Distribution

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Candidate's Declaration

I hereby declare that the mini project work being presented in this report entitled “**Birth of Cyberbullying in Social Media**” submitted in the department of Mathematics and Statistics, **Faculty of Statistics**, Banasthali Vidyapith University, Jaipur is the authentic work carried out by me under the guidance of **Dr. Gargi Tyagi**, Assistant Professor, Department of Mathematics and Statistics, Banasthali Vidyapith University, Jaipur, Rajasthan.

Certificate

This is to certify that this report represents the original work done by **Unnati Goyal** during this project submission as a partial fulfillment of the requirement for the Project of Bachelors of Science, Mathematics, II Semester, of the Banasthali Vidyapith University, Jaipur Rajasthan.

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Introduction

What is Cyberbullying?

“The use of electronic communication to bully a person, typically by sending messages of an intimidating or threatening nature is called Cyberbullying”.

But it is not just the use of electronic communication to bully a person, it is far more than that. It is a way to break the person internally using their personal issues; and internal injuries are hard to heal.

It has become increasingly common, especially among teenagers, as the digital sphere has expanded and technology has advanced. At present, every other child crossed 12 years of age can be seen using social media. The advancement of generation has caused many serious issues prevailing in society among which Cyberbullying has become most common. Without knowing the perks and consequences of what their steps can lead them to, the present teenage generation is pacing at a fast rate in the world of technology and the result is increased problems of depression and anxiety.

It is not just an issue, but a serious mentality problem. Many people become victims of Cyberbullying just be a material of fun or laugh. Many people do it for revenge or hate or just to show how powerful they are. It is not dangerous for only teenagers; it has caused many problems in the lives of many other people too.

Conclusively, **Cyberbullying is a punishable act in which the bully uses Social Media platforms to affect other person mentally or just to make fun out of.**

How Cyberbullying is related to social media?

Technology is great and offers fantastic opportunities for children, teenagers and adults. However, the technology can be misused in many ways too. It can open the doors of many new fortuities but can lead to incidents which cannot be forgotten whole life.

While surfing internet to study our interest, we came to know about Shreya Singh*, 21, an undergraduate student of Lady Shri Ram College, Delhi, who became the target of online harassment when she was just 12. “A classmate from my previous school had been collecting my photos and information about me and had used this to forge a Facebook page in my name,” Singh told. “I had no idea and found out about this fake page through my peers.” What initially seemed like harmless teasing soon turned vicious. Schoolmates took to sending crude

messages, and, unable to cope, Singh started avoiding her friends. She finally sought counselling to deal with depression and switched schools.

Like Singh, three in four adolescent users are not aware of-or do not adhere to-the minimum age for creating a social media account, which is 13 for Facebook and 18 for other networking sites, the CRY survey found. Having grown up around gadgets, 80% of the boys and 59% of the girls interviewed by CRY had social media accounts; 31% had more than two accounts.

Commenting on the appearance, judging people on their personality, complexion, caste or height, etc. features make a person internally broken. Social media, when influences one to grow online, it supports those bad influencers too to openly criticize someone on any basis.

On the way of digitalizing India, many cyber-crime cases are being reported day by day. Presently, India is at the third position with respect to other countries of the world in case of Cyberbullying.

The motive of digitalizing India was to connect the urban and rural areas and not to become a bully and roam around.

How can Cyberbullying affect the lives of people?

Any type of bullying can have physical and psychological effects on a child. Anxiety, fear, depression, low self-esteem, behavioral issues, and academic struggles are just of the few challenges kids may experience if they are targets.

Roughly 56 million Indians suffer from depression, and 38 million suffer from some anxiety disorder out of which a huge number suffered because of cyberbullying.

As mentioned before also, Cyberbullying breaks the person from inside. The torture they face because of their looks, their personality or their gender or caste, make their self-esteem fall on the ground. The victims feel insecure even in front of the ones who love them truly. The victims of cyberbullying fear facing public in both, social as well as the real world. They just spend their time alone and become anxious or depressed. Some people become so depressed that they try to do suicide attempts.

Social world was to make people aware of what is happening in the society, but for the victims it just become the world where they would get punished without being guilty.

Objective of this Study

In this file we will try to find out the relation between mostly used Social Media applications (Instagram and WhatsApp) and some important Cyberbullying factors.

Here, we will try to find the relation between each of the following and try to give some productive results as per our survey:

| | |
|---------------------------------------|---|
| 1. <i>Social Media</i> | If children are taught about Cyberbullying? |
| | If children are taught to reply Cyberbullying? |
| | If the Individual know Bully? |
| 2. <i>Social Media</i> | If anyone saw any Abusive Comment? |
| | If anyone Experienced Cyberbullying? |
| 3. <i>Social Media</i> | Type of messages one got if bullied? |
| | Bullied by known/unknown person? |
| | If Individual shared any of his details to the bully? |
| | How did the Individual feel after harassment? |
| 4. Correlation between the following: | |
| <i>No. of people involved</i> | No. of times bullied |
| <i>No. of people bullied around</i> | No. of times bullied |
| <i>No. of people involved</i> | No. of people bullied around |

Scope of the Study

At present, 1 in 10 adolescents faces Cyberbullying in India.

According to, " **1 In 10 Indian Adolescents Faces Cyberbullying, Half Don't Report: Study**", around 9.2% of 630 adolescents surveyed in Delhi-National Capital Region had experienced

cyberbullying and half of them had not reported it to teachers, guardians or the social media companies concerned, a recent study by Child Rights and You (CRY), a non-governmental organization, found.

Vulnerability rose with internet use: 22.4% of respondents (aged 13-18 years) who used the internet for longer than three hours a day were vulnerable to online bullying, while up to 28% of respondents who used the internet for more than four hours a day faced cyberbullying, concluded the study titled 'Online Study and Internet Addiction', released on February 18, 2020.

There are many other related researches namely, 1 In 10 Indian Adolescents Faces Cyberbullying, Half Don't Report: Study, Cyberbullying awareness worldwide 2018, by country, Aggression in schools: Cyberbullying and gender issues, the interface between technology and customer cyberbullying: Evidence from India, etc.

This report focuses on two majorly used platforms (WhatsApp, Instagram) as suggested by the respondents, who participated in our survey. This report discusses how various factors (mentioned further in the report) are related to each other. We will also try to give some concluded results of how one can avoid being Cyberbullied, or how one should react when he faces such situation, in order to play our role in stopping Cyberbullying, being a responsive citizen of India.

Limitations of this Study

While briefing our study, we concluded the following limitations:

- We are not able to collect appropriate data to make our report much more productive.
- Respondents' bias may be one of the criteria here, as many of our respondents would have not felt this survey to fully rely upon.
- Number of responses are also a limitation of our study, as to conclude any productive result we were here required to know the views of as many citizens of India as possible, but could get the responses of mainly girls of our college.
- We may lack in giving alarming relations between the factors we could have concluded in our research.
- Availability of not enough knowledge of tools which could be used in this report file.

Being a learner of Statistics, we tried to give our 100% effort, seeing the seriousness of this topic and concluded some useful results to play their role.

Literature Review

This report file particularly focusses on how one can avoid being cyberbullied or how he should react when such circumstances come to play. Being a serious issue of the society, it is needed to be concentrated upon.

Kevin Brennan, Parliamentary Under Secretary of State for Children, Young People and Families stated, *"Cyberbullying is the unacceptable face of new technology, and we need concerted action across society to address it. Schools must play a key role, and this new guidance will help them to identify and tackle instances of cyberbullying more effectively, as well as providing practical advice and information on how to prevent it."*

Cyberbullying is defined as harassment through digital devices such as computers, laptops, smartphones and tablets, and can occur over social media, in chat rooms and on gaming platforms.

Cases of cyberstalking or bullying of women or children increased by 36% from 542 in 2017 to 739 in 2018, data released recently by the National Crime Records Bureau (NCRB) showed. Meanwhile, the conviction rate for cyberstalking or bullying of women and children fell 15 percentage points from 40% in 2017 to 25% in 2018. However, during the same period, the pendency percentage saw an increase of 1 percentage point to 96%, the data show.

From this information, recommendations are made and suggestions for future research are detailed.

Methodology

Parameters under study

1. **Population:** All the citizens of India.
2. **Population size:** Number of people residing in India.
3. **Sample:** We have shared a questionnaire to our friends and relatives and also with our classmates. Some of them shared the same with their peers too.
4. **Sample size:** We got a total of 75 responses.
5. **Parameter of interest:** People using social media
6. **Sampling Procedure:** Simple Random Sampling
7. **Type of data:** Primary
8. **Characteristic of data:** Views and experience of people on Cyberbullying
9. Used both discrete variables and attributes to complete our study.
10. **Measurement scales:** Interval, Ratio, and Nominal scales are included
11. **Data analysis tools:** Subdivided-bar graphs, scatter plot and pivot table
12. **Association:** Two attributes A and B are said to be associated if they are not independent.

$$(AB) \neq \frac{(A) \times (B)}{N}$$

13. **Yule's Coefficient of Association:** It is a measure of intensity of association between two attributes A and B as follows:

$$Q = \frac{((AB)(\alpha\beta) - (A\beta)(\alpha B))}{((AB)(\alpha\beta) + (A\beta)(\alpha B))}$$

14. **Odds:** The ratio of the probability that an event happens to the probability that it does not happen.

$$\text{Odds in favour of Event A} = \frac{P[\text{Occurrence of event A}]}{P[\text{Non - Occurrence of event A}]} = \frac{P(A)}{1 - P(A)}$$

15. **Odds Ratio:** A common way to compare odds in two groups is to look at the ratio, which is known as Odds Ratio.

$$\text{Odds} = \text{OR} = \frac{\text{Odds}_1}{\text{Odds}_2}$$

Chances of happening of an event, when

- Odds Ratio < 1 → are less likely in first group as compared to second group
- Odds Ratio = 1 → are equally likely in both groups
- Odds Ratio > 1 → are more likely in first group as compared to second group

16. **Correlation:** Correlation is a statistical measure that express the extent to which two variables are linearly correlated.

17. **Karl Pearson Correlation Coefficient:** It measures the Linear relationship between two quantitative variables.

$$r(X, Y) = \frac{Cov(X, Y)}{\sigma_X \sigma_Y}$$

The value of correlation coefficient lies between -1 to +1. It is independent of change of origin and scale.

Statistical Analysis

Here, we attach some tables in which we perform some statistical tools like association, correlation, odds and odds ratio on various factors related to cyberbullying.

Table 1: Views of People on cyberbullying

| Teaching | Instagram | WhatsApp | Total | Q | Odds favour | Odds against | Odds Ratio |
|----------|-----------|----------|-------|------|-------------|--------------|------------|
| No | 11 | 6 | 17 | 0.53 | 1.83333333 | 0.56756756 | 3.2301587 |
| Yes | 21 | 37 | 58 | | | 8 | 3 |
| Total | 32 | 43 | 75 | | | | |

| Taught to reply | Instagram | WhatsApp | Total | Q | Odds favour | Odds against | Odds Ratio |
|-----------------|-----------|----------|-------|------|-------------|--------------|------------|
| No | 15 | 11 | 26 | 0.44 | 1.36363636 | 0.53125 | 2.5668449 |
| Yes | 17 | 32 | 49 | | | | 2 |
| Total | 32 | 43 | 75 | | | | |

| Known bully | Instagram | WhatsApp | Total | Q | Odds favour | Odds against | Odds Ratio |
|-------------|-----------|----------|-------|------|-------------|--------------|------------|
| No | 5 | 13 | 18 | - | 0.38461538 | 0.9 | 0.4273504 |
| Yes | 27 | 30 | 57 | 0.40 | | | 3 |
| Total | 32 | 43 | 75 | | | | |

In the above table, we took no. of responses of some people in which “teaching” means if children are taught about cyberbullying or not, “taught to reply” means if children are taught to reply cyberbullying or not, “known bully” means if the individual know the bully or not. This way, we are comparing these factors of cyberbullying with social media sites: Instagram and WhatsApp. With this dichotomous table, we calculated association between them and found odds ratio which tells us the proportion of chances of having an event to not having that event.

Table 2: No. of people experienced or saw any abusive comments on cyberbullying.

| Abusive Comments | Instagram | WhatsApp | Total | Q | Odds in Favour | Odds Against | Odds Ratio |
|------------------|-----------|----------|-------|-------|----------------|--------------|------------|
| No | 13 | 28 | 41 | -0.46 | 0.46428571 | 1.26666666 | 0.3665413 |
| Yes | 19 | 15 | 34 | | 4 | 67 | 53 |
| Total | 32 | 43 | 75 | | | | |

| Ever Experienced | Instagram | WhatsApp | Total | Q | Odds in Favour | Odds Against | Odds Ratio |
|------------------|-----------|----------|-------|-------|----------------|--------------|------------|
| No | 23 | 31 | 54 | - | 0.74193548 | 0.75 | 0.9892473 |
| Yes | 9 | 12 | 21 | 0.005 | 4 | | 12 |
| Total | 32 | 43 | 75 | | | | |

In the above table, we took no. of responses of some people in which “**abusive comment**” means that whether the individual saw any type of comments on their sites or profiles which make them feel bad about themselves and “**ever experienced**” means whether the individual ever experienced or practiced cyberbullying in their life. This way, we are comparing these factors of cyberbullying with social media sites: Instagram and WhatsApp. With this dichotomous table, we calculated association between them and found odds ratio which tells us the proportion of chances of having an event to not having that event.

Table 3: Views of individual who experienced cyberbullying.

| Type of Messages | Instagram | WhatsApp | Total | Q | Odds in favour | Odds Against | Odds Ratio |
|------------------|-----------|----------|-------|------|----------------|--------------|------------|
| Embarrassing | 5 | 4 | 9 | 0.43 | 1.25 | 0.5 | 2.5 |
| Self-related | 4 | 8 | 12 | | | | |
| Grand Total | 9 | 12 | 21 | | | | |

| Bullied by | Instagram | WhatsApp | Total | Q | Odds in favour | Odds Against | Odds Ratio |
|-------------|-----------|----------|-------|------|----------------|--------------|------------|
| Known | 4 | 4 | 8 | 0.23 | 0.8 | 0.5 | 1.6 |
| Unknown | 5 | 8 | 13 | 0 | | | |
| Grand Total | 9 | 12 | 21 | | | | |

| Shared Anything | Instagram | WhatsApp | Total | Q | Odds in favour | Odds Against | Odds Ratio |
|-----------------|-----------|----------|-------|------|----------------|--------------|------------|
| No | 7 | 10 | 17 | - | 3.5 | 5 | 0.7 |
| Yes | 2 | 2 | 4 | 0.17 | | | |
| Grand Total | 9 | 12 | 21 | | | | |

| Feeling after Harassment | Instagram | WhatsApp | Total | Q | Odds in favour | Odds Against | Odds Ratio |
|--------------------------|-----------|----------|-------|------|----------------|--------------|------------|
| Depressed | 5 | 8 | 13 | - | 1.25 | 2 | 0.625 |
| Embarrassed | 4 | 4 | 8 | 0.23 | | | |
| Grand Total | 9 | 12 | 21 | | | | |

In the above table, we took no. of responses of some people in which **“types of messages”** means that what type of messages the individual received, such as embarrassing (making feel uncomfortable or shy) and self-related (connected with the individual himself rather than by external matter) and **“bullied by”** means whether the individual know the person by which he/she bullied or not. Now, **“shared anything”** means whether the individual share their personal or other details with cyberbully or not and **“feeling after harassment”** means that after being bullied, how the individual feels such as depressed or embarrassed. This way, we are comparing these factors of cyberbullying with social media sites: Instagram and WhatsApp. With this dichotomous table, we calculated association between them and found odds ratio which tells us the proportion of chances of having an event to not having that event.

Table 4: Establishing the correlation between the following variables.

| | Correlation Coefficient |
|-------------------------------------|-------------------------|
| <u>No. of people involved</u> | 0.819774 |
| <u>No. of times bullied</u> | |
| <u>No. of people bullied around</u> | 0.37374921 |
| <u>No. of times bullied</u> | |
| <u>No. of people involved</u> | 0.375911655 |
| <u>No. of people bullied around</u> | |

In the above table, we took discrete variables because number of people, number of times bullied, number of people bullied around can't be continuous. This way, we found correlation coefficient which is a measure of intensity of linear correlation between two datasets.

Conclusion

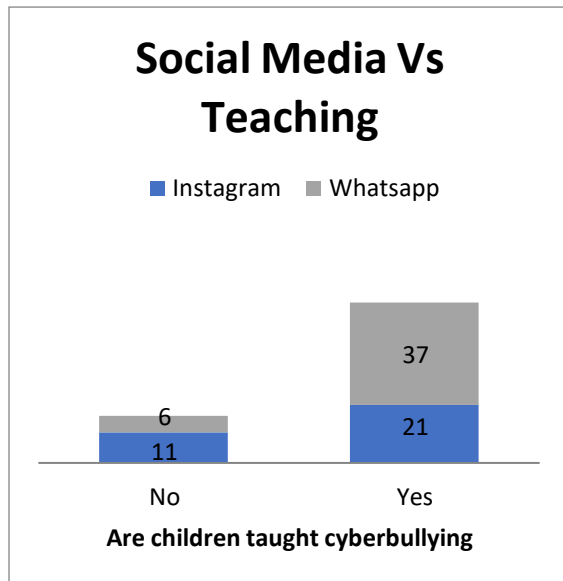
From the above tables, we can see up to how much extent different variables and attributes are related to each other. The extent of their relation can help us conclude some major results which are discussed in the discussion section.

Cyberbullying

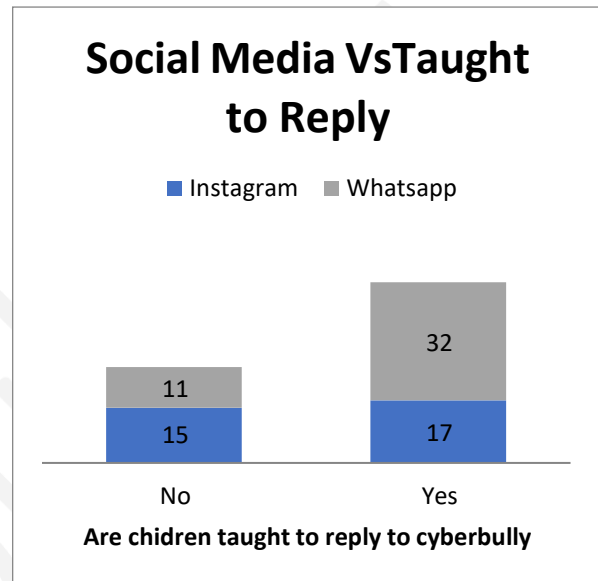
Data Analysis

Here, we attach graphs based on the mentioned tables in which we plot sub-divided diagrams and scatter plot using appropriate datasets.

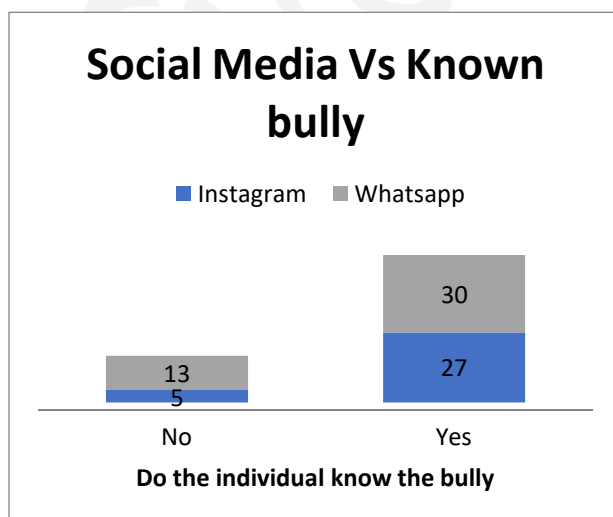
Graph 1: Views of People on cyberbullying



In the above sub-divided graph, x-axis represents the responses of yes or no those children are taught about cyberbullying or not and y-axis represents the social media sites such as WhatsApp or Instagram in which different colours represents their proportion.



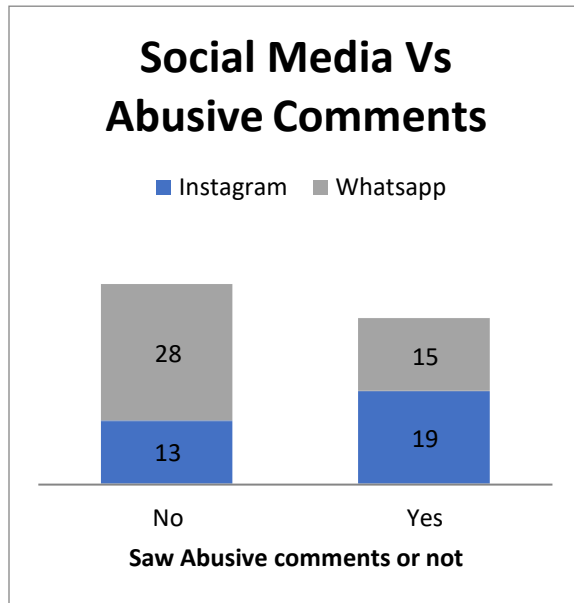
In the above sub-divided graph, x-axis represents the responses of yes or no those children are taught to reply cyberbullying or not and y-axis represents the social media sites such as WhatsApp or Instagram in which different colours represents their proportion.



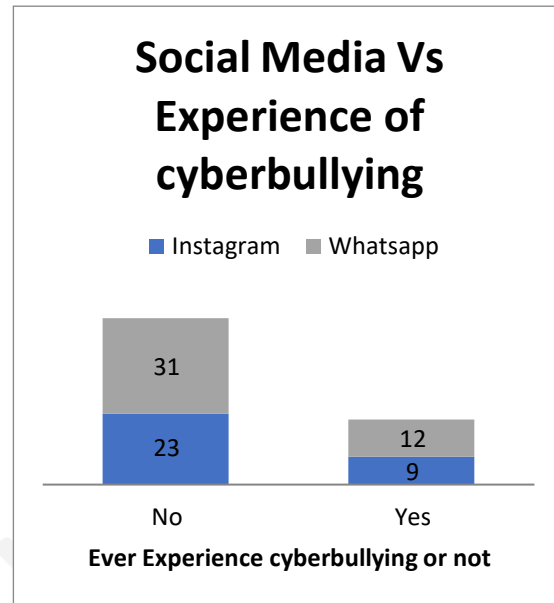
In the left side graph, x-axis represents the responses of yes or no that whether the individual know the bully or not and y-axis represents the social media sites such as WhatsApp or Instagram in which different colours represents their proportion.

These graphs tell us about the views of people on cyberbullying through these factors which is fully explained below further in detail.

Graph 2: No. of people experienced or saw any abusive comments on cyberbullying.



In the above sub-divided graph, x-axis represents the responses of yes or no that whether the individual saw any type of abusive comments on their profile pages or sites or not and y-axis represents the social media sites such as WhatsApp or Instagram in which different colours represents their proportion.

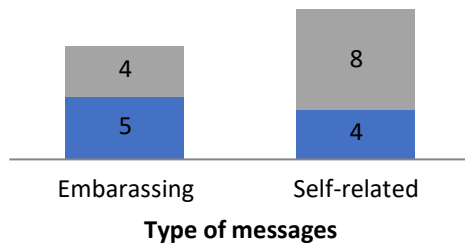


In the above sub-divided graph, x-axis represents the responses of yes or no that whether the individual ever experienced cyberbullying or not and y-axis represents the social media sites such as WhatsApp or Instagram in which different colours represents their proportion.

Graph 3: Views of individual who experienced cyberbullying.

Social Media Vs Type of Messages

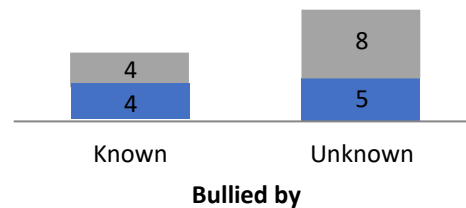
■ Instagram ■ Whatsapp



In the above sub-divided graph, x-axis represents the responses of yes or no that the individual accepts which type of messages such as embarrassing or self-related on their profile pages or sites and y-axis represents the social media sites such as WhatsApp or Instagram in which different colours represents their proportion.

Social Media Vs Bullied by that person

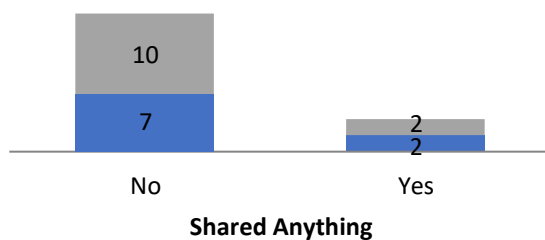
■ Instagram ■ Whatsapp



In the above graph, x-axis represents the responses of yes or no that whether the individual know the bully or not and y-axis represents the social media sites such as WhatsApp or Instagram in which different colours represents their proportion.

Social Media Vs Shared Anything from cyberbullying

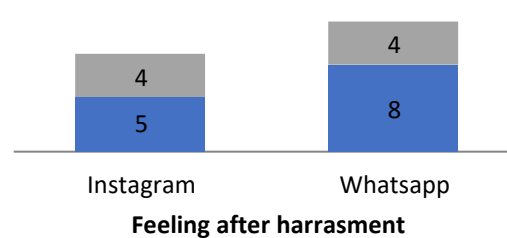
■ Instagram ■ Whatsapp



In the above sub-divided graph, x-axis represents the responses of yes or no that whether the individual shared anything with the bully or not and y-axis represents the social media sites such as WhatsApp or Instagram in which different colours represents their proportion.

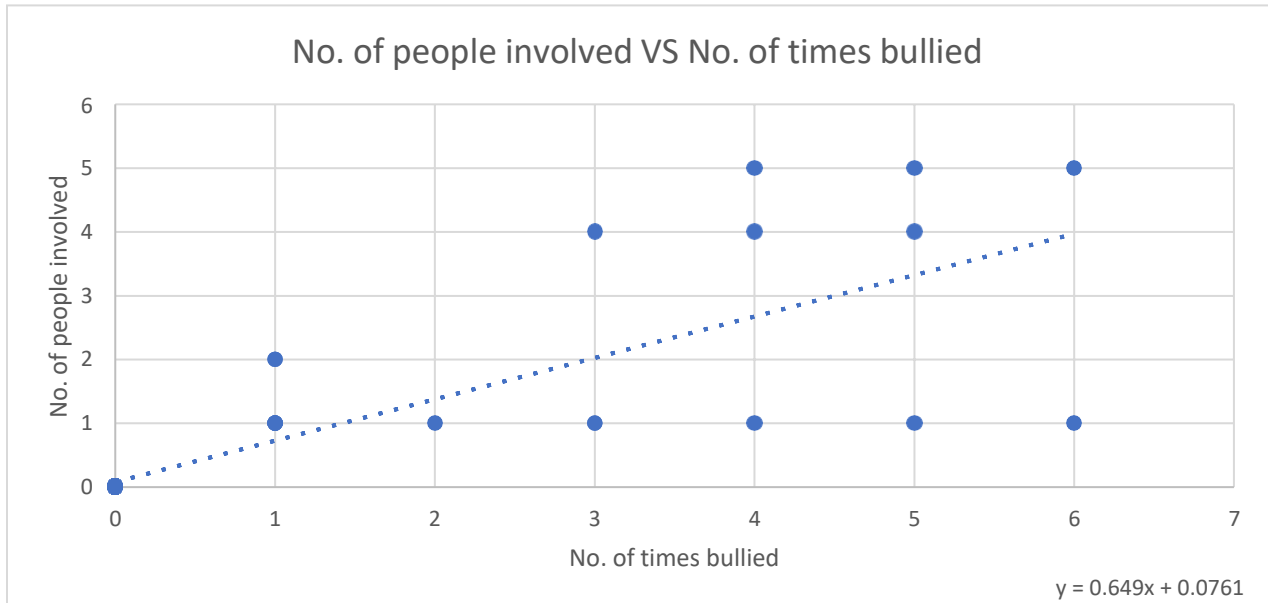
Social Media Vs Feeling after harassment

■ Depressed ■ Embarrassed

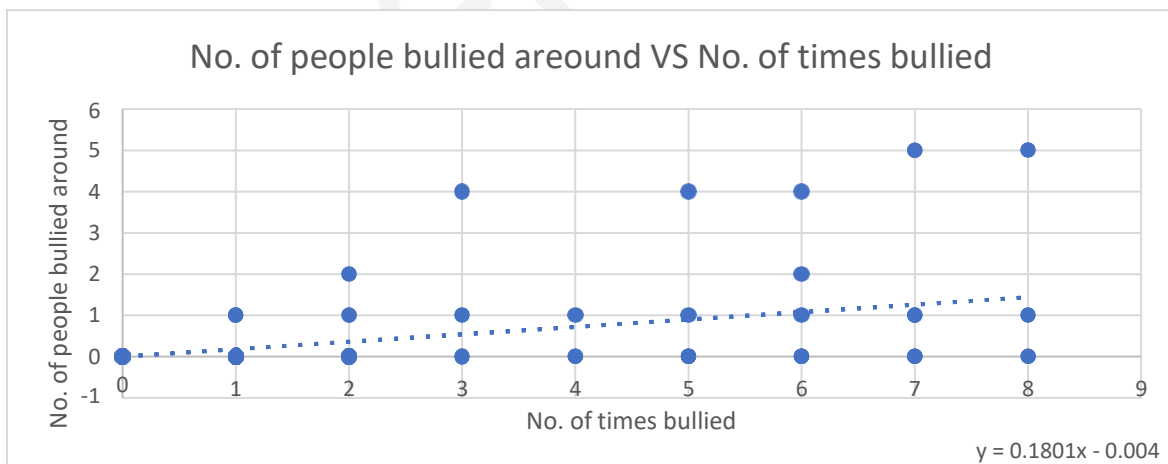


In the above sub-divided graph, x-axis represents the responses of yes or no that the individual feels which type of harassment such as depressed or embarrassed and y-axis represents the social media sites such as WhatsApp or Instagram in which different colours represents their proportion.

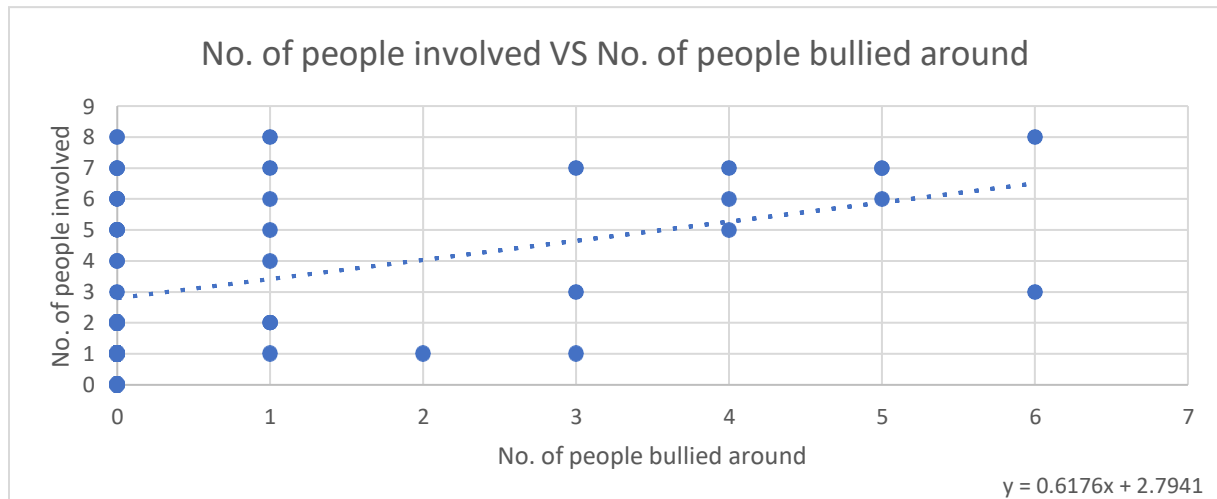
Graph 4: Establishing the correlation between the following variables



In the above graph, we establish the correlation between the number of people involved and number of times bullied, x-axis represents that how many times the individual bullied and y-axis represents the number of people involved in cyberbullying.



In the above graph, we establish the correlation between the number of people bullied around and number of times bullied, x-axis represents that how many times the individual bullied and y-axis represents the number of people bullied around in cyberbullying.



In the above graph, we establish the correlation between the number of people involved and number of times bullied around, x-axis represents that how many people around and y-axis represents the number of people involved in cyberbullying.

Conclusion

The above graphs 1, 2 and 3 represents the association between Social Media applications (WhatsApp and Instagram) and Cyberbullying factors. The numbers represented on each graph gives the number of responses we got in our survey.

Graph 4 represent the correlation between different discrete variables and the trend line shows the linearity of the relationship.

All the factors, reasons and results are briefly discussed in discussion section.

Results

Table 1 shows the **Views of people on cyberbullying** like, if children are taught about cyberbullying or not, if children taught how to deal with it that is. How to reply cyberbully and whether the individual know the bully or not.

Talking about **Yule's Coefficient of Association**, the results concluded can be stated as:

- There is weak but positive correlation between Teaching on cyberbullying and social media.
- There is weak but positive correlation between student taught to reply to bully and social media.
- There is weak but negative correlation between whether the bully is known/unknown and social media.

Talking about the **Odds ratio** the following results can be concluded:

- Odds of using social media are 3.23 times higher if a child is not taught about cyberbullying than the child taught about cyberbullying.
- Odds of using social media are 2.56 times higher if a child is not taught how to reply than child is taught how to reply.
- Odds of using social media are 0.42 times higher if an individual don't know the bully than if the individual know the bully.

Table 2 shows the **No of people experienced or saw any abusive comments** on cyberbullying like, if an individual saw any types of abusive comments on these sites and if an individual ever experienced or practiced cyberbullying in their life.

Talking about **Yule's Coefficient of Association**, the concluded can be stated as:

- There is weak but negative correlation between Abusive comments and Social media.
- There is weak but negative correlation between Experience and Social media.

Talking about the **Odds ratio** the following results can be concluded:

- Odds of using social media are 0.36 times higher if an individual didn't saw any abusive comments on these sites than if an individual saw any abusive comments on these sites.
- Odds of using social media are 0.98 times higher if an individual didn't experienced cyberbullying in their life than an individual who experienced it.

Table 3 shows the **Views of people who experienced cyberbullying** like what types of messages they got, were they bullied by a known or unknown profile, did they share anything with the bully and how do they feel after that harassment.

Talking about **Yule's Coefficient of Association**, the concluded can be stated as:

- There is weak but positive correlation between the types of message a person got and Social media.
- There is weak but positive correlation between were they bullied by a known or unknown profile and Social media.
- There is weak but negative correlation between sharing anything with the bully and Social media.
- There is weak but negative correlation between feeling after harassment and Social media.

Talking about the **Odds ratio** the following results can be concluded:

- Odds of getting embarrassing and self-related messages are 2.5 times higher on Instagram than odds of getting these types of messages on WhatsApp.
- Odds of getting bullied by a known or unknown person on Instagram are 1.6 times higher than the chances of getting bullied by a known or unknown person on WhatsApp.
- Odds of sharing or not sharing anything with the bully on Instagram are 0.7 times higher than sharing or not sharing with bully on WhatsApp.
- Odds of feeling depressed and embarrassed after being bullied on Instagram are 0.625 times higher than feeling depressed and embarrassed after being bullied on WhatsApp.

Table 4 shows the **Correlation** between the following variables like:

- Correlation coefficient between No of people involved in cyberbullying and number of times bullied is -0.819774.
- Correlation coefficient between No of people bullied around and number of times bullied is -0.37374921.
- Correlation coefficient between No of people involved and number of people bullied around is -0.375911655.

Discussion

From the above tables and graphs we got to know about different factors related to Cyberbullying.

Table 1 shows how the people view the relationship between Cyberbullying and social media applications (particularly Instagram, WhatsApp).

On the basis of our survey we found, there are around 17 people who think that children are not educated about Cyberbullying prevailing on these social media sites. There are also 58 people who think that children are taught about Cyberbullying prevailing on these sites. The intensity of this relationship is found to be 0.5 which suggests a moderate type of relation between them. The odds ratio suggests that the chances of using social media are 3.23 times higher if a child is not taught about Cyberbullying than the child is taught about Cyberbullying. This value shows that there are less chances of an individual to be bullied if he is aware of the perks and consequences of using these social sites.

Again, there around 26 people who think that children are not taught how to reply Cyberbullying. The number of people who think that children are taught how to reply is 49. The intensity of this relation is found to be 0.43 which suggests a moderate or weak type of relation between them. The odds ratio suggests that the chances of using social media are 2.56 times higher if a child is not taught how to reply Cyberbullying than the child is taught how to reply. This value shows that the children can make good decisions if they are taught how to reply Cyberbullying and also can prevent themselves to be bullied any further.

There are around 18 people who think that the individual who is bullied don't know the bully and the number 57 think that the individual knows who is bullying him. The intensity of this relation is found to be -0.40 which suggests that there is negative and weak type of relation between them. The odds ratio suggests that the chances of using social media are 0.42 times higher if an individual don't know the bully than the individual know the bully.

Table 2 shows how people have experience Cyberbullying on these sites.

On the basis of our survey we found, there are around 41 people who have not seen any abusive comments on these sites. There are also 34 people who have seen such comments on these sites. The intensity of this relationship is -0.46 which suggests there is a negative and weak type of relation between them. The odds ratio suggests that the chances of using social media are 0.36 times higher if an individual didn't saw any abusive comments on these sites. This value shows that a person is less likely to use these sites if he saw any abusive comment.

Again, there are around 54 people who have never experienced Cyberbullying and around 21 people who have faced Cyberbullying in their lives. The intensity of this relationship is -0.005 which suggests that there is no relation. The odds ratio suggests that the chances of using social media are 0.98 times higher if an individual have not ever faced cyberbullying than if the individual have faced cyberbullying. This is an obvious outcome which is not too serious to talk much about.

Table 3 shows the views of people who have experienced Cyberbullying.

On the basis of our survey, there are around 9 people who had received embarrassing messages and around 12 people who received self-related messages. The intensity of this relationship is 0.42 which suggests there is a moderate or weak type of positive relation between the type of messages and these social media sites. The odds ratio suggests that the chances of getting embarrassing and self- related messages are 2.5 times higher on Instagram than the chances of getting these messages on WhatsApp. This shows that most of the bullies bully one by sending these types of messages on Instagram.

Again, there around 8 people who got bullied by a known person and around 13 people who were bullied by unknown person. The intensity of this relationship is 0.23 which suggests there is weak relation between the two. The odds ratio suggests that the chances of getting bullied by a known/unknown person on Instagram are 1.6 times higher than WhatsApp. This shows that most of the people using Instagram are bullied.

There are 17 people who had not shared anything with the bully while 4 people in our survey said they shared their personal information with the bully. The intensity of this relationship is -0.17 suggests there is a weak negative relation between the two. The odds ratio suggests that the chances of sharing/not sharing personal details with the bully on Instagram are 0.7 times higher than WhatsApp.

There are 13 people as per our survey, who got depressed after Cyberbullying and around 8 people who felt embarrassment. The intensity of this relation is -0.23 suggests there is weak and negative relation between the two. The odds ratio suggests that chances of feeling depressed and embarrassed after being bullied on Instagram are 0.62 times higher than WhatsApp.

The graphs 1, 2, and 3 give us a wide representation of the data we have analyzed.

Now discussing about the **number of people involved in Cyberbullying and number of times a person was bullied**. The correlation coefficient value, that is, 0.82 suggest a strong liner relationship between the two variables. The equation found is:

$$y = 0.649x + 0.0761$$

This shows higher the number of people involved in bullying a person, that is, y , 0.649 times higher will be the number of times a person will be bullied.

Correlation coefficient between **number of people bullied around a person and number of times he himself is bullied** is 0.37. This suggests a weak but positive linear relationship between the two. The equation found in this case is:

$$y = 0.1801x - 0.004$$

This shows higher the number of people bullied around a person, that is, y , 0.1801 times will be the number of times he himself is bullied.

Correlation coefficient between the **Number of people involved and number of people bullied around** is 0.376. This suggests a weak but positive linear relationship between the two. The equation found in this case is:

$$y = 0.6176x + 2.7941$$

This shows if y number of people are involved in the punishable act of bullying than there may be 0.6176 times higher number of people bullied around.

The **graph 4** give us a wide representation of this correlation data series.

Conclusion

Seeing the advancing number of cyberbullying cases on social media sites particularly, Instagram and WhatsApp. Following conclusions can be made:

- Awareness is the key to prevent online harassment. We should make the children aware from an early age so they are always cautious. Moreover, parents must monitor their children's online activities and limit their usage.
- Children must be taught how to deal with or reply cyberbullying attempt, in case they face any cyberbullying attempt on their social media platforms. This will help prevent them from mental health issues like depression, anxiety, low self-esteem etc.
- Our survey shows the individual should block the bully, leave the site and report to the authorities in case they find any suspicious attempt.
- There could be any reasons for an individual to be bullied especially for the reasons like Body shaming, Personality, Color, Gender and caste. So, the individual should be taught to respect himself as no one can be everyone.
- From our survey it can be seen that around 29.7% people think that the individual is bullied on the basis of his personality. We cannot change the personality of a person. We can only make them proud of what they are. There can be such webinars or theatre shows to not to low anyone's self-esteem.
- Since we cannot change the mentality of the other person, still we can make sure we are not pressed by his unhuman behavior. Bullying simply means to give other a chance to suppress ourself and be a material of fun. If one is confident enough on his behavior, then no one's judgement can affect him. This way we can stop being bullied which would lay a great impact on stopping Cyberbullying.

A charismatic pioneer of the personal computer era said, "Don't let the noise of others' opinions drown out your own inner voice."

We cannot change the world, but we can change ourselves, if possible, change yourself for good to come, else, don't be a victim of Cyberbullying acts.

Applying these measures one can stop Cyberbullying by not being bullied and make a healthy, happy life forever.

QUESTIONNAIRE

- **SECTION 1: Personal Information**

Please fill the correct information.

1. Email

2. Name

3. Age

4. Gender

☐ Male

☐ Female

☐ Transgender

☐ Prefer not say

5. Are you voluntarily taking part in this survey?

☐ Yes

☐ No

6. Mention your designation.

☐ Student

☐ Educator

☐ Parent

☐ Administrator

● SECTION 2: Views Matter

Please fill the form responsibly.

1. What do you think, Cyberbullying occurs most often through? (Please mark all that apply)

☐ Instant Messages

☐ E-mails

☐ Blogs

☐ Personal profile pages

☐ Other

2. What do you think, Cyberbullying is on rise?

☐ Yes

☐ No

3. Cyberbullies typically/usually are: (Please mark all that apply)

☐ Male

☐ Female

☐ Loners

☐ Angry

☐ Depressed

☐ Other

4. What do you think are the most common reason for Cyberbullying? (Please mark all that apply)

☐ Revenge

☐ Fun

5. Do you think students are taught about how to recognize Cyberbullying and threats to their online safety?

☐ Yes

☐ No

6. Do you think students are taught about how to reply Cyberbullying in an appropriate manner?

☐ Yes

☐ No

7. Do the individual know the bully?

☐ Yes

☐ No

8. How do the individual react to cyberbullying?

☐ Logged off computer

☐ Block the bully

☐ Leave the site

☐ Change screen name/e-mail

☐ Report to the authorities

☐ Do nothing

9. What can be the reasons for the individual to be bullied? (Please mark all that apply)

☐ Body Shaming

☐ Personality

☐ Colour

☐ Gender

☐ Caste

☐ Other

10. How do you feel the individual felt about being cyberbullied? (Please mark all that apply)

☐ Depressed

☐ Embarrassed

11. How many people do you think around you have faced cyberbullying?

☐ 1

☐ 2

☐ 3

☐ more than 3

• **SECTION 3: Cyberbullying Survey**

All your information will remain confidential so please fill the form wisely

1. Which social media site you use the most?

☐ WhatsApp

☐ Instagram

2. Have you seen any abusive comments on this site?

☐ Yes

☐ No

3. What type of harassment you think it was?

☐ Body Shaming

☐ Personality

☐ Sexually proactive

☐ Religious

☐ Other

4. Have you ever experienced Cyberbullying?

☐ Yes

☐ No

● SECTION 4: Cyberbullying

Please fill free to share.

1. What type of messages you got?

☐ Self-related

☐ Embarrassing

2. How many times you have been bullied?

☐ 1

☐ 2

☐ 3

☐ More than 3

3. What do you think how many people harassed you?

☐ 1

☐ 2

☐ 3

☐ More than 3

4. You have been bullied by

☐ known

☐ Unknown

5. Did you share anything from the below with the bully?

☐ Yes

☐ No

6. How did you feel after that harassment?

☐ Depressed

☐ Embarrassed

7. Whom did you tell about you being cyberbullied?

☐ Friends

☐ Parents

☐ Cyber Crime Office

☐ Relative

☐ Nothing

Cyberbullying

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