SOCIAL MEDIA AND YOUTH WELLBEING

What We Know and Where We Could Go

Mizuko Ito
Candice Odgers
Stephen Schueller

with contributions from
Jennifer Cabrera
Evan Conaway
Remy Cross
Maya Hernandez

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Principal Investigators:

Mizuko Ito
Candice Odgers
Stephen Schueller

Contributors:*

Jennifer Cabrera
Evan Conaway
Remy Cross
Maya Hernandez

*Listed alphabetically

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EXECUTIVE SUMMARY

Adolescents have been early and enthusiastic users of social and digital media. These high levels of engagement have sparked growing concerns about the relationship between technology use and adolescent wellbeing, with heightened concerns around mental health in particular. The focus of this paper and our review was on online social media and communication, though we see related patterns and concerns with other forms of technology use, particularly gaming. We reviewed an interdisciplinary body of research and the technology ecosystem for wellbeing support and mental health, and we conducted interviews with various stakeholders and experts. We found that in many cases misplaced fears are deflecting attention from other real concerns, resulting in missed opportunities for leveraging technology and online communication to address adolescent mental health problems. We found that youth are actively seeking support for mental wellbeing online, but very few are connecting with digital mental health apps and expertise.

The work underlying this paper was completed before the COVID-19 global pandemic. We did not anticipate the seismic shift that would take place in expanding technology's critical role in enabling work, learning, aid, play, and social connection. Our review focused on how teens support each other's wellbeing through digital media during moments of stress and isolation. The crisis is also raising awareness about differences in access and needs for online support and about the importance of designing with and for vulnerable populations of young people, another important dimension that we highlight in our findings. This position paper summarizes our current knowledge and redirects the conversation about adolescent social media use and wellbeing in three ways that are particularly relevant in light of these recent developments:

1. **Refocusing the debate** over the relationship between youth social media use and wellbeing to reflect existing evidence and varied youth perspectives and backgrounds.

   - The current state of evidence does not support existing fears regarding social media use as driving mental health problems. The simple question of whether more time spent using social media *causes* mental health problems in adolescents is unlikely to provide helpful answers for research, parents, or young people.

   - Gaining more precise and actionable knowledge requires studying what *specific* forms of social media engagement amplify or mitigate mental health risks for *different* adolescents.

   - "One size fits all" theories and explanations connecting social media engagement and adolescent wellbeing are bound to fail given the simple approach to a complex set of problems and challenges.

2. Identifying **teen vulnerabilities and assets** that may influence problematic and healthy social media engagement. Differential access and supports available to youth can amplify offline inequalities in wellbeing.

- Online and offline **vulnerabilities** are interrelated. Negative online experiences such as negative comparisons or harassment are stratified by gender, socioeconomic status (SES), and race and are tied to experiences of poverty, instability, and marginalization. Investigation of how specific risks and activities are amplified or reinforced online is critical to understanding the true drivers of growth in mental health problems among youth.

- Youth online interactions offer key **assets** that promote wellbeing. Peers and access to social support carry important protective effects for young people's wellbeing. Youth engage in a wide range of supportive behaviors online that could be amplified to promote wellbeing. These include **circulating** supportive media content, promoting the **visibility** of oneself and others online, offering **guidance** to one another around difficult topics, and promoting a sense of **community** around marginalized interests and identities. Evidence also indicates that young people are actively seeking support for mental health information online, and that they are using online tools to elicit social and emotional support.

3. Suggesting **opportunities** through which youth social engagement might mitigate vulnerabilities and leverage assets. Recent years have seen tremendous growth in efforts to leverage digital and networked technologies to support mental health. Despite the potential of these apps, few are informed by a developmental approach or tailored to youth, and very few adolescents have adopted them. Some promising avenues to bridge this gap include:

   - Digital mental health developers and providers can be responsive to youth needs and interests by incorporating cognitive behavioral approaches, meeting youth where they are in digital communities, and working with online organizers and influencers to develop tools and training.

   - Efforts can be targeted and tailored to vulnerable subgroups of youth, particularly those who experience vulnerability because of social marginalization and those who have potentially the most to gain from digital connections with supportive peers and professionals.

   - Existing social networks, including peers, parents, and educators, are potential avenues for spreading and scaling of these tools, given that communication is highly digitally networked, even as social media platforms continue to evolve.

   - Diverse youth can be tapped as agents, experts, innovators, and communicators who are often best equipped to support one another's wellbeing in online spaces and could contribute to collaborative efforts with mental health professionals and technology developers.

This paper is a product of the Youth Connections for Wellbeing project at the Connected Learning Lab at the University of California, Irvine, an interdisciplinary research institute dedicated to studying, designing, and mobilizing digital technology in youth-centered and equitable ways.

INTRODUCTION

Adolescents have been early and enthusiastic participants in online spaces, with teens in the United States spending, on average, nearly seven and one half hours each day with digital entertainment media (Rideout and Robb 2019). These high levels of engagement have sparked growing concerns about the relationship between digital device use and adolescent wellbeing, with heightened concerns around mental health in particular. Some researchers have posited that adolescents' high levels of adoption of social media are driving increases in mental health problems, especially among teenage girls (Rosenstein and Sheehan 2018; Twenge et al. 2018). These claims and related concerns have received widespread public attention (Haidt and Allen 2020). However, systematic reviews of evidence in the health sciences do not support these claims, and they suggest that the accompanying fears are largely misplaced (Baker and Algorta 2016; Best, Manktelow, and Taylor 2014; Huang 2017; Keles, McCrae, and Grealish 2019; McCrae, Gettings, and Purssell 2017; Odgers and Jensen 2020; Orben 2020; Orben and Przybylski 2019; Seabrook, Kern, and Rickard 2016). We reviewed an interdisciplinary body of research and the technology ecosystem for wellbeing support and mental health and we conducted interviews with various stakeholders and experts. The focus of our review was on online media and communications, though we see related patterns and concerns with other forms of technology use, particularly gaming. We found that misplaced fears are deflecting attention from other real concerns, resulting in missed opportunities for leveraging technology and online communication to address adolescent mental health problems.

The work underlying this paper was completed before the COVID-19 global pandemic. We did not anticipate the seismic shift that would take place in expanding technology's critical role in enabling work, learning, aid, play, and social connection. Our review focused on how teens support each other's wellbeing through digital media during moments of stress and isolation. The crisis is also raising awareness about differences in access and needs for online support and about the importance of designing with and for vulnerable populations of young people, another important dimension that we highlight in our findings. This position paper summarizes our current knowledge and refocuses the conversation about adolescent social media use and wellbeing in three ways that are particularly relevant in light of these recent developments:

1. **Refocusing the debate** over the relationship between youth social media use and wellbeing to reflect existing evidence and varied youth perspectives and backgrounds,

2. Identifying teen **vulnerabilities and assets** that may influence problematic and healthy social media engagement,

3. Suggesting **opportunities** where youth social engagement might mitigate vulnerabilities and leverage assets.

In our analysis, we focus on the U.S. context, where we conduct our research, and adolescents as a population of particular concern, with unique developmental needs. The

World Health Organization has defined an adolescent as a person between ages 10 and 19, while others have suggested extending the range to 24 years of age (Sawyer et al. 2018). This paper includes research on people in the 10–24 age range, with an emphasis on the teen years. When studies specify a particular age range of subjects, we use the term "adolescents" for youth ages 10–24, "teens" for youth ages 14–18, and "tweens" for youth ages 10–13. We use the term "youth" or "young people" when the age ranges described are not specific but include people from tweens to young adults in their early 20s. We emphasize the importance of considering differences in the developmental needs of younger versus older adolescents as they gain increasing independence in navigating online spaces. We see an increased need for scaffolding and support for younger adolescents as they first enter and experiment on social media and networking platforms versus older adolescents, many of whom have more established networks and patterns of engagement. Concerns have been raised about multiple aspects of adolescent wellbeing, ranging from interference with sleep and exercise to deficits in social interactions and skills, but the majority of public discourse and research attention has focused on the potential negative impacts of digital technology use on anxiety, depression, and suicide. Topics such as general screen time and mobile phone use have captured public and research attention, but here we focus specifically on social media that can support communications that can have both positive and negative influences on social relationships and mental health.

This paper begins to map out more differentiated, youth-centered, and productive ways of understanding risks and opportunities in online spaces. The remainder of this position paper is an effort to chart some next steps to understand and act on some of these risks and opportunities. This paper synthesizes the results of a review of research and digital mental health efforts, combined with stakeholder and researcher interviews and workshops that our team conducted between April and December 2019. Our focus was on research, products, and interventions that help us understand how varied social media engagements may influence the mental health of adolescents with different backgrounds and dispositions. We were particularly interested in synthesizing insights between academic disciplines and across research and practice, as well as speaking with youth, digital influencers, and mental health practitioners whose perspectives may not be well represented in the research literature. Our emphasis has been on identifying gaps and priorities for research as well as youth populations and genres of social media engagement that deserve attention for activation and intervention. After first summarizing our findings about relevant youth vulnerabilities and assets, we review how mental health professionals are providing support for mental wellbeing through social and digital channels, and what this suggests about promising arenas and populations for engagement moving forward.

Grasping the complex interactions between new technology, youth behavior, and wellbeing requires integrating perspectives from varied stakeholders, fields, disciplines, and methodological approaches. Our conclusions and suggestions are drawn from a synthesis of research and the expertise of the three lead authors in adolescent mental health, clinical psychology, technology studies, and digital youth studies. Our perspective is also informed by ongoing engagement with youth, parents, educators, technology developers, and mental health practitioners. It is a product of the Youth Connections for Wellbeing project at the Connected Learning Lab at the University of California, Irvine, an interdisciplinary research institute dedicated to studying, designing, and mobilizing digital technology in youth-centered and equitable ways.

REFOCUSING THE DEBATE

Over the last decade, levels of anxiety and depression among adolescents have grown in the United States (Mojtabai, Olfson, and Han 2016) in tandem with their increased use of digital devices and social media (Rideout and Robb 2019). Concerns over both trends have led researchers to investigate the connection between the two. Unfortunately, despite tremendous amounts of public concern, evidence related to whether social media use is associated with increases in adolescent mental health problems is inconclusive. Two large-scale reviews of the evidence were released in January 2020, both of which reached similar conclusions regarding the relationship between digital technology usage and adolescents' wellbeing (Odgers and Jensen 2020; Orben 2020).

In the first review, Odgers and Jensen (2020) synthesized findings from more than 50 studies focused specifically on adolescent mental health and reported that, overall, associations between digital technology usage and adolescents' mental health problems were mixed between positive, negative, and null findings. Almost none of the studies were designed in a way that allowed cause and effect to be separated. Furthermore, social media and screen time measures typically accounted for less than 1 percent of the variation in adolescents' mental health problems. In studies in which adolescents' digital technology use and mental health symptoms were measured daily, researchers found very few associations. When these associations were present, high levels of online engagement were associated with *better* outcomes (Jensen et al. 2019). In other words, the existing evidence made it "impossible to determine whether problematic technology usage leads to mental health problems, or whether those with existing vulnerabilities are simply more likely to use technology in unhealthy ways" (Odgers and Jensen 2020).

In the second large-scale review, Orben (2020) also concluded that most study designs did not enable researchers to determine whether technology use drove mental health problems. The lack of rigor of many studies and failure to go beyond general screen time metrics limit how informative and conclusive these studies are. Orben found that findings were mixed as to whether technology use was a cause or effect of mental health issues. When researchers did find links between technology use and mental health problems, the impacts were small in size and measured in imprecise ways. Orben argues for improvements in standards for research design, transparency, and increased focus on individual differences in understanding how digital technologies may be influencing young people.

Taken together, these reviews make two important points: (1) the current state of evidence does not support existing fears regarding negative impacts of digital technology on adolescents' mental health; and (2) substantial changes are required in the way we measure, conceptualize, and approach the questions of whether, for whom, and how social media engagement is influencing young people's wellbeing.

It is both reasonable and important to query the relationship between social media use and adolescent wellbeing. The simple question of whether more time spent using social media *causes* mental health problems in adolescents is unlikely to provide helpful answers for

research, parents, or young people. Instead, gaining more precise and actionable knowledge requires studying what *specific* forms of social media engagement amplify or mitigate mental health risks for *different* adolescents. For example, what types of content that teens view or post on social media exacerbate anxiety? Is this relationship different for youth prone to making social comparisons? Conversely, can online affinity groups provide positive social support for teens with stigmatized identities such as LGBTQ+ teens or those in a racial or ethnic minority? We need to move beyond purely time-based measures and blanket characterizations of social media in order to understand how online interactions are supporting or detracting from activities that vary based on youth interests, identities, and dispositions. This will require both quantitative and qualitative studies of varied populations of youth and specific forms of online engagement. "One size fits all" theories and explanations connecting social media engagement and adolescent wellbeing are bound to fail.

Digital and social media are now inseparable from the daily engagements that shape our psychological and emotional landscape, whether it is romantic flirtations, supporting each other in times of need, everyday check-ins with friends and family, or seeking perspectives on medical issues or cultural controversies. Social media cannot be separated as an external and independent factor that stands apart from these other influences on young people's wellbeing. And although social media are relatively new, these types of daily engagements are not. The form might have changed, but the function remains the same (Yau and Reich 2018). The novelty of online communication and technology should not derail us from our existing knowledge and evidence of what we know matters for adolescent wellbeing. Our investigations of social media should be framed by the factors that we know drive mental health risks, including psychological vulnerabilities, as well as social factors such as trauma, poverty, and relational instability.

Adolescents' online risks often mirror offline vulnerabilities. Much of our existing knowledge related to the core principles of how to promote healthy development among young people should translate into an evolving digital landscape. Just as interventions to prevent bullying within school settings have proven effective for reducing cyberbullying (Williford et al. 2013), parenting and support strategies that are effective in offline spaces may translate well into supporting adolescents' healthy online experiences. A critical challenge will be to adapt existing knowledge of effective intervention, behavior change, and developmental principles into digital ecosystems in ways that are tailored to the unique affordances of online spaces. These interventions will also need to be centered on youth needs in addition to addressing parental concerns. For example, parenting that promotes trust and disclosure may be more effective for keeping abreast of a child's activities both online and offline than restrictive social media monitoring. Rather than expanding parental surveillance tools, this might mean new opportunities for parents and children to connect with each other online, co-view digital content, and collaboratively set limits.

We also need to tap our knowledge of what makes different populations of youth more resilient or vulnerable to mental health problems. Again, one-size-fits-all explanations and strategies can be ineffective or backfire. For example, adolescents who are especially sensitive to rejection in offline social settings may benefit from online interactions being more closely monitored; by contrast, other teens with passionate interests or unique identities may thrive with more freedom to share ideas and creative content online. We need to consider influences from a developmental lens as well. Tweens will need more support from older peers and caring adults in fostering positive peer interactions both online and

offline than teens and young adults who are more likely to resist adult guidance in navigating friendships. It is particularly important for messages, interventions, and strategies to be targeted and tailored to the most vulnerable youth and those underserved by traditional mental health services to be both effective and equitable.

VULNERABILITIES AND ASSETS

Adolescence is a period of opportunities and vulnerabilities related to biological, emotional, and social development, as young people take steps toward independence from parents and caregivers in defining their social relationships and identities. Teens see a rapid growth in their psychosocial competencies, including cognitive and behavioral skills, emotion-regulation skills, and social and interpersonal connection, alongside increased sensitivity to social evaluation, identity exploration, and heightened need for peer connections and approval. Social media are now an integral part of these peer dynamics as well as integral in the development of these psychosocial competencies. Adolescence is also a period when many mental health disorders first emerge, illustrating the important vulnerability of this age and raising questions about how online social interactions may amplify or mitigate vulnerabilities.

We are still in the early stages of understanding how specific forms of social media use intersect with the activities of diverse youth with different backgrounds and dispositions, and in turn, how these patterns of activities influence development and wellbeing. The literature is too varied and preliminary to offer strong empirical conclusions and corroborations. However, researchers with a wide range of perspectives and questions have tackled different dimensions of this problem, allowing us to highlight gaps in our attention and important pointers for areas of further inquiry, design, and experimentation. Our review included research focused on online youth engagement as well as expert interviews with researchers working in this area to fill gaps in knowledge that might not be represented in published research. Only a small cohort of researchers have been investigating the relationship between particular forms of youth online engagement as supports for mental health (Kauer, Mangan, and Sanci 2014; Rideout and Fox 2018). Very few studies of youth online behavior center on tweens. Tweens are less visible online than teens and young adults and are a more challenging population to recruit for research. We focused in particular on researchers who study populations of youth who may be at heightened risk for mental health risks because of social marginalization, instability, racism, and other forms of harassment.

Vulnerabilities and Risks

We have described how public attention has focused on fears about adolescent social media use, particularly whether high usage causes adolescents to experience new kinds of social and psychological problems, damage their offline relationships, and become victims online (George and Odgers 2015). Concerns most directly relevant to wellbeing include stunting of competency for face-to-face interaction (Turkle 2017), harassment and bullying (Hamm et al. 2015), sleep disruption (Orben and Przybylski 2019; Owens 2014), and exposure to idealized images from influencers and peers that may lead to envy, and, in turn, decrease wellbeing and increase depression (Appel, Gerlach, and Crusius 2016). Early work in the late 1990s and early 2000s suggested that youth who spent more time online were also more likely to report symptoms of depression and anxiety, but these data come from a time when only a minority of young people were online, engaging in very different activities (e.g.,

in chat rooms talking with strangers versus online connected with offline networks; for a review see George et al. 2018). We have noted how reviews of more recent studies typically find very small associations between digital technology usage and mental health, are limited in terms of the causal claims that can be made, and rarely provide insight into the risks for specific groups of youth or in relation to particular forms of online engagement. In other words, evidence is limited that social media use is leading to greater vulnerability to mental health problems for youth as a whole.

A growing body of research is identifying factors that account for associations between digital technology use and mental health, emphasizing how offline and online risks are interrelated and calling into question causal claims. That is, the most robust explanatory factors are not the volume of social media use, but rather familiar influences such as poverty, instability, social marginalization, and other forms of stress. For example, one study documented how victims of cyberbullying are also likely to be bullied offline (Przybylski and Bowes 2017). The same is true of solicitation online (for a review see George and Odgers 2015). Adolescents from low-SES families are more likely to report that conflict online spills over to arguments offline at home and school (Odgers 2018). One of the few surveys that breaks out subgroups of teens in relation to different forms of media engagement, age (tweens versus teens), and social-emotional wellbeing is the Common Sense Census (Rideout and Robb 2019). This study indicates that socio-emotionally vulnerable teens are more likely to rely on social media for connection and validation from their peers and are also most likely to benefit from these connections—findings further supported by Hope Lab (Rideout and Fox 2018). The results also indicate that Black youth are most likely to encounter racist content online, suggesting that minoritized youth experience risks related to online activity that mirror offline risks. These results are not surprising given other research on systemic bias in how youth of color are represented online and the prevalence of racially motivated social media harassment (Noble 2018; Tanksley 2019). This vein of research, which investigates how specific risks and activities are amplified or reinforced online, is critical to understanding the true drivers of growth in mental health problems among youth.

Given these indicators that online and offline risks mirror one another, we should be pursuing more research that is focused on vulnerable populations of youth to understand which social media engagements amplify or mitigate their mental health risks. Research has documented mental health disparities among youth of different backgrounds. Depressive symptoms among Latinx youth (33.7 percent) and African American youth (29.2 percent) are more common compared to Caucasian youth (30.2 percent) (Kann et al. 2018). Suicidality affects minoritized adolescents (e.g., Latinx, African American, Native American) at greater rates than non-Hispanic[1] White adolescents and has been cited as the second leading cause of death (Office of Minority Health 2019). Research has also documented significantly elevated mental health risks among LGBTQ+ teens (Mustanski and Espelage 2020) and teens who experience discrimination, marginalization, instability, poverty, and trauma (Benner 2017; Sapiro and Ward 2019). Mental health vulnerabilities of marginalized youth populations can be attributed to lack of access to care, stigma, and specific stressors surrounding these groups, for example, political climate or immigration status (Alegria, Vallas, and Pumariega 2010; Ramirez et al. 2017). The strongest signals we have that youth are struggling or require mental health support are not coming from tracking their social media usage or time online. As referenced above, these associations are often tiny and mixed in terms of the direction of the signal. Rather, knowledge of offline status and

[1] For the purposes of this report we use Hispanic as the preferred terminology to refer to this population, but when citing research performed by other scholars we adopt the terminology favored by them.

risks often provides the strongest signal of where to target limited intervention resources and search for innovative solutions in online spaces.

It is important to underscore that some of the most vulnerable youth have the most to gain from online information and support for mental health. Scholars generally agree that, both online and offline, vulnerable youth are actively discussing mental health. Those with lower social and emotional wellbeing are more likely to report going online to seek support and to feel better about themselves, and adolescents with moderate to severe depressive symptoms may be two times more likely than their peers to turn to social media for emotional support (Rideout and Fox 2018). Young people with symptoms of depression, those who identify as female, and members of the LGBTQ+ communities are more likely than other teens to seek mental health information and support online (Rideout and Fox 2018; The Trevor Project 2019). One challenge for researchers, however, is that many vulnerable youth use online spaces to carve out spaces of refuge so as not to be found, so reaching and researching these groups can be challenging. For example, young Black women in particular experience high levels of racist imagery and rhetoric on social media—and experience burnout as a result —so many young Black women resort to private group communication platforms such as GroupMe to support one another (Tanksley 2019). And for particularly vulnerable groups, such as undocumented youth that might suffer legal ramifications as a result of being discovered, there are few spaces for them to congregate safely online (A. Zimmerman, personal communication, September 2019). These findings suggest that efforts to support and design for the specific safety and privacy needs of vulnerable groups is crucial.

Opportunities and Benefits

In addition to identifying vulnerabilities and social media engagement that drive mental health risks, research also illuminates youth assets and online interactions that can provide benefits and promote wellbeing. Peers and access to social support carry important protective effects for young people's mental health, and increasing evidence suggests that online communication may be a critical avenue for peer-to peer support for adolescents. Most teens and tweens in the United States believe that social media offer a positive source of social support (Rideout and Robb 2018). A narrative synthesis of 36 peer-reviewed studies published between 2002 and 2017 concluded that adolescents' online and offline friendships are remarkably similar, and that digital communication supports teens' relationships by creating opportunities for displays of affection, intimate disclosure, and offline activities (Yau and Reich 2018). Many studies now report positive associations and substantial overlap between adolescents' online and offline interactions and relationship quality. Adolescents with stronger offline networks often report more robust online networks (George and Odgers 2015). Though increased time online tends to displace offline time with parents, parent-child relationships do not appear to be negatively influenced by these reductions in offline time (for a review see George and Odgers 2015). This is important because support networks have been shown to buffer stressors and protect young people from mental health risks.

Evidence also indicates that young people are actively seeking support for mental health information online and using online tools to elicit socio-emotional support (Kauer et al. 2014). Recent work by Rideout and Fox (2018) shows that the majority of teens and tweens (87 percent) have gone online for mental health information, 64 percent have used a mobile health app, and 39 percent use the online space to seek out others with similar conditions. Most teens and tweens say social media help support social-emotional wellbeing, boosting

confidence and alleviating anxiety, loneliness, and depression (Rideout and Robb 2019). Potential benefits of social media engagement reported in the literature include increases in self-esteem, perceived social support and social capital, safe identity experimentation, and increased opportunities for self-disclosure (Best et al. 2014; McInroy 2019; Yau and Reich 2018). Social media offer tools for young people in the face of setbacks (Toma and Hancock 2013). Early experimental studies also show that virtual communication may help adolescents "bounce back" after social rejection (Gross 2009) and, as such, may serve as a tool for providing social support when youth are separated from parents or loved ones physically.

Researchers and youth share an understanding that wellbeing is tied to a sense of belonging that extends to online spaces, though what is understood as "mental wellness" varies culturally. The increased social support that youth experience in many online settings may reduce their feelings of social isolation (McInroy 2019) and social anxiety (Best et al. 2014) and increase their social adeptness, even in their building of offline connections and friendships (McInroy and Craig 2018). Perhaps as a result of learning how to confidently navigate social situations with more finesse, we see youth building strong connections to groups online (Craig et al. 2015), bolstering their sense of belonging (Cavalcante 2016; 2019) and supporting their development of ideological (Cavalcante 2019) and political (Keller 2012) affiliations. In fandom communities in particular, Craig and colleagues (2015) found that when youth find a sense of community through shared viewership and fandom, they might experience any number of positive impacts, including connectedness, reduced isolation, reduced risky behavior, confidence building, resilience, stress mediation, and increased self-efficacy. Related research on online affinity networks, including fandoms, gaming communities, and creative communities, suggests that marginalized young people benefit from unique friendships and forms of social support (Ito et al. 2018; 2019).

Research focused on marginalized and vulnerable youth highlight these benefits and opportunities. Studies indicate that social media have opened up opportunities for LGBTQ+ youth to connect with one another and offer spaces of destigmatization and emotional support (Byron 2019; Craig et al. 2015; McInroy 2019). Being in these communities may give youth the language for understanding identity labels, for fostering self-reflexivity, and for identity building (McCracken 2017; McInroy and Craig 2018), as well as providing role models for gender performativity (Jenzen 2017) and self-disclosure (Best et al. 2014). Similarly, Ringland (2019) saw that in an online *Minecraft* community composed of youth with autism, players provided social and emotional support to one another, leading to the development of positive identities. Singh (2013) found that trans youth of color in the South find inspiration and empowerment through modeling behavior of influencers whom they see as mentors. These youth have reported that these sources of empowerment help them feel comfortable with their multiple intersecting identities and provide new strategies for coping with and discussing racism and trans prejudice.

Youth Assets and Genres of Online Support

The platforms and shape of youth social media participation have changed through time and continue to evolve at a rapid pace. Especially among tweens and young teens, the more popular platforms are not browser based, but app based, as these youth tend to seek out shorter bursts of engagement on mobile phones. Youth are also tending toward loose networks formed around influencers and micro celebrities on these app-based platforms, rather than discrete "groups" or forums in browsers. This shifting landscape makes grasping

the variety of youth engagement with social media challenging, but we have gleaned certain "genres of support" that youth engage in through social media that transcend specific platforms. These are forms of engagement online that appear to be supporting social and emotional wellbeing, and that could potentially be tapped and amplified for greater reach and impact through strategies that tap youth assets and agency.

Youth view certain forms of **media circulation** as supportive. On social media, sharing can mean posting new content (e.g., user-created statuses, images, videos) and resharing others' content (e.g., reblogging, copy-pasting). Many youth feel supported when their content is reblogged or reshared by others (McCracken 2017). Likewise, youth view resharing specific users' content as a way of showing their support for those users (Pennington 2015). Reblogging is also seen as a way of aligning with particular messages; for example, by sharing an image that explains how to be supportive to someone dealing with depression, the user is typically expressing agreement with that message (Cavalcante 2016). Supportive sharing and circulation also happen in private channels. Keller (2012) found that feminist bloggers have felt supported in their writing practice when members of their community distribute useful resources among themselves. Similarly, Ringland (2019) found that users on a private *Minecraft* server valued demonstrations of friendships, and this frequently came in the form of the co-creation of virtual objects and sharing of virtual gifts. Memes are the digital object that interviewees spoke about the most—sharing memes and laughing virtually together has become a common mode of communication online and a pervasive form of social support. In her study of trans youth online, Jenzen (2017) observed trans youth using humor and quotidian style to make it easier to discuss difficult topics and normalize daily struggles.

Scholars have reported that youth value **visibility**, and feel supported when people similar to them or struggles that they face are represented publicly. Individuals sharing content on social media is a principal mode of promoting the visibility of oneself and others online. Interviews with experts suggest that signal boosting, or sharing with the intention of making someone's presence or message more public, is a way of expressing solidarity with certain issues. It both publicly encourages others to engage with this content and encourages the content creator to continue their work. It is important to note that individuals do this kind of signal boosting of themselves. Hanckel et al. (2019) suggest that LGBTQ+ youth will post specifically LGBTQ+-related content in an effort to make their identities intentionally visible, thereby expressing support for others and affirming their own identities. Hendry (2017) describes "social media emotional management," a set of recursive practices in which youth publicly post mental health and sexual wellbeing–related content in an effort to support both others and themselves. At the same time, Hawkins and Haimson (2018) found that relative invisibility or passive engagement—including passively scrolling through others' positive content, "liking" posts, or posting anonymously—can be just as valuable for marginalized and vulnerable youth.

Youth also support each other online by providing **guidance** and acting as peer mentors. In his research on queer youth on Tumblr, Alexander Cho and others (Cho 2015; McCracken et al. forthcoming) found that Q&A advice blogs are a common format for soliciting help from community experts, especially for LGBTQ+ youth. More broadly, youth online are finding ways to foster knowledge sharing within their networks (Swist et al. 2015). This can be informal advice, as in the peer mentorship that Campbell et al. (2016) observed in fanfiction communities, as well as more formalized structures, such as the feedback cycles provided by trained peer mentors (McCosker 2018). Trained peer mentors have been particularly

successful at validating people's experiences with trauma and providing trustworthy and evidence-based mental health information. Though they are not trained as peer mentors per se, many youth receive resources and find role models in online influencers (Singh 2013), especially on Twitter, Instagram, YouTube, and TikTok. The profile pages of these influencers may also serve as sites of discussion and support, even if the influencers are not directly involved in the conversations happening on their pages. Peer-to-peer guidance can take many forms, including supporting positive discourse around difficult topics. Especially when dealing with traumatic experiences, online platforms are in a unique position to offer the opportunity for vulnerable youth to bond with a vast array of people through a sense of collective struggle (Craig et al. 2015; Prinsen, de Haan, and Leander 2015). Through public posts, youth often tell their personal stories and offer testimonies as a way of caring for themselves and offering examples for others to find affirmation and validation (Hawkins and Haimson 2018; Jenzen 2017; Swist et al. 2015). Public sharing such as this helps youth to build upon shared interests and find or establish strong affinity networks for fandom and gaming (Byron 2019; Campbell et al. 2016; Ito et al. 2015; McInroy 2019; Reysen, Plante, and Roberts 2017; Swist et al. 2015). Even playing video games together, without participating in active discourse about mental health, can be seen as a supportive environment (Vella, Johnson, and Hides 2015).

Scholars have found that experiencing a sense of **community** has critical positive impacts for youth (Craig et al. 2015; McCosker 2018). When they feel a strong sense of belonging and are interacting comfortably, youth feel empowered and confident (Cavalcante 2016; Singh 2013). Vulnerable youth especially frequently work together to establish safe spaces and practice censorship and gatekeeping to maintain the exclusivity of membership in those spaces (Byron 2019; Cavalcante 2019; Ringland 2019). Community managers and influencers, who also may help maintain such spaces, will sometimes facilitate conversation or debate toward productive discussion and learning by providing prompts or encouraging users to bring up difficult topics (Keller 2012; McCracken 2017; Ringland 2019). This kind of supportive environment online makes it easier to ask questions that might be too personal to ask face-to-face, such as questions around romantic relationships and sexual health (Downing 2013; Tynes 2007; Ybarra et al. 2015). These topics are particularly salient for LGBTQ+ youth, who might find themselves without trustworthy sources of knowledge on these topics that cater to their gender and sexuality. Swist et al. (2015) wrote extensively on how LGBTQ+ youth interact and support each other online, noting how closed groups on social media allow these youth to share within a culture that makes it more comfortable for them to disclose their identities, making them safe spaces for practicing coming out.

Research Gaps and Priorities

Our review of the literature indicates that very few systematic and quantitative studies have focused on unique needs and competencies or looked at the relationship between varied youth populations and experience, specific forms of social media engagement, and mental health outcomes. Studies of risks have overwhelmingly focused on the volume of social media use rather than the nature and quality of use, and they have not focused on specific types of online experiences or youth who are vulnerable to mental health problems. On the assets side, we see evidence that teens, particularly those who are socio-emotionally vulnerable and prone to social marginalization, are actively seeking mental health information and social support online. A small but growing body of research, as well as our

interviews with diverse stakeholders, indicate how supportive online connections can be a socio-emotional lifeline for vulnerable teens. Based on this review, as well as our interviews with stakeholders, we see the following research gaps and priorities:

- While it is clear that youth with minoritized or stigmatized identities have unique stressors and online experiences, as well as unique benefits for online participation, little research focuses on marginalized or underrepresented populations, such as Latinx and undocumented youth, Black youth, rural youth, and high school–age girls.

- Research on youth online communication has not been integrated with research on youth mental health. More interdisciplinary work is needed to ensure that theories, methods, and expertise are combined from the diverse areas intersecting in this space.

- Research on social media and youth mental health has overwhelmingly focused on screen time metrics or total social media use without differentiating between type of use or use of different platforms. We see an opportunity for more mixed-methods work combining quantitative and qualitative evaluations to unpack these important questions and identify key vulnerabilities and assets.

- Research needs to move beyond the question of what is the relationship between social media and mental health to ask questions such as what types of social media use benefit or harm which types of people? When? And how?

OPPORTUNITIES FOR INTERVENTION AND DESIGN

The growing reliance of youth on online support for mental health represents an opportunity for providers of mental health services, apps, and other supports. Online spaces offer unique affordances that can help create scalable, personalized, and timely interventions (Haidt and Allen 2020). For example, we may be able to reach youth who are difficult to reach through more traditional clinical supports or in moments when current providers do not have visibility. Many people, especially youth, may not want traditional mental health support. An online screening platform hosted by Mental Health America, which has screened millions of people for mental health issues, found that only 17 percent want a referral to traditional help, but 44 percent want some form of online or mobile platform that can help them manage their own symptoms (Nguyen and Schueller 2018). This is not surprising. Online spaces offer opportunities for enhanced disclosure and anonymity while increasing convenience and ability to access help in times of need. Youth may also uniquely benefit from peer social and emotional support in these kinds of online settings. Furthermore, youth are more likely to want to seek resources. Compared to the national average, millennials are more likely to find treatment and more likely to take an additional step after receiving a screening result (Nguyen and Schueller 2018). Despite being more willing to seek care, youth often face barriers to traditional care pathways, including their parents, and might be even more likely to seek innovative resources. Thus, online spaces are opportune for this population.

Other considerations include ecologies of care during adolescence, which include family and parents (O'Dea et al. 2019b), schools (O'Dea et al. 2019a), and traditional mental health services and providers (Coyle et al. 2005). Youth patterns of interacting with technologies will be indicative of how they may want to use tools online surrounding mental health domains. Studies have shown that cognitive behavioral therapy (CBT) apps are viewed as more relevant than game-based apps (Schoneveld, Lichtwarck-Aschoff, and Granic 2018) and various engagement strategies are appealing to youth (Yarosh and Schueller 2017). A one-size-fits-all approach is unlikely to work and considerations around multiple app and platform usage along with affordances will help tailor a toolkit for this population, developmental stage, and target needs.

Current Use and Development of Technologies for Mental Health

Recent years have seen tremendous growth in efforts to leverage digital and networked technologies to support mental health. These tools and approaches can be broken into categories based on their targets, including promotion of (1) general wellness (e.g., social and emotional learning, happiness, wellbeing), (2) mental health (e.g., depression, anxiety, stress), and (3) brain fitness (e.g., cognitive processes such as working memory). Several tools have been tested and developed in children and adolescents and there is clear evidence

for the benefits of such tools (Grist, Porter, and Stallard 2017; Hill et al. 2018; Hollis et al. 2017)—enough evidence such that the National Institute for Health and Care Excellence (NICE) guidelines in the UK endorse digital cognitive behavioral therapy (CBT) as the preferred frontline treatment for depression for children and adolescents (Wise 2019). Most effective tools lean on evidence-based principles from established therapies, for example, CBT, mindfulness, cognitive training, and biofeedback. Many other types of tools in this space exist and may have some evidence of effectiveness resulting from small deployments or feasibility trials. However, questions abound, including whether youth will continue to use these tools in real-world settings and the sustainability of benefits.

One of the most significant current challenges is that despite the robust evidence that such technologies can be beneficial, relatively few adolescents are using mental health apps. In a recent study of 775 girls (ages 11–16), 6 percent reported using a mental health app, despite 48.5 percent indicating they would use a mental health app for support (Grist et al. 2018). Millions of youth, however, are still left untreated or undertreated. Many apps that are developed and evaluated never make their way to the commercial marketplace to be available to consumers. Of those that do, few are well integrated into systems of care or digital ecologies, requiring youth to come find them rather than being findable by youth where they are. We conducted an analysis of available apps for youth mental health in order to better understand where developers were focusing their efforts, and what was available for youth.

Past reviews have focused on summarizing the research evidence of the effectiveness of apps focused on youth mental health. This overlooks apps that may be available for youth to download and use but that have not been directly evaluated in a research study, which estimates have suggested are likely 95–99 percent of the available apps (Larsen, Nicholas, and Christensen 2016; Sucala et al. 2017). The reviews that do survey available apps more broadly usually focus on quantifying the "best" or "top" apps in a category (e.g., Michel, Slovak, and Fitzpatrick 2019). Our team took a different approach in order to understand the depth and breadth of available apps for youth mental health. Our goal was to characterize variation in approaches in order to understand the potential affordances of technology in this space.

We conducted a systematic search in May 2019 of published reviews, web and mobile searches including Apple iTunes and GooglePlay stores, social media, and "top app lists." We were looking for apps intended for children and young adults that were currently available and found 45 that we thought deserved consideration. We analyzed them in relation to features we were interested in: (1) apps with direct research evidence, (2) apps that were the most downloaded, (3) apps with social features, (4) apps with game features, (5) apps that included features for child and parent collaboration, (6) apps that were tailored or designed for minoritized or underserved populations, and (7) any app with additional "interesting" features or components. Notably, only one app fit the "social" category and no apps fit under the "minoritized or underserved population" category. Mindfulness was a popular type of intervention and gamification was a popular approach to promote engagement. In many ways this mirrors the adult intervention space, despite multiple findings from research studies that youth want strategies and styles that match the way they like to use technology (Kenny, Dooley, and Fitzgerald 2016; Yarosh and Schueller 2017). Many apps do surface-level tailoring to make the app seem relevant to youth. This might include changing the images and aesthetics but retaining the language for adult-focused interventions. Examples of this include having a cartoon fox ask users if they take "PRNs" (an abbreviation of

the medical term pro re nata, or medication that is taken 'as needed'), directing users to enter information for their nearest hospital emergency room as part of a safety plan, or using questions from assessment questionnaires intended for adults. This overlooks developmentally appropriate interventions such as distraction techniques (Grist et al. 2017), as youth are still building emotion-regulation skills, or social elements, as youth want to learn from others like them.

Research Gaps and Priorities

Our review of opportunities for intervention and design uncovered a significant gap between youth desire for mental health support and what is being offered by digital mental health professionals. Youth are more open about mental health issues and mental health treatment than previous generations. This desire to seek mental health support, however, is not necessarily a desire for traditional mental health services. Instead, youth are more open-minded about where this support might come from, and they are actively supporting one another's wellbeing through social media. There appears to be a mismatch between current digital mental health supports and where youth are digitally, developmentally, cognitively, and emotionally. Digital mental health supports need to be developed to match the online spaces youth populate and to fit their interests, needs, and capabilities.

Problems and gaps:

- Digital mental health developers and providers need to be responsive to youth needs and interests if they want their products to be adopted by youth. These efforts could be better informed by development science and a developmental approach, as well as by research on youth online engagement.

- Researchers need to study what is being adopted and why, as well as the effectiveness and limitations of interventions, if we want programs to be both effective and widely adopted.

Our review identified opportunity areas with high youth interest and engagement that are underleveraged by the digital mental health field. These include:

- Integrating cognitive and behavioral skills, which are of high interest among youth, within digital ecologies,

- Meeting youth where they are in digital communities, such as online forums addressing social and emotional concerns, or through quick, "bite-sized" interactions that fit adolescent use in online spaces such as social media, messaging, and video platforms (e.g., YouTube),

- Addressing stressors in friendships and romantic relationships that span both in-person and online engagement rather than treat phenomena such as cyberbullying and sexting that occur primarily online,

- Supporting and training organizers and influencers in youth online networks, including developing targeted mental health products, toolkits, and training on the use of digital mental health tools, or content and training for online moderators and influencers,

- Targeting and tailoring efforts to vulnerable subgroups of youth, particularly those who experience vulnerability because of social marginalization and who have potentially the most to gain from digital connections with supportive peers and professionals,

- Recognizing that existing social networks, including peers, parents, and educators, are potential avenues for spreading and scaling of these tools, given that communication is highly digitally networked,

- Tapping diverse youth as agents, experts, innovators, and communicators who are often best equipped to support one another's wellbeing in online spaces and who could contribute to collaborative efforts with mental health professionals and technology developers.

CONCLUSION

This position paper looks across a range of relevant research and development efforts to identify gaps and opportunities in how to support adolescent wellbeing in a digitally networked world. Given the rising rates of mental health concerns among young people in the United States, we see urgency in focusing research, investment, and public attention on what actually drives and mitigates mental health problems for youth. In particular, we worry that a common but unsubstantiated assumption that social media are a negative influence has deflected attention from the real stressors that young people experience, including social marginalization, instability, and conflict both online and offline. We also note that despite the rapid growth of digital mental health apps, these products are largely untapped by youth and they do not address their unique needs and interests.

As we consider ways of supporting mental wellbeing, we see opportunities for mental health professionals to reach young people where they are, in social media platforms and online affinity groups. We also highlight the ways in which young people see social media as a lifeline to social support, and how they are actively supporting each other online in times of need and crisis. Perhaps most important, we underscore the diversity of youth needs, interests, and vulnerabilities, and the importance of recognizing that one-size-fits-all solutions are ineffective and do not target those with highest need. Indeed, evidence is robust that the most vulnerable teens have the most to gain from social support from caring peers and adults both offline *and* online. We urge developers, parents, clinicians, and other stakeholders to recognize the unique and diverse needs and assets of youth, to look to social media as a potential amplifier of *both* risks and benefits, and to actively involve youth in the development of a healthy online ecosystem.

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ABOUT THE AUTHORS

Mizuko Ito is a learning scientist and a cultural anthropologist of technology use, examining children and youth's changing relationships to media and communications. She is Director of the Connected Learning Lab, Professor in Residence and John D. and Catherine T. MacArthur Foundation Chair in Digital Media and Learning at the University of California, Irvine, with appointments in the Department of Anthropology, the Department of Informatics, and the School of Education. She is also co-founder of Connected Camps, a nonprofit providing online learning experiences for kids in all walks of life.

Candice Odgers is a developmental psychologist who studies adolescent mental health and how digital technologies can be leveraged to understand and support wellbeing. She is the Co-Director of the Child and Brain Development Program at the Canadian Institute for Advanced Research, a Professor of Psychological Science at University of California, Irvine, and a Research Professor at Duke University.

Stephen Schueller is a clinical psychologist and mental health service researcher. His work focuses on using technology to expand access to and improve the accessibility of mental health services. He is an Assistant Professor of Psychological Science at the University of California, Irvine, and an Adjunct Assistant Professor of Preventive Medicine at Northwestern University, Feinberg School of Medicine. He also serves as Executive Director of PsyberGuide.org, a project of One Mind that identifies, evaluates, and disseminates information related to digital mental health products.

Maya Hernandez is a second-year PhD student in the Social Ecology Program at the University of California, Irvine. Her research experiences include working with pediatric mood disorders and chronic illnesses. Currently, she is focused on adolescent mental health in the digital age through researching the influence of factors such as family, school, and community ecologies. Maya hopes her research will move to fill the gaps in resources and stigma around mental health for vulnerable youth.

Jennifer Cabrera is a doctoral student in the School of Education at the University of California, Irvine. She engages in research that focuses on supportive social relationships and academic achievement among Latina doctoral students. Currently, she is focusing on cultural and gendered familial expectations endured by Latinas in higher education.

Evan Conaway is an anthropologist who studies online gaming cultures and digital media preservation. He is a PhD candidate in Sociocultural Anthropology at the University of California, Irvine, a recipient of an NSF Doctoral Dissertation Research Grant, and a frequent contributor to Platypus, the official blog of the Committee on the Anthropology of Science, Technology, and Computing.

B. Remy Cross is a sociologist and a research manager at the Connected Learning Lab at the University of California, Irvine. His past work has looked at how technology influences social change and online radicalization.

ABOUT THE YOUTH CONNECTIONS FOR WELLBEING PROJECT

The Youth Connections for Wellbeing project grew out of a recognition that there were and continue to be significant gaps in the way practitioners, content providers, and researchers understand the unique mental wellbeing and health challenges and opportunities faced by young people as they engage in online networks, communications, and content. With support from Pivotal Ventures, a research team from the Connected Learning Lab at the University of California, Irvine brought together experts in three domains that were identified as being important for understanding this issue: Dr. Stephen Schueller for expertise on mental wellness apps, Dr. Candice Odgers to provide expertise on mental health and social media for young people, and Dr. Mizuko Ito to speak to issues around youth and online affinity networks. The three principal investigators worked with their research teams and collaborators to synthesize existing research evidence in order to inform this position paper.

In order to understand the state of evidence about the relationship between adolescent mental health and social media use, Odgers and her team synthesized what is known about linkages between social media usage and adolescent mental health, namely depression and anxiety, by integrating three types of evidence: (1) recent meta-analytic and narrative syntheses focused on associations between adolescents' digital technology usage and their mental health, (2) large-scale preregistered studies examining linkages between digital technology usage and adolescent wellbeing conducted in large public-use cohort studies, and (3) data streaming from adolescents' phones and wearable devices as recorded during ecological momentary assessment studies. The review summarized findings from more than 50 studies and provided a set of core recommendations related to both understanding current linkages between adolescents' digital technology usage and their mental health and developing ways to improve future research and understanding. Findings from the review are summarized in this report, with an expanded discussion of the findings and full listing of studies, study features, and key findings reported in an Annual Research review article (Odgers and Jensen 2020).

In order to understand how app developers and clinicians were engaging with digital supports for adolescent wellbeing, Scheuller and his team conducted a review of wellness apps. The team identified 149 products and 45 were marked for further review, using the criteria that they had to be (1) currently available and (2) specifically focused for children to young adults. The process included a review of the initial descriptions of all apps to understand the space and then finding apps that were exemplars of what was available and also aligned with the findings from our other reviews of the literature and stakeholder interviews. Exemplars were grouped into seven categories: (1) apps with direct research evidence, (2) apps that were the most downloaded, (3) apps with social features, (4) apps with game features, (5) apps that included features for child and parent collaboration, (6) apps that were tailored or design for minoritized or underserved populations, and (7) any

app with additional "interesting" features or components. Each of the 45 apps was put into one of these categories with the requirement that no app could be placed into two categories and each category could contain at most five apps. Only one app fit into the "social" category and no apps fit under the "minoritized or underserved population" category. Thus, our search and review produced only 24 apps across these seven categories and indicated that there were significant populations that were not being served in this area.

In order to understand how youth online activity supported wellbeing, Conaway and Ito led a review of existing research and expert interviews with online youth culture researchers. The emphasis was on identifying youth affinity networks and online populations that had unique mental health vulnerabilities and on identifying spaces where young people were providing social support to one another online. After first conducting our own search for centered groups that might fit these criteria, Conaway searched for research literature and scholars who study such groups. Through snowball sampling, the Association for Internet Research mailing list, and Facebook crowdsourcing, 38 scholars who met the criteria were identified. Conaway interviewed 16 of them, asking them about the characteristics and practices of the youth groups they have studied, their thoughts on where youth tend to hang out online, how to find groups to partner with, and other scholars we might reach out to. These scholars came from a diverse set of disciplines, including information studies (6), media and communication (2), education (2), medicine (1), women's studies (1), sociology (1), ethnic studies (1), linguistics (1), and English (1). Using the wider list of scholars as a starting point, Conaway then conducted a multidisciplinary literature review, focusing on studies that target youth providing peer support in online contexts, and especially looking for communities or networks that coalesce around some kind of shared identity or interest.

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