

COMMENTARY

Telehealth in Response to the COVID-19 Pandemic in Rural Veteran and Military Beneficiaries

Robert D. Shura, PsyD, ABPP-CN;^{1,2,3} Timothy W. Brearly, PsyD;⁴ & Larry A. Tupler, PhD ^{1,5,6}

1 Mid-Atlantic Mental Illness Research, Education, and Clinical Center (MIRECC), Durham, North Carolina

2 Salisbury VA Medical Center, Salisbury, North Carolina

3 Department of Neurology, Wake Forest School of Medicine, Winston-Salem, North Carolina

4 Walter Reed National Military Medical Center, Bethesda, Maryland

5 Durham VA Medical Center, Durham, North Carolina

6 Department of Psychiatry and Behavioral Sciences, Duke University Medical Center, Durham, North Carolina

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For further information, contact: Larry A. Tupler, PhD, Durham VA Medical Center, VISN 6 MIRECC, 3022 Croasdaile Drive, Durham, NC 27705; e-mail: Larry.Tupler@va.gov, ltupler@duke.edu.

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The current international spike in SARS-CoV-2 beta-coronavirus infections and resulting COVID-19 is the most serious pandemic in over a century.^{1,2} Unlike the discrete trauma of 9/11 that involved the tragic loss of nearly 3,000 lives within 1 hour, or natural disasters such as Hurricane Katrina, the pandemic declared by the World Health Organization on March 11, 2020, has no end in sight. At this writing, the Centers for Disease Control and Prevention (CDC) lists over 450,000 cases reported in the United States and rising,³ numerous epidemiological models project differing outcomes,⁴ and all but 5 states have issued some form of shelter-in-place

orders.⁵ The matter is further complicated by the medical requirements of treating COVID-19. Close contact with patients increases the risk of transmitting the infection to health care workers, who represent a crucial front line in combating the disease.

Compounding the situation, to accommodate social distancing and isolation directives, many health care workers are not functioning in their normal capacity, with attention concentrated on emergency and critical-care environments. While medical institutions, government agencies, and health care workers struggle with the immediate consequences of viral infection and with

supportive interventions, an additional burgeoning public health threat looms: the mental health effects related to navigating a pandemic.^{6,7} Relevant stressors include uncertainties about outcomes, likely financial losses, and mandated isolation. Demand for mental health services is expected to rise, given escalating health anxiety and decreased availability of mental health professionals following office closings and mandated sheltering in place.^{8,9} Further decreased access to mental health workers is inevitable: some hospitals have repurposed nonurgent therapists to other roles out of concern that the workers themselves will become ill.

Of particular concern is the physical and mental health of current and former military service members. Over a quarter of veterans are 70 years old or older,¹⁰ a demographic attribute most prevalent among rural residents¹¹ that dramatically increases their risk of mortality from COVID-19.¹² Mental health concerns include an anticipated increase in presentations of acute stress disorder and subsequent posttraumatic stress disorder (PTSD), already the most prevalent psychiatric diagnosis in the Veterans Health Administration (VHA).¹³ The current threat of illness combined with severe limitations of movement, goods and services, and physical social support qualifies as a chronic PTSD stressor.¹⁴ Combat veterans with chronic PTSD could experience the pandemic as a traumatic reminder of a prior invisible biological or toxic threat. PTSD symptoms might also be precipitated or intensified in those recently deployed to combat zones. Other psychiatric disorders likely to emerge include obsessive-compulsive disorder (related to increased cleaning behaviors and fear of infection), panic disorder, agoraphobia, complicated bereavement, and depressive disorders (including suicidal behaviors).

The risk is particularly great for rural patients of any age or cohort. Rural residents manifest a higher baseline of chronic medical conditions and have historically suffered from diminished access to quality health care, including mental health care.¹⁵⁻¹⁸ Many rural hospitals have closed,¹¹ and those that remain are often underresourced,^{19,20} with many rural intensive care units less effective than those in urban hospitals at providing mechanical ventilation,²¹ which appears to be crucial for treating severe COVID-19 cases.^{22,23} Rural residents account for approximately one-quarter of the US veteran population²⁴ and approximately one-third of the Department of Veterans Affairs (VA) caseload.^{25,26} Furthermore, many military bases are located in rural areas. Because many veterans and service members already live substantially far from their typical place of care, distance from medical services likely represents the most significant barrier for rural health care.²⁷

Turning to solutions, the current crisis has prompted a rise in extemporaneous problem-solving to foster the innovative delivery of ongoing medical and mental health services. The use of technologically mediated intervention, or “telehealth,” has rapidly surfaced as a viable option.^{8,28,29} The VHA and Defense Health Agency (DHA) have stepped up and expanded previously established telehealth and telemental health (TMH) procedures^{15,30-33} to address the rapidly changing landscape of service provision in light of the pandemic. VA providers now increasingly interact with patients over a videoconference connection, eliminating the chance of infection. DHA treatment facilities have also responded through the widespread adoption of telehealth technologies such as videoconferencing for psychotherapy and psychotropic medication management, along with DHA-developed mobile-device applications such as Breathe2Relax.³⁴ These measures reduce travel requirements while rendering care that is safer and more accessible. Since 1977, the VA has been on the forefront of telemedicine,³⁵ expanding capabilities beginning in 1994³⁶ and currently providing a full spectrum of services encompassing primary, secondary, and tertiary intervention via telehealth.³⁷⁻³⁹ DHA Connected Health (formally known as the National Center for Telehealth and Technology) and the Army Telemedicine & Advanced Technology Resource Center have also been developing and implementing telehealth technologies for many years, with TMH services currently offered to beneficiaries across the globe. The VA and DHA are thus well suited not only to serve beneficiaries with state-of-the-art technology but also to share lessons learned with the civilian world to promote optimal field deployment of TMH capabilities.⁴⁰

Telehealth is complex and multifaceted, but we focus here on telehealth media deployable for remote intervention in a manner that does not breach current public health COVID-19 management guidelines. Myriad approaches are now available to telehealth practitioners, having arisen from the exponential increase in Internet accessibility, computing power, and smartphones, which are no longer limited to wealthier or more heavily populated locales. These technologies (also referred to as “mHealth”) involve synchronous or asynchronous communications with a clinician and/or interactions (often algorithm-driven) that include text, video, and interactive/gamified information that trains and reinforces adaptive psychological functioning.³⁵ Examples beyond videoconference include virtual reality-based exposure, ecological momentary assessment (symptom monitoring through smartphone-based data collection), computer/smartphone-facilitated coping-skill training/support (VA Web interventions;

Breathe2Relax), and text-based chat with either a computer or a clinician.⁴¹ These approaches, which address treatment barriers including availability, accessibility, and affordability of services,⁴² have demonstrated clinical efficacy⁴³⁻⁴⁵ and provide options for easily accessible, evidence-based interventions that can supplement in-person visits or provide options for those who would otherwise not be able to access medical or psychological care.

An application of telehealth specific to COVID-19 patient care is illustrated by VA's Remote Patient Monitoring-Home Telehealth program.^{29,46} A health care provider performs either a physical or virtual evaluation of COVID-19 symptoms and determines the optimal technologies to employ for further assessment and treatment.²⁹ Communication typically occurs through telephony using interactive voice response (IVR). Veterans receive information and programmed questions, and their answers are processed by IVR speech-recognition software or keypad entry. Where available, an alternative method uses an encrypted Web portal through a PC, laptop, or Internet-enabled smart device. The program documents the veteran's recovery over the self-isolation period in which infection-prevention and -control requirements are implemented, including measurement and reporting of symptoms and vital signs such as temperature. The VHA also provides additional mHealth tools to veterans, such as secure messaging service (SMS) texting through the Annie App, an automated mobile application.^{29,47} Annie's Coronavirus Precautions protocol transmits informative messages, assists with symptom monitoring, and bridges contact with VA facilities. Patients can also use secure messaging technology to ask VA and DHA health care teams nonurgent health-related questions. VA-loaned tablets are available as needed.²⁹ Beneficiaries therefore have access to a panoply of electronic options that provide numerous primary-, secondary-, and tertiary-care services without face-to-face contact. These services can accommodate the full spectrum of needs from the technology-averse senior citizen to the most tech-savvy veteran native to SMS and smartphone usage since childhood.

The previously described solutions represent the expert-to-public dissemination of information and clinical care. However, the current circumstances also demand cultivation of a public-to-expert directionality of information flow. An important feature of rural populations is that individuals living far from urban areas may present lower risk of infection and the ideal model for how to implement CDC and other public health dictums such as social distancing. The reason that individuals in rural communities are at diminished risk is merely a matter of density: the same reason why state governors and local municipalities initially banned gatherings of over 50

people, subsequently reduced them to 10, and in some cases as few as 2. Furthermore, rural residents not only may be more accustomed to self-isolation and cohesive family interdependence, but they may actively cultivate these lifestyle qualities.^{48,49} Thus, sheltering in place may not feel as constricting as it would to an urban or suburban resident. We may be able to discern much from the rural community about how to effectively adjust and live so as to successfully weather this pandemic and minimize related adverse mental health sequelae.

Telehealth interventions have rapidly become alternate but effective forms of providing ongoing care safely. Two-way communication will further improve the usefulness of telecommunication technology in this swiftly changing environment (eg, infectious disease epidemiology), supplementing medical and psychological services. We stand to gain much from military and VA health systems beyond clinical innovations by promoting an environment of open knowledge exchange inviting information from rural beneficiaries. Furthermore, benefits of a robust telehealth infrastructure may outlive the pandemic, with residual gains for rural patients.

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