COMMENTARY

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Technology as a coping tool during the coronavirus disease 2019 (COVID-19) pandemic: Implications and recommendations

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1 | OVERVIEW

The coronavirus disease 2019 (COVID-19) pandemic and the associated public health interventions undertaken to contain it have resulted in widespread and unprecedented social disruption. This collective trauma has resulted in school closures, shuttered businesses, rising unemployment and a spike in emotional distress resulting from the pandemic and related secondary stressors. Both domestically and internationally, governments have issued 'stay-at-home' orders that have mandated that children engage in online learning and non-essential businesses either close or have employees work from home. As a result, during this collective trauma, we have seen a substantial rise in the use of technology, which is already integrated into the fabric of modern life. People are now spending even more time with technology while consuming news media, watching television, using social media to connect with others, utilizing lifestyle apps to shop for groceries and other consumer goods, and engaging in home workouts (Nielsen Global Media, 2020). Moreover, increased engagement with technology is required of students for educational purposes and for those now working from home.

Collective trauma are large-scale negative events that impact the populace broadly (Hirschberger, 2018), with psychological effects associated with both direct and indirect (e.g., media-based) exposure in prior epidemiological work (Holman, Garfin, & Silver, 2014). With respect to COVID-19, many have experienced direct (e.g., been infected or known someone who was infected) and indirect (i.e., media-based) exposure, as well as secondary stressors associated

with the pandemic (e.g., job loss and reduced wages). Increased media exposure to collective trauma including COVID-19 (Chao, Xue, Liu, Yang, & Hall, 2020) and previous public health crises (Thompson, Garfin, Holman, & Silver, 2017) has been associated with heightened psychological distress and impaired functioning over time (Garfin, Silver, & Holman, 2020). Yet media communications also provide a critical input that individuals rely on to evaluate risks and receive information (Glik, 2007), particularly during times of crisis (Ball-Rokeach & DeFleur, 1976; Jung, 2017; Li, Yang, Zhang, & Zhang, 2019; Ranjit, Lachlan, Basaran, Snyder, & Houston, 2020). Moreover, while technology clearly has applications that can enable key components of our social, educational and occupational lives to continue during the COVID-19 outbreak, prior research suggests these benefits (Decker et al., 2019; Haidt & Allen, 2020; Torous, Myrick, Rauseo-Ricupero, & Firth, 2020) must be cautiously weighed against the potential for harm (Haidt & Allen, 2020; Primack et al., 2017; Shensa et al., 2017). What are the drawbacks of this increased utilization of technology? Keeping the risks in mind, how can we leverage technology to stay connected, engaged and healthy during this chronic collective trauma, which may continue for some time?

Online platforms are, by design, addictive (Alter, 2017). They encourage endless scrolling and do not have a clear 'stop point', which is why it is so common for people to spend many hours online or engaged with social media. The same phenomenon exists with online or YouTube news videos—one can follow links indefinitely without a clear, demarcated end. This may be particularly problematic as people seek out information to navigate the changing COVID-19 landscape.

In contrast, when reading a traditional newspaper one will, at some point, finish reading the paper, suggesting it is time to move on to a different activity. In addition to the social and occupational impairment that can result from any behavioural addiction, some research suggests that time spent on social media may be associated with increased anxiety, depression and other mental health ailments (Haidt & Allen, 2020). Early research on COVID-19 media exposure documented this relationship: a study of 917 Chinese residents, assessed during the initial phase of the COVID-19 outbreak, found that new media use (e.g., online news sites; pictures, videos, news or text updates on social media) was associated with negative psychological outcomes, while traditional media use (television, radio and newspapers) was not (Chao et al., 2020). This finding may also be explained by 'emotional contagion' that can occur as individuals interact via social media or due to lower quality of information (Resnyansky, 2014).

There may also be implications for physical and mental health with respect to work–life balance during the COVID-19 outbreak, as time during stay-at-home orders may lack a clear transition between work/school and leisure. Prior review has suggested long working hours may be associated with increased anxiety, depression and cardiovascular disease, although meta-analytic findings suggest small to negligible effect sizes (Ganster, Rosen, & Fisher, 2018), which are moderated by feelings of work engagement (Okazaki et al., 2019). Importantly, addiction to organizational technologies may have unintended consequences for personal and family life: a study of 241 organizational mobile email users found addiction to mobile email was associated with perceived work overload and technology–family conflict (Turel, Serenko, & Bontis, 2011).

While acknowledging these potential negative impacts, a mindful approach to utilizing technology may be an effective—and indeed essential—way to increase positive coping during the COVID-19 pandemic and as we transition into a novel future. Indeed, prior research has indicated the motivation for using technology could be an important moderator with respect to whether technology has a positive or negative impact on mental health (Panova & Lleras, 2016), suggesting that mindfully and intentionally using technology while staying aware of potential deleterious effects could be beneficial during the pandemic and as restrictions slowly lift.

2 | HARNESSING TECHNOLOGY FOR POSITIVE COPING

Social support is beneficial to many during times of stress, including collective trauma. Prior research supports the use of videoconferencing for alleviating depression and loneliness and improving social support (Tsai, Tsai, Wang, Chang, & Chu, 2010). Meta-analytic findings indicate that positive, high quality social interactions, social support and social connectedness that occur online are all negatively correlated with symptoms of depression and anxiety (Seabrook, Kern, &

Rickard, 2016). As such, during times of physical distancing, people may find it helpful to use videoconferencing services to schedule 'happy hours' with co-workers and friends, celebrate holidays and life milestones with loved ones, maintain business meetings and continue educational pursuits using online platforms. Online platforms also provide avenues for individuals to stay engaged with their previous communities (such as houses of worship, fitness studios and community centers) through streaming live services, as well as to seek out and make new connections. There are also a plethora of mobile apps related to health and fitness focussing on meditation, exercise, nutrition and so on, many of which have been associated with improved health in users (Higgins, 2016).

Schedule flexibility associated with telecommuting may have positive impacts on personal and family life and may even result in increased life satisfaction over time (Lee & Sirgy, 2019). As working from home continues while restrictions toggle, reduced commute times may reduce stress associated with time spent in traffic and provide people with more time to spend with loved ones or engaged with hobbies, exercise or other leisure pursuits. Leveraging technology such as online calendars to schedule a daily routine consisting of time for work, exercise, family time, chores and leisure may be helpful. This may help carve out time for an at-home workout, dinner, spending time with spouse or children, watching an enjoyable movie or reading a book, or videoconferencing with friends or family members. Such activities may be essential for effective coping, particularly during COVID-19. For example, research conducted on a convenience sample of 604 Irish adults during COVID-19 restrictions found that activities including exercising, walking, gardening and pursuing hobbies were ranked as most enjoyable and were positively associated with positive affect (Lades, Laffan, Daly, & Delaney, 2020).

Finally, technology may also be one avenue to administer and ultimately expand physical and mental health services, improving outreach and reducing health disparities. Both telephone-delivered interventions and video teleconference interventions have been found to be beneficial for addressing mental health conditions including posttraumatic stress disorder, anxiety and depression (Varker, Brand, Ward, Terhaag, & Phelps, 2018). Those with mental health ailments may benefit from engaging in online peer-to-peer support (Naslund, Aschbrenner, Marsch, & Bartels, 2016). Moreover, prior work has indicated telehealth as a way to distribute mental health resources more widely throughout society (e.g., rural areas), helping to reduce health disparities (Marcin, Shaikh, & Steinhorn, 2016). As such, the COVID-19 outbreak could serve as a key inflection point to continue to increase availability in hard-to-reach and lower income communities.

COVID-19 related research has proliferated during 2020, with federal agencies including National Institute of Health awarding billions of dollars in funding to study COVID-19 (Kaiser, 2020). This provides an exciting opportunity for scholars to conduct high-quality research on the positive and negative health effects of technology, to be utilized as society continues to grapple with the ongoing threat of

COVID-19 and beyond the pandemic. As noted by others (Haidt & Allen, 2020), much of the research on digital technology and social media's effects on physical and mental health has been plagued by a lack of methodological rigour, inconsistent findings and small effects. Recommendations for research on technology during COVID-19 include the use of representative, probability-based samples (rather than convenience or snowball sampling that has defined the extant research), longitudinal designs, and a nuanced conceptualization and assessment of media content (Holman, Garfin, Lubens, & Silver, 2020).

Similarly, systematic review on telehealth interventions for post-traumatic stress disorder (Sijbrandij, Kunovski, & Cuijpers, 2016), other serious mental illness (Lawes-Wickwar, McBain, & Mulligan, 2018), and dietary (Kelly, Reidlinger, Hoffmann, & Campbell, 2016) and educational (Rush et al., 2018) interventions for chronic disease have found encouraging results. Particularly useful may be elements including telephone calls and text messaging reminders for treatment adherence (Lawes-Wickwar et al., 2018). Yet this literature has been limited by heterogeneity, particularly in comparator groups as well as small sample sizes (Lawes-Wickwar et al., 2018). Recommendations to increase knowledge for telehealth interventions include evaluating the use of mobile apps (Morland et al., 2017) and other cellular-based technologies (Decker et al., 2019), and including an expanded range of outcomes, larger sample sizes and mixed-methods approaches that include randomized control trials and assessments of participant acceptability (Lawes-Wickwar et al., 2018). Telehealth could also be used to administer mindfulness-based interventions (Myers et al., 2018) or those targeting loneliness (Zubatsky, Berg-Weger, & Morley, 2020); while these types of telehealth interventions may be especially helpful during COVID-19, more research is needed.

Practical recommendations for employers include facilitating connection with co-workers and teams virtually, as prosocial motivation at the workplace is strongly associated with intrinsic motivation and individual creativity (Grant & Berrry, 2011). This must be balanced by incentivizing efficient team collaborations to reduce burnout, which includes scheduling time for critical work that must be done alone as well as time in the day that does not include work (Cross, Rebele, & Grant, 2016). Individuals may be advised to explore the use of mobile apps that promote fitness, health and psychological wellness (Higgins, 2016) and make time to connect with friends and family, which can provide a powerful motivator for efficient professional work (Menges, Tussing, Wihler, & Grant, 2017).

Society's reliance on technology is increasing during the COVID-19 pandemic, with social and occupational changes that may persist long after the current crisis abates. Therefore, it is imperative to make mindful and intentional choices about how to leverage technology to improve our lives, reduce stress and improve mental health. Most importantly, individuals should limit repeated exposure to media coverage of the pandemic and other distressing social events (Garfin et al., 2020), use caution with high levels of social media use (Chao et al., 2020; Haidt & Allen, 2020) and avoid work overload (Turel et al., 2011). Keeping these pitfalls in mind, it is critical to leverage the benefits of technology with a goal of increasing access across socioeconomic groups so availability of these benefits are more equitably distributed in society. For example, prior research has shown access to technology mediates higher academic achievement in students from low socioeconomic backgrounds (Yang, Barnard-brak, & Siwatu, 2019). In conclusion, the current COVID-19 crisis provides opportunities for clinicians, researchers, policy makers, employers and individuals to explore best practices towards the pursuit of expanding the mindful use of technology to reduce the harmful effects of stress and improve people's lives.

CONFLICT OF INTEREST

The author has declared that she has no conflict of interest.

DATA AVAILABILITY STATEMENT

As this was a commentary, there is no data to make available.

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