

## Behavioral medicine challenges in the shadow of a global pandemic

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### Abstract

Health behavior researchers should refocus and retool as it becomes increasingly clear that the challenges of the COVID-19 pandemic surpass the direct effects of COVID-19 and include unique, drastic, and ubiquitous consequences for health behavior. The circumstances of the pandemic have created a natural experiment, allowing researchers focusing on a wide range of health behaviors and populations with the opportunity to use previously collected and future data to study: (a) changes in health behavior prepandemic and postpandemic, (b) health behavior prevalence and needs amidst the pandemic, and (c) the effects of the pandemic on short- and long-term health behavior. Our field is particularly challenged as we attempt to consider biopsychosocial, political, and environmental factors that affect health and health behavior. These realities, while daunting, should call us to action to refocus and retool our research, prevention, and intervention efforts

### Keywords

COVID-19, Health behavior, Alcohol, Sleep

During the global COVID-19 pandemic, the immediate and necessary priorities for every community are on reducing contagion and providing acute medical care. Our focus must remain here as lives depend on it. The potential challenges the pandemic poses to mental and behavioral health and concerns for long-term quality of life and well-being are broader and, perhaps, less immediate as we face a growing number of deaths related to COVID-19. As health behavior researchers interested in secondary or indirect effects of the pandemic, we are not pressed with the urgency of those developing a vaccine or working to identify treatments for COVID-19. For many of us, continuing our research “business as usual” has been difficult as we work to determine how we can contribute to global efforts to reduce the population-level impact of the COVID-19 pandemic.

So what is our role? We must charge ourselves with the responsibility of responding and adapting to support not only those at the front lines of reducing the spread of the virus but also the communities we have dedicated our professional lives to serving through prevention and intervention work. Now is the time for us as a community of health behavior researchers and clinicians to refocus and retool as it becomes increasingly clear that the challenges of this

### Implications

**Practice:** Behavioral scientists should respond and adapt to support individuals and communities most at risk for secondary or indirect effects of the pandemic.

**Policy:** Prioritize addressing health behavior and mental health outcomes among individuals adversely impacted by COVID-19.

**Research:** Assess how the pandemic affects health behavior, decision-making, and access to behavioral health programs and services while supporting clinicians to provide evidence-based interventions.

pandemic surpass the direct effects of COVID-19 and include unique, drastic, and ubiquitous consequences for health behavior.

### REFOCUSING

The focus of our health behavior research must change immediately in several ways. The most obvious consideration is how the pandemic affects health behavior, decision-making, and access to behavioral health programs and services. The circumstances of the pandemic have created a natural experiment, allowing researchers focusing on a wide range of health behaviors and populations with the opportunity to use previously collected and future data to study: (a) changes in health behavior prepandemic and postpandemic, (b) health behavior prevalence and needs amidst the pandemic, and (c) the effects of the pandemic on short- and long-term health behavior.

There is emerging evidence of the pandemic’s effect on health behavior, including but not limited to increased use of alcohol and cannabis among adolescents [1] and increased daily sitting time and decreased physical activity among adults [2]. Mental health issues associated with the pandemic could evolve into “long-lasting health problems, isolation and stigma” [3], p. 319]. Additionally, quarantine/lockdown is associated with negative psychological

effects, including confusion and anger [4], which could influence the impact of the pandemic on health behaviors. For example, individuals experiencing anger could potentially engage in frequent or heavy alcohol use in order to self-medicate. Home confinement may also negatively impact sleep quality [5] and nutritional habits [6]. Finally, the pandemic appears to be increasing mortality from other chronic conditions (e.g., heart disease and diabetes [7]), which could be associated with pandemic-related increases in unhealthy behavior.

Focus on our specific areas of expertise (e.g., substance use, sleep, diet, and physical activity) is as important as ever as the need for health promotion, education, and intervention remains steadfast and critical. However, we must shift our research questions and strategies to account for not only how these health behaviors have been impacted by the circumstances of life in quarantine but also how these lifestyle and behavioral factors might increase susceptibility to or severity of COVID-19. Here, we recommend refocusing health behavior research through the lens of three clearly overlapping consequences of the pandemic, highlighting potential implications for specific health behaviors.

#### Decreased mobility

Quarantine, stay-at-home policies, and social distancing guidelines have greatly restricted mobility, with consequences for a myriad of health behaviors, including physical activity and diet, as well as access to physical, behavioral, and mental health resources. The impacts of mobility restrictions on behavior are likely to be complex and generally, but not consistently, challenge public health. For example, the inability to dine at restaurants due to community policies, restaurant closures, and cost considerations appears to have caused a relative increase in the use of drive-through and other fast food options [8]. Alternatively, mobility restrictions may also result in more frequent, and potentially healthier, cooking at home. Limits on the use of parks, pools, and gym facilities, as well as playing organized sports appear to have made people dramatically less active, and recent research has shown at least a 30% decrease in physical activity from March 1 to April 1 across all 50 U.S. states [9]. As discouraging as this trend appears, it remains that the pandemic may also afford many individuals extra time to take walks, ride bicycles, and start in-home health practices. We are challenged to better understand the extent of these potentially differential impacts, populations, environments (i.e., urban vs. rural), and geographic areas at the highest risk for negative consequences and the most effective ways to promote healthy behavior when individuals are confined to their homes or have limits placed on their movement outside the home.

From a clinical standpoint, we can no longer assume the ability to provide in-person treatment. Behavioral health professionals are tasked with effectively providing interventions for things such as stress reduction, weight management, and smoking cessation either online or through other remote channels. Fortunately, prior advances in the field of digital health have prepared us for such circumstances. There already exist many evidence-based and engaging online and mobile-based health behavior tools. However, more work is needed for us to fully capitalize on these technological advances. Across the span of health behavior, only a limited number of these digital tools have been adequately evaluated and determined to be cost effective and readily available for public and clinical use. Additionally, we must continue to address digital health concerns that existed prior to the pandemic, including privacy and reach to those with limited or no access to certain technologies.

#### Increased social isolation

Restrictions in mobility have led to people of all ages experiencing extended social isolation from their family, friends, colleagues, and communities, as well as their health care providers. We expect that social isolation uniquely impacts particular groups and that consequences manifest differently for various health behaviors. The restrictions of personal contact required by PK-12 schools and universities have separated students from their peers and teachers. Older adults currently living in assisted living facilities may have not had visitors for months due to policies in place to decrease the potential for infection. Individuals' in-person interactions are limited to members of their immediate household, posing unique challenges for those who live alone or in unstable or unhealthy environments.

A wave of recent research and commentary has highlighted concerns about the impact of stay-at-home orders and social isolation on academic achievement, mental health, domestic violence, and substance use [10-17]. Our behavioral health research and treatment must refocus to address these effects and provide alternatives for safe social interaction, with particular focus on populations who are most vulnerable to experiencing negative consequences of social isolation based on age, geographic location, socioeconomic status, learning ability, and other characteristics.

We also have a unique opportunity to capitalize on the potential health benefits of the shifting environments we are experiencing due to the pandemic. As teens' and emerging adults' health behavior is largely influenced by peer norms, we may find that the disruption of social connection in these groups results in decreased risky health behaviors. For example, research has shown that college students

living with their parents engage in less risky alcohol use than students living on campus [18].

#### Changes in structure, roles, and routines

Most individuals have experienced a change in work and family roles and have had daily routines and structure disrupted since initial stay-at-home orders were put into effect. Economic effects of the pandemic are widespread, with many experiencing recent unemployment, underemployment, change in work environment, loss of income, or risks associated with being an essential worker. School and childcare facility closures have led to parents and caretakers taking on educational and childcare responsibilities in addition to maintaining work commitments. Our research questions must focus on how these changes in roles, routines, and structure affect health status and health behavior decision-making and how we might mitigate potentially adverse effects. Expected consequences might include increased stress, decreased sleep quantity and quality, and increased familial tension.

Another important consideration is how shifting routines have interrupted health behaviors that were part of prepandemic lifestyles and daily schedules. Health behaviors that were previously prompted by external factors (e.g., a daily scheduled exercise class at the gym and needing to be at the office by 9:00 am) are now more self-regulated. For example, does alcohol consumption increase when safely driving home from a bar or party is no longer a concern? How might sleep behavior change when not scheduled around work or school start times? Health behavior researchers have begun and need to continue to answer these questions. A survey in the USA found that sleep time increased by almost 20% nationwide from March 13 to March 24 [9], which may be particularly beneficial for our children as they no longer need to rise prematurely to manage inappropriately early school start times [19]. Existing health behavior theories highlight the power of external influence (i.e., social, organizational, and physical environments) on individual health decision-making [20], raising questions about how health behavior is changing in the absence of normative schedules and “outside” accountability.

#### RETOOLING

As health behavior professionals, we must not only refocus our research questions but also consider new and innovative ways to conduct research and provide treatment during and after the pandemic. How behavioral health research and clinical interventions are approached has already changed quickly and permanently in response to this global health crisis and, despite current uncertainty, it is clear that the following shifts in our methods are a necessity.

#### Virtual research labs

As the pandemic progresses and community-wide accommodations become more permanent, most aspects of our research will need to be done remotely. We will need to become more reliant on virtual intervention delivery, data collection, lab meetings, and conferences. During these first months of the pandemic, like other researchers, we have been navigating how to lead and participate in multidisciplinary teams communicating virtually. While technological difficulties and occasionally interrupting family members and pets pose unique challenges to this format, there are potential positive byproducts of these shifting modalities. A lack of geographic barriers could lead to new collaborations as synchronous meetings must now only consider time zones and not physical distance.

#### New training models

As virtual labs become the norm, so must the remote training and supervision of our students and trainees. Not only will instruction be increasingly virtual, but the skills needed to be a researcher or a clinician in a pandemic or postpandemic environment are shifting. For many professionals in our field, adjusting to these rapidly changing circumstances while trying to train others can feel like holding a ladder while also trying to climb up. We must support other professionals, particularly by providing best practices for advising and teaching in a remote environment. The degree to which faculty and students need computer literacy and familiarity with online technologies has increased immediately and significantly, with potential implications for faculty career projections and students' candidacy for graduate programs.

#### New assessments and remote data collection

There is great uncertainty about future health behavior research given restrictions put in place to protect research participants during the pandemic. However, we can anticipate current and future needs to engage our participants and patients remotely, utilize innovative and safe methods to capture data on health behaviors and experiences, and ensure that our methods are valid.

There are many empirically supported prepandemic examples of health monitoring and health promotion interventions that are managed entirely through digital and distance technologies [21]. Computer-based interventions often have equivalent outcomes relative to in-person interventions, as was observed for individuals with comorbid major depression and alcohol/cannabis misuse participating in the SHADE program [22]. Implementing and adapting these existing online programs that have been proven efficacious (e.g., the SHUTi program for insomnia prevention [23]), as well as developing new remote interventions will

be crucial moving forward, with particular emphasis on reaching underserved communities who might be at increased risk. For instance, researchers are currently identifying neighborhood attributes (e.g., household income, proportion of racial/ethnic minorities, and household size/population density) associated with COVID-19 “hot spots” and how these differ by city [24]; we must creatively address these risk factors with carefully designed community engagement efforts.

Many of our existing assessments and methods of data collection remain predicated on in-person interactions, raising concerns about the validity of such assessments when used to collect data remotely. While ecological validity may be increased with the use of technologies that assess and intervene on behavior or health status immediately and automatically [25, 26], it is unclear how much is lost by not having direct personal contact with our participants and patients. Additionally, there are certain types of assessments (e.g., neuropsychological assessments) that must be conducted in person. There is likely to be a period of time in which we spend considerable research and clinical effort coming to terms with these concerns and challenges. To assist, it will be important for those of us working in the field of digital health to collaborate and share knowledge so that digital approaches can be efficiently and effectively integrated into traditionally face-to-face clinical services and research settings.

#### Remote clinical practice and intervention approaches

Now is the time to develop and promote awareness of remote interventions that are both clinician initiated and community developed. Mobile tools to facilitate behavior change will likely be thrust even further into the spotlight in light of their increasing utility. However, numerous reviews have highlighted how most publicly available mobile apps are commercially developed and are not evidence based, potentially preventing users from accessing effective mobile tools [27–30]. As we expand our use of such technologies, clinicians need our help identifying evidence-based apps and digital interventions to know what works, what does not work, and what can be improved. It is also our responsibility as health behavior researchers to ensure that there is adequate evidence to support remote assessments and interventions to promote behavioral health. Empirical support of new clinical practices will be essential for our training institutions, program policies, and for third-party reimbursement.

With the lack of precedence associated with COVID-19 comes the unsettling realization that we have little confidence in predicting how the pandemic will unfold. Our field is particularly challenged as we attempt to consider biopsychosocial, political, and environmental factors that affect

health and health behavior (even in the absence of a global pandemic). These realities, while daunting, should call us to action to refocus and retool our research, prevention, and intervention efforts. Our work is life sustaining, and we hope these reflections help you hold whatever ladder you are climbing. See you online! This commentary is the result of an impromptu virtual brainstorming meeting among four researchers from four very different time zones who were scheduled to give a talk together at the Society of Behavioral Medicine’s Annual Meeting.

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