

Social Media and Suicide: A Public Health Perspective

David D. Luxton, PhD, Jennifer D. June, BA, and Jonathan M. Fairall, BS

There is increasing evidence that the Internet and social media can influence suicide-related behavior. Important questions are whether this influence poses a significant risk to the public and how public health approaches might be used to address the issue. To address these questions, we provide an overview of ways that social media can influence suicidal behavior, both negatively and positively, and we evaluate the evidence of the risk. We also discuss the legal complexities of this important topic and propose future directions for research and prevention programs based on a public health perspective. (*Am J Public Health*. 2012;102:S195–S200. doi:10.2105/AJPH.2011.300608)

Social media is a relatively new phenomenon that has swept the world during the past decade. Social media fuses technology with social interaction via Internet-based applications that allow the creation and exchange of user-generated content.¹ Social media platforms, such as chat rooms, blogging Web sites (e.g., Blogspot), video sites (e.g., YouTube), social networking sites (e.g., Facebook, MySpace, Twitter, Google+), and electronic bulletin boards or forums, as well as e-mail, text messaging, and video chat, have transformed traditional methods of communication by allowing the instantaneous and interactive sharing of information created and controlled by individuals, groups, organizations, and governments. At the end of 2004, the popular social networking site Facebook had close to 1 million users;² by June 2011, that number had risen to nearly 700 million users worldwide.³ Facebook² has reported that an average of 30 billion pieces of content (e.g., Web links, news reports, photo albums, blog postings) are shared every month via the social media site. Social media has become fundamental in the way many people and organizations communicate and share opinions, ideas, and information.

Suicide is a considerable public health problem; more than 30 000 suicide deaths in the United States and nearly 1 million suicide deaths worldwide occur every year.^{4,5} The role that the Internet, particularly social media, might have in suicide-related behavior is a topic of growing interest and debate.⁶ The

recent increase in highly publicized cases of suicide that involve social media has drawn national attention to this topic.^{7–9} Researchers are also interested in whether the Internet in general primarily helps or hinders suicide prevention. Attempts to assess the extent of the Internet's influence on suicide behavior are difficult because of the indirect and complex association between Internet use and suicide. The myriad legal complexities involved, as well as the important issues of freedom of speech and civil liberties, have also triggered debate.

Whether some of social media's influence on suicide behavior should be considered a public health problem and how public health approaches might be used to address this influence are relevant issues. In this article, we discuss the role of social media in suicide-related behavior and frame the issue from a public health perspective. We begin with discussion of the primary ways social media can have a negative influence on suicide-related behavior and we evaluate the evidence of this influence. We then provide examples of how social media can be used in the prevention of suicide. We also discuss the legal complexities of this important topic and propose future directions for research and prevention programs that are based on a public health perspective.

SOCIAL MEDIA AND SUICIDE RISK

An immense quantity of information on the topic of suicide is available on the Internet and via social media. Biddle et al.¹⁰ conducted

a systematic Web search of 12 suicide-associated terms (e.g., *suicide*, *suicide methods*, *how to kill yourself*, and *best suicide methods*) to simulate the results of a typical search conducted by a person seeking information on suicide methods. They analyzed the first 10 sites listed for each search, for a total of 240 different sites. Approximately half were prosuicide Web sites and sites that provided factual information about suicide. Prosuicide sites and chat rooms that discussed general issues associated with suicide most often occurred within the first few hits of a search. We should note that this study primarily focused on prosuicide search terms and thus likely excluded many suicide prevention and support resource sites. Recuperero et al.¹¹ also conducted a study that examined suicide-related sites that can be found using Internet search engines. Of 373 Web site hits, 31% were suicide neutral, 29% were antisuicide, and 11% were prosuicide. The remaining sites either did not load or included "suicide" in the title but were not suicide sites (e.g., sites for movies and novels with "suicide" in their title or music bands whose names included "suicide"). Together, these studies have shown that obtaining prosuicide information on the Internet, including detailed information on suicide methods, is very easy.

A fundamental question is whether an association exists between rates of Internet use, including social media, and population suicide rates. Although limited, several preliminary studies have begun to address this question. For example, Shah¹² conducted a cross-national study that examined the association between general population suicide rates and the prevalence of Internet users, using data from the World Health Organization's and the United Nations Development Program's Web sites. Shah showed that the prevalence of Internet users was positively correlated with general population suicide rates. Multiple regression analysis indicated that the prevalence of Internet use was independently associated

with general population suicide rates in men ($P = .001$) and approached statistical significance for women ($P = .074$). Hagihara et al.¹³ conducted a time-series analysis with data from 1987 to 2005 and reported a statistically reliable positive correlation between general population male suicide rates in Japan and the prevalence of households using the Internet ($P < .05$). We should note that the results of these studies cannot be considered conclusive because of cross-sectional designs and the possibility of ecological fallacy.

There are several specific ways that social media can increase risk for prosuicide behavior. Cyberbullying and cyber harassment, for example, are serious and prevalent problems.¹⁴⁻¹⁹ Cyberbullying typically refers to when a child or adolescent is intentionally and repeatedly targeted by another child or teen in the form of threats or harassments or humiliated or embarrassed by means of cellular phones or Internet technologies such as e-mail, texting, social networking sites, or instant messaging.¹⁷ Cyber harassment and cyber stalking typically refer to these same actions when they involve adults. A review of data collected between 2004 and 2010 via survey studies indicated that lifetime cyberbullying victimization rates ranged from 20.8% to 40.6% and offending rates ranged from 11.5% to 20.1%.¹⁸

Cyberbullying, when directly or indirectly linked to suicide, has been referred to as cyberbullicide.¹⁴ Hinduja and Patchin¹⁹ reported results from a survey given to approximately 2000 middle school children that indicated that victims of cyberbullying were almost 2 times as likely to attempt suicide than those who were not. These results also indicated that cyberbullying offenders were 1.5 times as likely to report having attempted suicide than children who were not offenders or victims of cyberbullying. Although cyberbullying cannot be identified as a sole predictor of suicide in adolescents and young adults, it can increase risk of suicide by amplifying feelings of isolation, instability, and hopelessness for those with preexisting emotional, psychological, or environmental stressors.²⁰

A suicide pact is an agreement between 2 or more people to die by suicide at a particular time and often by the same lethal means.^{21,22} A suicide pact that has been formed or

developed in some way through the use of the Internet has been referred to as a cybersuicide pact.²³ Traditional suicide pacts have typically developed among individuals who know each other, such as a couple or friends.²³ A primary characteristic that differentiates cybersuicide pacts from traditional suicide pacts is that these pacts are usually formed among complete strangers.²¹ The use of online chat rooms and virtual bulletin boards and forums can provide an unmediated avenue to share one's feelings with other like-minded individuals, which can be easier than talking about such thoughts and feelings in person.²⁴⁻²⁶

The first documented use of the Internet to form a suicide pact was reported in Japan in 2000. It has now become a more common form of suicide in Japan,²⁷ where the suicide rate increased from 34 suicides in 2003 to 91 suicides in 2005.²⁸ South Korea now has one of the world's highest suicide rates (24.7/100 000 in 2005), and evidence exists that cybersuicide pacts may account for almost one third of suicides in that country.²⁹ Currently, a dearth of published information is available regarding the number of cybersuicide pacts in the United States. The problem of cybersuicide pacts has gained international attention, however, and more research is needed to understand social media's impact on the formation of Internet-based suicide pacts.

The Internet has also provided a way for people to obtain how-to descriptions of suicide as well as lethal means to kill themselves. Unregulated online pharmacies outside of the United States have posed a significant risk to the public.³⁰ For example, Beatson et al.³¹ described the case of a man in his 30s who committed suicide by overdosing on clomipramine bought from an online pharmacy outside the United States that did not require a prescription. Unfortunately, despite the development over the past decade of increased regulations and accreditation of Internet pharmacies through organizations such as the National Association of Boards of Pharmacy, the fight against unregulated online pharmacies that distribute unapproved or counterfeit drugs continues worldwide.³⁰

Message boards or forums have been used to spread information on how to die by suicide. In Japan in 2008, 220 cases of people attempting suicide via hydrogen sulfide gas

resulted in the deaths of 208 people.³² This suicide outbreak was blamed on the introduction of the gas-related method on message boards via the Internet. Family members, paramedics, and caregivers were reported to have been injured or even killed in attempts to save suicide victims because of the toxic gas methods used.³²

Another concern is the media contagion effect.³³⁻³⁶ The media's influence on suicidal behavior, especially suicide methods used, has been well documented,³⁷⁻⁴³ and social media may possibly increase the risk of the media contagion effect, especially among young people. A recent study by Dunlop et al.²⁴ specifically examined possible contagion effects on suicidal behavior via the Internet and social media. Of 719 individuals aged 14 to 24 years, 79% reported being exposed to suicide-related content through family, friends, and traditional news media such as newspapers, and 59% found such content through Internet sources. Additional analysis revealed no link between social networking sites (e.g., Facebook) and suicidal ideation, but it did find a connection between suicidal ideation and suicide-related content found on online forums.

Video-sharing Web sites have also gained in presence and popularity on the Internet, especially since the creation of YouTube in 2005.⁴⁴ A primary concern with suicide or self-harm videos is that they may normalize and reinforce self-injurious behaviors or cause disinhibition.^{45,46} Lewis et al.⁴⁵ examined the accessibility and content of the most popular YouTube videos associated with nonsuicidal self-injury, such as self-cutting, burning, and hitting oneself. In 2009, they conducted a search on the keywords "self-injury" and "self-harm" via YouTube's search option and rated and analyzed the 50 most-viewed character videos (featuring live individuals) and 50 most-viewed noncharacter videos. Their results showed that the top videos had more than 2 million viewers and more than half (58%) had no viewer restrictions, such as requiring viewers to validate that they are aged 18 years or older. Lewis et al. reported that of the videos that were retrievable during coding, 42 were neutral (neither promoted nor discouraged nonsuicidal self-injury), 26 were against self-injury, 23 provided a mixed message (both for and against self-injury), and 7 were

pro-self-injury. Sixty-four percent had visual representations (such as photographs) of self-harming, specifically cutting. Lewis et al. suggested that these results represent an alarming trend that may foster communities in which nonsuicidal self-injury is encouraged and therefore increase the risk for self-injurious behavior.

Social media platforms such as chat rooms and discussion forums may also pose a risk for vulnerable groups by influencing decisions to die by suicide.^{10,24,47} In particular, interactions via chat rooms or discussion forums may foster peer pressure to die by suicide, encourage users to idolize those who have completed suicide, or facilitate suicide pacts.³⁴ Ultimately, these interactions may reduce the doubts or fears of people who are ambivalent about suicide. A trend also appears to be emerging in which people use social media to leave suicide notes.^{34,48,49} Suicide notes left by individuals via social media are shared with the public instantaneously and may influence the decisions of other vulnerable people who encounter them.

Social media may also pose a hazard to vulnerable people through the formation and influence of “extreme communities”⁵⁰—online groups that promote and provide support for beliefs and behaviors normally unacceptable by the social mainstream such as anorexia, suicide, and deliberate amputation.^{50,51} Similar to users of pro-eating disorder sites, users of pro-suicide sites may find support and acceptance that they have not found through other means.⁵⁰ Although these online groups may provide the benefit of support, they may present a risk to the public by encouraging vulnerable individuals to harm themselves.

In sum, evidence is growing that social media can influence pro-suicide behavior. Because the Internet eliminates geographic barriers to communication between people, the emergence of pro-suicide social media sites may present a new risk to vulnerable people who might otherwise not have been exposed to these potential hazards.

SOCIAL MEDIA AND SUICIDE PREVENTION

Social networking sites for suicide prevention can facilitate social connections among peers with similar experiences and increase

awareness of prevention programs, crisis help lines, and other support and educational resources.⁵² For example, the National Suicide Prevention Lifeline Facebook page⁵³ had more than 29 300 fans as of November 2011, and the American Foundation of Suicide Prevention⁵⁴ Facebook page had more than 77 200 fans. Both of these Facebook pages provide links to suicide prevention Web sites and hotlines, as well as information about the warning signs of suicide. We also found 580 groups on Twitter and 385 blog profiles on Blogger.com designated as suicide prevention. These social media sites allow users to interact and share relevant information, stories, and events in their local areas.

YouTube also has many videos devoted to suicide prevention, including those in the form of public service announcements. For example, the Department of Veterans Affairs⁵⁵ produced suicide prevention public service announcements that encourage veterans and service members to seek help. We also found announcements from nonprofit organizations and universities that promote suicide prevention awareness programs at both the institutional and the national level. Other videos were created by individual users and feature support and prevention content such as memorials for loved ones who died by suicide and personal stories of getting help.⁵⁶

The National Suicide Prevention Lifeline’s lifeline-gallery.org Web site⁵⁷ features an innovative social media platform in which suicide survivor stories are presented by animated avatars (a graphical representation of the user or the user’s alter ego or character). Site users can create and design the appearance of their avatars, write a description about their personal experiences with suicide, and then record their voices or choose a computer-generated voiceover to narrate their stories. The site also provides contact information for the National Suicide Prevention Lifeline and links to other suicide prevention organizations. As of November 2011, users had shared more than 880 stories. The use of this form of social media provides an anonymous, personalized, and interactive experience geared toward suicide prevention.

We also found examples of features on Web and social media sites that allowed for proactive prevention capabilities. For example,

Google’s Internet search engine has a feature that displays a link and message about the National Suicide Prevention Lifeline at the top of the search page when keyword searches suggest suicidal ideation or intent (e.g., “I want to die”). We found similar suicide prevention links when we conducted the same search on Yahoo. However, pro-suicide sites were the first to appear when we used some other popular search engines. We also found a public Facebook page called “Report and Eliminate From Facebook Pro-Suicide Groups”⁵⁸ that is intended to help facilitate the removal of links to pro-suicide sites on Facebook.

Social networking sites Facebook, MySpace, and Bebo have collaborated with the United Kingdom Child Exploitation and Online Protection Centre (CEOP) to provide a panic-button application to give users an easy way to report cyberbullying.⁵⁹ A ClickCEOP application can be used to report postings that explicitly target an individual or individuals with harassing, threatening, and hateful comments. The ClickCEOP application had more than 1500 active Facebook users as of July 2011.⁶⁰ The ClickCEOP Facebook page⁶¹ includes informative surveys, resources, and resource links to increase awareness of the cyberbullying problem.

Facebook has also teamed up with the United Kingdom- and Ireland-based Samaritans charity organization to launch a suicide alert reporting system so that Facebook users can report individuals who they believe are expressing suicidal thoughts or intent.^{62,63} Users can access a Report Suicidal Content page⁶⁴ through the Help Center link on their profile page. The Report Suicidal Content page is used to collect data on the content, such as the Web address (URL) of the Facebook page, the full name of the user posting the content, and the date of the posting, as well as additional information. These suicide-related alerts are purported to be given top priority by Facebook’s operation staff, who then connect the person who reported the postings with the Samaritan team to help give guidance and support.⁶³

The US military has also used social media to address the problem of suicide. For example, the site Afterdeployment.org⁶⁵ provides psychoeducation and suicide outreach information via social networking sites and blogs

accessible from the site. Other military sites that provide suicide awareness and support information through social media platforms include Suicideoutreach.org,⁶⁶ Realwarriors.net,⁶⁷ and Science.dodlive.mil.⁶⁸ Videos on targeted topics, including suicide prevention, are also hosted and dispersed via popular media outlets (YouTube) and other Web sites. There is, however, a dearth of published data to date regarding the effectiveness of these platforms and the aforementioned social media-based suicide prevention programs.

CONCLUSIONS

Public health is concerned with protecting and improving the health of entire populations, whether those populations are small communities or large nations. Social media, as we understand it today, has created virtual communities without physical borders. We have presented evidence showing that social media may pose a risk to vulnerable groups who are part of these virtual communities. We have also provided some examples of extant social media-based prevention applications and programs that follow from a public health-based approach. Framing the topic of social media and suicide from a public health perspective to address the issue and guide prevention programs makes sense.

More research is needed on the degree and extent of social media's negative and positive influences, as are evaluations of the effectiveness of social media-based suicide prevention programs. Further examination of subgroups that might be most vulnerable to suicide-promoting influences of social media is also warranted. A focus on adolescents and young adults is intuitive given that suicide is the third leading cause of death among these groups and that these groups have a high likelihood of encountering suicide-associated content on the Internet.^{24,33,69,70} Moreover, people with mental illness and alcohol and substance abuse problems, who may already be at high risk for suicide,⁷¹ may be more likely than others to use the Internet to discuss and learn about suicide methods.⁶ Preliminary data have also been gathered regarding gender-based risk. Clarke and van Amerom⁷² examined blogs created by depressed people and found that depressed men were more likely than

depressed women to discuss suicide or self-harm via blogs. Ultimately, additional research in this area will help to inform public health-based approaches to suicide prevention.

Several significant difficulties emerge, however, when conducting research on this topic. First, conducting research with suicide rates as an outcome variable is difficult because of suicide's low base rate. Moreover, the variability in social media format, use patterns, and other influences on suicidal behavior makes it very difficult to test social media as a variable that predicts suicidal behavior. For example, an increased prevalence of other risk factors, such as alcohol use and availability of firearms among teens, might also explain the rise in suicide rates among this vulnerable group.⁷³ Moreover, the causal role of social media in a person's decision to die by suicide or to acquire the means to do so may not be direct. That is, whether an at-risk person is more likely to die by suicide because he or she can obtain information about it via the Internet cannot be easily demonstrated.

Legal issues must also be considered when contemplating public health approaches to addressing some of the problems of social media and suicide. In particular are the legal complexities associated with the monitoring and filtering of content on the Internet. Although some countries are able to control Internet Web sites created within their borders, international jurisprudence makes it difficult to obtain jurisdiction over sites that originate outside the United States.^{74,75} Debate has also arisen as to whether the public sector or the private sector should be responsible for restricting content on the Internet and how much restriction should be allowed.⁷⁵ In general, the Internet is less regulated than other forms of media. Fiedorowicz and Chigurupati⁶ pointed out that when radio, television, and newspapers broadcast or publish material of questionable intent or accuracy, they may be scrutinized by regulators or possibly lose ratings as a consequence. The generation and transmission of information via the Internet and social media, however, are decentralized and constantly being changed and updated by end users. Thus, the Internet is an open gateway with few restrictions on content. Ultimately, the control of Internet content involves First Amendment rights of freedom of

speech and expression. Restrictions on Internet content may possibly present a slippery-slope problem that can lead to additional restrictions of these rights.

The role of social media and its potential influence on suicide-related behavior is a relatively new and evolving phenomenon that society is only beginning to assess and understand. The emerging data regarding the influence of the Internet and social media on suicide behavior have suggested that these forms of technology may introduce new threats to the public as well as new opportunities for assistance and prevention. Because social media are mostly created and controlled by end users, the opportunity for surveillance and prevention can be extended to all users. To help facilitate this user-driven approach to surveillance and prevention, all social media sites could adopt simple-to-use methods for users to report malicious Web sites and activities of other users. Moreover, the public promotion of direct and easy avenues for people to access help through social media sites should be a priority. Public health campaigns that leverage the Internet and social media to raise awareness of the issue in schools, colleges, and other settings might also be beneficial. Those administering suicide prevention and outreach public health campaigns must also stay current with social media trends and user preferences, as well as pertinent legal issues. Ultimately, proactively using social media to increase public awareness of and education on mental health issues is a logical modern public health approach that can potentially save lives. ■

About the Authors

David D. Luxton, Jennifer D. June, and Jonathan M. Fairall are with the National Center for Telehealth and Technology, Joint Base Lewis-McChord, WA.

Correspondence should be sent to David D. Luxton, PhD, National Center for Telehealth and Technology (T2), 9933 West Hayes Street, Joint Base Lewis-McChord, WA 98431 (e-mail: david.luxton@us.army.mil). Reprints can be ordered at <http://www.ajph.org> by clicking on the "Reprints" link.

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