

## **Social Networking Sites and Adolescent Health: New Opportunities and New Challenges**

MEGAN A. MORENO, MD, MSED, MPH\*

*Abstract: Social networking sites (SNSs) are immensely popular among adolescents. Adolescents display a variety of information, including health risk behaviors, on SNSs. The validity and impact of these displays is currently under investigation. SNSs present new risks to adolescents, as well as new opportunities for health promotion.*

### I. ADOLESCENT HEALTH: MORBIDITY AND MORTALITY

Many of the most important causes of morbidity and mortality in the U.S. adolescent population are associated with health-risk behaviors such as substance abuse, violence, and risky sexual behavior (DuRant and Smith 2002; Eaton et al. 2006; Loeber et al. 2005; Teplin et al. 2006; Baskin-Sommers and Sommers 2006; Busen, Marcus, and von Sternberg 2006; Camenga, Klein, and Roy 2006; Stephens 2006). Identifying adolescents who are at risk for morbidity and mortality related to engagement in these health-risk behaviors remains challenging. Adolescents are less likely to obtain regular care in a physician's office given that they are a generally healthy population, so opportunities for health screenings and early interventions are often missed (Halper-Felsher et al. 2006; Mangione-Smith et al. 2007; McKee and Fletcher 2006; Lehrer et al. 2007). Further, adolescents who engage in health-risk behaviors are even less likely to seek care at a clinic because of concerns about confidentiality (McKee and Fletcher 2006). As current methods fail to identify many adolescents who are at risk for or are engaging in health-risk

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\* Megan A. Moreno, MD, MSED, MPH is an Assistant Professor of Pediatrics at the University of Wisconsin-Madison. She is an adolescent medicine physician, an educator and a researcher. Her current research interests involve how adolescents interact with media and the impact of these interactions on adolescent health.

behaviors, innovative approaches are clearly needed (Halper-Felsher et al. 2006; Mangione-Smith et al. 2007; McKee and Fletcher 2006; Lehrer et al. 2007).

## II. SOCIAL NETWORKING SITES: POPULAR AND PREVALENT

Social networking sites (SNSs) may offer new opportunities for identification and intervention regarding health-risk behaviors in the adolescent population. Most adolescents have Internet access and report daily use of SNSs (Lenhart et al. 2010). Up to 97% of U.S. college students report ownership of a SNS profile (Lewis, Kaufman, and Christakis 2008). The content of a SNS profile is created and displayed by the profile owner and may include audio, images (e.g., pictures and video), and text (e.g., blogs and personal descriptions). A widely used feature of some SNSs such as Facebook is called a “status update,” which allows users to share a short text description of, among other things, their current location, emotion, or activity. Examples of status updates include “Mary is feeling really stressed” or “Joe can’t wait for vacation!” SNSs also allow profile owners to create online photo albums and share photographs with other profile owners. SNSs further provide a venue for communication with other profile owners via e-mail, instant messaging, and publicly displayed comments. Finally, SNSs provide opportunities to link one’s profile into a social network via “friending.” When two profile owners accept each other as online “friends,” the two profiles become linked and content is mutually accessible. Therefore, these sites allow adolescents opportunities for self-expression and a means of peer communication and feedback, as well as a social network (Livingstone 2008; Pempek, Yermolayeva, and Calvert 2009; Subrahmanyam et al. 2008; Moreno et al. 2010). The most popular SNS at the present time is Facebook, which currently boasts 130 million U.S. users and 18 billion total yearly visits. (Google). Though the past year has seen a decline in blogging among adolescents and only modest use of the site Twitter by adolescents, Facebook continues to rise in popularity (Lenhart et al. 2010). Facebook recently surpassed Google for weekly number of web site hits (Childs 2010). Facebook’s ongoing popularity may be associated with its ability to combine functions from other types of web sites such as photo sharing, e-mail communication, blogs, and RSS feeds.

### III. ADOLESCENTS' DISPLAYS ON SOCIAL NETWORKING SITES

A major developmental task of adolescence is development of one's identity, and SNSs provide an online venue for adolescents to pursue identity exploration and development. Through developing and modifying a SNS profile, adolescents select which aspects of their identity to display. Adolescents can choose to display text or image references to favorite movies, recent events, hobbies, or experiences. Adolescents can then receive feedback from peers on these displays via publicly posted comments on their profile or by private messaging, which is similar to e-mail but is sent within the SNS.

Adolescence is frequently a time of behavioral experimentation. For some adolescents this includes experimentation with potential health-risk behaviors such as substance use or sexual activity (Neinstein and Anderson 2002). These health-risk behaviors may also become part of the displayed identity that adolescents present on SNS profiles and may provide clues for adolescents who may be at risk for consequences related to these health-risk behaviors. Prevalence data suggest that by 12th grade, just over half of adolescents have had sex, half currently drink alcohol, and a third have been in a physical fight (Eaton et al. 2006). Approximately half of adolescent SNS profiles feature references to one or more of these health-risk behaviors (Hinduja and Patchin 2008; Moreno, Parks, and Richardson 2007; Moreno, Parks, et al. 2009). Further, our previous study illustrated that 24% of 18-year-olds on MySpace displayed references to sex, 37% displayed references to alcohol use, and 14% displayed references to violence (Moreno, Parks, et al. 2009). These references included image references such as photographs of the profile owner smoking a cigarette or drinking out of a keg. Text references included describing one's hobby as "sex" or discussing regrets after a night of drinking alcohol. Though prevalence data suggest higher proportions of self-reported participation in risk behaviors versus our findings regarding SNS risk behavior display, it is important to point out that survey data specifically asks individuals for self-disclosure. Our study investigated the voluntary public display of personal information that had not been validated. We would not expect all sexually active teens to display references to sexual behaviors on a public website or all adolescent drinkers to reference alcohol on their SNS profiles. The population of adolescents who display this information may represent a higher risk population who is willing to showcase health-risk behaviors in a public venue and link these behaviors to the presentation of their identity.

When further considering these SNS displays, two points are essential. First, what is the validity of the information presented by the profile owner? Second, regardless of the validity of the displayed information, what impact may these displays have on other adolescents who view the SNS profiles?

#### IV. VALIDITY OF SNS DISPLAYS

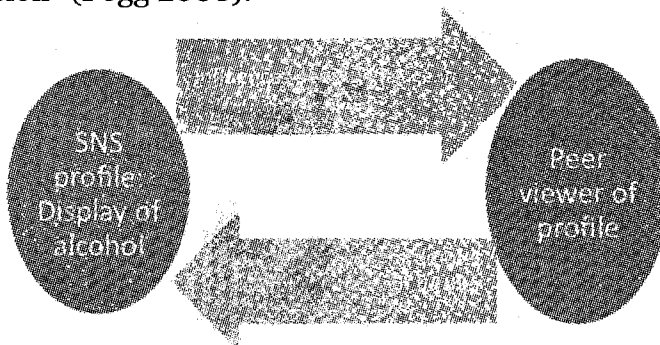
Displayed information about a health behavior may be associated with engagement in the behavior, consideration of engagement in the behavior, or joking/nonsense (*ibid.*, 27-34). Though the validity of such displays is still under investigation, previous work suggests that these references may often be associated with consideration or engagement in the displayed behaviors. First, prior studies have shown that computer use encourages high levels of self-disclosure and uninhibited personal expression, which suggests that the online environment may encourage one to discuss or reveal personal information (Fleming 1990; Walther and Parks 2002; Wallace, et al. 2002; Newman, Consoli, and Taylor 1997). One study found that people who tend to disclose personal information in off-line environments are also more likely to disclose personal information in online environments (Christofides, Muise, and Desmarais 2009). Second, the Media Practice Model identifies key factors in adolescents' use of media and argues that adolescents select and interact with media based on who they are, or who they want to be, at that moment. This model supports the conclusion that disclosures made on SNSs may reflect actual behaviors or behavioral intent (Brown 2000). Third, patterns of display on SNSs may also give clues to the validity of the displayed information. References to health-risk behaviors are often displayed in patterns consistent with those seen in self-report studies (Moreno, Parks, et al. 2009). For example, profiles that display references to one risk-behavior, such as substance use, are more likely to display references to other risk behaviors, such as sex. Further, references to health-risk behaviors are displayed in similar patterns among adolescents' online "friend" groups (Moreno et al. 2010).

#### V. SNS DISPLAYS: IMPACT ON OTHER TEENS

Regardless of the veracity of displayed information, other users may respond to an adolescent's disclosures as if they were real, which may, in turn, influence the teen's intentions and behaviors. A previous study found that adolescents viewed displayed alcohol references on

SNS profiles as accurate and influential representations of alcohol use (Moreno, Briner, et al. 2009). Given the popularity of SNSs, these websites may function as a media super-peer, promoting and establishing norms of behavior among other adolescents (Strasburger and Wilson 2002, 202). For example, alcohol references on SNSs may promote both the illusion that drinking is without risk and alcohol initiation, a process known as media cultivation (Gerbner 1986). Further, social learning theory predicts that teens who see characters displaying references to behaviors such as risky sex without experiencing negative consequences will be more likely to adopt the portrayed behaviors (Bandura 1986, 1977). Several factors make SNSs a particularly powerful setting for the modeling of risk behaviors. First, risk behavior is widely displayed on SNSs. Second, the vast majority of SNS users are similar in that they are adolescents and young adults; as such, media models who are perceived to be similar are more likely to be imitated than those who are not (Eyal and Rubin 2003). Third, SNSs promote locating and connecting with other profile owners who share interests, thereby amplifying the likelihood that modeling will occur. Thus, SNSs may facilitate exposure to more varied peer behavior than the average user's "real world" peer network.

It has been argued that SNSs may have greater influence than traditional media, as these sites combine the power of interpersonal persuasion with the reach of mass media (Fogg 2008). SNS data is both *created* and *consumed* by adolescents. The power of interpersonal persuasion cannot be underestimated among adolescents and young adults, for whom peers are the most important source of influence (Neinstein and Anderson 2002; Sacerdote 2001). Facebook has been described as "the most significant advance in persuasion since the radio was invented in the 1890s" and has initiated a new form of persuasion labeled "mass interpersonal persuasion" (Fogg 2008).



## VI. BENEFITS AND RISKS OF SNSs

Social networking sites, like any other form of media, are tools that present both potential benefits as well as potential risks for the user. For teens who feel isolated, such as adolescents with interests outside the mainstream culture, SNSs may provide a social outlet that is otherwise unavailable. A previous study found a positive relationship between Facebook use and increased self-esteem and satisfaction (Ellison, Steinfield, and Lampe 2007). Anecdotal reports suggest that some adolescents use SNSs to organize potentially beneficial activities, such as class assignments, social justice efforts, and support groups for peers in distress.

Despite these potential benefits, there may be risks associated with adolescents' profile content. Displaying health-risk behavior information on a personal web profile, such as information about sexual activity or substance use, displays this information in a globally public venue. Content displayed on a Facebook profile can be copied, downloaded, or distributed by any profile viewer. Therefore, this information is published, public, permanent, and persuasive. Whether or not teens actually engage in their displayed behaviors, public risk behavior displays can have unintended and lasting effects. Displaying health-risk information online may potentially attract unwanted online attention, such as sexual predation (Lenhart and Madden 2007; Mitchell, Finkelhor, and Wolak 2007), or negatively affect future employment opportunities (Finder 2006; Hanisko; Doyle). Many employers currently screen potential job candidates using social media tools like Facebook (Kluemper and Rosen 2009).

## VII. FUTURE CONSIDERATIONS

Given the immense popularity of SNSs among teens, these websites have become an integral part of adolescents' lives and therefore their health and safety. Researchers are increasingly recognizing that SNSs can make contributions to understanding behavior and that they are a potential public health tool (Ackland 2009). As SNSs provide information about a profile owner, there is the potential for this information to be used for a targeted intervention. Early studies have suggested that it may be feasible to incorporate SNSs into health intervention efforts via targeted messaging or blogs (Moreno, VanderStoep, et al. 2009; Graffeo and La Barbera 2009). Though these early studies are promising, research involving SNSs and adolescent health is still in its infancy. Further

study is needed to assess the validity and impact of SNS disclosures and how to provide targeted messages or interventions using SNSs.

SNSs may also present new opportunities to enhance patient care. SNSs may provide a new venue to identify adolescents who are considering or engaging in health-risk behaviors. As current methods fail to identify many adolescents who are at risk for or are engaging in health-risk behaviors, innovative approaches are clearly needed (Halper-Felsher et al. 2006; Mangione-Smith et al. 2007; McKee and Fletcher 2006; Lehrer et al. 2007). Given the popularity of SNSs among teens and the high prevalence of risk behaviors by profile owners, SNSs can be explored as a tool to identify, screen, and potentially intervene with adolescents who display risk behavior information. It has been suggested that viewing an adolescent's SNS profile in the context of an office visit may provide a novel method to discuss health issues raised by displayed references to health-risk, as well as health-promoting, behaviors (Pujazon-Zazik and Park 2010).

There are potential risks and benefits associated with the use of SNSs, including, but not limited to, health. Current research efforts involving SNSs include fields such as medicine, psychology and computer science, as well as criminal justice. Through this work, we will develop a better understanding of how to best address the challenges and opportunities presented by this new technology.

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