

Trolling on Social Media Sites and Its Correlation with Teenage Depression

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ABSTRACT

BACKGROUND

Online social networking is a relatively new phenomenon, many questions regarding their potential impact on mental health remain unanswered. Trolling is sowing discord on the internet by starting quarrels or upsetting people by posting inflammatory, extraneous, or off-topic messages in an online community. Trolls provoke the readers into an emotional response and disrupt the normal on-topic discussion. Trolling can have an effect on the psyche of individuals. We wanted to determine as to whether adolescents in the age group of 16-18 years studying in PUC 1 and PUC 2 had experienced trolling. We also wanted to determine as to whether the trolled (cyber-harassed) teenagers had on-going depression and assess the strength of association between trolling and teenage depression by measuring the Pearson's correlation coefficient.

METHODS

A cross sectional study was conducted on 150 students, belonging to the age group 16-18 years, studying in PUC 1 and PUC 2 of a private college in Bangalore. Socio demographic profile was collected through a semi structured proforma. All of them were given the Trolling Experience Questionnaire and those who were reported to have been trolled were given HAM-D. Pearson's correlation coefficient was calculated between trolling experience and depression.

RESULTS

The occurrence of trolling in the total sample (147, as 3 were excluded) was 63/147 (42.8%); of which 57% were males and 43% were females. Of those who were trolled, 33% have no depression, 22% have mild depression and 45% have moderate depression. No one had severe depression. Pearson's correlation coefficient $r = 0.54$ which suggests that a positive correlation exists between the trolling experience and depression. P Value was < 0.0001 suggesting that the result is statistically significant.

CONCLUSIONS

Overall the occurrence of trolling was 42.8% and the occurrence of depression among those who were trolled was 67%. These findings suggest that public health measures relating to the same need should be enforced. Parents and teachers need to be made aware of this relatively new phenomenon i.e. trolling and measures to prevent it as it could herald the development of depression.

KEYWORDS

Trolling, Social Networking Sites, Depression, Teenage, Cyberbullying

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BACKGROUND

Social networking sites (SNSs) are web-based platforms on which individuals connect with other users to generate and maintain social connections. Considerable disagreement exists as to the associations that SNS use may have with depression and anxiety: On the one hand, SNSs may protect from mental illness, as they support and enable social interaction. It allows the users to reflect the aspects of their identity and express the emotion that may be relevant to their life experience. On the other hand, there are many opportunities for miscommunications and mismanaged expectations. The maladaptive tendencies can be exaggerated, leaving individuals feeling a greater sense of isolation. As a whole, the SNS environment may be just as complex as face-to-face interactions. As SNS membership continues to rise, it is becoming increasingly important to address the possible benefits and detriments the use of SNSs which may have on mental health.¹

Access to the Internet and use of text messaging has influenced social interaction among teenagers in recent decades. Most teenagers have a personal computer or mobile phone and communicate daily with several people at the same time, online communication has become a centerpiece in the life of adolescents, offering many opportunities for psychosocial development and construction of intimate relationships.² However, in this context, violent interactions such as trolling may also occur, being exposed to the influences of instant contact and its repercussions, which in many cases can be harmful. More recently, cyberbullying or trolling, a new form of violence expressed through electronic media, has concerned parents, educators and researchers due to its effects on adolescents' mental health.³

During the past decade, online social networking has caused profound changes in the way people communicate and interact. It is unclear, however, whether some of these changes may affect certain normal aspects of human behaviour and cause psychiatric disorders. Several studies have indicated that the prolonged use of Social Networking Sites, such as Facebook, may be related to signs and symptoms of Depression. In addition, certain social networking site activities might be associated with low self-esteem.⁴ Most of the older studies were focused on the relationship between the time spent on the social networking sites and psychiatric disorders. Very few have looked at the nature of the contents of the social exchange that happens on these sites and its effects on the psyche of the participants. Also, there are only a few such studies done in India. Since online social networking is a relatively new phenomenon, many questions regarding their potential impact on mental health remain unanswered.⁵ On the other hand, due to the popularity of these online social sites in the general population, any possible connection between them and psychiatric disorders would pose a serious public health concern.⁶

Trolling is sowing discord on the internet by starting quarrels or upsetting people by: posting inflammatory,

extraneous, or off-topic messages in an online community.⁷ Trolls provoke the readers into an emotional response or disrupt the normal on-topic discussion, often for the troll's perverse amusement.⁸ Media attention in recent years has equated Trolling with 'online harassment'. A Troll is a person, who posts such a disruptive and disturbing content on the social sites.⁷ Social networking in the virtual world of Facebook, Twitter, Snap Chat, and WhatsApp sites generally begins in the teenagers, who look for acceptance, approval & affiliation. Dislikes, disapproval, strong hurtful criticism, scolding, and negative labelling that commonly happens in Trolling can have adverse influence on the young minds.⁹ So, Trolling becomes all the more relevant to the adolescents.

We wanted to determine as to whether adolescents in the age group of 16-18 years studying in PUC 1 and PUC 2 had experienced trolling. We also wanted to determine as to whether the trolled (cyber-harassed) teenagers had ongoing depression and assess the strength of association between trolling and teenage depression by measuring the Pearson's correlation coefficient.

METHODS

This is a cross sectional study conducted among 150 adolescents in the age group of 16-18 years studying in PUC 1 and PUC 2. Data is collected from private schools affiliated to the state Board in Bangalore, involving students aged 16-18 years, studying in PUC 1 and PUC 2, for homogeneity. Only those who voluntarily wanted to participate in the study, with their parental consent, were taken up for evaluation.

Inclusion Criteria

1. Adolescent Students aged 16-18 years, studying in PUC 1 and PUC2 of a private college in Bangalore.
2. Been active on Facebook, Twitter or other Social Networking Sites (SNSs) and feeling harassed by Trolling.
3. Volunteering to participate, with their parents' consent and their consent.
4. Both boys and girls.

Exclusion Criteria

- Teenagers with past h/o any psychiatric disorders or present history of co-morbidity other than Depression
- Substance abuse
- Outside the age range of 16-18 years
- Drop-outs from PU Colleges

Ethical Issues

- Informed consent was obtained from the parents as well as the students.
- Anonymity and confidentiality of the individual's information was maintained.
- Subjects were given the right to withdraw consent at any stage.

- No monetary benefits or other inducements were given to the participants of this study.
- As a direct benefit to the voluntary participants in this study, all those found to be trolled were offered counselling. Where the symptom intensity required, they were advised antidepressant medication too.

Instruments Used

- Semi-Structured Proforma for Socio-Demographic Profiles-
- A semi-structured proforma was administered to assess their socio-demographic parameters.
- Trolling experience questionnaire

Since there is no globally accepted and validated scale for trolling experiences, for the purpose of this study a Trolling Experience questionnaire was compiled by the Primary investigator and the guide after an extensive search for similar tools. This Trolling Experience- Questionnaire thus constructed was further endorsed by 3 academic Psychiatrists. This Trolling Experience- Questionnaire has 13 questions, containing various methods of trolling, covering wide spectrum of the trolling modes. The frequency of each experience is graded on a numerical Likert Scale of 0-3. Where 0 indicates never, 1 indicated occasional, 2 indicated many times, and 3 indicated most of the times. For the total 13 questions of the Trolling Experience- Questionnaire, the highest aggregate score (the maximum score) possible is 39. A score of 2-10 indicates mildly trolled, 11-18 indicates moderately trolled and >18 indicates severely trolled. This questionnaire at its beginning had 3 questions to screen those students using substances, and to exclude those students who have previously taken treatment for psychiatric disorders and who do not use social networking sites (SNSs) and 1 question to record the time spent on social networking sites.

Hamilton Depressive Rating Scale (HAM-D) 24 Item Version

It covers almost the whole spectrum of Depressive symptoms viz. Affective, Cognitive, Conative, and Somatic/Neurovegetative. The 24-Item Version is well aligned with the criteria of the DSM for the diagnosis of Depression. The HAM-D has been used extensively to evaluate and grade the severity of Depression. It is also an effective screening tool to detect Depression in community surveys. Ratings are completed by the examiner based on the patient interview and observations. The ratings can be completed in 15-20 minutes. Reliability is good to excellent. Validity appears good based on other correlation with other depression symptom measures.

Sampling Procedure

Adolescent students in the age group of 16-18 years studying in PUC1 and PUC2 of a private school affiliated to state board in Bangalore Metropolitan area and who volunteer to participate in the study with theirs and their parents' consent were taken up for the.

Methodology

These 150 students comprised of 75 studying in PUC 1 and 75 studying in PUC 2. After obtaining permission from the principal of the college, the PUC students gathered on an appointed date were addressed by the principal investigator and the purpose of the study was explained to them in detail. It was highlighted to them that this study was an attempt to systematically understand the stress they are facing due to trolling. Hence their active participation in this study was solicited. Those who met the inclusion criteria and consented voluntarily to participate were given a consent form to be consented by their parents. The parents of all the 150 students consented for the study. Their anonymity and confidentiality was maintained.

The basic socio-demographic information about the sampled students was collected using a Semi-Structured Proforma. Students were screened for substance abuse, h/o any psychiatric illness. The student were assessed by the Trolling Experience- Questionnaire, that was specially designed for the purpose of this study for: Trolling Experiences on Facebook, Twitter or any other SNS, the average number of hours they spend daily on the Senses, number of issues on which they felt Trolled in the last 6 months, the frequency & severity of their perceived cyber harassment by Trolling. Then they were further screened for Depression by using Hamilton Rating Scale for Depression (HAM-D) – 24 Item Version, which covers most of the symptoms required for diagnosing Depression. The data was collected over a period of 1.5 years.

Statistical Methods

Statistical analysis of the data was done on the Microsoft Excel and Statistical package for social sciences (SPSS) 19. Pearson's correlation coefficient was calculated between trolling experiences and depression. Chi Square Test was applied to find out the Significance of Difference, by calculating the 'p' value. Descriptive data tables and pictorial illustrations were made.

RESULTS

The study sample consisted of a total number of 150 participants, of which 75 were from PUC 1 and 75 from PUC 2. Out of the total 150 students 3 were excluded from the study (2 had h/o substance abuse and 1 had h/o psychiatric disorder). Out of the remaining 147 students, 63 (42.8%) were trolled. In the total sample of 63 students who were trolled, 36 were males i.e. 57% and 27 were females i.e. 43%. Among the 63 students who were trolled, majority lived in a nuclear family i.e. 51 students (81%) and only 12 i.e. 19% lived in a joint family. Among the 63 students who were trolled, 46 (73%) belonged to middle socio-economic status. 9 (14.3%) belonged to low socio-economic status and 8 (12.7%) belonged to upper socio-economic status.

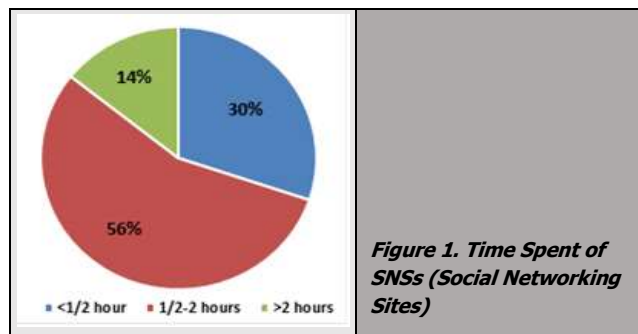


Figure 1. Time Spent of SNSs (Social Networking Sites)

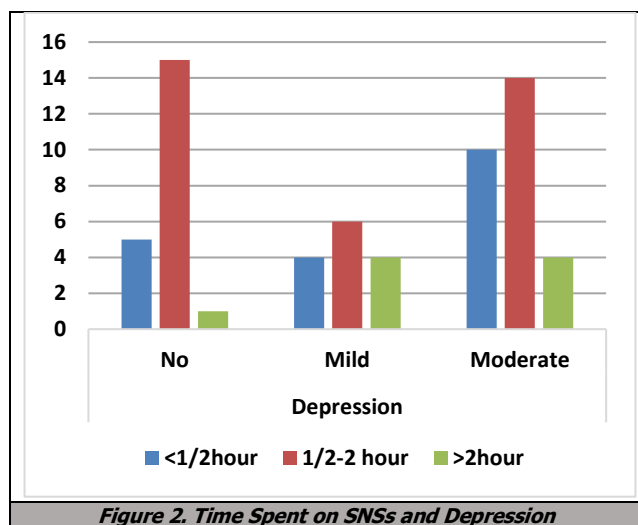


Figure 2. Time Spent on SNSs and Depression

Majority i.e. 35 out of 63 (56%) of the students spend <1/2 -2 hours on SNSs, whereas only 9 out of 63 students (14%) spend >4 hours on SNSs 79% (50) of the students were mildly trolled. 11% (7) were moderately trolled and only 10% (6) were severely trolled. Out of the 19 students who spent <1/2 hours' time on SNSs, 5 had no depression, 4 had mild depression and 10 had moderate depression. Out of the 35 students who spent 1/2-2 hours on SNSs, 14 had moderate depression, 6 had mild depression and 15 had no depression. Out of the 9 students who spent >4 hours on SNSs, 8 had depression and 1 did not have depression. A p value of 0.246 indicates that the difference is not statistically significant. Out of the 19 students who spent <1/2 hour on SNSs, 11 were mildly trolled. 5 were moderately trolled and 3 were severely trolled. Similarly, out of the 35 students who spent 1/2-2 hours on SNSs, 33 were mildly trolled, 1 each were moderately and severely trolled. Out of the 9 students who spent >2 hours on SNSs, 6 were mildly trolled, 1 was moderately trolled and 2 were severely trolled. A p value of <0.05 indicates that the difference is statistically significant. Out of the 50 students who were mildly trolled, 19 (38%) had no depression. 12 (24%) had mild depression and 19 (38%) had moderate depression. Out of the 7 patients who were moderately trolled, 1 had no depression and 6 had moderate depression. Out of the 6 patients who were severely trolled, 1 had no depression, 2 had mild depression and 3 had moderate depression.

Calculation of Pearson’s Correlation Coefficient

Pearson’s Correlation coefficient (r) was calculated between the trolling experience questionnaire scores and the HAM D

scores to assess the correlation between the two. It was found to be r=0.54 which suggests that a positive correlation exists between the trolling experience and depression. The p value was found to be p<0.0001 which means that the result is statistically significant.

DISCUSSION

Use of SNSs like Facebook, twitter etc. have increased over the past decade. Online SNSs increases the social interaction and reduces isolation, with a risk of trolling.¹⁰ Trolling is sowing a discord on the internet .It means starting quarrels to upset people, by posting inflammatory, extraneous, or off-topic messages.¹¹ They provoke the readers into an emotional response disrupting the normal on- topic discussion. Trolling occurs at a lower prevalence than other traditional or school bullying.¹² Trolling affects a significant portion of adolescents. Trolling results in academic and psychosocial problems: depression, low self-esteem, and externalized hostility, social anxiety, substance use, depressive symptoms, suicidal ideation and suicide attempts.¹³

In the current study, 150 students belonging to the age group of 16-18 years studying in PUC 1 and PUC 2 were taken up for the study. 100% students reported of using SNSs. In a study done by Meena et al (2012)⁹, 200 students studying in class XI and XII in schools were assessed and reported 24.74% of the students were having occasional problems while 2.02% were experiencing severe problems due to excessive time spent using SNSs. This particular class of students were chosen because they were most vulnerable group and engaged in risk taking behaviour.

In my study 100% of the students had access to internet at home and all of them were using social networking sites which can be seen due to the increased popularity of SNSs over the recent years. In the study done by Meena et al (2012)⁹ only 84% of the students had access to internet at home and 1%of the students were not using social networking sites. In a study done by Sampasa-Kanyinga et al (2015)¹⁰ between the age group of 11-20 year, found that 19% of the adolescents were cyberbullied. In a study done by Aricak et al (2008) reported that 23.8% of the students were cyberbullied. In another study done by Tsitsika et al on 14-18 yrs. also showed that 21.4% of the adolescents reported cyber victimization whereas In the index study 63 out of the 147 students taken up i.e. 42.8%, reported of being trolled this could be because in our study 100% were into SNS use due to affordability of electronic gadgets and training in computer and internet at school compared to earlier days.

The highest number of students belonged to the age group of 17 years (41.3%) compared to 16 and 18 yrs. who were 36.5% and 22.2% respectively. The first year PUC is most relaxed period and hence they are in to social networking. The number of males in the sample of 63 trolled students were 36 (57.1%) and the number of females were much lower i.e. 27 (42.8%), because males usually have

more friends, they are more outgoing and socialize more. The parents also buy mobiles or allow the male child to own a mobile compared to a female child. The males, even if they don't have a hand set, they go to a computer center for browsing which explains the increase number of trolled males.

A study done by Sampasa-Kanyinga et al¹⁰ found that Adolescents who were females younger, lower socio-economic status, and who used alcohol or tobacco were at greater odds of being cyberbullied. In another study done by Tsitsika et al, showed that cybervictimization was more frequent among girls than boys. In the current study it is more boys who were bullied. Majority i.e. 35 (56%) reported of spending ½-2 hours on social networking sites, followed by 19 (30%) of students spending <1/2 hour on the social networking sites. Only 9 (14%) of the students spent >2 hours on social networking sites. Lauren A. Jelenchick et al¹¹ studied 190 older adolescent university students with a mean age of 18.9 years. Most used SNSs for either <30 minutes (n=100, 53%) or between 30 minutes and 2 hours (n=74, 39%), and only a minority of participants reported daily use of SNS >2 hours (n=16, 8%).¹² The reason might be the increased popularity of SNSs in the recent years.

Pantic et al (2012),¹³ studied 160 high school students and found a positive correlation between time spent on social networking sites and depression. Mean time spent on social networking was 1.86h (SD=2.08H). BDI-II score indicated minimal depression in 104 (65%) students, mild depression in 46 (29%) students, and moderate depression in 10 (6%) students. In a study done by Tsitsika et al, indicated that cyber victimization was more frequent among adolescents using SNSs for >2 hours daily. Buelga et al (2010), did a study on adolescents aged between 11 and 17 years to analyse the prevalence of victimization through mobile phone and internet. Results indicated that 24.6% of the adolescents had been bullied by mobile phone and 29% through internet whereas in our study 42.8% of the participants reported of being trolled by internet and not by mobile phones .Our study population was more active on SNSs, this study did not study about trolling by other means such as talking on phones.

In a study done by Rose CA et al (2015), found that cyber victimization, depression, and anxiety seemed to have a reciprocal relationship.¹⁴ In another study done by Rosenthal SR et al (2016),¹⁵ negative face book experience measures were significantly associated with depressive symptoms. In the index study, 67% of the students had depression, 22% of the students had mild depression and 45% had moderate depression. In a different study done by Jelenchick et al (2013),¹¹ no evidence was found supporting a relationship between SNS use and clinical depression probably because they specifically did not study the content of the exchanges which took place on SNSs also personality characteristics might play a role.

Benjanin et al (2015), studied 336 adolescents and found a positive correlation between internet addiction and depression similar to our study where a positive correlation between trolling on SNSs and depression was found

probably because of the negative effects trolling can have on the psyche of the students. Jelenchick et al did a study on older adolescents and did not find evidence supporting a relationship between SNS use and clinical depression as the study did not look at the content of exchange on the SNS which was studied in our study.

CONCLUSIONS

Trolling on SNSs is a relatively new phenomenon and significantly affects the adolescents. It leads to symptoms of depression which includes low self-esteem and suicidal tendencies. It results in decreased interest in studies, leading to decline in academic performance, and decreased social interaction. Due to the increasing popularity of the SNSs in the general public, it has become very important to address trolling and its associated complications. Future research needs to be focused on the causal relationship between trolling and depression and also take into account the various confounding factors.

Trolling on SNSs is associated with depression. The findings have implications for (1) parent education about the risks associated with online communication (2) school policies about trolling on SNSs (3) advice to youth regarding strategies to prevent and deal with trolling incidents. Parents and educators ought to know the risks of online communication. They have to promote dialogue about the topic, aiding the adolescents to find effective ways to deal with such incidents.

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