THE ROLE OF ONLINE SOCIAL NETWORKING ON DELIBERATE SELF-HARM AND SUICIDALITY IN ADOLESCENTS: A SYSTEMATIZED REVIEW OF LITERATURE

by

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Presented to the Faculty of The University of Texas School of Public Health in Partial Fulfillment of the Requirements for the Degree of

MASTER OF PUBLIC HEALTH

THE UNIVERSITY OF TEXAS
SCHOOL OF PUBLIC HEALTH
Houston, Texas
December 2017
ACKNOWLEDGMENTS

I would like to thank Dr. Shreela Sharma, PhD, RD, LD for providing me the opportunity to pursue this endeavor – I am indebted to her for her guidance and patience with me. I am thankful to Dr. Shailesh Jain, MD, MPH for his invaluable assistance and support – without his help, this presentation would not be possible. I thank Amy Taylor, MLS for educating me on systematic reviews and providing me great assistance with my literature searches. I would like to give a special thanks to my friend Dr. Shiva Sharma, MD, MPH for his moral support especially in this venture.
Abstract: In the past ten years the use of social media by minors has significantly increased. Social media use has been linked to depression, which is a major risk factor for suicidality. Social media also provides a platform for cyberbullying, which leads to depression and suicidal behavior in both the victim and perpetrator of bullying. As per CDC statistics, age-adjusted suicide rates have steadily increased over the past ten years in the United States with suicide being the second most common cause of death in the adolescent age group. Hence, the increase in suicide rate parallels the increase in social media use. Additionally, non-suicidal self-injury (NSSI) is prevalent with rates ranging between 14-21% among youth and young adults. Research findings suggest that self-injuring youth are more active on online social networks than their peers who do not engage in self-injurious behavior. NSSI are also a risk factor for suicide attempts and suicidal deaths. Thus, it was decided to further investigate the role of online social networking on deliberate self-harm and suicidality in adolescents with a focus on negative influence by conducting a systematized review of empirical literature. A detailed literature search on ‘PubMed’ yielded 8 articles satisfying the
predefined inclusion/exclusion criteria out of total 1364 articles generated using a combination of MeSH search terms. Data extraction was subsequently performed on these 8 research articles. It was found that social networking websites are utilized by suicidal and self-harming youth as a medium to communicate with and seek social support from other social media users facing similar mental health challenges. Overall, online social networking leads to an increased exposure to and engagement in self-harm behavior due to users receiving negative messages promoting such behavior, emulating self-injurious behavior of others, and adopting self-harm practices from self-harm videos shared online. Moreover, youth who spend greater time on online social networks experienced higher psychological distress, unmet need for mental health support, poor self-rated mental health, and increased suicidal ideation. In conclusion, greater time spent on online social networking promotes self-harm behavior and suicidal ideation in a vulnerable adolescent population.
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BACKGROUND

LITERATURE REVIEW: In the past ten years, the use of interactive and social media by minors has risen significantly due to an increase in smartphone usage\(^1\) with 24% of adolescents reporting being “continuously connected” to the internet\(^2\) and half of adolescents reporting being “addicted” to their phone\(^3\). 81% of American teenagers use online social media\(^4\) and a survey conducted by the Pew Research Center in 2014-2015 found 71% of the adolescents reported using “Facebook” making it the most popular social networking website in the US, followed by Instagram, Snapchat, Twitter, Google Plus, Vine, and Tumblr\(^2\). These websites and their corresponding smartphone apps provide an opportunity to create an online identity and interact with others, including strangers, thereby leading to the creation of a social network that offers both positive and negative health effects\(^1\). An example of a negative health effect is the positive association between social media use and depression found by Lin et al\(^5\). Another study conducted by Lup et al. on using Instagram, discovered that depression was more common in teenagers involved in social comparisons following strangers compared to teenagers who followed only friends\(^6\). Depression is a major cause of suicidal ideation\(^7\)\(^,\)\(^8\). In patients diagnosed with major depressive disorder (MDD) or dysthymia in clinically referred samples, 85% reported suicidal ideation, 32% attempted suicide during adolescence or young adulthood\(^9\) and 2.5-7% committed suicide\(^10\). Psychological autopsy studies reveal that an estimated 60% of adolescent suicide victims met criteria for some form of depressive illness at time of death thus linking clinical depression and suicide\(^11\)\(^,\)\(^12\)\(^,\)\(^13\).
Social networking sites provide an online platform for “cyberbullying”\(^1\). Cyberbullying has been defined as “an aggressive, intentional act or behavior that is carried out by a group or an individual using electronic forms of contact, repeatedly and over time against a victim who cannot easily defend him or herself”\(^{14}\). Cyberbullying can have negative effects including higher levels of depression, low self-esteem, behavioral problems, substance abuse, suicidal thoughts and attempts for both the victim and the perpetrator\(^{1,15,16}\). Between 10 to 40% of adolescents experience cyberbullying\(^1\) and studies suggest that a positive association exists between cyberbullying, deliberate self-harm, and suicidal behavior among victims of such bullying\(^1,17\). Research has demonstrated that cyberbullying is more dangerous than traditional bullying as bullying via the internet increases the risk of suicidal ideation by a factor of 3.12 versus a factor of 2.16 when bullied in person\(^{18}\).

Social media advertisements expose adolescents to substances of abuse including alcohol, tobacco, and marijuana which could lead to potential self-harm and suicide\(^1,19\). Major brands of alcoholic beverages are advertised on social media platforms like Facebook, YouTube, and Twitter as indicated by research findings from the United Stated and the United Kingdom\(^{20,21}\). Such targeted and unrestricted advertisements via social media can have serious behavioral effects on adolescents\(^1\). Adolescents on social media are at risk of being victims of sex crimes as sex offenders can use social media to lure adolescents for sexual exploitation\(^1\) and these sexual experiences are associated with enhanced risk of adverse social, academic, and behavioral consequences\(^{22,23}\). Another concern attached to the widespread use of social media is its role in internalization of the “thin ideal” body image by
adolescent female users\textsuperscript{24} and according to the findings of a study conducted on high school girls using Facebook, users scored higher on all body image concerns than non-users thus concluding a strong influence of this social media platform on body image\textsuperscript{25}. The resulting dissatisfaction with body image is linked to several adverse physical and psychological health effects in adolescents\textsuperscript{26}.

PUBLIC HEALTH SIGNIFICANCE: Suicide is an important public health problem\textsuperscript{27} and the age-adjusted suicide rate in the United States has steadily increased from 10.5 suicides to 13 suicides per 100,000 from 1999 to 2014, respectively, demonstrating an increase of 24\%\textsuperscript{28}. In 2014, suicide was the 2\textsuperscript{nd} leading cause of death for adolescents in the United States\textsuperscript{29} and young people worldwide, and globally it is the leading cause of death in females aged 15-19\textsuperscript{30}. According to the Centers for Disease Control and Prevention (CDC), 29.9\% of United States high school students reported feeling sad or hopeless on most days within at least a consecutive 2-week period, 17.7\% seriously considered attempting suicide, 14.6\% formulated a plan to commit suicide, 8.6\% attempted suicide, and 2.8\% attempted suicide resulting in an injury that required medical attention in the 12 months before the survey in 2015\textsuperscript{31}. Suicidal ideation during adolescence has been found to significantly increase the risk of suicide attempts, completed suicides, as well as other mental health problems in adult life\textsuperscript{32-34}.

Some adolescents engage in deliberate self-harm behavior in the form of cutting, burning, or hitting oneself without conscious intent to die and this is commonly termed non-suicidal self-
injury (NSSI) and rates range between 14-21% among youth and young adults. Engagement in NSSI among youth is a risk factor for future NSSI, increased psychiatric outcomes, interpersonal problems, suicide attempts and deaths due to suicide. Research has found adolescents with history of NSSI are more active on social media than adolescents with no history of self-injurious behavior. Adolescents are also actively engaged in online video sharing and these web-based interactions may involve communication regarding NSSI, which could adversely affect their well-being and behavior.

SPECIFIC AIMS: Social media has evolved to become a modern tool for communication and the global number of social media users has surged rapidly in the last decade. Simultaneously, suicide, a preventable public health problem is projected to continue to rise. Evidence-based literature associates the use of social media by adolescents to be a positive risk factor for suicide. Thus, it was decided to conduct a systematized review of empirical literature on the role of online social networking via various social media platforms on deliberate self-harm and suicidality in adolescents. Suicidality encompasses all suicide related behaviors and thoughts including suicidal ideation, suicidal gestures, suicide-related communication, and suicide attempts and completed suicides.

The specific aim is to search for evidence of negative influence of social media use on adolescent deliberate self-harm and suicidality. The study findings can be utilized to better create awareness among the “digital native” adolescents and “digital immigrant” caregivers including, parents, schoolteachers, and physicians about the profound negative impacts of
social media and to better develop protective interventions at home, in schools, and in the community.

METHODS

An electronic literature search was conducted on PubMed database on June 29th, 2017 without time limits using the combination of following MeSH terms in title, abstract, or as other terms to maximize sensitivity:


The following selection strategy was applied to the resultant PubMed database search.

<table>
<thead>
<tr>
<th>Code</th>
<th>Status</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Excluded as irrelevant</td>
<td>Does not pertain to online social networking, teenage deliberate self-harm, and suicidality.</td>
</tr>
</tbody>
</table>
Subjected to screening using predefined inclusion and exclusion criteria

Likely pertains to online social networking, teenage deliberate self-harm, and suicidality.

Included for data extraction

Satisfies the below mentioned inclusion and exclusion criteria.

This PubMed database search yielded 1364 references with no exact duplicates, the titles of which were manually screened by one reviewer (AM) in the first stage of screening. Titles that were irrelevant to the study were discarded (n=1092).

The following inclusion and exclusion criteria (please see below) were applied during the second stage of screening on the remaining 272 references. The articles fulfilling these criteria were then subjected to data extraction:

Inclusion Criteria:

1. Study Design: Observational (cross sectional, case control, and cohort), or interventional (randomized controlled trials or quasi-experimental) study designs.

2. Publication Type: Only peer-reviewed journal publications.

3. Age: Studies conducted on adolescents aged 13-17 years.


5. Studies examining the association of the use of various social networking sites including Facebook, Snapchat, Instagram, Twitter, etc. with deliberate self-harm or suicidality in adolescents.
Exclusion Criteria:

1. Study Design: Case reports, poster abstracts, and unpublished theses.
2. Publication Type: Publications in non-peer reviewed journals.
3. Age: Studies including participants under 13 or over 18 years of age.
4. Articles published in languages other than English.

During this stage of full article screening, 8 out of 272 publications satisfied the above documented inclusion and exclusion criteria. Hence, these 8 publications were selected for data extraction and analysis and the remaining 264 publications were excluded.

RESULTS

Articles on cyberbullying and internet addiction along with other apparently relevant articles passed the first stage of screening. However, with a detailed review of full texts, only 8 articles satisfied the pre-defined inclusion and exclusion criteria. Hence, these 8 articles were selected for data extraction and further study.

Out of the eight studies included, three studies analyzed the suicide/ self-harm related content posted on social networking websites Tumblr, MySpace, and YouTube, one study was a qualitative study including verbatim record of personal interviews conducted on subjects and four were quantitative cross-sectional studies. A PRISMA flow diagram for the search strategy and screening of articles for eligibility is detailed in FIGURE 1 that follows.
FIGURE 1: PRISMA FLOW DIAGRAM OF REFERENCES SCREENED

Identification

Records identified through database searching (n = 1364)

Additional records identified through other sources (n = 0)

Records after duplicates removed (n = 1364)

Screening

Records screened (n = 1364) → Records excluded (n = 1092)

Studies included for final review (n = 8)

Eligibility

Full-text articles assessed for eligibility (n = 272) → Full-text articles excluded, with reasons (n = 264)

Included
A 2017 exploratory study conducted in the United States qualitatively analyzed 2,739 posts derived from the search terms ‘depressed’, ‘suicide’, ‘self-mutilation’ and ‘cutting’ from 17 accounts that topped the search result page of Tumblr. These posts were analyzed based on four different themes: self-loathing, loneliness/feeling unloved, self-harm and/or scars from self-harm, and suicide/suicidal thoughts/death. 8 out of 17 accounts provided demographic information of the users: 6 were females and 2 were male users in the age range 14-20 years. Out of total posts thematically analyzed (N=2,739), 15% (n=412) mentioned self-loathing emerging as the most common theme followed by self-harm in 407 (15%), loneliness/feeling unloved in 405 (15%) and suicide in 372 (14%). 249 out of 2,739 posts (9%) involved direct interaction with other Tumblr users. Around half of these posts (127/249) were seeking/providing advice from/to other Tumblr users of which 41% (52/127) provided positive/supportive advice, 25% (32/127) provided potentially harmful advice endorsing self-harm, and 34% (43/127) were neutral. The number of accounts explored and the restricted number of search terms used are the main limitations of this study as it fails to give a detailed picture of the content shared on Tumblr. Limited availability of user demographic information hinders the applicability of the study findings.

A 2017 qualitative study conducted in Pittsburgh, PA in the United States on 23 participants, aged 13-20, currently receiving treatment for depression, recruited via
convenience sampling strategy from a larger study, involved administration of semi-structured interviews either over the phone or in person. The interviewer obtained detailed information about social media usage patterns and associated positive and negative experiences based on a model adopted from the Pew Research Center studies on adolescent online behavior and recorded the study participants’ responses verbatim for future analyses. 22 participants reported using social networking websites, 18 reported using social networking websites multiple times a day and 20 of them reported having accounts on multiple social networking websites simultaneously. Positive use of social media helped distract the individuals and improve their mood by browsing for entertainment or humorous content, looking for specific information, connecting with others with shared interests and plan events and activities, and keeping in touch with friends and family. Some users sought support from other users also experiencing mental health challenges such as depression or suicidality. Negative use of social media included sharing risky behaviors like smoking, drinking, fight videos, inappropriate dressing, and suggestive photos in order to seek attention or to make self-denigrating comparisons with others. They also described encountering disturbing content like self-harm or disordered eating and cyberbullying thus encouraging the user to emulate the behavior and to develop negative coping skills. Some users were disgusted and felt the need for disengagement from social networking, while others felt the need to help the person posting such ‘triggering posts’. The users also
described ‘stressed posting’ which is letting anger or frustration out via social media to seek help and support from other social media users. The study was subject to recall bias as most participants subjectively described their social media use patterns in the past based on memory. Hence, it could possibly lead to inaccurate reporting of online behavior.

A 2016 quantitative cross-sectional study\textsuperscript{61} evaluated the association between the frequency of exposure to NSSI via social media, traditional media, or other sources and engagement in NSSI. This study was done on 90 patients, 12-17 years old, recruited directly from an inpatient psychiatric program at a children’s hospital located in North Texas. Study participants underwent a 26-question structured interview adopted from the Inventory of Statement About Self- Injury\textsuperscript{62} and it included questions about exposure to and engagement in NSSI developed by the authors. The study results suggested that the mean age at exposure to NSSI was 10.85 years. Self-cutting was reported as the most common method of NSSI by 81.1 % participants (N=90). 69 participants (76.7%) endorsed engagement in multiple NSSI methods. 87% participants endorsed exposure to NSSI before engaging in NSSI. Higher exposure to NSSI on social media was associated with higher engagement in NSSI. The study provides empirical evidence to support the claim that “NSSI exposure via the Internet possibly increases the frequency of engagement in NSSI by normalizing and reinforcing the behavior”\textsuperscript{65}. Since the study participants were recruited from an inpatient psychiatric facility,
it hampers the scope and generalizability of findings to non-patient adolescents in the community. Notable limitations involve the data collection process as initial NSSI exposure was not queried, detail of information sought from participants was inadequate, and high likelihood of recall bias in recollection of information.

Sampasa-Kanyinga et al. conducted a cross sectional survey on 753 7-12th graders enrolled in English and French public and Catholic school systems in Ottawa, Canada to determine the relationship between mental health status and time spent on social networking websites. The students were administered self-reported questionnaires describing their social networking sites use, mental health status, unmet need for mental health support, suicidal ideation, and psychological distress using K-10 scale for depression and anxiety, as a part of the biennial Ontario Student Drug Use and Health Survey (OSDUHS). 16.9% students reported poor mental health, 26.4% reported unmet need for mental health support, 23.4% reported high psychological distress, and 12.5% reported suicidal ideation. 25.2% students reported daily use of social networking sites exceeding 2 hours. At a Relative Risk Ratio of 3.15, adjusted for grade, sex, subjective socioeconomic status, and parental education level, participants who experienced unmet need for mental health support reported spending more than 2 hours daily on social networking websites compared to those who did not share a similar experience of unmet mental health need. More than 2 hours a day use of social
networking websites was also found to be independently associated with fair or poor self-rated mental health, high psychological distress, and suicidal ideation. The study being cross-sectional in nature, causality and temporality could not be established. Results are also likely to be affected by recall and social desirability biases.

A 2015 Taiwanese quantitative cross-sectional study by Fang-Yi Tseng et al. recruited students aged 13-18 years from nine public schools in Taichung City, Central Taiwan to determine the relationship between internet use and web communication networks, sources of social support namely friends, family, and significant others, and self-injurious thoughts and behavior. The authors additionally determined a gender difference pattern in relation to the primary aim. 391 adolescents were administered the Self-Injurious Thoughts and Behavior Interview (SITBI-S), Problematic Internet Use and Physical and Mental Health Questionnaire, and the Multidimensional Scale of Perceived Social Support (MSPSS). The SITBI-S covers 6 different forms of self-injurious thoughts and behavior (SITB) namely suicidal ideation, suicide plans, suicide gestures, suicide attempts, thoughts of non-suicidal self-injury, and non-suicidal self-injury. It was found that overall prevalence of SITB was twice as higher in females than males in all areas except for suicidal gestures. Higher web communication scores led to increased risk of all forms of SITB in males, but not in females. The study results supports the evidence that regular use of social networking sites could
possibly encourage SITB or the emulating self-injurious behavior of other users.

A 2013 observational study by Scottye J. Cash et al. analyzed 64 comments referenced to potential suicidal behavior made by ‘MySpace’ public profile users. The users were based in the United States, between the ages 13-24 years, not self-identifying as musicians, comedians, or movie makers and having between 2-1000 friends as per the profile information on their page. Serious suicidal comments were identified based on suicide phrases identified from www.suicideforum.net and were analyzed based on themes and sub-themes identified and coded by the authors. Out of all comments analyzed (N=64), close to half (46.9%) of potential suicidal comments were posted by adolescent ‘MySpace’ users between the ages of 13-17 years. Thematic analysis of these comments showed that 51.4% were without context, 24.3% referred to un-identified relationship struggle, 16.2% were related to break-ups, 5.4% reflected a struggle with mental health, and 2.7% were attributed to strained friendship. The study findings suggest that youth might use social networking sites to seek help and support for potential suicidal thoughts, intentions, and behavior. However, the researchers determined the seriousness of suicidal comments subjectively rather than using an objective measure, thus limiting the study findings. The generalizability of the study findings is questionable because the data were downloaded using an algorithm thus lacking specific demographic information of the commenters. Additionally, ‘MySpace’
is struggling to maintain its popularity as a prominent social networking site thus affecting the study findings.

Dunlop et al.\textsuperscript{54} conducted a cross-sectional study on youth with the objective of assessing whether exposure to suicide stories on various online platforms including online news, forums, and social networking websites leads to an increase in suicidal ideation. 719 respondents to National Annenberg Survey of Youth (NASY) between the ages 14-24 were interviewed twice, first in 2008 and subsequently one year later in 2009, either over the phone or through an online survey. The respondents were asked on both occasions if they knew someone personally who had attempted or committed suicide, and if they felt sad or hopeless for more than two weeks in a row and/or felt suicidal in the past year. Demographic information was sought during the first interview/survey. During the follow-up interview/survey, the respondents were asked about sources of suicide reports such as friends or relatives, newspapers, internet news sites, video websites, online forums, or social networking websites and were also queried about various media use covariates including use of social networking websites like Facebook or MySpace. The study found that the rate of suicidal ideation was 12\% at baseline and 11\% at follow-up. For the sources of suicide reports, over half (59\%) of respondents received information about suicide reports from online sources whereas traditional sources like newspapers or family and friends was the
most reported at 79%. Young respondents cited social networking and video websites as common sources of suicide reports. Despite being a significant source of suicide report information, social networking websites were not related to increase in suicidal ideation. In fact baseline suicidal ideation was not related to further exposure to suicide stories from any other sources except online forums. Increased exposure to suicide stories from online forums was associated with an increase in suicidal ideation. A notable study limitation is that the study focused on sources of suicide information but ignored the suicide methods presented on the internet or other media as a potential influence on suicidal individuals.

A 2011 study published by Lewis et al\textsuperscript{52} analyzed the 100 most viewed YouTube videos derived from the search terms ‘self-harm’ and ‘self-injury’ to explore NSSI content. These videos were analyzed based on multiple variables including presence of a trigger warning prior to the start of the video, access restrictions, tone, and purpose of the video. The NSSI methods featured in the videos were also analyzed for method, location, and severity of NSSI. It was found that the actual mean age of uploaders of the sample of NSSI videos was younger (14 years) than the mean age (25.39 years) reported on their profile. 95% of video uploaders were females. Out of these 100 YouTube videos, 80% had unrestricted access meaning users less than 18 years of age could watch the videos, 57% lacked trigger warnings, and 7% were pro-NSSI in nature. The videos were analyzed for different tones
namely factual/educational, melancholic, encouraging, hopeful, angry, humorous, and other. 51/100 videos were found to have melancholic tone and 23/100 videos had encouraging tone. Of note, videos were not restricted to categorization of a single tone in this analysis. Pertaining to NSSI depiction, cutting was the most common method featured in 64 videos and the most common locations of inflicted NSSI were hands and wrists featured in 68 videos. The study concludes that video depiction of NSSI on YouTube is a recent, dangerous trend among youth and young adults, as it serves to normalize and sensationalize NSSI, thus promoting it amongst a vulnerable population. Study findings may not generalize to all videos on YouTube as the authors conducted descriptive analyses of self-harm content only on the 100 most viewed videos and did not examine these videos prospectively.

DISCUSSION

OVERALL FINDINGS: To the best of knowledge, this is the first systematized literature review conducted to study the role of online social networking on deliberate self-harm and suicidality in adolescents. 8 studies 52-55,59,61,63,64 satisfying the pre-defined inclusion/exclusion criteria were identified. These studies are of different methodologies and all were conducted in Western based societies, except for one study reported from Taiwan. The overall findings suggest that social networking sites are utilized by suicidal and self-harming youth as medium to communicate with others suffering from similar mental health issues to seek
social support. Some users receive positive and supportive messages, whereas others encounter negative advice thus increasing the frequency of engagement in self-harm practices. The findings also indicate that social networking websites contribute to increased exposure to and engagement in self-harm behavior, as users tend to emulate self-injurious behavior of others online, adopt self-injurious practices from self-harm videos, or are encouraged and acquitted by others, thus normalizing self-injurious thoughts and behavior. One study provides evidence that greater time spent on social networking websites was associated with poor self-rated mental health, unmet need for mental health support, increased psychological distress, and increased suicidal ideation. Social media and video websites serve as a medium where youth encounter suicide stories more often than any other age group, however, these exposures were unrelated to increase in suicidal ideation. Each of the eight studies had methodological limitations as described above.

LIMITATIONS: This review has several methodological limitations as outlined below:

1. The nature of review is systematized because there was only one reviewer and quality assessment of the included articles was not performed. Hence, there is likelihood of the screening process being affected by selection bias.

2. The comprehensive literature search was performed only on one database ‘PubMed’.

3. The first stage of screening included articles on cyberbullying and internet addiction, but
during full article screening most of these articles were excluded. Cyberbullying research did not exclusively focus on bullying victimization via social media platform. Hence those articles were not included for further study. However, research has shown a positive association between cyberbullying, depression, suicidal ideation, suicidal plans, and suicide attempts\textsuperscript{1,15,16}. Similarly, research on internet addiction demonstrates a positive association with depression and suicidality, but internet addiction does not clarify the amount of time spent on social networking websites. It includes time spent on the internet including other activities such as browsing, shopping, gaming, and entertainment besides social networking. Also, there are no established DSM-V criteria for internet addiction. Previous research defines internet addiction by modifying the DSM-V criteria for pathological gambling.

4. Depression is one of the major risk factor for suicidal ideation\textsuperscript{7,8}. Some previous studies have shown a positive association between social networking and depression\textsuperscript{5}. Hence, articles researching the association between social networking and depression were excluded.

CONCLUSION: This systematized review supports the assertion that greater time spent on online social networking leads to a greater exposure to and engagement in self-harm behavior. It also leads to an increase in psychological distress and suicidal ideation in
depressed adolescents. NSSI and suicidal ideation in adolescents is a risk factor for mental health problems as well suicide attempts and completed suicides later in life\textsuperscript{32-34}. As indicated by earlier studies, the relationship between social networking and poor mental health may be “bidirectional”\textsuperscript{66}. However, social networking is an important medium of communication for self-harming and suicidal youth to seek social support and help.

IMPLICATIONS: Youth with mental health issues spent more time on social networking websites and use it to communicate their thoughts with others and seek social support. This can become detrimental if they receive negative advice encouraging self-harm activity. Thus, parents, caregivers, and teachers should be vigilant about the online activity of youth. The fact that online social networks are so commonly used by young people these days offers public health services and mental health professionals a medium to reach troubled youth and provide them with professional help. It can also be used as a tool to develop screening interventions for youth posting comments on self-injurious and suicidal thoughts and behavior on social networking sites, so that they can be referred for mental health support. Given the magnitude of self-harm and suicidality as a public health concern and the pervasiveness of online social networking, there exists a wide scope for quantitative research to further investigate and elucidate the relationship between social networking and self-harm and suicidality in adolescent population.
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