SAMHSA

Disaster Technical Assistance Center Supplemental Research Bulletin

Challenges and Solutions for Disaster Behavioral Health in Rural and Remote Communities

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CONTENTS

INTRODUCTION

This issue of the *Supplemental Research Bulletin* focuses on challenges and potential solutions for delivering behavioral health care in disaster response in rural and remote areas. To investigate this topic, in July 2022 we conducted an initial exploratory query for literature related to behavioral health in rural and remote communities and disaster response. Using those initial articles, our team created a modified snowball sample (using a sample of relevant articles to identify additional articles for inclusion) using the National Library of Medicine's "Similar Articles" function in PubMed.[1]

We limited our review to articles that:

- Were published in the last 5 years (in and after 2017)
- Were published in English
- Focused on behavioral health topics (i.e., mental health, substance use, treatments)
- Described research conducted in the United States[2]
- Focused on rural and/or remote populations, or at least not solely on urban populations

We recognize rural settings are not interchangeable, and challenges and strengths in any rural community are heavily influenced by culture, economic situation, demographics, geography, and state and national policy context. We present these findings as a starting point for further exploration in specific communities, especially when translating an existing approach to a new setting.

SCOPE OF RURAL AND REMOTE BEHAVIORAL HEALTH NEEDS AND CHALLENGES

In the United States, the opioid epidemic—especially the recognition of its increasing prevalence and impact in rural areas—has highlighted the behavioral health disparities and vulnerabilities that rural and remote communities contend with. While the scope of this review includes more than just opioid use disorder (OUD), much of the literature deals with OUD or substance use disorder (SUD) because this behavioral health condition shows how economic and social stressors, lack of healthcare infrastructure, and the physical challenges of providing care to a population over a wide geographic area came together in a behavioral health crisis. Findling and colleagues (2020) conducted a telephone (cell and landline) survey about health and economic issues among rural Americans over two years, 2018 and 2019, with a sample size of 1,300 and 1,405 respondents, respectively. When asked an open-ended question about the biggest problem their community faced, 25 percent identified opioid or other drug addiction or abuse, and 21 percent reported economic concerns, including availability of jobs, poverty, businesses closing, cost of living, and low wages. Rural adults also described difficulty affording medical care in the past few

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1　More information on how the National Library of Medicine's National Center for Biotechnology Information (NCBI) computes and identifies "similar articles" in relation to the reference article can be found in the *PubMed User Guide* at https://pubmed.ncbi.nlm.nih.gov/help/#computation-of-similar-articles (NCBI, 2023).

2　If an article was relevant to the topic and not well-covered in U.S. settings—such as an article about behavioral health response to a disaster in remote areas in another country—the article was included. However, we opted not to include responses that required a significantly different health policy context than the United States (such as universal health insurance coverage).

years (32 percent of respondents), including 45 percent who chose not to get care because they could not afford it. Of those who did get care, 23 percent reported problems with inaccessible healthcare locations, 22 percent had difficulty getting appointments, and 19 percent could not find a physician who would accept their health insurance.

However, despite sharing stressors and vulnerabilities, behavioral health needs vary across communities and by demographics within communities. Nor is OUD the sole behavioral health concern for these communities: Findling and colleagues' 2020 survey revealed that adults in rural Appalachia[3] were significantly more likely to report opioid or other drug use as the biggest problem in their community (42 percent of respondents), compared to rural communities in the Northeast (19 percent; $p = 0.003$), Midwest (19 percent, $p <0.001$), South (19 percent, $p <0.001$), and West (28 percent, $p = 0.02$). Binet and colleagues (2021) found that, among survivors of the Fort McMurray wildfires, women were 1.5, 1.55, and 1.86 times more likely than men to receive information, medication, and psychological help, respectively. Those who were White, those who had higher levels of education (postsecondary or higher), and those who were married were also more likely to utilize all three types of services. When looking at prescription opioid misuse among Black populations in urban and rural areas, Rigg and Nicholson (2019) observed that urban and rural populations had similar rates of misuse. Instead, rurality affected which factors were correlated with misuse: For example, having a high school education was not associated with lower opioid use in rural areas as it was in urban areas, and previous arrest was a risk factor in rural areas but not urban ones.

Coping With Behavioral Healthcare Disparities: Sources of Strength, Sources of Struggle

Rural and remote areas are characterized by smaller, less dense populations (Jenkins & Hagan, 2020), and this often translates to fewer resources available for behavioral health: less investment from large health systems (in both staff and facilities), less investment of state funds for public health initiatives, and limited ability to raise revenue to support new programs. In some states, more than 50 percent of non-metropolitan counties do not have a psychiatrist or psychologist: 58 percent in Michigan, 76 percent in Illinois, and 83 percent in Louisiana (Summers-Gabr, 2020). Hospitals in rural areas face increased risk of closure (Summers-Gabr, 2020), and even those that remain open are less likely to have specialty psychiatric services, with only 30 percent of U.S. rural hospitals having psychiatrists on staff or available for consultation, compared to 57 percent of urban hospitals, and telepsychiatry more likely to be used in rural hospitals (Ellison et al., 2022).

Rural health providers also recognize they are un- or under-prepared to deliver behavioral health care to match the need in their practice areas (Lister et al., 2020). Saloner and colleagues' 2022 regression analyses of Medicaid claims data revealed that living more than 20 miles from a physician offering medication-assisted treatment (MAT) for OUD under a buprenorphine waiver (using 2015 listings) was associated with an average of 17 days' less treatment in non-metro areas. Where providers within feasible driving distance may exist, they may be already serving their maximum patient capacity: Ali and

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3   "Appalachia" is defined by the Appalachian Regional Commission as 423 counties in 13 states, from southern New York to northern Mississippi (Appalachian Regional Commission, n.d.).

Ghertner (2022) found that, as of 2021, 67 percent of rural county residents did not have access to a buprenorphine prescriber within 30 miles who had the capacity to take on new patients. In Salvador and colleagues' 2019 study of a program to increase MAT-delivery capacity among primary care clinicians, those providers that struggled with attendance cited a lack of practice-level support, despite interest in and clear need for increased capacity for MAT. Pasman and colleagues' (2022) regression analysis of barriers to getting and staying in MAT revealed that the top barriers were travel time and work conflict (which is indirectly affected by travel time). These disparities are recognized by members of rural communities, as described in the studies below, many of whom struggle with behavioral health issues in isolation because the health infrastructure is lacking.

In their qualitative study of drivers of OUD, Thompson et al. (2020) interviewed members of a rural Pennsylvania community to collect evidence for structural factors that increased risk of OUD. Participants described how circumstances—a sense of normalized opioid use, lack of economic opportunity and investment, loss of wider social support for coping with stressors or getting into recovery—created a cycle that exposed people to behavioral health risks and offered no solutions. Hargrove and colleagues (2022) uncovered a similar finding in focus groups with members of an Appalachian community in Virginia (with focus groups including family and friends of opioid users, recovery service providers, treatment service providers, and decision-makers and policymakers). Healthcare professionals and others in the community described a convergence in their community of larger phenomena: a manual labor economy (with resulting increased pain and injury management needs), economic disinvestment (closing factories, reducing workforce), and heavy promotion of opioids by pharmaceutical companies followed by a backlash against prescribing opioids once addiction had become widespread. Community members saw the close family ties in their community both as a source of strength (for prevention and recovery) and a vulnerability (intergenerational opioid use, emotional and financial toll of having a loved one struggling with SUD).

This emotional impact of the community's economic situation echoes Snell-Rood and colleagues' extensive qualitative research (2017; 2018; Snell-Rood, Jenkins, et al., 2019; Snell-Rood, Staton, & Kheibari, 2019) with 28 low-income women in Appalachian Kentucky. Depression and mental health issues are expected, given what is happening in their community—economic stagnation, financial anxiety, and the sense of being "trapped" (Snell-Rood & Carpenter-Song, 2018). Cultural principles of "self-reliance" and avoiding "negative thinking" would become coping strategies of working harder, leading to further isolation from social supports to avoid stigma for depression (Snell-Rood et al., 2017). Women in Snell-Rood's research also observed that substance use was a strategy to deal with poorly managed mental health symptoms when adequate, appropriate, high-quality care was not available (Snell-Rood, Staton, & Kheibari, 2019; Snell-Rood et al., 2017).

As described by Weaver et al. (2018) in their analysis of the National Survey of American Life, Black members of rural and remote communities experience many of the same mental health stressors as non-Hispanic White rural communities, especially the association of increased material hardship with increased likelihood of reporting depressive symptoms, with the addition of racial discrimination. In Haynes and colleagues' (2017) qualitative research in Jefferson County, Arkansas, stakeholders (*n* = 50; primary care providers, faith community representatives, college students and administrators, and individuals living with mental illness) identified determinants and barriers to mental wellness that were similar to those mentioned in Snell-Rood's (2017–2019) work (in a sample that was predominantly

White): poverty and economic instability, feelings of hopelessness, stigma against seeking mental health care except in the most severe cases. A few participants, however, mentioned a cultural distinction between "experiencing mental unwellness" and "mental illness" (which they associated with a severe form of distress). Participants shared fears about seeking mental health care precisely because of that association with severe, "dangerous" instances of mental illness.

Rural and remote Indigenous communities' behavioral health needs and responses are influenced by the meeting of cultures (community culture and "mainstream"/Western culture). In their scoping review of Indigenous community-based mental wellness initiatives (covering communities in Canada, the United States, Australia, and New Zealand), Venugopal et al. (2021) describe the legacy of cultural disruption in Indigenous communities as a shared, intergenerational trauma that is layered with the impact of a disaster. The authors describe several studies covering the interrelatedness of land, culture, and mental wellness for Indigenous communities, which can be a vulnerability in disasters that result in long-term displacement. Venugopal et al. also identified the challenge of intermittent funding for mental health services, which Fitzpatrick and colleagues (2021) also explored in their qualitative research with mental health service providers (both Indigenous and non-Indigenous) who serve the First Nations and Métis communities in Alberta, Canada's Regional Municipality of Wood Buffalo. Providers described frustration with the inconsistency of mental health services before and after the 2016 Horse River wildfire, which had established a relationship with the communities that was characterized by instability and insufficiency. This fractured relationship made it difficult to trust the influx of disaster-response providers and organizations.

How Stigma Shapes Behavioral Health in Rural Areas

As described above, hesitancy about engaging in behavioral health care can be a response to a resource-poor environment: Without available providers within reasonable travel distance, "engaging" in care may not be feasible. As described in Ibragimov et al.'s 2020 literature review and Snell-Rood and colleagues' research with Appalachian communities (2017–2019), a failure in self-management of behavioral health issues carries a stigma that, unfortunately, makes it harder to seek additional help.

Stigma related to SUD in rural communities reflects the cultural, economic, and social conditions of rural life: strongly interconnected social networks, frustration with limited economic and medical resources, and recognition of risks shared by people with and without SUD. In their qualitative research with a wide array of stakeholders in rural Illinois, Ezell and colleagues described multiple divides between "us" ("the hardworking and upstanding") and "them" ("the irresponsible, difficult, and parasitic drains on our time, energy, and resources"). Ezell and colleagues' (2021) research showed professional stakeholders (pharmacists, law enforcement, community health workers, and even those working in SUD treatment) struggling to reconcile their desire to avoid treating anyone differently with the need to identify who may be living with SUD. For those stakeholders, that identification often entailed observing behavior, hygiene, mannerisms, and even dress/styling, which people with SUD recognized and responded to with avoidance (especially in encounters with law enforcement). People with SUD also expressed their own frustration with others with SUD who engaged in behaviors (like drug seeking or crime) that brought about more stigma or suspicion and made it more difficult to be treated with respect by professionals, replicating the "us/them" divide among people with SUD.

Stigma can result in interventions to reduce SUD and OUD facing pushback in rural communities about their long-term effectiveness. Richard et al. (2020) explored this with a small number of professional stakeholders (12 healthcare professionals, 12 substance use treatment providers, 7 law enforcement agents and judicial officials, and 3 members of relevant organizations) in Appalachian Ohio. These stakeholders shared community perceptions of MAT that made seeking services more difficult: that OUD medication is "trading one addiction for another," that starting substance use is a "choice" not everyone makes, and that total abstinence is necessary to be considered "clean." Even among those who understood addiction as a disease, there was still judgment around the decision to first use substances. Ibragimov et al. (2020) describe several qualitative studies with similar findings, where participants expressed a tension between compassion for those with SUD and frustration with dealing with the harms of widespread SUD and very little infrastructure for supporting recovery.

High rates of stigma are correlated with low levels of knowledge about harm reduction (Baker et al., 2020; Curcija et al., 2022). In Franz and colleagues' survey of 274 Ohio physicians, only 19 percent of rural physicians practiced in a county that had an existing syringe services program, compared to 68 percent of physicians practicing in urban counties. Ibragimov and colleagues (2020) observe that stigma against those with SUD can translate to silence among those individuals about the successes of harm-reduction programs (since total abstinence is the only non-stigmatized outcome). However, coming to understand OUD as a chronic illness is correlated with more positive attitudes toward MAT, harm reduction services, and people with OUD, and education can bring about this understanding (Beachler et al., 2021; Curcija et al., 2022; Zeller et al., 2021). In Franz and colleagues' (2021) survey of 274 physicians in Ohio (in both rural and urban settings), working in addiction medicine was significantly associated (p <0.001) with reduced bias towards people with OUD. Curcija and colleagues (2022) conducted a survey of 789 members of rural Colorado communities to measure the impact of campaigns to increase awareness of and knowledge about MAT for OUD. Nearly half of those surveyed had been exposed to a campaign product, and greater exposure was significantly associated with beliefs that opioid use was a problem in rural communities (p <0.0001), opioid addiction is a chronic disease (p = 0.032), and that OUD can be treated locally (p = 0.003).

RESPONDING TO DISASTER BEHAVIORAL HEALTH NEEDS IN REMOTE AND RURAL COMMUNITIES

Rural and remote communities have a unique set of strengths and vulnerabilities that should inform the delivery of behavioral health care after a disaster, including under-treated behavioral health issues and (depending on the community) a high prevalence of SUD. Rural communities that experience multiple disasters are at particularly high risk for severe behavioral health issues, such as the Fort McMurray community in Alberta, Canada (which experienced a 2016 wildfire and both flooding and the COVID-19 pandemic in 2020). Agyapong et al. (2022) surveyed 186 community members (of a population of 111,687) to understand the association of experiencing multiple disasters with mental health effects, finding that those who were not affected by wildfire or flooding had lower likelihood of major depressive disorder, generalized anxiety disorder, PTSD, or general measures of low mental health resilience. Batterham et al. (2021) saw similar findings in their systematic review of environment and mental health in rural areas: that degradation of the environment, especially extreme climate or weather events, was associated with poorer mental health and well-being at a community level. With the increasing frequency

of extreme weather events and weather-related disasters, understanding the individual and long-term impacts of environment on mental health in rural areas will only become more important.

Disaster survivors may be more likely to try informal approaches or use preexisting coping solutions instead of or before seeking mental health services. In a secondary analysis of survey data from a rural telehealth initiative, Newman et al. (2021) observed that rural participants were less likely to initiate psychotherapy (odds ratio [OR] = 0.67, adjusted p = 0.036) or perceive a need for treatment (OR = 0.67, adjusted p = 0.040), which was a strong predictor of initiating treatment. Participants in Binet et al.'s survey (n = 1,510) cited barriers to seeking information on mental health care: preference to self-manage (26.8 percent), not knowing how or where to get information (23.2 percent), and thinking about it but not getting around to doing it (17.9 percent). The most common medication barriers were preference to self-manage (47.2 percent), thinking about it but not getting around to doing it (17.0 percent), not being able to afford to pay (9.4 percent), and reluctance to take medication (9.4 percent). Finally, reasons for not receiving psychotherapy or counseling included a preference to self-manage (50.7 percent), thinking about it but not getting around to doing it (13.0 percent), and thinking it would not help (7.7 percent). These barriers did not vary by gender.

In this section, we organize the findings related to rural and remote behavioral health disaster response into three areas: 1) governmental and policy approaches to remove barriers and close gaps, 2) community initiatives to respond to behavioral health needs after a disaster or crisis, and 3) the applicability of tele-behavioral health approaches to disaster response.

Governmental & Policy Approaches

As described by Jenkins and Hagan (2020) in their review, because of their smaller population size, rural and remote areas are a lower priority for funding and other resources, even among states with policy and economic investments in public health, behavioral health, and harm reduction. Jenkins and Hagan also note that policymaking stakeholder relationships in rural areas work differently: Health commissioners may need to work directly with law enforcement and long-term residents' buy-in is critical for any approach to succeed.

In a disaster response, those who are currently in MAT or living with SUD need an environment where they can be honest about their health needs without experiencing stigma, sharing of health information outside of the encounter, or unwanted involvement of law enforcement (Ellis et al., 2020). Behavioral health services involving prescribing controlled substances, like MAT, are highly regulated, which makes adapting to disaster responses challenging (Salamanca-Buentello et al., 2022). Federal healthcare partners, such as the U.S. Department of Veterans Affairs, have played a role in disaster response, and their access to nationwide behavioral health resources (including mobile behavioral health units and tele-behavioral health) can be integrated into a local disaster response (Wyte-Lake et al., 2021).

With a smaller population, rural and remote areas are limited in how much revenue they can raise for behavioral health solutions (Jenkins & Hagan, 2020). The shortage of behavioral health staff and facilities requires large-scale, long-term policy and economic interventions; however, some areas have come up with creative ways to tap their existing resources to close gaps. In a short commentary report, Flaherty et al. (2018) describe a policymaking response to unmet behavioral health needs in Hancock County, Ohio, that engaged stakeholders from law enforcement to academic medical programs. County leadership met

with health and citizen leaders to identify gaps in the continuum of care for substance use, and where opportunities to engage people with SUD take place. First responders were trained on and supplied with naloxone, treatment providers were integrated into the court system, and MAT maintenance and naloxone distribution were added to jail and re-entry systems.

In addition to adding behavioral health capacity in existing positions, county leadership created three professional development initiatives: 1) academic training and certification for health sciences students at the area university with a parallel track for peer workforce certification; 2) turning an underutilized community drop-in center into a recovery-focused drop-in center staffed by peer leaders; and 3) a hospital-led collaboration between the health department, community physicians, and hospital staff on improving knowledge of and expanding services for addiction (inpatient withdrawal management, specialized programs for pre- and neonatal SUD). As a result, the authors report that Hancock County has reduced overdose deaths among those seeking treatment (from 18 percent in 2009 to 6 percent in 2017) while serving a larger number of community members (72 seeking treatment in 2009 vs. 594 in 2017).

Community-based Approaches

Although rural and remote areas are challenged by an overall lack of resources (relative to the density and scope of resources in urban areas), approaches that address what is important to a community can increase impact without necessarily requiring more resources. Examples of these approaches are provided below; despite their differences, what they share is an intentional, deep understanding of community assets and desires.

GROUNDED MENTAL WELLNESS APPROACHES: MEETING COMMUNITIES WHERE THEY ARE

Using findings from deep, qualitative research among women in Appalachian Kentucky, Snell-Rood, Jenkins, et al. (2019) adapted and implemented a mental wellness program, Wellness Recovery Action Planning (WRAP), for women in their study community. Key to this approach was understanding how patients conceptualized mental illness and distress: a chronic illness, an understandable reaction to what's happening in the community, a shared experience of symptoms (appetite, sleep, sense of being overwhelmed) (Snell-Rood, Jenkins, et al., 2019). Although not a replacement for mental health treatment, WRAP uses nonclinical terms to describe mental health and focuses on wellness and self-management. This focus allowed for participants to gain strategies and resources regardless of their interpretations of distress, depression, and mental illness, and could be customized to address participants' symptoms and their clinical treatment plans (if any). For this adaptation, Snell-Rood and colleagues identified how community culture can shape pressures that become mental health stressors (such as social isolation, stigma against severe mental illness) and provided the strategies to manage those stressors, like interpersonal communication strategies (Snell-Rood, Jenkins, et al., 2019).

The 37 participants reported lower depression scores on the Patient Health Questionnaire-9 post-intervention ($p = 0.02$) and improved ability to deal with daily problems ($p = 0.04$) and accomplish goals ($p = 0.02$). One surprising, qualitative finding was the recognition that not only did many women in their community struggle with juggling many obligations (familial, financial, social, educational), they all shared a sense of isolation in being the only one struggling. Participating in the WRAP adaptation gave them an appreciation for their own strength in the face of hardship and a recognition that these challenges were

not theirs alone. In a post-disaster setting, the WRAP model could be adapted to a community's shared hardships: Rather than delivering behavioral health services based on screening and triage, a symptoms- and strategies-based Action Plan could acknowledge the shared impact of the disaster event (reducing the isolation of those struggling with behavioral health issues) while allowing for responses to be customized based on individuals' most urgent needs and different concepts of "mental illness/wellness," "trauma," or "distress."

Where behavioral health care providers are not available, or as a complement or alternative to a medicalized approach, communities use church community and clergy as one method of coping with mental distress or seeking behavioral health help. Weaver and colleagues (2019) surveyed members of two churches in rural Midwestern communities (n = 100) and found high rates of openness to informal and formal depression treatment delivered in church-based group: Almost two-thirds of respondents would consider attending a church-based group depression intervention, 80 percent would recommend it to a friend, and 60 percent saw benefit for their community. Schultz et al. (2021) conducted similar research in a rural Indiana community, combining surveys (n = 82) with focus groups (n = 4 and n = 7). Most respondents (60 percent) preferred to meet with a counselor who was from outside the community, and only 37 percent wanted to join a self-help group of peers. However, focus group participants clarified that while they preferred the relative anonymity of an "outsider" provider, they also wanted that person to be known to a trusted community member.

Lalani et al. (2021) conducted qualitative research with survivors of the Fort McMurray wildfire (n = 65) on the role spirituality played in their recovery after disaster. Although the geography and economy of the Regional Municipality of Wood Buffalo differ from other rural communities in this study (namely, the economic presence of the oil industry), the community shared similar stories of isolation, unstable population, and concern for children and youth who represented the future of their community. Hope— for individuals' recovery, for community regrowth—was how many community members coped with the post-wildfire hardships, and faith practice was central to how community members fostered that hope in themselves and others. Churches served as a physical space to find community and engage in community-building activities, and faith value systems helped participants look for positive, hopeful aspects of post-disaster growth.

Addressing behavioral health among children is critical to preventing further behavioral health issues in adults, and limited access to pediatric behavioral health may mean wait times of weeks or months for services. In a survey of 118 parents in a rural pediatric primary care practice in the Midwestern United States, Fehr et al. (2020) found that only half of parents could identify treatment options in their community. Rural children and youth are also disproportionately more likely to experience serious, negative mental health outcomes: For example, suicide rates among rural adolescents are nearly twice that of urban adolescents (Runkle et al., 2022). By integrating behavioral health into school settings, children and youth can receive much-needed services in a familiar setting where they already spend much of their time. However, the lack of behavioral health providers remains a universal challenge. Berryhill et al. (2022) examined three group-based cognitive behavioral interventions and one yoga intervention, delivered in classroom settings, to increase coping skills and reduce depression symptoms. Although these interventions showed some improvement in coping skills and symptoms, students at higher risk for depression were the least likely to sustain these improvements. Additionally, Berryhill et al.

note that none of these interventions addressed anxiety, one of the most common mental health issues among children and adolescents.

TASK SHIFTING FOR BEHAVIORAL HEALTH: REALIZING THE RESOURCES YOU ALREADY HAVE

The concept of "task shifting" or "task sharing"—moving tasks among individuals of different training levels so that each individual is carrying out the most complex or specialized tasks they can perform— has been used in international health, particularly in global HIV/AIDS work (World Health Organization, 2008). Hoeft et al. (2017) conducted a literature review to better understand how this approach may be used to address what they describe as a "persistent shortage of mental health specialists." Overall, Hoeft et al. note that the strongest evidence supports collaborative care—coordination of care between primary care, mental and/or behavioral health, case management, and sometimes community health workers (CHWs)—for depression and anxiety. Collaborative care lends itself well to a task-sharing model because each member of the team can perform specialized tasks to address clients' complex needs. For example, case managers can identify social supports that might relieve some of the economic stressors exacerbating anxiety.

Hoeft and colleagues also revealed evidence supporting augmenting a collaborative care model with telemedicine when specialties are not locally available. Telemedicine can also be used to deliver training and supervision, which increases individual staff capacity (training in skills and scope) and organizational capacity (supervision and consulting). However, the authors also note that remote learning and supervision alone may not be sufficient for all learning/management approaches. Finally, while Hoeft et al. found less evidence for incorporating CHWs into mental health care, they also found great interest, given the success of CHWs in other contexts and the importance of having trusted individuals who understand the community's culture. This may be especially important in a disaster response when healthcare capacity may also need to deal with physical trauma care and other urgent health needs.

Raviola et al. (2020) describe a task-shared community-based mental health system developed in Haiti between 2010 and 2019, a period in which several natural disasters (earthquake, hurricane) and social unrest severely disrupted the preexisting mental healthcare system. Existing NGO health organizations built on past work and recognition in the communities to become a central, credible resource for mental health care. Standardized requirements and interventions for different staff roles (CHWs, social workers, psychologists, and physicians) were developed on a condition-specific basis, starting with depression and adding in additional mental health areas. These organizations also conducted ongoing identification of training needs for new stakeholder roles (nurses, community leaders, traditional healers, teachers, quality improvement professionals) to assess how these stakeholders could share the burden and make sure no one role was overloaded.

In a U.S. setting, Gainey et al. (2018) describe the use of mobile integrated health (MIH) teams— paramedics who provide health care using mobile resources—after flooding in Richland County, South Carolina, in 2015. County emergency medical services personnel who joined MIH teams received additional training, such as medication reviews, patient evaluation, and chronic disease management. They were also paired with community providers (pharmacists and social workers) to be trained on patient care. Although not originally trained for disaster response, MIH teams identified medically vulnerable

community members, ensured prescriptions were continued for community members who lost medication, transported separated family members, conducted wellness checks, and delivered food and water.

Telemedicine Approaches for Meeting Behavioral Health Needs in a Disaster Response

Telemedicine seeks to solve some of the challenges in delivering care to members of rural communities: the distance between patients and providers, the challenge of finding an accessible provider accepting insurance, and challenges with long wait times for appointments. In Findling et al.'s 2020 survey, 24 percent of rural adults had received a healthcare diagnosis or treatment via telehealth. Of those who had used telehealth, 69 percent chose to use it because it was the most convenient way to get diagnosis or treatment. As described in detail in the August 2022 *Supplemental Research Bulletin,* "Adaptations and Innovations for Delivering Mental Health and Substance Use Disorder Treatment Services During the COVID-19 Pandemic," expanded use of telehealth (especially changes in reimbursement policies for telehealth services) helped behavioral health providers maintain and initiate services.

Telemedicine (especially video-calling, which requires a high-speed, broadband internet connection) can serve rural county residents who have access to broadband internet but lack a local behavioral health provider. Ali and Ghertner (2022) estimate that 63 percent of residents in high broadband availability areas lack buprenorphine providers within 30 miles with capacity to take on new patients. However, areas with lower broadband availability (less than 90 percent of the population with access to an internet service provider offering broadband speeds) also had fewer providers: As many as 82 percent of residents in lower availability areas did not have a provider with capacity within 30 miles. Ali and Ghertner also note that availability of broadband does not always equal *affordability* of broadband, and those whose economic instability puts them at greater risk of SUD are also least able to afford high-speed connections.

Telemedicine for behavioral health has obvious advantages in a disaster situation. As described in Augusterfer and colleagues' review (2020), tele-behavioral health can:

- Augment local communities' capacity for behavioral health in a period of increased need and reduced resources

- Provide quick access to specialty care in areas where it has been historically lacking

- Assist with task-sharing approaches by providing lay and professional health workers with remote supervision and support

Augusterfer et al. also note challenges with delivering remote behavioral care via telemedicine:

- Ensuring that the trainings for staff are standardized (ensuring quality and reliability of service) but also culturally competent (using community values) and flexible enough to respond to emergent needs

- Monitoring health workers for burnout, overload when supervisors are remote

- Maintaining patient safety during a tele-behavioral health encounter: preventing harm to patients who are agitated, express suicidality, or other imminent threats to their health

For survivors of a disaster, tele-behavioral health delivery modes need to be relevant to and appropriate for participants' symptoms: Békés et al. (2022) conducted a randomized controlled trial of a tele-mental health intervention for survivors of the Fort McMurray wildfires in Alberta, Canada. The RESILIENT

intervention combined online educational modules on topics like PTSD or sleep management with 30-minute, synchronous, cognitive-behavioral therapy sessions conducted by video or phone conference. Trial participants were screened for PTSD, depression, and insomnia, and either assigned to the treatment group or a wait list. Therapists observed that clients' symptoms determined their engagement with the intervention: If clients believed the education or therapy was not addressing their symptoms, or if their symptoms were too severe to engage (either at baseline or after beginning the intervention), they were more likely to drop out. Bunnell and colleagues' (2017) comparison of access to a web-based mental health intervention between rural and urban/suburban families (n = 1,321 families) in parts of Missouri and Alabama that had been affected by a tornado in 2011 had a similar finding: They observed no geographic differences in accessing the web-based intervention. When asked about reasons for not accessing the intervention, participants shared that they were too busy, forgot to access the site, or that the site was not relevant to their present concerns.

The randomized controlled trial evaluating RESILIENT (the tele-mental health intervention implemented by Békés et al.) showed that, compared to those on the waiting list, intervention participants had decreases in PTSD, depression, and insomnia symptoms, as well as reduced symptom severity and disability (Belleville et al., 2022). However, as discussed above, symptom severity was often a reason for discontinuing treatment, and Belleville et al. noted larger effect sizes in those who completed at least half of the intervention. This research raises important questions about the suitability of similar interventions for severe symptoms, but therapists in the implementation did find success in retaining clients with severe symptoms with modifications, such as increasing the therapy sessions and reducing self-directed learning.

TELEMEDICINE FOR BEHAVIORAL HEALTH EMERGENCY CARE ("TELEED")

Behavioral health issues often result in emergency department (ED) visits. With limited psychiatric specialists available, many EDs in rural and remote settings rely on telemedicine to close the gap. In Heppner et al.'s (2021) cohort analysis of six rural tele-emergency medicine grants, mental and behavioral health made up almost 10 percent of the uses of "teleED." Looking specifically at telepsychiatry, Freeman and colleagues (2020) conducted two surveys of EDs: one survey of all 5,375 U.S. emergency departments and one follow-up survey with a sample of those using telepsychiatry. Of those EDs that responded (4,507 or 84 percent), 885 reported receiving telepsychiatry. EDs in rural locations and in critical access hospitals were more likely to report telepsychiatry. Of the EDs that reported using telepsychiatry, most (59 percent) also stated it was their only form of emergency psychiatric services available, and 62 percent used it 6 days a week (with 25 percent using it at least once per day). In Natafgi and colleagues' review (2021) of emergency telemedicine during the COVID-19 pandemic, the authors observed that emergency telepsychiatry decreased wait times to see a provider, increased overall ED efficiency, reduced odds of subsequent behavioral health ED visits, and were well-accepted by patients. (Providers had some concerns about reading nonverbal language, but they appreciated the access to peers with specialized expertise.)

Emergency telepsychiatry may increase access and decrease wait times for behavioral health triage but a lack of facilities available for patient care after the ED remains a challenge. Fairchild et al. (2019) compared cases where patients at critical access hospitals received telehealth-based behavioral health care through Indiana's Wabash Valley Rural Telehealth Network with similar patient cases from before

the implementation of the WVRTN. Mean wait time before being seen by a provider decreased from 27 to 12 minutes (statistically significant at the p = 0.012 level). There were some differences in disposition (telehealth patients were more likely to be transferred to another facility, less likely to be admitted) but none were statistically significant, and a similar percentage of patients were routinely discharged. Similar to other studies, mean ED length of stay was statistically significantly longer for telehealth patients (318 minutes vs. 147, p <0.001), only 55 minutes of which consisted of the telehealth visit. However, the longest wait times between the end of the telehealth visit and departure for the emergency room were for admitted and transferred patients, which the authors propose may be due to bed capacity in critical access hospitals and behavioral health facilities.

TELEMEDICINE FOR COMMUNITY BEHAVIORAL HEALTH CARE

While tele-behavioral health in EDs is helpful for emergency care, ongoing behavioral health needs cannot be met in hospitals alone. A few studies in this review looked at possibilities of offering tele-behavioral health in primary care and outpatient settings. Agley et al. (2022) conducted a feasibility pilot of telehealth psychiatric triage in community primary care settings: two community primary care practices, one faith community nurse, and remote behavioral health staff (social worker and advanced-practice psychiatric nurse) in the mental health arm of the hospital and healthcare system of an adjacent county's hospital. Patient Health Questionnaire (PHQ-9) screening and providers' clinical judgment were used to identify patients who may benefit from triage; those patients were offered the option of telehealth assessment or, if requested, in-person assessment. Of the 68 referrals, only 2 (3 percent) had a previous psychiatric diagnosis in their medical record, 50 (74 percent) accepted a telehealth assessment and 46 (68 percent) enrolled in free psychiatric care offered by the pilot program. (In some cases, clients presented with psychiatric symptoms because of unmet social needs, so 11 clients ended up working with a social worker to solve those challenges.) This pilot successfully identified unmet mental health needs in a rural population and provided a capacity-building solution acceptable to patients, but changes to workflow or increased burden were not studied.

Sizer and colleagues (2022) analyzed users of telepsychiatric services in rural parishes across Louisiana (n = 1,115) to understand the demographic and clinical characteristics of those who benefited from and those who struggled with tele-behavioral health during the COVID-19 pandemic. From early 2020 through early 2022, the Northeast Delta Human Services Authority (which provides behavioral health care for rural communities in northeastern Louisiana) sharply increased their use of telemedicine visits and sharply decreased their in-person visits. The authors found that being younger, female, and having higher levels of education were positively associated with tele-behavioral health visits. Sizer and colleagues also noted an asymmetric substitution: Telemedicine visits did not replace in-person visits at a 1:1 rate, so visits overall dropped during the 2020–2021 period, especially among older adults. Race and income did not appear to have an effect on utilization of telemedicine visits, although the authors note that only 62 percent of households in the service communities subscribe to internet service.

LIMITATIONS

This review is not an exhaustive summary of behavioral health challenges in rural communities, which include historical, economic, cultural, political, and geographic barriers to establishing a robust behavioral healthcare infrastructure. In the literature, many are small, community-specific and often qualitative

studies (that provide rich data on a particular community) or larger, quantitative studies that compare all rural areas across the United States or a state (ignoring the differences in demographics, economies, geography, and culture between rural areas). We present interventions as examples of how one may solve some of the challenges to delivering behavioral health care in rural and remote communities; how applicable or adaptable any of these interventions are to a specific community may vary, especially Indigenous rural and remote communities. Finally, the choice to limit articles to the last five years was both to focus on the latest research but also account for the increased publication volume related to responses to the COVID-19 pandemic. Older articles may still provide important strategies and starting points for disaster response but did not happen to be included in the scope of this review.

CONCLUSION

Behavioral health disaster response solutions for rural communities are not "one size fits all." An understanding is required of general differences between urban and rural behavioral health needs but also the characteristics of the specific community or communities, especially strengths that can be tapped and historical and social challenges that need to be navigated. When developing a behavioral health disaster response, a thorough understanding of the community may be the most critical factor determining how successful a response will be when tested.

Important questions to ask when developing a behavioral health disaster plan include:

- What kinds of disaster risk does the community face, and what kinds of disruptions would those cause to behavioral health services?

- Who lives in the community, and how do their demographic characteristics (age, gender, race, education, income) inform their behavioral health needs?

- What are the preexisting vulnerabilities in the community (economic stressors, unmet mental health and SUD treatment needs, the prevalence and types of substance misuse)?

- What are the preexisting strengths and values of the community (civic pride, faith practices, social connectedness, shared culture, connection to the land)?

- What are the preexisting resources that can be tapped during a disaster (healthcare infrastructure, community-based organizations, formal and informal volunteer organizations providing social support)? What relationships and connections need to be forged so that these resources can meet behavioral health needs?

REFERENCES

Agley, J., Barnes, P., Tidd, D., Todd, A., Friedman, K., Gordon, S., Richardson, J., & Delong, J. (2022). Integrating telepsychiatry into rural primary care for upstream prevention: Feasibility case study of the Faith Net program. *Inquiry: A Journal of Medical Care Organization, Provision and Financing, (59)*, Article 469580221097428. https://doi.org/10.1177/00469580221097428

Agyapong, B., Shalaby, R., Eboreime, E., Obuobi-Donkor, G., Owusu, E., Adu, M. K., Mao, W., Oluwasina, F., & Agyapong, V. (2022). Cumulative trauma from multiple natural disasters increases mental health burden on residents of Fort McMurray. *European Journal of Psychotraumatology, 13*(1), Article 2059999. https://doi.org/10.1080/20008198.2022.2059999

Ali, M., & Ghertner, R. (2022). Broadband access and telemedicine adoption for opioid use disorder treatment in the United States. *The Journal of Rural Health: Official Journal of the American Rural Health Association and the National Rural Health Care Association, 39*(1), 233–239. https://doi.org/10.1111/jrh.12699

Appalachian Regional Commission. (n.d.). *About the Appalachian region.* https://www.arc.gov/about-the-appalachian-region

Augusterfer, E. F., O'Neal, C. R., Martin, S. W., Sheikh, T. L., & Mollica, R. F. (2020). The role of telemental health, tele-consultation, and tele-supervision in post-disaster and low-resource settings. *Current Psychiatry Reports, 22*(12), 85. https://doi.org/10.1007/s11920-020-01209-5

Baker, L. S., Smith, W., Gulley, T., & Tomann, M. M. (2020). Community perceptions of comprehensive harm reduction programs and stigma towards people who inject drugs in rural Virginia. *Journal of Community Health, 45*(2), 239–244. https://doi.org/10.1007/s10900-019-00732-8

Batterham, P. J., Brown, K., Trias, A., Poyser, C., Kazan, D., & Calear, A. L. (2022). Systematic review of quantitative studies assessing the relationship between environment and mental health in rural areas. *Australian Journal of Rural Health, 30*(3), 306-320. https://doi.org/10.1111/ajr.12851

Beachler, T., Zeller, T. A., Heo, M., Lanzillotta-Rangeley, J., & Litwin, A. H. (2021). Community attitudes toward opioid use disorder and medication for opioid use disorder in a rural Appalachian county. *The Journal of Rural Health: Official Journal of the American Rural Health Association and the National Rural Health Care Association, 37*(1), 29–34. https://doi.org/10.1111/jrh.12503

Békés, V., Belleville, G., Lebel, J., Ouellet, M. C., Chen, Z., Morin, C. M., Bergeron, N., Campbell, T. S., Ghosh, S., Bouchard, S., Guay, S., & MacMaster, F. P. (2022). Trainee therapists' perceptions of a blended intervention to promote resilience after a natural disaster: A qualitative case study. *Journal of Clinical Medicine, 11*(15), 4361. https://doi.org/10.3390/jcm11154361

Belleville, G., Ouellet, M.-C., Békés, V., Lebel, J., Morin, C., Bouchard, S., Guay, S., Bergeron, N., Ghosh, S., Campbell, T., & Macmaster, F. (2022). Efficacy of a therapist-assisted self-help internet-based intervention targeting PTSD, depression and insomnia symptoms after a disaster: A randomized controlled trial. *Behavior Therapy,* online publication ahead of print. https://doi.org/10.1016/j.beth.2022.08.004

Berryhill, B., Carlson, C., Hopson, L., Culmer, N., & Williams, N. (2022). Adolescent depression and anxiety treatment in rural schools: A systematic review. *Journal of Rural Mental Health, 46*(1), 13–27. https://doi.org/10.1037/rmh0000183

Binet, É., Ouellet, M. C., Lebel, J., Békés, V., Morin, C. M., Bergeron, N., Campbell, T., Ghosh, S., Bouchard, S., Guay, S., MacMaster, F. P., & Belleville, G. (2021). A portrait of mental health services utilization and perceived barriers to care in men and women evacuated during the 2016 Fort McMurray wildfires. *Administration and Policy in Mental Health, 48*(6), 1006–1018. https://doi.org/10.1007/s10488-021-01114-w

Bunnell, B. E., Davidson, T. M., Dewey, D., Price, M., & Ruggiero, K. J. (2017). Rural and urban/suburban families' use of a web-based mental health intervention. *Telemedicine Journal and e-Health: the Official Journal of the American Telemedicine Association, 23*(5), 390–396. https://doi.org/10.1089/tmj.2016.0153

Curcija, K., Zittleman, L., Fisher, M., Nease, D. E., Jr, Dickinson, L. M., de la Cerda, D., Sutter, C., Ancona, J., Rank, J., & Westfall, J. M. (2022). Does a rural community-based intervention improve knowledge and attitudes of opioid use disorder and medication-assisted treatment? A report from the IT MATTTRs study. *The Journal of Rural Health: Official Journal of the American Rural Health Association and the National Rural Health Care Association, 38*(1), 120–128. https://doi.org/10.1111/jrh.12545

Ellis, K., Walters, S., Friedman, S. R., Ouellet, L. J., Ezell, J., Rosentel, K., & Pho, M. T. (2020). Breaching trust: A qualitative study of healthcare experiences of people who use drugs in a rural setting. *Frontiers in Sociology, 5*, Article 593925. https://doi.org/10.3389/fsoc.2020.593925

Ellison, A. G., Jansen, L., Nguyen, F., Martina, A., Spencer, J., Wierdsma, A. I., Kathol, R. G., & van Schijndel, M. A. (2022). Specialty psychiatric services in US emergency departments and general hospitals: Results from a nationwide survey. *Mayo Clinic Proceedings, 97*(5), 862–870. https://doi.org/10.1016/j.mayocp.2021.10.025

Ezell, J. M., Walters, S., Friedman, S. R., Bolinski, R., Jenkins, W. D., Schneider, J., Link, B., & Pho, M. T. (2021). Stigmatize the use, not the user? Attitudes on opioid use, drug injection, treatment, and overdose prevention in rural communities. *Social Science & Medicine (268)*, Article 113470. https://doi.org/10.1016/j.socscimed.2020.113470

Fairchild, R. M., Ferng-Kuo, S. F., Laws, S., Rahmouni, H., & Hardesty, D. (2019). Telehealth decreases rural emergency department wait times for behavioral health patients in a group of critical access hospitals. *Telemedicine Journal and e-Health: The Official Journal of the American Telemedicine Association, 25*(12), 1154–1164. https://doi.org/10.1089/tmj.2018.0227

Fehr, K. K., Leraas, B. C., & Littles, M. M. D. (2020). Behavioral health needs, barriers, and parent preferences in rural pediatric primary care. *Journal of Pediatric Psychology, 45*(8), 910–920. https://doi.org/10.1093/jpepsy/jsaa057

Findling, M. G., Blendon, R. J., Benson, J. M., Sayde, J. M., & Miller, C. E. (2020). Views of rural US adults about health and economic concerns. *JAMA Network Open, 3*(1), e1918745. https://doi.org/10.1001/jamanetworkopen.2019.18745

Fitzpatrick, K. M., Wild, T. C., Pritchard, C., Azimi, T., McGee, T., Sperber, J., Albert, L., & Montesanti, S. (2021). Health systems responsiveness in addressing Indigenous residents' health and mental health needs following the 2016 Horse River wildfire in Northern Alberta, Canada: Perspectives from health service providers. *Frontiers in Public Health, 9,* Article 723613. https://doi.org/10.3389/fpubh.2021.723613

Flaherty, M. T., Stuby, P., & Kose, W. (2018). Addressing the opioid epidemic in rural America. *Psychiatric Services, 69*(10), 1114. https://doi.org/10.1176/appi.ps.691004

Franz, B., Dhanani, L. Y., & Miller, W. C. (2021). Rural-urban differences in physician bias toward patients with opioid use disorder. *Psychiatric Services, 72*(8), 874–879. https://doi.org/10.1176/appi.ps.202000529

Freeman, R. E., Boggs, K. M., Zachrison, K. S., Freid, R. D., Sullivan, A. F., Espinola, J. A., & Camargo, C. A., Jr (2020). National study of telepsychiatry use in U.S. emergency departments. *Psychiatric Services, 71*(6), 540–546. https://doi.org/10.1176/appi.ps.201900237

Gainey, C. E., Brown, H. A., & Gerard, W. C. (2018). Utilization of mobile integrated health providers during a flood disaster in South Carolina (USA). *Prehospital and Disaster Medicine, 33*(4), 432–435. https://doi.org/10.1017/S1049023X18000572

Hargrove, A. J., Rafie, C., Zimmerman, E., & Moser, D. E. (2022). A rural community's perspective on the causes of and solutions to the opioid crisis in Southern Virginia: *A qualitative study. Rural and Remote Health, 22*(2), 7152. https://doi.org/10.22605/RRH7152

Haynes, T.; Cheney, A.; Sullivan, J.; Bryant, K.; Curran, G.; Olson, M., Cottoms, M., & Reaves, C. (2017). Addressing mental health needs: Perspectives of African Americans living in the rural South. *Psychiatric Services, 68*(6), 573–578. http://doi.org/10.1176/appi.ps.201600208

Heppner, S., Mohr, N. M., Carter, K. D., Ullrich, F., Merchant, K., & Ward, M. M. (2021). HRSA's evidence-based tele-emergency network grant program: Multi-site prospective cohort analysis across six rural emergency department telemedicine networks. *PloS One, 16*(1), e0243211. https://doi.org/10.1371/journal.pone.0243211

Hoeft, T. J., Fortney, J. C., Patel, V., & Unützer, J. (2017). Task-sharing approaches to improve mental health care in rural and other low-resource settings: A systematic review. *The Journal of Rural Health: Official Journal of the American Rural Health Association and the National Rural Health Care Association, 34*(1), 48–62. https://doi.org/10.1111/jrh.12229

Ibragimov, U., Young, A. M., & Cooper, H. (2020). Understanding rural risk environments for drug-related harms: Progress, challenges, and steps forward. *The International Journal on Drug Policy, 85*, Article 102926. https://doi.org/10.1016/j.drugpo.2020.102926

Jenkins, R. A., & Hagan, H. (2020). What is a rural opioid risk and policy environment? *International Journal of Drug Policy, 85*, 102606. https://doi.org/10.1016/j.drugpo.2019.11.014

Lalani, N., Drolet, J. L., McDonald-Harker, C., Brown, M., Brett-MacLean, P., Agyapong, V., Greenshaw, A. J., & Silverstone, P. H. (2021). Nurturing spiritual resilience to promote post-disaster community recovery: The 2016 Alberta wildfire in Canada. *Frontiers in Public Health, 9,* Article 682558. https://doi.org/10.3389/fpubh.2021.682558

Lister, J. J., Weaver, A., Ellis, J. D., Himle, J. A., & Ledgerwood, D. M. (2020). A systematic review of rural-specific barriers to medication treatment for opioid use disorder in the United States. *The American Journal of Drug and Alcohol Abuse, 46*(3), 273–288. https://doi.org/10.1080/00952990.2019.1694536

McBain, R. K., Cantor, J. H., Kofner, A., Stein, B. D., & Yu, H. (2021). Ongoing disparities in digital and in-person access to child psychiatric services in the United States. *Journal of the American Academy of Child and Adolescent Psychiatry, 61*(7), 926–933. https://doi.org/10.1016/j.jaac.2021.11.028

Natafgi, N., Childers, C., Pollak, A., Blackwell, S., Hardeman, S., Cooner, S., Bank, R., Ratliff, B., Gooch, V., Rogers, K., & Narasimhan, M. (2021). Beam me out: Review of emergency department telepsychiatry and lessons learned during COVID-19. *Current Psychiatry Reports, 23*(11), 72. https://doi.org/10.1007/s11920-021-01282-4

National Center for Biotechnology Information. (2023, January 3). *PubMed user guide.* https://pubmed.ncbi.nlm.nih.gov/help

Newman, M. W., Hawrilenko, M., Jakupcak, M., Chen, S., & Fortney, J. C. (2021). Access and attitudinal barriers to engagement in integrated primary care mental health treatment for rural populations. *The Journal of Rural Health: Official Journal of the American Rural Health Association and the National Rural Health Care Association,* Advance online publication. https://doi.org/10.1111/jrh.12616

Pasman, E., Kollin, R., Broman, M., Lee, G., Agius, E., Lister, J. J., Brown, S., & Resko, S. M. (2022). Cumulative barriers to retention in methadone treatment among adults from rural and small urban communities. *Addiction Science & Clinical Practice, 17*(1), 35. https://doi.org/10.1186/s13722-022-00316-3

Raviola, G., Rose, A., Fils-Aimé, J. R., Thérosmé, T., Affricot, E., Valentin, C., Daimyo, S., Coleman, S., Dubuisson, W., Wilson, J., Verdeli, H., Belkin, G., Jerome, G., & Eustache, E. (2020). Development of a comprehensive, sustained community mental health system in post-earthquake Haiti, 2010–2019. *Global Mental Health, 7,* e6. https://doi.org/10.1017/gmh.2019.33

Richard, E. L., Schalkoff, C. A., Piscalko, H. M., Brook, D. L., Sibley, A. L., Lancaster, K. E., Miller, W. C., & Go, V. F. (2020). "You are not clean until you're not on anything": Perceptions of medication-assisted treatment in rural Appalachia. *The International Journal on Drug Policy, 85,* Article 102704. https://doi.org/10.1016/j.drugpo.2020.102704

Rigg, K. K., & Nicholson, H. L. (2019). Prescription opioid misuse among African-American adults: A rural-urban comparison of prevalence and risk. *Drug and Alcohol Dependence, 197,* 191–196. https://doi.org/10.1016/j.drugalcdep.2019.01.023

Runkle, J. R., Harden, S., Hart, L., Moreno, C., Michael, K., & Sugg, M. M. (2022). Socioenvironmental drivers of adolescent suicide in the United States: A scoping review. *Journal of Rural Mental Health,* online publication ahead of print. https://doi.org/10.1037/rmh0000208

Salamanca-Buentello, F., Cheng, D. K., Sabioni, P., Majid, U., Upshur, R., & Sud, A. (2022). Mal/adaptations: A qualitative evidence synthesis of opioid agonist therapy during major disruptions. *The International Journal on Drug Policy, 101,* 103556. https://doi.org/10.1016/j.drugpo.2021.103556

Saloner, B., Landis, R. K., Jayakrishnan, R., Stein, B. D., & Barry, C. L. (2022). A bridge too far? Distance to waivered physicians and utilization of buprenorphine treatment for opioid use disorder in West Virginia Medicaid. *Substance Abuse, 43*(1), 682–690. https://doi.org/10.1080/08897077.2021.1986882

Salvador, J., Bhatt, S., Fowler, R., Ritz, J., James, R., Jacobsohn, V., Brakey, H. R., & Sussman, A. L. (2019). Engagement with Project ECHO to increase medication-assisted treatment in rural primary care. *Psychiatric Services, 70*(12), 1157–1160. https://doi.org/10.1176/appi.ps.201900142

Schultz, K., Farmer, S., Harrell, S., & Hostetter, C. (2021). Closing the gap: Increasing community mental health services in rural Indiana. *Community Mental Health Journal, 57*(4), 684–700. https://doi.org/10.1007/s10597-020-00737-x

Sizer, M. A., Bhatta, D., Acharya, B., & Paudel, K. P. (2022). Determinants of telehealth service use among mental health patients: A case of rural Louisiana. *International Journal of Environmental Research and Public Health, 19*(11), 6930. https://doi.org/10.3390/ijerph19116930

Snell-Rood, C., & Carpenter-Song, E. (2018). Depression in a depressed area: Deservingness, mental illness, and treatment in the contemporary rural U.S. *Social Science & Medicine, 219,* 78–86. https://doi.org/10.1016/j.socscimed.2018.10.012

Snell-Rood, C., Hauenstein, E., Leukefeld, C., Feltner, F., Marcum, A., & Schoenberg, N. (2017). Mental health treatment seeking patterns and preferences of Appalachian women with depression. *The American Journal of Orthopsychiatry, 87*(3), 233–241. https://doi.org/10.1037/ort0000193

Snell-Rood, C., Jenkins, R., Hudson, K., Frazier, C., Noble, W., & Feltner, F. (2019). Building interventions when distress is under debate: A case study from Appalachia. *Transcultural Psychiatry, 56*(5), 918–946. https://doi.org/10.1177/1363461519833580

Snell-Rood, C., Staton, M., & Kheibari, A. (2019). Rural women's first-person perspectives on the role of mental health in substance use. *Rural and Remote Health, 19*(4), 5279. https://doi.org/10.22605/RRH5279

Summers-Gabr, N. M. (2020). Rural-urban mental health disparities in the United States during COVID-19. *Psychological Trauma: Theory, Research, Practice and Policy, 12*(S1), S222–S224. https://doi.org/10.1037/tra0000871

Thompson, J. R., Creasy, S. L., Mair, C. F., & Burke, J. G. (2020). Drivers of opioid use in Appalachian Pennsylvania: Cross-cutting social and community-level factors. *The International Journal on Drug Policy, 78,* 102706. https://doi.org/10.1016/j.drugpo.2020.102706

Venugopal, J., Morton Ninomiya, M. E., Green, N. T., Peach, L., Linklater, R., George, P. N., & Wells, S. (2021). A scoping review of evaluated Indigenous community-based mental wellness initiatives. *Rural and Remote Health, 21*(1), 6203. https://doi.org/10.22605/RRH6203

Weaver, A., Himle, J., Elliott, M., Hahn, J., & Bybee, D. (2019). Rural residents' depressive symptoms and help-seeking preferences: Opportunities for church-based intervention development. *Journal of Religion and Health, 58*(5), 1661–1671. https://doi.org/10.1007/s10943-019-00807-9

Weaver, A., Taylor, R. J., Chatters, L. M., & Himle, J. A. (2018). Depressive symptoms and psychological distress among rural African Americans: The role of material hardship and self-rated health. *Journal of Affective Disorders,* 236, 207–210. https://doi.org/10.1016/j.jad.2018.04.117

World Health Organization. (2008). *Task shifting: Global recommendations and guidelines.* https://apps.who.int/iris/bitstream/handle/10665/43821/9789?sequence=1

Wyte-Lake, T., Schmitz, S., Kornegay, R. J., Acevedo, F., & Dobalian, A. (2021). Three case studies of community behavioral health support from the US Department of Veterans Affairs after disasters. *BMC Public Health, 21*(1), 639. https://doi.org/10.1186/s12889-021-10650-x

Zeller, T. A., Beachler, T., Diaz, L., Thomas, R. P., Heo, M., Lanzillotta-Rangeley, J., & Litwin, A. H. (2021). Attitudes toward syringe exchange programs in a rural Appalachian community. *Journal of Addictive Diseases, 40*(2), 227–234. https://doi.org/10.1080/10550887.2021.1979837