Social Media and Mental Health: Benefits, Risks, and Opportunities for Research and Practice

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Introduction

Social media has become a prominent fixture in the lives of many individuals facing the challenges of mental illness. Social media refers broadly to web and mobile platforms that allow individuals to connect with others within a virtual network (such as Facebook, Twitter, Instagram, Snapchat, or LinkedIn), where they can share, co-create, or exchange various forms of digital content, including information, messages, photos, or videos (Ahmed et al. 2019). Studies have reported that individuals living with a range of mental disorders, including depression, psychotic disorders, or other severe mental illnesses, use social media platforms at comparable rates as the general population, with use ranging from about 70% among middle-age and older individuals to upwards of 97% among younger individuals (Aschbrenner et al. 2018b; Birnbaum et al. 2017b; Brunette et al. 2019; Naslund et al. 2016). Other exploratory studies have found that many of these individuals with mental illness appear to turn to social media to share their personal experiences, seek information about their mental health and treatment options, and give and receive support from others facing similar mental health challenges (Bucci et al. 2019; Naslund et al. 2016b).

Across the USA and globally, very few people living with mental illness have access to adequate mental health services (Patel et al. 2018). The wide reach and near ubiquitous use of social media platforms may afford novel opportunities to address these shortfalls in existing mental health care, by enhancing the quality, availability, and reach of services. Recent studies have explored patterns of social media use, impact of social media use on mental health and wellbeing, and the potential to leverage the popularity and interactive features of social media to enhance the delivery of interventions. However, there remains uncertainty regarding the risks and potential harms of social media for mental health (Orben and Przybylski 2019) and how best to weigh these concerns against potential benefits.

In this commentary, we summarized current research on the use of social media among individuals with mental illness, with consideration of the impact of social media on mental wellbeing, as well as early efforts using social media for delivery of evidence-based programs for addressing mental health problems. We searched for recent peer reviewed publications in Medline and Google Scholar using the search terms "mental health" or "mental illness" and "social media," and searched the reference lists of recent reviews and other relevant studies. We reviewed the risks, potential harms, and necessary safety precautions with using social media for mental health. Overall, our goal was to consider the role of social media as a potentially viable intervention platform for offering support to persons with mental disorders, promoting engagement and retention in care, and enhancing existing mental health services, while balancing the need for safety. Given this broad objective, we did not perform a systematic search of the literature and we did not apply specific inclusion criteria based on study design or type of mental disorder.

Social Media Use and Mental Health

In 2020, there are an estimated 3.8 billion social media users worldwide, representing half the global population (We Are Social 2020). Recent studies have shown that individuals with mental disorders are increasingly gaining access to and using mobile devices, such as smartphones (Firth et al. 2015; Glick et al. 2016; Torous et al. 2014a, b). Similarly, there is mounting

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evidence showing high rates of social media use among individuals with mental disorders, including studies looking at engagement with these popular platforms across diverse settings and disorder types. Initial studies from 2015 found that nearly half of a sample of psychiatric patients were social media users, with greater use among younger individuals (Trefflich et al. 2015), while 47% of inpatients and outpatients with schizophrenia reported using social media, of which 79% reported at least once-a-week usage of social media websites (Miller et al. 2015). Rates of social media use among psychiatric populations have increased in recent years, as reflected in a study with data from 2017 showing comparable rates of social media use (approximately 70%) among individuals with serious mental illness in treatment as compared with low-income groups from the general population (Brunette et al. 2019).

Similarly, among individuals with serious mental illness receiving community-based mental health services, a recent study found equivalent rates of social media use as the general population, even exceeding 70% of participants (Naslund et al. 2016). Comparable findings were demonstrated among middle-age and older individuals with mental illness accessing services at peer support agencies, where 72% of respondents reported using social media (Aschbrenner et al. 2018b). Similar results, with 68% of those with first episode psychosis using social media daily were reported in another study (Abdel-Baki et al. 2017).

Individuals who self-identified as having a schizophrenia spectrum disorder responded to a survey shared through the National Alliance of Mental Illness (NAMI) and reported that visiting social media sites was one of their most common activities when using digital devices, taking up roughly 2 h each day (Gay et al. 2016). For adolescents and young adults ages 12 to 21 with psychotic disorders and mood disorders, over 97% reported using social media, with average use exceeding 2.5 h per day (Birnbaum et al. 2017b). Similarly, in a sample of adolescents ages 13–18 recruited from community mental health centers, 98% reported using social media, with YouTube as the most popular platform, followed by Instagram and Snapchat (Aschbrenner et al. 2019).

Research has also explored the motivations for using social media as well as the perceived benefits of interacting on these platforms among individuals with mental illness. In the sections that follow (see Table 1 for a summary), we consider three potentially unique features of interacting and connecting with others on social media that may offer benefits for individuals living with mental illness. These include: (1) Facilitate social interaction; (2) Access to a peer support network; and (3) Promote engagement and retention in services.

Facilitate Social Interaction

Social media platforms offer near continuous opportunities to connect and interact with others, regardless of time of day or geographic location. This on demand ease of communication may be especially important for facilitating social interaction among individuals with mental disorders experiencing difficulties interacting in face-to-face settings. For example, impaired social functioning is a common deficit in schizophrenia spectrum disorders, and social media may facilitate communication and interacting with others for these individuals (Torous and Keshavan 2016). This was suggested in one study where participants with schizophrenia indicated that social media helped them to interact and socialize more easily (Miller et al. 2015). Like other online communication, the ability to connect with others anonymously may be an important feature of social media, especially for individuals living with highly stigmatizing health conditions (Berger et al. 2005), such as serious mental disorders (Highton-Williamson et al. 2015).

Studies have found that individuals with serious mental disorders (Spinzy et al. 2012) as well as young adults with mental illness (Gowen et al. 2012) appear to form online relationships and connect with others on social media as often as social media users from the general population. This is an important observation because individuals living with serious mental disorders typically have few social contacts in the offline world and also experience high rates of loneliness (Badcock et al. 2015; Giacco et al. 2016). Among individuals receiving publicly funded mental health services who use social media, nearly half (47%) reported using these platforms at least weekly to feel less alone (Brusilovskiy et al. 2016). In another study of young adults with serious mental illness, most indicated that they used social media to help feel less isolated (Gowen et al. 2012). Interestingly, more frequent use of social media among a sample of individuals with serious mental illness was associated with greater community participation, measured as participation in shopping, work, religious activities, or visiting friends and family, as well as greater civic engagement, reflected as voting in local elections (Brusilovskiy et al. 2016).

Emerging research also shows that young people with moderate to severe depressive symptoms appear to prefer communicating on social media rather than in-person (Rideout and Fox 2018), while other studies have found that some individuals may prefer to seek help for mental health concerns online rather than through in-person encounters (Batterham and Calear 2017). In a qualitative study, participants with schizophrenia described greater anonymity, the ability to discover that other people have experienced similar health challenges and reducing fears through greater access to information as important motivations for using the Internet to seek mental health information (Schrank et al. 2010). Because social media does not require the immediate responses necessary in face-to-face communication, it may overcome deficits with social interaction due to psychotic symptoms that typically adversely affect face-to-face conversations (Docherty

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Table 1 Summary of potential benefits and challenges with social media for mental health

Features of social media	Examples	Studies
Benefits		
1) Facilitate social interaction	• Online interactions may be easier for individuals with impaired social functioning and facing symptoms • Anonymity can help individuals with stigmatizing conditions connect with others • Young adults with mental illness appear to commonly form online relationships • Social media use in individuals with serious mental illness may be associated with greater community and civic engagement • Individuals with depressive symptoms may prefer communicating on social media than in-person • Online conversations do not require immediate responses or non-verbal cues	(Batterham and Calear 2017; Brusilovskiy et al. 2016; Gowen et al. 2012; Highton-Williamson et al. 2015; Indian and Grieve 2014; Schrank et al. 2010; Spinzy et al. 2012; Torous and Keshavan 2016)
2) Access to peer support network	• Online peer support can help to seek information, discuss symptoms and medication, share experiences, learn to cope and facilitate self-disclosure • Individuals with mental disorders can establish new relationships, feel less alone or reconnect with people • Various support patterns are noted in these networks (e.g. "informational," "esteem," "network," and "emotional")	(Bauer et al. 2013; Berry et al. 2017; Bucci et al. 2019; Chang 2009; Haker et al. 2005; Highton-Williamson et al. 2015; Naslund et al. 2014; 2017; Vayreda and Antaki 2009)
3) Promote engagement and retention in services	• Individuals with mental disorders can connect with care providers and access evidence-based services • Online peer support augments existing interventions to improve client engagement and compliance • Peer networks increase social connectedness and empowerment during recovery • Interactive peer-to-peer features of social media appear beneficial for social functioning • Mobile apps offer potential to monitor symptoms, prevent relapses and help users set goals • Digital peer-based interventions are feasible and acceptable for targeting fitness and weight loss in people with mental disorders • Online networks can extend support to caregivers of those with mental disorders	(Alvarez-Jimenez et al. 2013, 2018, 2019; Aschbrenner et al. 2018a, 2016b; Biagianti et al. 2018; Birnbaum et al. 2017b; Gleeson et al. 2017; Lal et al. 2018; Naslund et al. 2016b, 2018; Schlosser et al. 2016, 2018)
Challenges		
1) Impact on symptoms	• Studies show increased risk of exposure to harm, social isolation, depressive symptoms and bullying • Social comparison pressure and social isolation after being rejected on social media is a potential concern • More frequent visits and use of a larger number of social media platforms has been linked with greater depressive symptoms, anxiety and risk of suicide • Social media replaces in-person interactions and may contribute to greater loneliness and worsening of existing mental health symptoms	(Andreassen et al. 2016; Berry et al. 2018; Best et al. 2014; Feinstein et al. 2013; Kross et al. 2013; Lin et al. 2016; Mittal et al. 2007; Stiglic and Viner 2019; Twenge and Campbell 2018; Twenge et al. 2018; Vannucci et al. 2017; Woods and Scott 2016)
2) Facing hostile interactions	• Cyberbullying is associated with increased depressive and anxiety symptoms • Greater odds of online harassment in individuals with major depressive symptoms than those with mild or no symptoms	(Hamm et al. 2015; Machmutow et al. 2012; Rideout and Fox 2018; Ybarra 2004)
3) Consequences for daily life	• Risks pertain to privacy, confidentiality, and potential consequences of disclosing personal health information • Misleading information or conflicts of interest, when the platforms promote popular content • Individuals have concerns about privacy, threats to employment, stigma and being judged, adverse impact on relationships and facing online hostility	(Moorhead et al. 2013; Naslund and Aschbrenner 2019; Torous and Keshavan 2016; Ventola 2014)

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et al. 1996). Online social interactions may not require the use of non-verbal cues, particularly in the initial stages of interaction (Kiesler et al. 1984), with interactions being more fluid and within the control of users, thereby overcoming possible social anxieties linked to in-person interaction (Indian and Grieve 2014). Furthermore, many individuals with serious mental disorders can experience symptoms including passive social withdrawal, blunted affect, and attentional impairment, as well as active social avoidance due to hallucinations or other concerns (Hansen et al. 2009), thus potentially reinforcing the relative advantage, as perceived by users, of using social media over in person conversations.

Access to a Peer Support Network

There is growing recognition about the role that social media channels could play in enabling peer support (Bucci et al. 2019; Naslund et al. 2016b), referred to as a system of mutual giving and receiving where individuals who have endured the difficulties of mental illness can offer hope, friendship, and support to others facing similar challenges (Davidson et al. 2006; Mead et al. 2001). Initial studies exploring use of online self-help forums among individuals with serious mental illnesses have found that individuals with schizophrenia appeared to use these forums for self-disclosure and sharing personal experiences, in addition to providing or requesting information, describing symptoms, or discussing medication (Haker et al. 2005), while users with bipolar disorder reported using these forums to ask for help from others about their illness (Vayreda and Antaki 2009). More recently, in a review of online social networking in people with psychosis, Highton-Williamson et al. (2015) highlight that an important purpose of such online connections was to establish new friendships, pursue romantic relationships, maintain existing relationships or reconnect with people, and seek online peer support from others with lived experience (Highton-Williamson et al. 2015).

Online peer support among individuals with mental illness has been further elaborated in various studies. In a content analysis of comments posted to YouTube by individuals who self-identified as having a serious mental illness, there appeared to be opportunities to feel less alone, provide hope, find support and learn through mutual reciprocity, and share coping strategies for day-to-day challenges of living with a mental illness (Naslund et al. 2014). In another study, Chang (2009) delineated various communication patterns in an online psychosis peer-support group (Chang 2009). Specifically, different forms of support emerged, including "informational support" about medication use or contacting mental health providers, "esteem support" involving positive comments for encouragement, "network support" for sharing similar experiences, and "emotional support" to express understanding of a peer's situation and offer hope or confidence (Chang 2009).

Bauer et al. (2013) reported that the main interest in online self-help forums for patients with bipolar disorder was to share emotions with others, allow exchange of information, and benefit by being part of an online social group (Bauer et al. 2013).

For individuals who openly discuss mental health problems on Twitter, a study by Berry et al. (2017) found that this served as an important opportunity to seek support and to hear about the experiences of others (Berry et al. 2017). In a survey of social media users with mental illness, respondents reported that sharing personal experiences about living with mental illness and opportunities to learn about strategies for coping with mental illness from others were important reasons for using social media (Naslund et al. 2017). A computational study of mental health awareness campaigns on Twitter provides further support with inspirational posts and tips being the most shared (Saha et al. 2019). Taken together, these studies offer insights about the potential for social media to facilitate access to an informal peer support network, though more research is necessary to examine how these online interactions may impact intentions to seek care, illness self-management, and clinically meaningful outcomes in offline contexts.

Promote Engagement and Retention in Services

Many individuals living with mental disorders have expressed interest in using social media platforms for seeking mental health information (Lal et al. 2018), connecting with mental health providers (Birnbaum et al. 2017b), and accessing evidence-based mental health services delivered over social media specifically for coping with mental health symptoms or for promoting overall health and wellbeing (Naslund et al. 2017). With the widespread use of social media among individuals living with mental illness combined with the potential to facilitate social interaction and connect with supportive peers, as summarized above, it may be possible to leverage the popular features of social media to enhance existing mental health programs and services. A recent review by Biagianti et al. (2018) found that peer-to-peer support appeared to offer feasible and acceptable ways to augment digital mental health interventions for individuals with psychotic disorders by specifically improving engagement, compliance, and adherence to the interventions and may also improve perceived social support (Biagianti et al. 2018).

Among digital programs that have incorporated peer-to-peer social networking consistent with popular features on social media platforms, a pilot study of the HORYZONS online psychosocial intervention demonstrated significant reductions in depression among patients with first episode psychosis (Alvarez-Jimenez et al. 2013). Importantly, the majority of participants (95%) in this study engaged with the peer-to-peer networking feature of the program, with many reporting increases in perceived social connectedness and empowerment

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in their recovery process (Alvarez-Jimenez et al. 2013). This moderated online social therapy program is now being evaluated as part of a large randomized controlled trial for maintaining treatment effects from first episode psychosis services (Alvarez-Jimenez et al. 2019).

Other early efforts have demonstrated that use of digital environments with the interactive peer-to-peer features of social media can enhance social functioning and wellbeing in young people at high risk of psychosis (Alvarez-Jimenez et al. 2018). There has also been a recent emergence of several mobile apps to support symptom monitoring and relapse prevention in psychotic disorders. Among these apps, the development of PRIME (Personalized Real-time Intervention for Motivational Enhancement) has involved working closely with young people with schizophrenia to ensure that the design of the app has the look and feel of mainstream social media platforms, as opposed to existing clinical tools (Schlosser et al. 2016). This unique approach to the design of the app is aimed at promoting engagement and ensuring that the app can effectively improve motivation and functioning through goal setting and promoting better quality of life of users with schizophrenia (Schlosser et al. 2018).

Social media platforms could also be used to promote engagement and participation in in-person services delivered through community mental health settings. For example, the peer-based lifestyle intervention called PeerFIT targets weight loss and improved fitness among individuals living with serious mental illness through a combination of in-person lifestyle classes, exercise groups, and use of digital technologies (Aschbrenner et al. 2016b, c). The intervention holds tremendous promise as lack of support is one of the largest barriers towards exercise in patients with serious mental illness (Firth et al. 2016), and it is now possible to use social media to counter such. Specifically, in PeerFIT, a private Facebook group is closely integrated into the program to offer a closed platform where participants can connect with the lifestyle coaches, access intervention content, and support or encourage each other as they work towards their lifestyle goals (Aschbrenner et al. 2016a; Naslund et al. 2016a). To date, this program has demonstrated preliminary effectiveness for meaningfully reducing cardiovascular risk factors that contribute to early mortality in this patient group (Aschbrenner, Naslund, Shevenell, Kinney, et al., 2016), while the Facebook component appears to have increased engagement in the program, while allowing participants who were unable to attend in-person sessions due to other health concerns or competing demands to remain connected with the program (Naslund et al. 2018). This lifestyle intervention is currently being evaluated in a randomized controlled trial enrolling young adults with serious mental illness from real world community mental health services settings (Aschbrenner et al. 2018a).

These examples highlight the promise of incorporating the features of popular social media into existing programs, which

may offer opportunities to safely promote engagement and program retention, while achieving improved clinical outcomes. This is an emerging area of research, as evidenced by several important effectiveness trials underway (Alvarez-Jimenez et al. 2019; Aschbrenner et al. 2018a), including efforts to leverage online social networking to support family caregivers of individuals receiving first episode psychosis services (Gleeson et al. 2017).

Challenges with Social Media for Mental Health

The science on the role of social media for engaging persons with mental disorders needs a cautionary note on the effects of social media usage on mental health and wellbeing, particularly in adolescents and young adults. While the risks and harms of social media are frequently covered in the popular press and mainstream news reports, careful consideration of the research in this area is necessary. In a review of 43 studies in young people, many benefits of social media were cited, including increased self-esteem and opportunities for self-disclosure (Best et al. 2014). Yet, reported negative effects were an increased exposure to harm, social isolation, depressive symptoms, and bullying (Best et al. 2014). In the sections that follow (see Table 1 for a summary), we consider three major categories of risk related to use of social media and mental health. These include: (1) Impact on symptoms; (2) Facing hostile interactions; and (3) Consequences for daily life.

Impact on Symptoms

Studies consistently highlight that use of social media, especially heavy use and prolonged time spent on social media platforms, appears to contribute to increased risk for a variety of mental health symptoms and poor wellbeing, especially among young people (Andreassen et al. 2016; Kross et al. 2013; Woods and Scott 2016). This may partly be driven by the detrimental effects of screen time on mental health, including increased severity of anxiety and depressive symptoms, which have been well documented (Stiglic and Viner 2019). Recent studies have reported negative effects of social media use on mental health of young people, including social comparison pressure with others and greater feeling of social isolation after being rejected by others on social media (Rideout and Fox 2018). In a study of young adults, it was found that negative comparisons with others on Facebook contributed to risk of rumination and subsequent increases in depression symptoms (Feinstein et al. 2013). Still, the cross-sectional nature of many screen time and mental health studies makes it challenging to reach causal inferences (Orben and Przybylski 2019).

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Quantity of social media use is also an important factor, as highlighted in a survey of young adults ages 19 to 32, where more frequent visits to social media platforms each week were correlated with greater depressive symptoms (Lin et al. 2016). More time spent using social media is also associated with greater symptoms of anxiety (Vannucci et al. 2017). The actual number of platforms accessed also appears to contribute to risk as reflected in another national survey of young adults where use of a large number of social media platforms was associated with negative impact on mental health (Primack et al. 2017). Among survey respondents using between 7 and 11 different social media platforms compared with respondents using only 2 or fewer platforms, there were 3 times greater odds of having high levels of depressive symptoms and a 3.2 times greater odds of having high levels of anxiety symptoms (Primack et al. 2017).

Many researchers have postulated that worsening mental health attributed to social media use may be because social media replaces face-to-face interactions for young people (Twenge and Campbell 2018) and may contribute to greater loneliness (Bucci et al. 2019) and negative effects on other aspects of health and wellbeing (Woods and Scott 2016). One nationally representative survey of US adolescents found that among respondents who reported more time accessing media such as social media platforms or smartphone devices, there were significantly greater depressive symptoms and increased risk of suicide when compared with adolescents who reported spending more time on non-screen activities, such as in-person social interaction or sports and recreation activities (Twenge et al. 2018). For individuals living with more severe mental illnesses, the effects of social media on psychiatric symptoms have received less attention. One study found that participation in chat rooms may contribute to worsening symptoms in young people with psychotic disorders (Mittal et al. 2007), while another study of patients with psychosis found that social media use appeared to predict low mood (Berry et al. 2018). These studies highlight a clear relationship between social media use and mental health that may not be present in general population studies (Orben and Przybylski 2019) and emphasize the need to explore how social media may contribute to symptom severity and whether protective factors may be identified to mitigate these risks.

Facing Hostile Interactions

Popular social media platforms can create potential situations where individuals may be victimized by negative comments or posts. Cyberbullying represents a form of online aggression directed towards specific individuals, such as peers or acquaintances, which is perceived to be most harmful when compared with random hostile comments posted online (Hamm et al. 2015). Importantly, cyberbullying on social media consistently shows harmful impact on mental health in the form of increased depressive symptoms as well as worsening of anxiety symptoms, as evidenced in a review of 36 studies among children and young people (Hamm et al. 2015). Furthermore, cyberbullying disproportionately impacts females as reflected in a national survey of adolescents in the USA, where females were twice as likely to be victims of cyberbullying compared with males (Alhajji et al. 2019). Most studies report cross-sectional associations between cyberbullying and symptoms of depression or anxiety (Hamm et al. 2015), though one longitudinal study in Switzerland found that cyberbullying contributed to significantly greater depression over time (Machmutow et al. 2012).

For youth ages 10 to 17 who reported major depressive symptomatology, there were over 3 times greater odds of facing online harassment in the last year compared with youth who reported mild or no depressive symptoms (Ybarra 2004). Similarly, in a 2018 national survey of young people, respondents ages 14 to 22 with moderate to severe depressive symptoms were more likely to have had negative experiences when using social media and, in particular, were more likely to report having faced hostile comments or being "trolled" from others when compared with respondents without depressive symptoms (31% vs. 14%) (Rideout and Fox 2018). As these studies depict risks for victimization on social media and the correlation with poor mental health, it is possible that individuals living with mental illness may also experience greater hostility online compared to individuals without mental illness. This would be consistent with research showing greater risk of hostility, including increased violence and discrimination, directed towards individuals living with mental illness in in-person contexts, especially targeted at those with severe mental illnesses (Goodman et al. 1999).

A computational study of mental health awareness campaigns on Twitter reported that while stigmatizing content was rare, it was actually the most spread (re-tweeted) demonstrating that harmful content can travel quickly on social media (Saha et al. 2019). Another study was able to map the spread of social media posts about the Blue Whale Challenge, an alleged game promoting suicide, over Twitter, YouTube, Reddit, Tumblr, and other forums across 127 countries (Sumner et al. 2019). These findings show that it is critical to monitor the actual content of social media posts, such as determining whether content is hostile or promotes harm to self or others. This is pertinent because existing research looking at duration of exposure cannot account for the impact of specific types of content on mental health and is insufficient to fully understand the effects of using these platforms on mental health.

Consequences for Daily Life

The ways in which individuals use social media can also impact their offline relationships and everyday activities. To

date, reports have described risks of social media use pertaining to privacy, confidentiality, and unintended consequences of disclosing personal health information online (Torous and Keshavan 2016). Additionally, concerns have been raised about poor quality or misleading health information shared on social media and that social media users may not be aware of misleading information or conflicts of interest especially when the platforms promote popular content regardless of whether it is from a trustworthy source (Moorhead et al. 2013; Ventola 2014). For persons living with mental illness, there may be additional risks from using social media. A recent study that specifically explored the perspectives of social media users with serious mental illnesses, including participants with schizophrenia spectrum disorders, bipolar disorder, or major depression, found that over one third of participants expressed concerns about privacy when using social media (Naslund and Aschbrenner 2019). The reported risks of social media use were directly related to many aspects of everyday life, including concerns about threats to employment, fear of stigma and being judged, impact on personal relationships, and facing hostility or being hurt (Naslund and Aschbrenner 2019). While few studies have specifically explored the dangers of social media use from the perspectives of individuals living with mental illness, it is important to recognize that use of these platforms may contribute to risks that extend beyond worsening symptoms and that can affect different aspects of daily life.

Discussion

In this commentary, we considered ways in which social media may yield benefits for individuals living with mental illness, while contrasting these with the possible harms. Studies reporting on the threats of social media for individuals with mental illness are mostly cross-sectional, making it difficult to draw conclusions about direction of causation. However, the risks are potentially serious. These risks should be carefully considered in discussions pertaining to use of social media and the broader use of digital mental health technologies, as avenues for mental health promotion or for supporting access to evidence-based programs or mental health services. At this point, it would be premature to view the benefits of social media as outweighing the possible harms, when it is clear from the studies summarized here that social media use can have negative effects on mental health symptoms, can potentially expose individuals to hurtful content and hostile interactions, and can result in serious consequences for daily life, including threats to employment and personal relationships. Despite these risks, it is also necessary to recognize that individuals with mental illness will continue to use social media given the ease of accessing these platforms and the immense popularity of online social networking. With this in mind, it

may be ideal to raise awareness about these possible risks so that individuals can implement necessary safeguards, while highlighting that there could also be benefits. Being aware of the risks is an essential first step, before then recognizing that use of these popular platforms could contribute to some benefits like finding meaningful interactions with others, engaging with peer support networks, and accessing information and services.

To capitalize on the widespread use of social media and to achieve the promise that these platforms may hold for supporting the delivery of targeted mental health interventions, there is need for continued research to better understand how individuals living with mental illness use social media. Such efforts could inform safety measures and also encourage use of social media in ways that maximize potential benefits while minimizing risk of harm. It will be important to recognize how gender and race contribute to differences in use of social media for seeking mental health information or accessing interventions, as well as differences in how social media might impact mental wellbeing. For example, a national survey of 14- to 22-year olds in the USA found that female respondents were more likely to search online for information about depression or anxiety and to try to connect with other people online who share similar mental health concerns when compared with male respondents (Rideout and Fox 2018). In the same survey, there did not appear to be any differences between racial or ethnic groups in social media use for seeking mental health information (Rideout and Fox 2018). Social media use also appears to have a differential impact on mental health and emotional wellbeing between females and males (Booker et al. 2018), highlighting the need to explore unique experiences between gender groups to inform tailored programs and services. Research shows that lesbian, gay, bisexual, or transgender individuals frequently use social media for searching for health information and may be more likely compared with heterosexual individuals to share their own personal health experiences with others online (Rideout and Fox 2018). Less is known about use of social media for seeking support for mental health concerns among gender minorities, though this is an important area for further investigation as these individuals are more likely to experience mental health problems and online victimization when compared with heterosexual individuals (Mereish et al. 2019).

Similarly, efforts are needed to explore the relationship between social media use and mental health among ethnic and racial minorities. A recent study found that exposure to traumatic online content on social media showing violence or hateful posts directed at racial minorities contributed to increases in psychological distress, PTSD symptoms, and depression among African American and Latinx adolescents in the USA (Tynes et al. 2019). These concerns are contrasted by growing interest in the potential for new technologies including social media to expand the reach of services to

underrepresented minority groups (Schueller et al. 2019). Therefore, greater attention is needed to understanding the perspectives of ethnic and racial minorities to inform effective and safe use of social media for mental health promotion efforts.

Research has found that individuals living with mental illness have expressed interest in accessing mental health services through social media platforms. A survey of social media users with mental illness found that most respondents were interested in accessing programs for mental health on social media targeting symptom management, health promotion, and support for communicating with health care providers and interacting with the health system (Naslund et al. 2017). Importantly, individuals with serious mental illness have also emphasized that any mental health intervention on social media would need to be moderated by someone with adequate training and credentials, would need to have ground rules and ways to promote safety and minimize risks, and importantly, would need to be free and easy to access.

An important strength with this commentary is that it combines a range of studies broadly covering the topic of social media and mental health. We have provided a summary of recent evidence in a rapidly advancing field with the goal of presenting unique ways that social media could offer benefits for individuals with mental illness, while also acknowledging the potentially serious risks and the need for further investigation. There are also several limitations with this commentary that warrant consideration. Importantly, as we aimed to address this broad objective, we did not conduct a systematic review of the literature. Therefore, the studies reported here are not exhaustive, and there may be additional relevant studies that were not included. Additionally, we only summarized published studies, and as a result, any reports from the private sector or websites from different organizations using social media or other apps containing social media–like features would have been omitted. Although, it is difficult to rigorously summarize work from the private sector, sometimes referred to as "gray literature," because many of these projects are unpublished and are likely selective in their reporting of findings given the target audience may be shareholders or consumers.

Another notable limitation is that we did not assess risk of bias in the studies summarized in this commentary. We found many studies that highlighted risks associated with social media use for individuals living with mental illness; however, few studies of programs or interventions reported negative findings, suggesting the possibility that negative findings may go unpublished. This concern highlights the need for a future more rigorous review of the literature with careful consideration of bias and an accompanying quality assessment. Most of the studies that we described were from the USA, as well as from other higher income settings such as Australia or the UK. Despite the global

reach of social media platforms, there is a dearth of research on the impact of these platforms on the mental health of individuals in diverse settings, as well as the ways in which social media could support mental health services in lower income countries where there is virtually no access to mental health providers. Future research is necessary to explore the opportunities and risks for social media to support mental health promotion in low-income and middle-income countries, especially as these countries face a disproportionate share of the global burden of mental disorders, yet account for the majority of social media users worldwide (Naslund et al. 2019).

Future Directions for Social Media and Mental Health

As we consider future research directions, the near ubiquitous social media use also yields new opportunities to study the onset and manifestation of mental health symptoms and illness severity earlier than traditional clinical assessments. There is an emerging field of research referred to as "digital phenotyping" aimed at capturing how individuals interact with their digital devices, including social media platforms, in order to study patterns of illness and identify optimal time points for intervention (Jain et al. 2015; Onnela and Rauch 2016). Given that most people access social media via mobile devices, digital phenotyping and social media are closely related (Torous et al. 2019). To date, the emergence of machine learning, a powerful computational method involving statistical and mathematical algorithms (Shatte et al. 2019), has made it possible to study large quantities of data captured from popular social media platforms such as Twitter or Instagram to illuminate various features of mental health (Manikonda and De Choudhury 2017; Reece et al. 2017). Specifically, conversations on Twitter have been analyzed to characterize the onset of depression (De Choudhury et al. 2013) as well as detecting users' mood and affective states (De Choudhury et al. 2012), while photos posted to Instagram can yield insights for predicting depression (Reece and Danforth 2017). The intersection of social media and digital phenotyping will likely add new levels of context to social media use in the near future.

Several studies have also demonstrated that when compared with a control group, Twitter users with a self-disclosed diagnosis of schizophrenia show unique online communication patterns (Birnbaum et al. 2017a), including more frequent discussion of tobacco use (Hswen et al. 2017), symptoms of depression and anxiety (Hswen et al. 2018b), and suicide (Hswen et al. 2018a). Another study found that online disclosures about mental illness appeared

beneficial as reflected by fewer posts about symptoms following self-disclosure (Ernala et al. 2017). Each of these examples offers early insights into the potential to leverage widely available online data for better understanding the onset and course of mental illness. It is possible that social media data could be used to supplement additional digital data, such as continuous monitoring using smartphone apps or smart watches, to generate a more comprehensive "digital phenotype" to predict relapse and identify high-risk health behaviors among individuals living with mental illness (Torous et al. 2019).

With research increasingly showing the valuable insights that social media data can yield about mental health states, greater attention to the ethical concerns with using individual data in this way is necessary (Chancellor et al. 2019). For instance, data is typically captured from social media platforms without the consent or awareness of users (Bidargaddi et al. 2017), which is especially crucial when the data relates to a socially stigmatizing health condition such as mental illness (Guntuku et al. 2017). Precautions are needed to ensure that data is not made identifiable in ways that were not originally intended by the user who posted the content as this could place an individual at risk of harm or divulge sensitive health information (Webb et al. 2017; Williams et al. 2017). Promising approaches for minimizing these risks include supporting the participation of individuals with expertise in privacy, clinicians, and the target individuals with mental illness throughout the collection of data, development of predictive algorithms, and interpretation of findings (Chancellor et al. 2019).

In recognizing that many individuals living with mental illness use social media to search for information about their mental health, it is possible that they may also want to ask their clinicians about what they find online to check if the information is reliable and trustworthy. Alternatively, many individuals may feel embarrassed or reluctant to talk to their clinicians about using social media to find mental health information out of concerns of being judged or dismissed. Therefore, mental health clinicians may be ideally positioned to talk with their patients about using social media and offer recommendations to promote safe use of these sites while also respecting their patients' autonomy and personal motivations for using these popular platforms. Given the gap in clinical knowledge about the impact of social media on mental health, clinicians should be aware of the many potential risks so that they can inform their patients while remaining open to the possibility that their patients may also experience benefits through use of these platforms. As awareness of these risks grows, it may be possible that new protections will be put in place by industry or through new policies that will make the social media environment safer. It is hard to estimate a number needed to treat or harm today given the nascent state of research, which means the patient and clinician need to weigh the choice on a personal level. Thus, offering education and information is an important first step in that process. As patients increasingly show interest in accessing mental health information or services through social media, it will be necessary for health systems to recognize social media as a potential avenue for reaching or offering support to patients. This aligns with growing emphasis on the need for greater integration of digital psychiatry, including apps, smartphones, or wearable devices, into patient care and clinical services through institution-wide initiatives and training clinical providers (Hilty et al. 2019). Within a learning healthcare environment where research and care are tightly intertwined and feedback between both is rapid, the integration of digital technologies into services may create new opportunities for advancing use of social media for mental health.

Conclusion

As highlighted in this commentary, social media has become an important part of the lives of many individuals living with mental disorders. Many of these individuals use social media to share their lived experiences with mental illness, to seek support from others, and to search for information about treatment recommendations, accessing mental health services and coping with symptoms (Bucci et al. 2019; Highton-Williamson et al. 2015; Naslund et al. 2016b). As the field of digital mental health advances, the wide reach, ease of access, and popularity of social media platforms could be used to allow individuals in need of mental health services or facing challenges of mental illness to access evidence-based treatment and support. To achieve this end and to explore whether social media platforms can advance efforts to close the gap in available mental health services in the USA and globally, it will be essential for researchers to work closely with clinicians and with those affected by mental illness to ensure that possible benefits of using social media are carefully weighed against anticipated risks.

Compliance with Ethical Standards

Conflict of Interest   The authors declare that they have no conflict of interest.

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