Connected” to the Internet and half of the adolescents reporting being “addicted” to their phone. Nearly 81% of American teenagers use online social media and a survey conducted by the Pew Research Center in 2014–2015 found that 71% of adolescents reported using “Facebook” making it the most popular social networking website in America, followed by Instagram, Snapchat, Twitter, Google Plus, and many others.

INTRODUCTION

Social media use by minors has significantly increased and has been linked to depression and suicidality. Simultaneously, age-adjusted suicide rates have steadily increased over the past decade in the United States with suicide being the second most common cause of death in youth. Hence, the increase in suicide rate parallels the simultaneous increase in social media use. In addition, the rate of nonsuicidal self-injury ranges between 14% and 21% among young people. Evidence suggests that self-harming youth is more active on online social networks than youth who do not engage in self-harm behavior. The role of online social networking on deliberates self-harm and suicidality in adolescents with a focus on negative influence was assessed by conducting a systematized literature review. A literature search on “PubMed” and “Ovid Medline” using a combination of MeSH terms yielded nine articles for data extraction satisfying predefined inclusion/exclusion criteria. It was found that social networking websites are utilized by suicidal and self-harming youth as a medium to communicate with and to seek social support from other users. Online social networking also leads to increased exposure to and engagement in self-harm behavior due to users receiving negative messages promoting self-harm, emulating self-injurious behavior of others, and adopting self-harm practices from shared videos. Greater time spent on social networking websites led to higher psychological distress, an 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 vulnerable adolescents.

Key words: Adolescent, online social networking, self-harm, social media, suicidality, youth

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Vine, and Tumblr. These websites 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. An important negative health effect is the positive association between social media use and depression. A study on Instagram discovered that depression was more common in teenagers involved in social comparisons following strangers compared to teenagers who followed only friends. Depression is a major cause of suicidal ideation. 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 and 2.5%–7% committed suicide. Psychological autopsy studies reveal that approximately 60% of adolescent suicide victims met criteria for some form of depressive illness at time of death thus linking clinical depression and suicide.

Social networking sites provide an online platform for “cyberbullying,” and Cyberbullying is an aggressive, intentional act, or behavior that is carried out by an individual or group using electronic forms of contact, repeatedly and over time against a victim who cannot easily defend himself/herself. Cyberbullying is associated with higher levels of depression, low self-esteem, behavioral problems, substance abuse, suicidal thoughts, and attempts for both the victim and the perpetrator. Between 10% and 40% of adolescents experience cyberbullying and studies suggest that a positive association exists between cyberbullying, deliberate self-harm, and suicidal behavior among victims of such bullying. Cyberbullying is more dangerous than traditional bullying as bullying through the internet increases the risk of suicidal ideation by a factor of 3.12 versus a factor of 2.16 when bullied in person.

Social media advertisements expose adolescents to the substances of abuse including alcohol, tobacco, and marijuana which could lead to potential self-harm and suicide. Major brands of alcoholic beverages are advertised on social media platforms such as Facebook, YouTube, and Twitter. Such targeted and unrestricted advertisements through social media can have serious behavioral effects on adolescents. 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 and these sexual experiences are associated with enhanced risk of adverse social, academic, and behavioral consequences. Another concern is the role of social media in the internalization of the “thin ideal” body image by adolescent females and according to the findings of a study conducted on high school girls using Facebook, users scored higher on all body image concerns than nonusers thus concluding a strong influence of this social media platform on body image. The resulting body image dissatisfaction is linked to adverse physical and psychological health effects in adolescents.

Suicide is an important public health problem and the age-adjusted suicide rate in the United States has steadily increased 24% from 10.5 suicides to 13 suicides per 100,000 from 1999 to 2014, respectively. In 2014, suicide was the 2nd leading cause of death for adolescents in the United States and globally is the leading cause of death in females aged 15–19. According to the Centers for Disease Control and Prevention, 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. Suicidal ideation during adolescence has been found to significantly increase the risk of suicide attempts, completed suicides, and other mental health problems in adulthood. When taking into consideration the rapidly growing number of social media users globally, suicidality, and self-harm behavior become a more complex issue.

Some adolescents engage in deliberate self-harm behavior through cutting, burning, or hitting oneself without conscious intent to die, and this is commonly termed nonsuicidal self-injury (NSSI), and rates range between 14% and 21% among youth and young adults. Prior NSSI in youth is a risk factor for future NSSI, increased psychiatric outcomes, interpersonal problems, suicide attempts, and deaths due to suicide. Adolescents with a history of NSSI are more active on social media than adolescents with no NSSI history. Adolescents are 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.

Aims: Social media has evolved to become a modern communication tool, and the global number of social media users has skyrocketed 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 the empirical literature on the role of online social networking through 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 the evidence of the negative influence of social media use on adolescent deliberate self-harm and suicidality. The study findings can be utilized to better create awareness in “digital native” adolescents and “digital immigrant” caregivers including, parents, schoolteachers, and physicians about negative impacts
of social media and to develop protective interventions at home, in schools, and in the community.

**METHODS**

An electronic literature search was conducted on the PubMed database on June 29, 2017, and Ovid Medline on January 15, 2018, without time limits using the combination of following MeSH terms in the title, abstract, or as other terms to maximize sensitivity:

“Mental Health,” “Affective Symptoms,” “Delusions,” “Depression,” Bipola®, Mani®, “Obsessive Behavior,” “Paranoid Behavior,” Schizophreni®, “Self-Injurious Behavior,” “Self-mutilation,” Suicid®

“Internet,” “World Wide Web,” “social media,” “twitter,” “facebook,” “instagram,” “snapchat,” “apps,” “personal digital assistant,” smartphone®, “mobile device,” “mobile devices,” “ipad,” tablet®, “Blogging”, “Computers, Handheld”

“Adolescent,” “teen”, “adolescen”, “high school,” “high schools,” “young adult,” “young adults” youth

The following selection strategy was applied to the resultant database search as shown in Table 1.

This literature search yielded 1398 references with eight exact duplicates that were removed. The first author (AM) then manually screened the titles of the remaining 1390 references in the first stage of screening. Titles that were irrelevant to the study were discarded (n = 1111).

The following inclusion and exclusion criteria were applied during the second stage of screening on the remaining 279 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
4. Studies focusing on deliberate self-harm, self-injury, self-mutilation, suicidal ideation, suicide attempts, or suicide in adolescents
5. Studies examining the association of the use of various social networking websites 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 nonpeer-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, 9 out of 279 publications satisfied the above-documented inclusion and exclusion criteria. Hence, these nine publications were selected for data extraction and analysis and the remaining 270 publications were excluded from the study.

A PRISMA flow diagram for the search strategy and screening of articles for eligibility is detailed in Figure 1.

**RESULTS**

Articles on cyberbullying, internet addiction, and other apparently relevant articles passed the first stage of screening. After a detailed review of full texts, 9 articles satisfied the predefined inclusion and exclusion criteria and were selected for data extraction and further study. Four studies were analyzed suicide/self-harm-related content posted on social networking websites Tumblr, Myspace, YouTube, Twitter and Instagram, one study was qualitative including verbatim record of personal interviews conducted on subjects, and four studies were quantitative cross-sectional studies.

Lewis *et al.* analyzed the 100 most viewed YouTube videos derived from the search terms “self-harm” and “self-injury” to explore NSSI content.[52] These videos were analyzed based

![Figure 1: PRISMA flow diagram of references screened](image-url)
on multiple variables including the presence of a trigger warning before the start of the video, access restrictions, tone, and purpose. The NSSI methods featured were also analyzed for method, location, and severity of NSSI. 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. Nearly 95% of video uploaders were females. 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. Of note, videos were not restricted to the categorization of a single tone. 51/100 videos had a melancholic tone while 23/100 videos had an encouraging tone. Cutting was the most common NSSI method featured in 64 videos and the most common injury locations 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 among a vulnerable population. Study findings may not be generalizable to all YouTube videos as the authors conducted descriptive analyses of self-harm content only on the 100 most viewed videos and did not examine these videos prospectively.

Sampasa-Kanyinga and Lewis conducted a cross-sectional survey on 753, 7-12th graders 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 habits, 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. Nearly 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 h. At an adjusted relative risk ratio of 3.15, participants who experienced an unmet need for mental health support reported spending over 2 h daily on social networking websites compared to those who did not share a similar experience of unmet mental health need. More than 2 h a day spent on social networking websites was also found to be independently associated with fair to 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 were likely to be affected by recall and social desirability biases.

Dunlop et al. conducted a cross-sectional study on youth to assessing whether exposure to suicide stories on various online platforms including news, forums, and social networking leads to an increase in suicidal ideation. Nearly 719 respondents to the National Annenberg Survey of Youth (NASY) between the ages 14 and 24 were interviewed twice, first in 2008 and subsequently 1 year later, over the phone or through an online survey. The respondents were asked on both occasions if they personally knew someone who had attempted or committed suicide, if they felt sad or hopeless for more than two consecutive weeks, 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 the use of social networking websites such a Facebook or Myspace. The study found the rate of suicidal ideation was 12% at baseline and 11% at follow-up. Over half (59%) of the respondents received information about suicide reports from online sources whereas traditional sources such as 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. 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 2015 Taiwanese quantitative cross-sectional study recruited students aged 13–18 years from nine public schools to determine the relationship between internet use and web communication networks, sources of social support, and self-injurious thoughts and behavior. Nearly 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. The SITBI-S covers six different forms SITB namely suicidal ideation, suicide plans, suicide gestures, suicide attempts, thoughts of NSSI, and NSSI. It was found that the 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 support the evidence that regular use of social networking sites could possibly encourage SITB or the emulating self-injurious behavior of other users.

A 2017 qualitative study conducted in Pittsburgh, PA on 23 participants, aged 13–20, currently receiving treatment for
depression, recruited through convenience sampling from a larger study, involved administration of semi-structured interviews either over the phone or in person.\textsuperscript{[59]} The interviewer obtained detailed information about social media usage patterns and associated experiences based on a model adopted from the Pew Research Center studies on adolescent online behavior\textsuperscript{[60]} and recorded the study participants' responses verbatim for future analyses. Nearly 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 improve their mood by browsing for entertainment or humorous content, looking for specific information, connecting with others with shared interests, 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 such as smoking, drinking, fighting, inappropriate dressing, and suggestive photos to seek attention or to make self-denigrating comparisons with others. They also described encountering disturbing content like self-harm, 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 posting on social media to let anger or frustration out and to seek help and support from other social media users. The study was subject to recall bias as most participants subjectively described their past social media use patterns based on memory recall which could lead to inaccurate reporting of online behavior.

A 2016 quantitative cross-sectional study evaluated the association between the frequency of exposure to NSSI though social media, traditional media, or other sources and engagement in NSSI.\textsuperscript{[61]} Nearly 90 patients between 12 and 17 years old, recruited directly from an inpatient psychiatric program at a children's hospital located in North Texas, 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 of initial NSSI exposure was 10.85 years. Self-cutting was the most common method of NSSI by 81.1% of participants, 76.7% of participants endorsed engagement in multiple NSSI methods, and 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 through the internet possibly increases the frequency of engagement in NSSI by normalizing and reinforcing the behavior."\textsuperscript{[63]} Since the study participants were recruited from an inpatient psychiatric facility, it hampers the scope and generalizability of findings to adolescents in the community. Notable limitations include not querying initial NSSI exposure, an inadequate level of detail of information sought from the participants, and high likelihood of recall bias.

A 2017 exploratory study conducted in the United States qualitatively analyzed 2739 posts derived from the search terms "depressed," "suicide," "self-mutilation," and "cutting" from 17 accounts that topped the search result page of Tumblr.\textsuperscript{[64]} 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 female and 2 were male users in the age range of 14–20 years. Out of 2739 total posts thematically analyzed, self-loathing was the most common theme (412) followed by self-harm (407), loneliness/feeling unloved (405), and suicide (372), 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 analyzed and the restricted number of search terms used are the main limitations of this study as it fails to provide a detailed picture of the content shared on Tumblr. Limited availability of user demographic information hinders the applicability of the study findings.

A 2013 observational study analyzed 64 comments referenced to potential suicidal behavior made by "Myspace" public profile users.\textsuperscript{[65]} The users were based in the United States, aged 13–24 years, not self-identifying as musicians, comedians, or movie makers and having between 2 and 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 subthemes identified and coded by the authors. Out of all comments analyzed (n = 64), close to half (46.9%) of the 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 unidentified 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 suicidality. However, the researchers determined the seriousness of suicidal comments subjectively rather than using objective measures, 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. In addition, “MySpace” is struggling to maintain its popularity as a prominent social networking site thus affecting the study findings.

A recent study analyzed 1115 public posts found using the search term “#cutting” on Twitter, Tumblr, and Instagram. Daily data collection was performed over a 6-month period at randomly selected times to better reflect activity over an entire 24-h period on that particular day’s randomly assigned platform. The first 10 posts (including image, text, and/or videos along with captions and other hashtags) that appeared chronologically were saved using screenshots on a mobile device. Two independent evaluators coded a final sample of 770 posts (Twitter n = 78, Tumblr n = 333, and Instagram n = 359) that were further coded for final analyses based on the presence of the following themes: graphic content, negative self-evaluations, references to mental health terms, discouragement of deliberate self-injury, and recovery-oriented resources. Around 60% of these posts displayed graphic content in the form of blood, cuts/scars, injuries, self-injury equipment, or active self-injury. Of these graphic posts, 85.6% displayed scars, 37.2% displayed self-injury equipment, and 28% displayed blood. About 50% of these #cutting posts included negative self-evaluation mostly of one’s personality (82.5%) followed by that of personal appearance (55.7%). “Feeling depressed,” “depression,” or “MDD” was the most common mental health reference associated with 75% these #cutting posts. In addition, 40% posts referenced eating disorders with an expressed desire of the unhealthy “thin ideal,” and 20% posts referenced anxiety. Discouragement of deliberate self-injury was rare to find with just 1 in 10 posts disapproving of self-injurious behavior, 1 in 20 posts suggestive of informal recovery resources, and just 1 in 100 posts identifying formal/professional recovery resources. This study implies that NSSI exposure through online social media networks promotes engagement in its practices. It also suggests that deliberate self-injury is most frequently associated with sad/depressed mood and disorderly eating rather than with borderline personality disorder. There is scant mention of recovery resources on these platforms. The study also discovered an uneven distribution of NSSI content across all three social media platforms and the reason for this disparity warrants further investigation. The study findings are limited by its methods including a limited timespan for data collection, random sampling, limitations imposed through the utilization of indexed terms to search for self-injury content, and restriction to only three social media platforms. Furthermore, clinical and demographic information of the #cutting post uploaders was not obtained, and private posts were not screened. These limitations prevent generalizability of the study findings across all social networking platforms.

DISCUSSION

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. Nine studies 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 acclaimed 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.

The studies analyzed in this review have a common theme of examination of self-harm and suicidal behavior in the context of online social media use. The variety in the methodology of these studies gives a broader approach toward better understanding this topic. The strength of the selected studies relies on the inclusion of the adolescent population as the targeted sample, and diversity of study designs used. Collectively, these studies function to shed light on the various types of social media use, perceived versus gained impact of such online networking, and preference of choosing social media over obtaining professional help.

Despite the common themes, these studies were conducted using multiple online social networks without any consistency or common denominator. Although the variability of such media platforms (pictures, videos, message boards, etc.) can indicate the presence of buzzwords associated with self-harm or suicidal behavior, prediction of the severity of associated ailments is difficult without any standardized measure. In addition, few of these studies solely relied on self-reported measures; which potentially could have impacted the outcome variables,
as self-reporting carries a high risk of under-reporting or a perceived peer-based bias. Furthermore, some of these studies focused on patients with formal psychiatric diagnoses including depression as opposed to other studies that recruited the general adolescent population. While assessing the influence of online social networking, it should be noted that patients diagnosed with major depressive disorder (MDD) carry a high suicide risk which makes the comparison with nonclinically depressed adolescents difficult to quantify.

This review has several methodological limitations as outlined below:

1. The nature of the 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 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 through social media platform, therefore, 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. 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. In addition, there are no established DSM-V criteria for internet addiction. Previous research defines internet addiction by modifying the DSM-V criteria for pathological gambling.

3. Depression is one of the major risk factors for suicidal ideation. Some previous studies have shown a positive association between social networking and depression. Hence, articles researching the association between social networking and depression were excluded from the study.

Increasing mental health literacy could be helpful to tackle the stigma associated with sensitive topics such as depression, low self-esteem, and self-harming thoughts or behavior. Public health educators would specifically need to target the young population, to provide knowledge on identifying the early patterns, and to eventually promote help-seeking from mental health professionals. As a recent study found academic pressure to be one of the greatest factors for suicide risk in adolescents, this could be addressed by the educational system by redesigning academic structures to minimize such pressures. Social networking continues to grow and is becoming a larger part of the lives of adolescents. Undertaking this challenge would require a balanced approach between academic requirements and impact on mental health, while maintaining a consistent effort to educate adolescent students and other stakeholders about the pros and cons of online social networking.

A growing consensus about the extensive use of social networking applications and/or websites by adolescents should be taken in to account by all mental health professionals. This would aid early detection of possible harmful effects of online social networking in adolescents exhibiting self-harm and suicidal behaviors as well as provide psychoeducation for patients and their peers. Some suggested areas for psychoeducation in adolescents with regard to social media and online social networking include prevention and coping with cyberbullying, discouragement of substance abuse, safe practices for interaction with anonymous online personas to avoid exploitation, and promotion of healthy body image and self-esteem. Through the continued expansion of telepsychiatry, at-risk adolescents can receive psychoeducation and mental health support and stigma reduction among adolescents’ social circles can be achieved.

**CONCLUSION**

This systematized review supports the assertion that greater time spent on online social networking leads to 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 are a risk factor for mental health problems as well suicide attempts and completed suicides later in life. As indicated by earlier studies, the relationship between social networking and poor mental health may be “bidirectional.” However, social networking is an important medium of communication for self-harming and suicidal youth to seek social support and help.

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 encourage them to seek professional help. Social media and online social networking pose unique mental health challenges to adolescents that should be addressed by providing focused psychoeducation. 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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Table 1: Selection strategy for articles

| Code | Status | Note |
|------|--------|------|
| 1    | Excluded as irrelevant | Does not pertain to online social networking, teenage deliberate self-harm, and suicidality |
| 2    | Subjected to screening using predefined inclusion and exclusion criteria | Likely pertains to online social networking, teenage deliberate self-harm, and suicidality |
| 3    | Included for data extraction | Satisfies the below-mentioned inclusion and exclusion criteria |
