HHS Public Access

Author manuscript

Subst Use Misuse. Author manuscript; available in PMC 2022 March 07.

Published in final edited form as:

Subst Use Misuse. 2021 ; 56(5): 650–659. doi:10.1080/10826084.2021.1887248.

"Now we are seeing the tides wash in": Trauma and the opioid epidemic in rural Appalachian Ohio

Christine A. Schalkoff, MSPH[a,*], **Emma L. Richard, MPH**[b], **Hannah M. Piscalko, BSPH**[b], **Adams L. Sibley, BA**[a], **Daniel L. Brook, BS**[b], **Kathryn E. Lancaster, PhD, MPH**[b], **William C. Miller, MD, PhD, MPH**[b], **Vivian F. Go, PhD, MPH**[a]

[a]Department of Health Behavior, Gillings School of Global Public Health, University of North Carolina at Chapel Hill, Chapel Hill, NC 27599, US

[b]The Ohio State University College of Public Health, Ohio State University, Columbus, OH 43210, USA

Abstract

Background: Ohio's opioid epidemic continues to progress, severely affecting its rural Appalachian counties—areas marked by high mortality rates, widespread economic challenges, and a history of extreme opioid overprescribing. Substance use may be particularly prevalent in the region due to interactions between community and interpersonal trauma.

Purpose/Objectives: We conducted qualitative interviews to explore the local context of the epidemic and the contributing role of trauma.

Methods: Two interviewers conducted in-depth interviews (n=34) with stakeholders in three rural Appalachian counties, including healthcare and substance use treatment professionals, law enforcement, and judicial officials. Semi-structured interview guides focused on the social, economic, and historical context of the opioid epidemic, perceived causes and effects of the epidemic, and ideas for addressing the challenge.

Results: Stakeholders revealed three pervasive forms of trauma related to the epidemic in their communities: environmental/community trauma (including economic and historical distress), physical/sexual trauma, and emotional trauma. Traumas interact with one another and with substance use in a self-perpetuating cycle. Although stakeholders in all groups discussed trauma from all three categories, their interpretation and proposed solutions differed, leading to a fragmented epidemic response. Participants also discussed the potential of finding hope and community through efforts to address trauma and substance use.

[*]Christine A. Schalkoff, Department of Health Behavior, University of North Carolina at Chapel Hill, 302 Rosenau Hall, CB7440, 135 Dauer Drive, Chapel Hill, NC 27599, USA, caschalk@live.unc.edu.

Author Statement

Christine Schalkoff: Conceptualization, Investigation, Formal Analysis, Writing – Original Draft, Writing – Review and Editing, Visualization, Project Administration, Supervision. **Emma Richard**: Conceptualization, Investigation, Formal Analysis, Writing – Review and Editing, Visualization, Project Administration. **Hannah Piscalko**: Investigation, Formal Analysis, Writing – Review and Editing, Project Administration. **Adams Sibley**: Project Administration, Visualization, Writing – Review and Editing. **Daniel Brook**: Project Administration, Investigation, Writing – Review and Editing. **Kathryn Lancaster**: Conceptualization, Project Administration, Supervision, Writing – Review and Editing. **William Miller**: Conceptualization, Supervision, Funding Acquisition, Project Administration, Writing – Review and Editing. **Vivian Go:** Conceptualization, Supervision, Funding Acquisition, Project Administration, Writing – Review and Editing.

Conclusions: Findings lend support to the cyclical relationship between trauma and substance use, as well as the importance of environmental and community trauma as drivers of the opioid epidemic. Community-level and trauma-informed interventions are needed to increase stakeholder consensus around treatment and prevention strategies, as well as to strengthen community organization networks and support community resilience.

Keywords

opioids; opioid epidemic; substance use; rural health; trauma; stigma; MOUD; evidence-based treatment; community health; Appalachia

Introduction

Despite efforts to limit opioid prescribing and the trafficking of illicit opioids, the opioid epidemic has progressed rapidly in the United States. Appalachia, in particular, has emerged as a hotspot for opioid use and related consequences (1–4). Compared to the non-Appalachian region of the country, the Appalachian region has experienced higher rates of opioid prescribing and opioid overdose deaths (5). Among Appalachian states, Ohio has been especially burdened by the opioid crisis; the state ranked second in the country in the rate of drug overdose deaths (46.3 per 100,000 persons) and opioid-related overdose deaths (39.2 per 100,000 persons) in 2017 (6,7). Appalachian Ohio is also well-known for its history of “pill mills,” physician-operated clinics that masqueraded as pain management centers and flooded the area with opioid painkillers (8). While opioid prescribing rates and prescription opioid deaths have since declined in Ohio, synthetic opioids such as fentanyl and carfentanil have entered the system from foreign markets and continue to drive increasing drug overdose death rates, particularly in Appalachia (9,10).

Furthermore, Appalachian Ohio—a region consisting of 32 counties extending along the eastern and southern region of the state (11)—has also experienced widespread economic downturn and poverty in the past four decades (4,12). About 18% of the population in Appalachian Ohio lives in poverty, and the area also has a lower-than-average percentage of the population in the labor force and above-average levels of disability in the population (4). These characteristics, which are related to unstable labor markets, socioeconomic disadvantage, and downward social mobility, have been linked to increased distress, hopelessness, child abuse and intimate partner violence, and substance use (12–14).

Prior research has elucidated the potential connections between individual trauma and subsequent substance use (13,15–18). Physical, sexual, and emotional violence or distress experienced by individuals have been shown to be associated with drug use; however, most research investigating connections between trauma and drug use has focused on clinical measures of PTSD (19,20). While the DSM-V criteria for PTSD were expanded to include several types of traumatic event that were previously excluded (such as sexual violence and vicarious trauma), calls have remained for a conceptualization of trauma that goes beyond a clinical, psychiatry-based model and includes community, historical, and transgenerational trauma (18–22). Similar calls have emerged specifically related to the ongoing opioid epidemic in rural areas. For example, Dasgupta et al. highlight structural factors in

Appalachia including economic shocks, poverty, social distress, and adverse childhood experiences, noting that substance use may be a response to the confluence of traumatic events (23). Several recent studies have also conceptualized community economic events or other collectively damaging events as mass trauma or community trauma (23,24), and have begun to suggest that these types of trauma could also be linked to substance use. Furthermore, community and regional characteristics may also play a role in the ability of individuals to respond to trauma, which can also be explored in the context of substance use (25).

As Burstow (2003) says, “Trauma occurs in layers, with each layer affecting every other layer” (20). It is critical to understand the landscape of trauma in rural areas affected by the opioid epidemic, in order to understand how institutions, policies, and interventions play a role in perpetuating or alleviating trauma (20). Therefore, given the socioeconomic, historical, and opioid-related challenges in rural Appalachian Ohio, the objectives of this paper are to: 1) explore the economic, social, and historical context of the opioid epidemic and related traumas in Appalachian Ohio; and 2) understand the potential role of different types of trauma in contributing to opioid use, opioid-related consequences, and substance use treatment locally through the perspectives of community stakeholders.

Methods

Study setting and recruitment

Qualitative interviews were part of the Ohio Opioid Project (OHOP), which aims to understand the context of opioid use and treatment services in a tri-county region of rural Ohio and to work with communities to develop tailored intervention delivery plans (*Implementing a Community-Based Response to the Opioid Epidemic in Rural Ohio,* UG3/UH3DA044822). This parent study is one of eight sites of the Rural Opioid Initiative (ROI), aimed at understanding the opioid crisis in rural areas across the United States. These in-depth interviews were conducted as part of the initial phase of the parent study, which consisted of exploratory quantitative and qualitative data collection; results were used to inform intervention planning and implementation during the second phase of the OHOP study. Three main groups of stakeholders were selected for interviews: 1) healthcare professionals (providers and public health professionals); 2) substance use treatment providers; and 3) law enforcement agents and judicial officials. Stakeholders were recruited using purposive sampling and snowball sampling techniques (which also resulted in the inclusion of several stakeholders who were part of organizations focused more generally on community development). Stakeholders were identified through initial study partnerships with local health departments and health coalitions, and referrals to other relevant stakeholders were made by interview participants. Participants agreed to participate by responding to an email or call invitation explaining the purpose of the study. Eligible stakeholders were at least 18 years old, worked in one of the three study counties in southern Ohio, worked in organizations that had involvement with the opioid epidemic, and had at least 2 years of experience in providing or supporting health- or drug-related PWID services. The inclusion criterion of organizational involvement with the opioid epidemic was characterized as a requirement that organizations have either a predominant focus on opioid/

substance use (e.g., a substance use treatment organization) or that organizations be substantively involved in addressing the opioid epidemic from their area of expertise, even if substance use was not the main organizational focus (e.g., a county court with judges who run drug court programs).

While interviews with PWID were also completed as part of the OHOP study and provide crucial perspectives, this paper focuses on stakeholder perceptions of the epidemic, as these groups of community stakeholders at the time were largely those attempting to organize and respond to opioid use in the region.

Participant demographics

The sample consisted of 34 stakeholders, including substance use treatment providers (n=12), healthcare providers/public health personnel (n=12), legal system officials (law enforcement/judiciary, n=7), and other community coalition members (n=3) (Table 1). The "community coalitions" category included community groups focused on substance use, mental health care, or economic development in the area. Participants ranged in age from 25 to 73 years. While we aimed to recruit stakeholders equally across the tri-county area, 16 of the 34 stakeholders worked in the most populous of the three counties.

Data collection

Two trained qualitative interviewers conducted all stakeholder interviews between February and July, 2018. Prior to data collection, interviewers (CS & ER) completed intensive coursework in qualitative data analysis, and worked closely under the guidance of a study PI with more than 15 years of qualitative research expertise (VG). Interviewers also participated in interview guide development from the start, and were therefore deeply familiar with all questions, probes, and a priori themes of interest.

All interviews took place in quiet, private locations (most often stakeholder offices), followed semi-structured interview guides, and lasted around 1–1.5 hours each. In the case of some interviews, in addition to the stakeholder and interviewer, an additional research team member was also present (with permission from the stakeholder) and took brief notes during the interview. Consent forms were administered and signed before the start of each interview, and stakeholders also completed demographic forms during the interview process. Demographic forms collected information including age, gender, organization and current position, years involved in drug use-related work, county of work, and years lived in the general study region. Interview guides probed topics of the social, economic, and historical context of the opioid epidemic, perceived root causes and effects of the epidemic, effect of the epidemic on organizations, perceptions of people who use drugs, opinions toward treatment options, and ideas for addressing the epidemic. While the parent study (OHOP) and interview guides initially focused on opioid use in the region, it became clear that other substances were also posing substantial challenges in the region; therefore, stakeholders also discussed other substances and interviewers modified some questions to expand to general substance use. Interviewers also took notes during interviews, in order to record any important pieces of information about participant mood, nonverbal communication, and relevant interview context.

Data analysis

Interviews were audio-recorded and transcribed verbatim. Researchers used a grounded theory approach to analysis. After transcribing and reading the transcribed interviews, three study members noted key themes and developed a preliminary codebook from initial interview guides and emergent themes (see Table 2 for examples of interview questions and codes used; a full interview guide and codebook are included in supplemental materials). Codebook development and coding followed an iterative process, with codes discussed among the research team and added or adjusted during the coding process. Three researchers coded the transcribed interviews, and coders established inter-coder reliability through an iterative process of independent coding of several interviews and discussion to resolve differences. All transcripts were code-checked by a second coder after initial memoing and coding, and team members had regular calls among coding members and with the study PI to discuss coding progress, resolve any coding discrepancies, adjust or add codes, and discuss interesting patterns and quotes. Transcripts were coded using Dedoose software. After memoing and coding, researchers examined patterns and themes in the data, and identified the emergent theme of trauma connected to substance use. The Ohio State University Institutional Review Board (IRB) approved all research activities, and the University of North Carolina-Chapel Hill IRB ceded authority to the OSU IRB.

Below, we report the results of stakeholder discussions of environmental, physical, and emotional trauma, including relevant regional context and connections of trauma to substance use.

Results

Participants revealed three main types of trauma related to substance use in the study area: environmental/community trauma, physical/sexual trauma, and internalized emotional trauma. Stakeholders perceived trauma as both leading to and resulting from substance use. Although stakeholders in all groups mentioned types of trauma from all three categories, their interpretations of the effect of trauma on the epidemic, as well as proposed solutions, differed by stakeholder type. Below, the relevant context and types of trauma are discussed individually.

Environmental/community trauma

All groups of stakeholders consistently discussed a combination of economic challenges, local history of pill mills, and increased crime in the region that they thought resulted in “brokenness” and a lack of hope and trust in their communities.

Economic challenges: Loss of industry and unemployment—Participants described the region as “an economically depressed area that has been economically depressed for years,” detailing a loss of industry which led to job loss, a lack of economic opportunities, and generational poverty in Appalachian Ohio. Most stakeholders indicated that while southeastern Ohio used to support a thriving industrial economy, the area experienced a severe economic downturn in the latter part of the twentieth century, leading to a “huge vacuum” and “no industry.” Additionally, some healthcare providers mentioned

that work still often involves hard manual labor and that chronic pain from these physically demanding jobs contributed to a proliferation of opioid prescriptions in the region.

Stakeholders from all groups emphasized that the economic downturn resulted in a demoralized and bored community. They felt that economic conditions were driving the drug epidemic by causing people to use drugs to escape from the harsh economic realities of their lives; younger people in particular were susceptible to trying drugs out of boredom. They also described the economic struggle as cyclic: a lack of opportunity can lead highly educated people to leave in search of further education or jobs, leading to further economic depression and a shortage of skilled workers—including the highly trained healthcare providers needed to combat the opioid epidemic. As one stakeholder expressed:

> "…you know just it's a cycle. It's a generational you know, generational poverty. [Kids] don't, a lot of them don't see a way out, and they turn to drugs."
>
> (public health official)

Several participants echoed one community organization official who said that "the only part of the economy that is growing [in the region] is opioid management." Indeed, some public health participants observed that many substance use treatment organizations in the area are for-profit businesses, leading to competition with one another, rather than collaboration to combat the epidemic.

Historical trauma: Effect of pill mills on perceptions of the medical community

—Besides the history of economic challenges, stakeholders also consistently discussed the rise of "pill mills" in the region and described how the area was at the heart of the prescription opioid pill mill industry. Many thought that pill mills were the main driver of drug use in the area and saw them as an attack on their communities, leading to deep mistrust of outside entities—including the pharmaceutical industry—that they blamed for the rise of prescription opioid abuse. As one emergency response provider summarized:

> "The 30-year-old who has gotten hooked on it, it is because it was available to them…and it's just like kind of rolled down hill, and now we are seeing the tides wash in and rolling back out and leaving all the bodies, and they [pharmaceutical companies] are trying to sneak away with the ocean."
>
> (first responder)

Many participants explained that the community's experience with pill mills made them skeptical of medication for opioid use disorder (MOUD) clinics. Specifically, reports of intentional overprescribing of MOUD and widespread MOUD diversion in the area have fueled community fears that "it's just like the pill mills were."

The continuing historical trauma from the exploitation of local communities by the pharmaceutical industry was evident in the way that some stakeholders expressed a type of "us versus them" mentality and feelings of having been ignored or abandoned by the outside world:

> "The pharmaceutical industry basically just, just drowned America in prescription opioids based on lies, lies about their addictiveness, lies and, and it always irritated

> me…that being a minority here in Appalachia, nobody cares about Appalachia. We are just viewed as disposable people…there was bona fide, deliberate corporate poisoning going on."
>
> (public health official)

Interestingly, because of the area's history as an epicenter of the prescription opioid epidemic, the region has now been thrust into the government and media spotlight. Multiple stakeholders referenced a popular book that was written about the epidemic in the area, as well as increased opioid-related funding that has been allocated to the region. However, at least one participant emphasized that community members are tired of the spotlight solely on drug use in their communities, as they find it demoralizing and frustrating.

Compounding community issues: Lack of hope, concerns about crime, and "a real mix between self-sufficiency and extreme reliance"—Stakeholders across groups described a general lack of hope and trust in their communities, perceptions of increased crime as a result of increased drug use, and concern about corruption in local government that compound drug-related issues. Some stakeholders suggested that a lack of hope and trust could both be a result and a cause of drug use in the area, and also could result in a lack of community cohesion and pride. One substance use treatment provider explained how a lack of hope hampers recovery:

> "As a community, that community has lost hope. So, I think that it even hurts with our ability to work with someone to get them clean. Because, yay I'm clean! But, now I have a record. What do I get to go back to? A broken home, no real chance for a job…so, we've taken away that pride and sense of community for individuals."
>
> (substance use treatment provider)

Additionally, some stakeholders discussed crime in their communities. Several stakeholders —law enforcement and judicial officials, and a few in public health—said that crime rates in the area have been increasing in conjunction with drug use; others reported that violent crime rates have been decreasing, but that people who struggle with substance use are being jailed more often. Stakeholders' mismatched perceptions of community crime contributed to a picture of an area struggling with feelings of community breakdown related to the opioid crisis.

Furthermore, stakeholders described how the social environment and regional identity in these Ohio communities has shaped perceptions of and responses to the epidemic. They described how the community's sustained struggle was shaped by historically "conservative" and "fatalistic" views and tension between individualism and dependence on assistance. When listing factors contributing to the drug epidemic in the area, one judicial official mentioned community attitudes, remarking that "we're kind of predisposed for some of this…we're an interesting folk that live here and I think, very fatalistic, very woe is me, very 'down' by nature"; another stakeholder remarked that "there is just not a good outlook on life around here." Several stakeholders also described a dynamic of a "real mix between self-sufficiency and extreme reliance" among both drug-using and non-drug-using community

members, in which people rely heavily on federal government assistance to survive, yet are sometimes mistrustful of "outsiders coming in and telling them what to do," and can often have a "culture of…stay out our business." Some stakeholders indicated that they thought this mix of regional factors and attitudes resulted in an environment that was particularly susceptible to substance use with limited ability to cope with a widespread drug epidemic.

Individual physical/sexual trauma

The second type of trauma to emerge was widespread physical or sexual abuse. Stakeholders from all fields repeatedly described sexual assault, domestic violence, and other physical and sexual trauma throughout the community, particularly against women and children. Participants thought that physical and sexual abuse could lead victims to turn to drugs as a way to escape the pain and memories of the incident(s). One judicial official estimated this type of abuse was very common among those presenting in a drug court program:

> "I probably have done in the last two and a half years, well over a hundred and something assessments on people, and 85 percent—that's just coming, first number that pops in my head—85 percent of them come from some form of sexual abuse, physical abuse, verbal abuse, domestic violence, just terrible, terrible living environments…"
>
> (judicial personnel)

A few stakeholders also discussed forced sex work and sex trafficking in the region. While not every stakeholder that mentioned trafficking connected it with the drug epidemic, several noted that sex trafficking seemed to be occurring more frequently, particularly in counties well-connected to major cities by large highway systems – the same highways that are used as a "pipeline" for drug trafficking into the region.

Emotional trauma/development concerns

The third key trauma that emerged from interviews was emotional trauma stemming from the opioid epidemic, which affected both people who use drugs and their families, as well as law enforcement and other first responders.

Emotional trauma among people who use drugs or family members—Many stakeholders asserted that the drug epidemic has taken a particular toll on children and adolescents, as children of individuals using drugs are often exposed to traumatic drug-related events during sensitive developmental periods, and typically lack adequate mental health support. Stakeholders felt that as a result, many young people turn to drugs, which some participants indicated could stunt their neurological and emotional development and lead to a cycle of substance use and emotional difficulties. As one law enforcement official described:

> "Now I'm seeing things through the eyes of you know a six-year-old, seven-year-old, eight-year-old, all the way up to teenagers telling me these horrible, just horrific stories…When certain parts of the brain don't develop because you're repeatedly exposed to trauma…parts of their brain didn't develop."
>
> (law enforcement official)

Emotional trauma among first responders—Several stakeholders mentioned emotional burnout among law enforcement officers and other first responders, due to repeated work-related exposure to distressing drug-related events and the lack of adequate mental health support available to them. As one law enforcement official explained, "You're a cop. You have feelings just like everybody else. When I went and dealt with [a recent suicide] I didn't sleep for two days. I was up for two straight days. I could not close my eyes without seeing that girl laying on the floor…What we see is not normal stuff that people see."

While law enforcement often described burnout among their colleagues, stakeholders outside of law enforcement also noted the consequences of burnout and compassion fatigue, including negative attitudes towards people who use drugs, particularly toward those who overdosed. As a result, many law enforcement agents expressed reluctance to use harm reduction measures, including naloxone for overdose.

Responses to trauma – differences between stakeholders

All groups of stakeholders described economic, historical, physical, and emotional trauma in the community, but their responses and interpretations varied. Generally, those in health-related fields, including public health, healthcare, and substance use treatment, viewed people who use drugs as victims of circumstance who did not choose to initiate substance use solely of their own volition. Instead, they tended to ascribe addiction to contextual or environmental factors and focused on the effects that trauma had on mental and physical health in a way that was outside of the control of the individual using drugs. This view was expressed explicitly by some stakeholders, and was often implicit in others' language. For example, one substance use treatment provider described the idea of drug use being shaped by environment, saying:

> "So, they had a trauma and they [were] trying to go through that and it led them down this path, so there is a lot of mental and physical kind of health that has come along with that, so the trauma and the family environment and not having a lot of you know, structure. You know, addiction being a part of their upbringing in some capacity…"
>
> (substance use treatment provider)

In contrast, other stakeholders discussed the same types of trauma but focused on somewhat different external forces—those resulting from what they saw as the "moral degradation" of society—and more on personal responsibility for handling the trauma. These stakeholders tended to be members of law enforcement and the judiciary, though not all participants in these fields reflected this view. They spoke more often about cultural issues with society that they saw as linked to the epidemic, including what they perceived as a shift toward a culture of instant gratification, and a lack of ability in younger generations to "deal with adversity":

> "Look at what they are putting on TV, look what they are putting here from drug users to sexual violence…I understand that we wanted to make a better life for our kids…to the point now to where they are drug users and we are enabling them. You know, everybody thinks there is a pill that fixes everything. I mean there is even a

> pill if you cry too much, you can take it if you laugh too much…you know, instant gratification society."
>
> (law enforcement official)

These stakeholders tended to express more stigma toward those using drugs, emphasized personal responsibility for drug use, and were less prone to empathize with individuals using drugs. Many felt that they had also struggled with trauma and adversity in their lives, but had not fallen into substance use – as in the case of one first responder who said, "I have no empathy for users. I do not. I have a rough childhood. I survived it…I hate when someone says, 'oh I had surgery and they gave me all these pills.' No, you had surgery and you took those pills."

Perceptions of people who use drugs as either victims of trauma or as people responsible for their substance use led stakeholders to propose different solutions. Those who blamed trauma and environmental contextual factors tended to view addiction as a disease and advocate for the increased availability of substance use treatment and harm reduction. Conversely, those who placed more responsibility on individuals for their inability to handle trauma blamed a moral breakdown of society, expressed views more consistent with a "choice" model of addiction, and often advocated for a return to traditional norms and an increased focus on children (a group they viewed as blameless), including substance abuse education and other prevention efforts. They also sometimes took the view that people who use drugs needed to be "held accountable," and that legal measures were needed for this:

> "I see jail more and more as that mercy aspect rather than a punitive aspect… there is an accountability factor that comes there, when you know the family is unable to hold that individual accountable, and the person is not used to living in a community and being held accountable, so then they come to court, and we have to hold them accountable."
>
> (judicial official)

Those who shared these views were typically less supportive of harm reduction measures, such as needle exchanges and naloxone distribution, in part because they felt these activities enabled drug use. They instead were more supportive of punitive measures of addressing substance use (such as drug court programs and court-mandated treatment), as they thought that these measures allowed for accountability and incorporated the idea of personal responsibility into treatment.

Addressing trauma through hope

Several stakeholders discussed how the efforts of local organizations and individuals to address the epidemic in their region instilled a sense of community and inspired hope. One healthcare provider, who had discussed the blight of vacant and abandoned homes in the community, described the impact of an ongoing property revitalization project: "There is a lot of hopelessness at times, you know, [but] I think it is changing and I think that the voice is like 'hey look only we can change things'…so I don't want to say that it is all dark and doom." In another instance, a judicial official described rebuilding community through a drug court program:

> "It has been an incredible experience. I think, you know there is a lot of restoration that happens with people's relationships in the community is the way I would describe it. Because, they become part of this little drug court community in the courts, and we get to know them and they get to know us…people bring their families in here to talk to me when they come and see me, which is really great."
>
> (judicial official)

When describing these community efforts and programs, participants explained that "part of being in Appalachia" is that "there is not a whole lot, there isn't resources," but that nevertheless, "a lot of that is changing" as businesses and community efforts are slowly built back up. In their discussion of local programs, they demonstrated a sense of hope, community, and purpose that emerged from community efforts to address the opioid epidemic.

Discussion

Findings from stakeholder interviews conducted in the first phase of the OHOP study revealed that despite differences in profession, county of work, and approach to the crisis, stakeholders consistently discussed environmental, physical, and emotional trauma in the context of the opioid epidemic in their communities. Participants described the intersection and perceived cyclic nature of these types of trauma, increasing the population's vulnerability to drug use and addiction.

The potentially cyclic nature of economic distress and substance use has been documented at both the individual and community levels (26–28). Opioid use in rural areas has been linked to economic challenges, including job loss, wage polarization, and outmigration of workers (12). Economic conditions are hypothesized to affect drug use on both the demand and supply sides of drug markets. Unfavorable economic conditions could make drug cultivation and dealing attractive financial options, and demand for drugs could also increase as people seek to cope with poor economic situations (28). In turn, substance use and subsequent addiction may preclude people from obtaining employment, continuing the individual-level cycle of economic distress and substance use (26). Stakeholders in our study echoed many of these drivers of substance use in the area, indicating that not only were individuals turning to drugs to cope with poverty and a lack of opportunity, but also that at the macro level, there were insufficient resources in the community to meet a rising demand for treatment.

The potentially cyclic relationship between other forms of trauma, mental health, and substance use has also been well-documented (13,15,16,29), and was also a recurring theme in our interviews. Particularly in the case of intimate partner violence (IPV) and childhood trauma, substance use may result from an inability to cope with and a desire to escape traumatic experiences; such substance use can then further increase vulnerability to trauma (15,16). Completing the cycle, parental substance use disorder is known to be a risk factor for child maltreatment and a negative childhood environment (13); this association was also suggested by stakeholders. Furthermore, there is some evidence that trauma, particularly IPV and child maltreatment, is more prevalent in rural populations (especially in impoverished environments) than non-rural populations (13,15,30–32). These forms of

physical and emotional trauma are theorized to be related to regional economic status—an association that is also supported by our findings (13,32). The stakeholder focus on interpersonal trauma and mental health, particularly among children and adolescents, suggests an unmet need for appropriate services, as well as a belief that until these underlying susceptibilities and challenges are addressed, substance use will continue to persist in the region. Moreover, substance use and its concomitant traumas remain heavily stigmatized in rural areas, such that people may be less likely to seek help for these issues (33). These barriers to treatment were all noted by stakeholders in our interviews. Given the depths to which these issues are stigmatized and moralized in the region, they are particularly concerning and salient.

Our findings have several key implications for efforts to address the ongoing opioid epidemic—as well as subsequent substance use epidemics—in rural areas. First, our findings support the recent focus on individual-level trauma-informed care for substance use—particularly given the overlap between substance use disorders and PTSD, and evidence that those with these co-occurring diagnoses experience increased risk of relapse, lower retention in substance use treatment care, and worse clinical outcomes than those without PTSD (34). Morgen et al. (2020) specifically name a trauma-informed approach as a necessary way to address the opioid epidemic in Appalachian areas, and describe the ways in which this approach can be empowering and healing for PWUD at the individual level (17). This approach could be incorporated into other provider trainings; for example, efforts to expand the number and capacity of healthcare providers to treat opioid use disorder in rural areas, such as through the DATA 2000 waiver program, should also incorporate training for providers in a trauma-informed approach to OUD care (35).

Furthermore, recent studies have begun to conceptualize mass economic and historical events in communities as forms of community trauma, with lasting psychological effects similar to other forms of trauma. Our work contributes to the field by further supporting and exploring that view of mass community economic and historical events in the context of the opioid epidemic; results suggest that interventions that involve community building are especially critical for mitigating these psychological effects and rebuilding communities. Additionally, experiences of trauma and individual or community resilience and response to trauma may be influenced by a particular community or region's cultural characteristics (25). Yet despite the fact that the Appalachian region is often condensed and culturally stereotyped into a rigid set of characteristics such as familism and fatalism, scholars of Appalachia have consistently pushed back against this practice—explaining that Appalachian cultural descriptions are often too homogenous to accurately capture the diversity and richness of the region and may contribute to negative external and internalized stereotypes of the population (36–39). However, given that some respondents did name "Appalachian" (in their words) traits, such as "fatalism," conservatism, and skepticism towards outside organizations, in their descriptions of substance use in the community, we still believe these are worth reporting. Following Obermiller & Maloney's recommendation, rather than fixed Appalachian "cultural" traits, these characteristics could be considered to reflect a perceived social identity reported by participants that may still play a role in community response to trauma (39).

Our findings also suggest the need for broader trauma-informed community programs that can help to enhance community resilience (40). As Iacoviello (2014) and Norris et al. (2008) discuss, interventions to increase community resilience should include a focus on engaging the whole community meaningfully, enhancing community social support structures, and building effective communication networks (40,41). In the context of substance use, this could include building capacity for trained peer recovery supporters for PWUD and recovery group models that are inclusive of evidence-based treatments such as MOUD, strengthening or forming community coalitions for stakeholders working in the substance use realm, or creating clearinghouses to streamline access to local resources for PWUD.

Overall, our findings are in line with Dasgupta et al.'s suggestion that structural/environmental characteristics and community trauma are key factors in the opioid epidemic, and Morgen et al.'s call for a trauma-informed care approach to addressing the opioid epidemic in rural Appalachia (17,23). However, while stakeholders unanimously discussed connections between trauma and substance use, they offered radically disparate approaches to the current epidemic, depending on their personal beliefs about people who use drugs, treatment services, and harm reduction. It is critical to address the reluctance to support evidence-based treatment for substance use in rural areas in a variety of ways, including through community education efforts and the use of conflict resolution tactics and programming to engage with stakeholders and organizations with opposing approaches to the epidemic. Furthermore, as some of the pushback to treatment/harm reduction was linked to burnout among providers and first responders, support groups for these stakeholders could help to bolster the network of professionals needed to address the crisis. Further efforts to promote a more cohesive response among stakeholders and increase community capacity to respond include interventions to increase collaboration and awareness of resources between substance use treatment organizations, judicial programs (such as drug courts), and first responders (5). These could include local opioid task forces or other committees/boards to bring different stakeholders and community members together (5).

Our study does have several limitations. As is the case in most qualitative research, we recruited a non-random sample of stakeholders to participate in interviews; therefore, our sample may not be fully representative of the views of all stakeholders in the region. Stakeholders who agreed to participate were also probably different than those who declined to meet with us, so we may have missed some perspectives. Additionally, we did not include perspectives of people who use drugs (PWUD) in this analysis, though we plan to incorporate PWUD discussion of trauma in subsequent work and recognize the importance of highlighting PWUD voices in work related to trauma and substance use.

In addition to helping to address stigma and promote collaborative responses, interventions providing support for organizations and stakeholders could contribute to the feelings of hope and community that some stakeholders referenced. Despite the various manifestations of trauma in their communities, stakeholders revealed the importance of local, community-driven efforts to address substance use in helping to rebuild personal relationships. While rural Appalachian areas may have been driven apart by the opioid epidemic, stakeholders provided clues that a new form of community building is possible, through cooperative efforts to promote healthy communities.

Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

Acknowledgments

Funding/Conflicts of Interest:

The authors have no conflicts of interest to disclose. This work was supported by National Institutes of Health/National Institute on Drug Abuse Grant number UG3DA044822 (PIs, Miller, WC; Go, VF). The funding organization had no role in the design and conduct of the study; collection, management, analysis, and interpretation of the data; preparation, review, or approval of the manuscript; and decision to submit the manuscript for publication.

Declaration of Interest

This work was supported by National Institutes of Health/National Institute on Drug Abuse Grant number UG3DA044822 (PIs, Miller, WC; Go, VF), co-funded by the CDC, SAMHSA, and the Appalachian Regional Commission. The study sponsor had no role in the study design, collection, analysis, interpretation of data, writing the report or decision to submit the report for publication. The authors have no conflicts of interest to report.

References

1. Buchanich JM, Balmert LC, Pringle JL, Williams KE, Burke DS, Marsh GM. Patterns and trends in accidental poisoning death rates in the US, 1979–2014. Prev Med (Baltim). 2016 8 1;89:317–23.
2. Rossen LM, Khan D, Warner M. Hot spots in mortality from drug poisoning in the United States, 2007–2009. Heal Place. 2014;26:14–20.
3. Rudd Rose A; Aleshire Noah; Zibbell Jon E; Gladden RM. Increases in Drug and Opioid Overdose Deaths - United States, 2000–2014. CDC Morb Mortal Wkly Rep 2016;64(50):1378–82.
4. Meit M, Heffernan M, Tanenbaum E, Hoffmann T, The Walsh Center for Rural Health Analysis. Final Report: Appalachian Diseases of Despair. 2017;(8). Available from: https://www.arc.gov/assets/research_reports/AppalachianDiseasesofDespairAugust2017.pdf
5. Commission NA of CAR. Opioids in Appalachia. 2019;(5). Available from: https://www.naco.org/sites/default/files/documents/Opioids-Full.pdf
6. Centers for Disease Control and Prevention (CDC). Drug Overdose Deaths | Drug Overdose | CDC Injury Center [Internet]. 2018. Available from: https://www.cdc.gov/drugoverdose/data/statedeaths.html
7. National Institute on Drug Abuse (NIDA). Ohio Opioid Summary | National Institute on Drug Abuse (NIDA) [Internet]. [cited 2020 Apr 14]. Available from: https://www.drugabuse.gov/opioid-summaries-by-state/ohio-opioid-summary
8. Maier GT. Ohio Prescription Drug Abuse Task Force & The Ohio General Assembly Ohio Prescription Drug Abuse Task Force. 10. 2010;
9. Ohio Department of Health. 2017 Ohio Drug Overdose Data: General Findings. 2018;2011(Figure 1):1–13. Available from: https://www.odh.ohio.gov/-/media/ODH/ASSETS/Files/health/injury-prevention/doverdose18/ODH-2017-Ohio-Drug-Overdose-Report.pdf?la=en
10. U.S. Department of Justice Drug Enforcement Administration. 2018 National Drug Threat Assessment. 2018;152. Available from: https://www.dea.gov/sites/default/files/2018-11/DIR-032-18 2018 NDTA final low resolution.pdf
11. Ohio - Appalachian Regional Commission [Internet]. [cited 2019 Aug 25]. Available from: https://www.arc.gov/appalachian_region/ohio.asp
12. Rigg KK, Monnat SM, Chavez MN. Opioid-related mortality in rural America: Geographic heterogeneity and intervention strategies. Int J Drug Policy [Internet]. 2018 7 1 [cited 2019 Jun 3];57:119–29. Available from: https://www.sciencedirect.com/science/article/abs/pii/S0955395918301130
13. Orsi R, Yuma-Guerrero P, Sergi K, Pena AA, Shillington AM. Drug overdose and child maltreatment across the United States' rural-urban continuum. Child Abuse Negl [Internet]. 2018

12 1 [cited 2019 Jun 3];86:358–67. Available from: https://www.sciencedirect.com/science/article/abs/pii/S0145213418303296

14. Lanier C, Maume MO. Intimate Partner Violence and Social Isolation Across the Rural/Urban Divide. Violence Against Women [Internet]. 2009 11 15 [cited 2019 Jun 3];15(11):1311–30. Available from: http://journals.sagepub.com/doi/10.1177/1077801209346711
15. Hink AB, Toschlog E, Waibel B, Bard M. Risks go beyond the violence: Association between intimate partner violence, mental illness, and substance abuse among females admitted to a rural Level I trauma center. J Trauma Acute Care Surg [Internet]. 2015;79(5):709–16. Available from: https://auth.lib.unc.edu/ezproxy_auth.php?url=http://search.ebscohost.com/login.aspx?direct=true&db=rzh&AN=110738911&site=ehost-live&scope=site
16. Love HA, Torgerson CN. Traumatic Experiences in Childhood and Adult Substance Use in a Nonclinical Sample: The Mediating Role of Arousal/Reactivity. J Marital Fam Ther [Internet]. 2018 7 15 [cited 2019 Jun 3]; Available from: http://doi.wiley.com/10.1111/jmft.12348
17. Morgan AA, Thomas ME, Brossoie N. Trauma-informed care (TIC) as a framework for addressing the opioid epidemic in Appalachia: An exploratory interpretative phenomenological analysis. J Rural Ment Heal. 2020;44(3):156–69.
18. Ullman SE, Relyea M, Peter-Hagene L, Vasquez AL. Trauma histories, substance use coping, PTSD, and problem substance use among sexual assault victims. Addict Behav [Internet]. 2013 6 [cited 2019 Aug 22];38(6):2219–23. Available from: http://www.ncbi.nlm.nih.gov/pubmed/23501138
19. Jones LK, Cureton JL. Trauma Redefined in the DSM-5: Rationale and Implications for Counseling Practice. Prof Couns 2014;4(3):257–71.
20. Burstow B. Toward a Radical Understanding of Trauma and Trauma Work. Violence Against Women. 2003;9(11):1293–317.
21. Pokhrel P, Herzog TA. Historical trauma and substance use among native hawaiian college students. Am J Health Behav [Internet]. 2014 5 [cited 2020 Oct 27];38(3):420–9. Available from: /pmc/articles/PMC4877175/?report=abstract
22. Nutton J, Fast E. Historical trauma, substance use, and indigenous peoples: Seven generations of harm from a “big event.” Subst Use Misuse. 2015;50(7):839–47. [PubMed: 26158749]
23. Dasgupta N, Beletsky L, Ciccarone D. Opioid Crisis: No Easy Fix to Its Social and Economic Determinants. Am J Public Health. 2018;108(2):182–6. [PubMed: 29267060]
24. Sochos A, Afbpss C. Post-traumatic stress during the Greek economic crisis : Is there evidence for mass traumatisation ? Anal Soc Issues Public Policy. 2018;1–16.
25. Ungar M. Resilience, Trauma, Context, and Culture [Internet]. Vol. 14, Trauma, Violence, and Abuse. SAGE PublicationsSage CA: Los Angeles, CA; 2013 [cited 2021 Jan 25]. p. 255–66. Available from: http://journals.sagepub.com/doi/10.1177/1524838013487805
26. Dávalos ME, Fang H, French MT. EASING THE PAIN OF AN ECONOMIC DOWNTURN: MACROECONOMIC CONDITIONS AND EXCESSIVE ALCOHOL CONSUMPTION. Health Econ [Internet]. 2012 11 1 [cited 2019 Jun 3];21(11):1318–35. Available from: http://doi.wiley.com/10.1002/hec.1788
27. Compton WM, Gfroerer J, Conway KP, Finger MS. Unemployment and substance outcomes in the United States 2002–2010. Drug Alcohol Depend 2014 9 1;142:350–3. [PubMed: 25042761]
28. Carpenter CS, McClellan CB, Rees DI. Economic conditions, illicit drug use, and substance use disorders in the United States. J Health Econ 2017 3 1;52:63–73. [PubMed: 28235697]
29. Moran PB, Vuchinich S, Hall NK. Associations between types of maltreatment and substance use during adolescence. Child Abuse Negl [Internet]. 2004 5 1 [cited 2019 Jun 4];28(5):565–74. Available from: https://www.sciencedirect.com/science/article/pii/S0145213404000833
30. Breiding MJ, Ziembroski JS, Black MC. Prevalence of Rural Intimate Partner Violence in 16 US States, 2005. J Rural Heal [Internet]. 2009 6 1 [cited 2019 Jun 3];25(3):240–6. Available from: http://doi.wiley.com/10.1111/j.1748-0361.2009.00225.x
31. Peek-Asa C, Wallis A, Harland K, Beyer K, Dickey P, Saftlas A. Rural Disparity in Domestic Violence Prevalence and Access to Resources. https://home.liebertpub.com/jwh [Internet]. 2011 11 11

32. Martz DM, Jameson JP, Page AD. Psychological health and academic success in rural Appalachian adolescents exposed to physical and sexual interpersonal violence. Am J Orthopsychiatry [Internet]. 2016;86(5):594–601. Available from: martzdm@appstate.edu,
33. Kramer TL, Borders TF, Tripathi S, Lynch C, Leukefeld C, Falck RS, et al. Physical victimization of rural methamphetamine and cocaine users. Violence Vict 2012;27(1):109–24. [PubMed: 22455188]
34. Killeen TK, Back SE, Brady KT. Implementation of integrated therapies for comorbid post-traumatic stress disorder and substance use disorders in community substance abuse treatment programs. Drug Alcohol Rev 2015;34(3):234–41. [PubMed: 25737377]
35. Levin FR, Bisaga A, Sullivan MA, Williams AR, Cates-Wessel K. A review of a national training initiative to increase provider use of MAT to address the opioid epidemic. Am J Addict [Internet]. 2016 12 1 [cited 2020 Oct 29];25(8):603–9. Available from: http://doi.wiley.com/10.1111/ajad.12454
36. COOPER C. Appalachian Identity and Policy Opinions. J Appalach Stud 2010;16(1/2):26–41.
37. Lewis R, Billings D. Appalachian culture and economic development: A retrospective view on the theory and literature. J Appalach Stud [Internet]. 1997; Available from: http://www.jstor.org/stable/43664361
38. Cooke-Jackson A, Hansen EK. Appalachian Culture and Reality TV: The Ethical Dilemma of Stereotyping Others. J Mass Media Ethics [Internet]. 2008 8 15 [cited 2020 Jul 8];23(3):183–200. Available from: https://www.tandfonline.com/doi/abs/10.1080/08900520802221946
39. Obermiller Phillip J., Maloney Michael E.. The Uses and Misuses of Appalachian Culture. J Appalach Stud 2016;22(1):103.
40. Iacoviello BM, Charney DS. Psychosocial facets of resilience: implications for preventing posttrauma psychopathology, treating trauma survivors, and enhancing community resilience. Eur J Psychotraumatol 2014;5.
41. Norris FH, Stevens SP, Pfefferbaum B, Wyche KF, Pfefferbaum RL. Community resilience as a metaphor, theory, set of capacities, and strategy for disaster readiness. Am J Community Psychol 2008;41(1–2):127–50. [PubMed: 18157631]

Table 1.

Sociodemographic characteristics of study participants.

Characteristic	All participants (n = 34)
Mean age	48 years (range 25–73)
Male (%)	19 (56%)
Female (%)	15 (44%)
County of work *	
Scioto	16
Pike	9
Jackson	11
Mean years working with PWID	14 years
Mean years living in southern Ohio	35 years

* Note: may sum to more than 34, as some organizations/individuals served multiple counties.

Table 2.

Sample interview guide questions, probes, and codes.

Theme	Interview Questions	Probes	Codes
Drivers of opioid use: Individual level	From your experience interacting with people who inject drugs, what do you think are some of the reasons people might start using and injecting drugs?	How would you describe the typical person who injects drugs? What do you think drives people to start misusing drugs? Where do you think they're getting their drugs from?	Driving epidemic force: individual, community, policy, economic
			Mental health
			Pain management
			Appalachian culture
			Stigma/attitudes
			Drug user descriptions: positive, negative, neutral
Drivers of opioid use: Community level	What kinds of things in your community do you think have caused the increase in drug/opioid use?	Are there any other things that you think might be contributing? What do people in your community think about the issue?	Driving epidemic force: individual, community, policy, economic
			Mental health
			Pain management
			Appalachian culture
			Crime
			Stigma/attitudes
Impact on organization	How would you say your organization has been impacted by the opioid epidemic? How has your typical day changed?	Over what time period have you noticed any changes? What do you think the biggest impact on your work has been?	Epidemic impact: on organizations, on community
			Crime
			Overdose
			Shifts over time: opioid prescribing, disease, drug, population, MAT prescribing
Shifts in populations	Has the population of people that you see changed over the past 5 years? If so, how?	Are they getting older or younger? Are there more men, or women? Do they have health insurance?	Shifts over time: opioid prescribing, disease, drug, population,
			Stigma/attitudes

Theme	Interview Questions	Probes	Codes
			Drug user descriptions: positive, negative, neutral