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# Assessing working musicians' perspectives of need and barriers regarding lay harm reduction efforts for substance-related harm in South Carolina

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## Abstract

**Background** Harm Reduction (HR) approaches applied to substance use aim to decrease the toxic consequences of overdose. The addition of xylazine and benzodiazepines to fentanyl, the primary opioid in the US drug supply, increases the likelihood of overdose. Likewise, adding fentanyl to other popular substances, such as cocaine and methamphetamine, has further driven the exponential increase in opioid and stimulant overdoses. Engaging lay community members in HR efforts may help to combat the overdose crisis. Substance use is common in live music settings, and working musicians may be uniquely positioned within "the scene" – individuals who populate specific cultural niches within live entertainment – making them attractive candidates to assist with and/or lead lay HR promotion. Therefore, this study aimed to gather perspectives to inform a tailored needs assessment among working musicians in South Carolina using Community-Based Participatory Research (CBPR) methods to ascertain local patterns and impacts of substance use.

**Methods** Using a CBPR framework, a three-person community leadership team and the academic research team collaboratively developed a semi-structured interview to guide focus groups with working musicians. A total of 19 working musicians participated in focus groups, followed by HR and naloxone administration training. The focus groups were audio-recorded, transcribed, verified for accuracy, and coded by a team of researchers using rapid qualitative analysis to identify themes and exemplar quotes.

**Results** Participants reported observing a variety of legal and illegal substances used within the South Carolina music "scene" and broader community. Concerns reported by musicians included venue practices of over-selling to promote over-consumption of alcohol, using substances to "self-medicate", and recreational drug use misidentified as dependence. Although musicians suggested HR efforts are necessary, many lacked knowledge and awareness of HR

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tools and were unfamiliar with local HR initiatives. Barriers and facilitators include a lack of overdose knowledge and a close-knit community, respectively.

**Conclusions** Using CBPR methods, we found that HR efforts are necessary in "the scene" of central South Carolina to leverage strengths to combat the national opioid crisis at the community level.

**Keywords** Harm reduction, *Community-based participatory research*, *Opioid crisis*, *Musicians*, *Needs-assessment*

## Introduction

### Current opioid and polysubstance use crises

Opioid misuse, dependence, and opioid-related overdose deaths have contributed to public health crises in the United States (US) since the 1990s [26, 67] with the rise of the early opioid epidemic. Meteoric increases in the rates of overdose deaths have been observed since the beginning of the COVID-19 pandemic [1, 48]. Much of the recent crisis has been attributed to fentanyl and its analogues since their addition to the recreational drug supply in the "third wave" of the US opioid epidemic in the mid-2010s [33, 43]. In addition, the ingestion of unexpected drugs has occurred increasingly often since the late 2010s, with examples including fentanyl that includes the tranquilizer xylazine, benzodiazepines, and stimulants like cocaine and methamphetamine mixed with fentanyl [69].

The trend of laced supplies in a diversity of drug classes, especially stimulants like cocaine and methamphetamine, has led to the current phase of the U.S. opioid crisis being dubbed the crisis's "fourth wave" [17], or the "polysubstance use crisis". Combined with pandemic-related increases in use of legal (e.g., alcohol) or state-regulated (e.g., cannabis) substances [7, 38], recent and emerging patterns of substance use have created new challenges for engaging in overdose reversal, the promotion of safer use, and the prevention of overdose-related death. Additionally, population-level data reveal stark disparities across the Substance Use Disorder (SUD) prevention and care continuum, with rural areas (e.g., [63]), Black communities, and other Communities of Color [34] facing significant barriers at individual, neighborhood, and policy levels. Un-housed populations in the U.S. are also more likely to use fentanyl and experience overdose when compared to housed populations [20]. Harm reduction approaches for people who use drugs prioritize the life and immediate well-being of the individual and aim to decrease the harmful consequences of substance use rather than eliminate all drug use [41]. Harm reduction approaches emphasize respect for personal autonomy and decision-making of the person using substances [36], making it for some a more realistic path to recovery compared to abstinence-based approaches [5, 52]. Some scholars have hypothesized that decreases in overdose deaths observed from their peak in both South Carolina and nationally in 2023 to 2024 [1, 60] may be attributed in part to large-scale mitigation efforts [28], including harm reduction programming [19]. To respond to the current opioid crisis, many harm reduction leaders emphasize the need for *community saturation*, which refers to widely increasing awareness and access to harm reduction resources throughout a community [30]. Community saturation relies on expanding the use of harm reduction tools beyond health care professionals (e.g., emergency responders, nurses) to lay people in the community. Community saturation remains only aspirational for many regions of the US. For instance, despite increased focus on community saturation, South Carolina had not reached statewide goals related to community naloxone saturation as of 2022 [30, 59] despite successful tracking and outreach initiatives [50, 51], leaving gaps in a critical public health safety net. As described in South Carolina's core strategies outlined by the state's Department of Alcohol and Other Drug Abuse Services [58], training, educating, and increasing naloxone availability for community members, as well as research on the appropriate implementation of such strategies based on community contexts [22], are critical to advancing efforts to ending the opioid and polysubstance use crises in the state.

### Engaging lay people in harm reduction

Identifying lay people in South Carolina who work in high-risk substance-use employment contexts is an important step in addressing drug overdose. Equipping lay people with harm reduction tools and strategies may be an avenue to decrease morbidity and mortality associated with drug use and increase connections to much-needed resources for drug users. When selecting lay groups to engage in harm reduction education and resources, several factors may be important, including social proximity to individuals who are using and/or distributing drugs. In addition, lay health promoters who foster social cohesion, and a sense of community may be especially useful, given the positive associations between perceived sense of community and social connectedness within substance use recovery and prevention [6, 53].

One group of lay people who have a role supporting social connectedness and have frequent contact with people who engage in substance use are working musicians – musicians who are regularly employed to perform at local community venues. Indeed, research shows that

musicians often work in venues where substances are consumed (e.g., restaurants, bars, breweries, festivals; [23, 72]). Moreover, many music venues are located in urban centers which are among the most common sites of overdoses [29]. Urban centers are also often where many un-housed people—who are more likely to engage in high-risk use than housed individuals—reside and/or access services [20]. Thus, musicians may be uniquely situated to aid in community saturation of harm reduction resources. Musicians' relationships to their communities may position them to act as lay harm reduction promoters. Musicians are also often connected to settings that are seen as "hubs" for community connectedness [49], and prior studies have shown that musicians have a strong sense of collective action urgency during crises [18]. Local musicians are invested in their communities in part because of financial and artistic reliance of the local "scene": the collective of musicians, creatives, and frequent listeners that populate a specific local or subcultural niche [54].

Further, musicians' proximity and community ties to substance use [12, 16], as well as other cultural and epidemiological factors (e.g., prevalence of suicidality, physical and mental health concerns, risky behaviors) may increase likelihood of substance use within musicians' own peer groups [12, 24, 47, 62]. For example, a [44] study of musicians in New York identified that musicians often engage in recreational substance use, and that the drug of choice varied at times as a function of the scene. Musicians may be at higher risk for using both legal and illegal substances due to the expectations and demands of their work or norms of their community, and thus lay harm reduction efforts may also serve the function of reducing harm among musicians themselves.

The unique community role occupied by working musicians makes them promising candidates for lay harm reduction community saturation efforts. Specific coalitions of musicians focused on harm reduction in their local communities have been described in musicians' community efforts locally [4], [35]); however, to the authors' knowledge, no known efforts targeting or assessing working musicians' knowledge or attitudes of harm reduction exist in academic literature. Investigating musicians' perspectives of harm reduction, as well as their willingness to engage in lay person harm reduction dissemination, is necessary to understand how local initiatives for community saturation might effectively tap the knowledge and skills of working musicians [45].

### Community based participatory research (CBPR) and ecological needs assessment

The drivers of the current opioid crisis are multifaceted and vary between communities, suggesting a need for community-based and tailored approaches [45]. Community-Based Participatory Research (CBPR) is an approach that aims to reconcile historical methods with the knowledge and skills extant in communities themselves [15, 31, 68]. CBPR has been used to ensure that community knowledge is treated as valuable and foundational to health promotion efforts through community involvement in all aspects of the research process [31, 46, 68]. Evaluating the gaps between current concerns and desired outcomes is best accomplished by leveraging community knowledge and assets (e.g., through CBPR) to address present needs [2]. Given its collaborative approach, CBPR tends to generate products, such as needs assessments, that are more flexible and adaptable to change. Working musicians, given their positionality within communities [12, 16, 37, 66], are not only likely candidates to provide helpful lay harm reduction themselves, but also are poised to be effective partners for conducting community-based needs assessments [71].

Needs assessments also benefit from using an ecological lens [13] to identify community strengths and concerns [15]. This allows for a more holistic understanding of what sustains concerns, and it broadens understandings of the strengths of a community that may be leveraged to address them. Building partnerships with local musicians through CBPR may be an effective strategy to develop and support sustainable community-based harm reduction interventions.

### Aims

The goal of this study was to develop an initial ecologically informed needs assessment regarding substance use health promotion and lay harm reduction efforts among musicians, and the communities with which they interface, by gathering their perspectives of community-identified harm reduction needs, barriers, and supportive factors. Specifically, this qualitative study operated from a CBPR philosophy to gather musicians' (a) perceived sense-of-community, within and beyond musician-specific communities; (b) appraisals of the local patterns of substance use and perception of need for HR; and (c) assessments of barriers and facilitators to achieving HR community saturation and engaging lay musicians in HR promotion in South Carolina.

## Methods

This study was initiated first through an inquiry made by a working musician to an academically- based researcher (first author and primary investigator), who is involved in South Carolina-based action-research and has connections in the Columbia jazz, rock, musical theatre, and blues scenes. The musician described an experience witnessing a potential overdose outside of a music venue and expressed a potential need for greater overdose prevention knowledge among the scene. The musician

and researcher approached other musicians to informally gather initial interest in a harm reduction education and research collaboration, and nearly all musicians affirmed this idea as likely beneficial for both musicians' well-being and the well-being of the community. The primary investigator submitted grant applications with consultation from the academic-community partnership to support a qualitative initial investigation. The study described in this paper received funding support from the Society for Community Research and Action (division 27 of the American Psychological Association) student research grant in 2023. An academic-scene partnership was formed, in which this musician and two others served as a Community Leadership Team (authors 10, 11, and 12). The musicians comprising the Community Leadership Team (a keys player, a trumpeter, and a saxophonist) are active in the jazz, blues, and Americana scenes in South Carolina and in neighboring states, as well as playing theatre, faith-based, and corporate gigs. The Leadership Team advised courses of action including recruitment, methodology and structure of data collection, and data analysis throughout the research process.

### Participants

To be eligible for the study, participants were required to be at least 18 years old, have been a working musician in South Carolina for at least 3 months, and able to read/speak fluently in English. Participants were recruited through purposeful sampling and snowball sampling. Community Leadership Team members acted as recruiters by leveraging their community connections with local working musicians. Participants recruited were musicians working in central South Carolina, typically performing at local bars, venues, and events. The total number of participants ($n = 19$) in this study included 16 self-identified men and 3 self-identified women. The ages of participants range from 18 to 32 years of age, with a mean age of 23.5 years. The majority of participants self-identified as White ($n = 12$) followed by Black ($n = 5$), and Asian ($n = 2$). Three participants self-identified ethnically as Hispanic. The mean time participants had spent working overall as a musician was 6.2 years, and the years spent performing ("gigging") in specifically South Carolina was 5.0 years. Most participants identified as part of local jazz, R&B, and/or funk scenes.

### Measures

The community leadership and research teams co-developed a semi-structured interview guide for musician focus group discussions. Items were piloted by the Community Leadership Team with other local musicians and refined as needed (see Fig. 1). Items on the interview guide were designed to elicit participants' perspectives on (a) substance use issues that they have witnessed or are aware of; (b) knowledge of interventions for overdoses or of harm reduction; (c) areas of high observed need in the city and surrounding areas; (d) feasibility and acceptability of implementing specific harm reduction approaches; and (e) resources necessary to implement these measures. A brief sociodemographic survey was also developed to assess participant characteristics.

### Procedures

All portions of this study were approved by the Institutional Review Board at [REMOVED FOR BLINDED REVIEW]. Participants provided informed consent after their eligibility was confirmed and completed the sociodemographic survey via a secure HIPAA-compliant online survey platform. Participants next took part in ~ 75-min focus group discussions, followed by a 20-min harm reduction and naloxone administration training. Five focus groups were completed, with three taking place at the local public library and two taking place virtually via a HIPAA-compliant video conferencing service. At the start of the focus groups, participants agreed to a confidentiality statement and a second informed consent statement regarding focus group participation. Focus groups were recorded with a HIPAA-compliant video conferencing software. Resources (e.g., two-dose boxes of Narcan® nasal spray naloxone, contact information for local recovery organizations, naloxone-related information) were distributed at the end of each group, and a designated time and place was agreed upon for naloxone delivery to participants who participated virtually. Participants received $50 in appreciation of their time and effort upon completion of the survey and focus group.

### Data analysis

The focus groups were transcribed using secure, HIPAA-compliant transcription software, with all transcripts checked for accuracy. Qualitative data analysis was guided by rapid qualitative analysis [25] given its relevance for implementation research and for addressing emergent and pressing public health concerns [9], including the ongoing opioid and polysubstance use crisis. Rapid qualitative analysis has been demonstrated to be a highly rigorous and reproducible methodology and has yielded similar analysis quality to thematic analysis [64]. Given that rapid qualitative analysis reduces time spent across several steps of the coding process [25], the findings can be generated quickly to expedite consolidation of knowledge. Rapid qualitative analysis differs from traditional qualitative methods by capturing valid themes and subthemes in a timeframe of several weeks (compared to the many months taken by traditional qualitative methods) in order to bridge the gap between findings and implementation supporting evidence-based

A. How does your work impact how you see your connection with the community?

B. Have you seen impacts of the opioid crisis in your community?
    a. Probe: have you seen impacts of substance use broadly on your community?

C. What do you see as the biggest concerns related to substance use that you see as you do your work?
    a. Probe: "… at or outside a venue"
    b. Probe: "… while performing"
    c. What efforts have been made to address these concerns? [pause] How have they worked?

[provide description of harm reduction idea, vaguely] Given working musicians' unique position within the community, your perspectives about substance use in and around your places of work are important and may help inform ways that harm reduction is done in Columbia, the Midlands of the state, or South Carolina. Harm reduction is a phrase I am using to describe things we can do to make using drugs less likely to harm or kill someone, which can make it easier for them to reach recovery from substance use.

D. What have you heard about harm reduction in your community [if at all]?
    a. What do you think about harm reduction?
    b. Do you think harm reduction is necessary in Columbia, the Midlands, or in South Carolina?
        i. Probe: what reasons for or against have you identified?

E. Do you think there is a role musicians can play in reducing harm in Columbia, the Midlands, or South Carolina? [pause] What do you think that role may be?

F. If musicians were to play a role in harm reduction in South Carolina, what do you think would be needed to support this effort?
    a. Probe: Training
    b. Probe: follow-up
    c. Probe: mental health support
    d. Probe: external resources (e.g. compensation, naloxone)

G. What would the barriers be to musicians playing a role in harm reduction efforts?
    a. Probe: How might those barriers be addressed?

**Fig. 1** *Semi-structured qualitative focus group items.* Focus group items were created to capture qualitative information pertaining to experiences, attitudes toward substance use in "the scene" and to assess knowledge of local harm reduction initiatives. Sub-questions within larger items are either anticipated "probes" to gather additional information about specific topics raised, or follow-ups about specific domains of perspectives of or relationships with the topic of an item; probing questions have been denoted as such. Topics introduced by musicians themselves were also discussed by the group, and thus the topics were not strictly constrained to the topics described in these items

action—particularly regarding urgent and rapidly changing public health concerns [64].

Researchers used Planning for and Assessing Rigor in Rapid Qualitative Analysis (PARRQA) guidelines for the development and analytical process [39]. All co-researchers participating in qualitative data coding received training in rapid qualitative analysis, and this team of co-researchers worked together to develop and refine a data entry form to capture themes that emerged from the qualitative data. The data entry form was piloted by all co-researchers with one transcript and recording and then was further refined. Upon final refinement of the form, transcripts and focus group recordings were analyzed by eight co-researchers. Each transcript was coded by one of three teams consisting of two to three co-researchers, and coded data were checked by all eight coders in round-table discussions. The initial data entry by each researcher was output into matrices, and co-researchers for each focus group transcript met frequently to discuss any areas of disagreement and arrive at consensus for a final matrix for each group. The data collected across the five focus groups were then consolidated into a matrix reflecting data of all groups, and all co-researchers met to identify recurrent themes across groups. Qualitative analysis of the five focus groups yielded several themes, some of which readily overlapped with questions posed during focus groups and some of which were fully emergent.

Themes were consolidated into summary documents in paragraph format with illustrative quotes selected for each theme, and a summary of findings was presented to the Community Leadership Team to elicit feedback and ensure accurate interpretation. Community Leadership Team members offered perspectives on language used to describe emergent themes in ways that prioritized community knowledge. Team members also provided nuanced perspectives about specific themes and offered additional ways to interpret themes while accounting for socioecological variables.

The Community Leadership Team and the PI then co-developed a socioecological analysis, grounded in Bronfenbrenner's socio-ecological model [13, 14] based on the clarified themes. Bronfenbrenner's ecological systems theory emphasizes the reciprocal influence between an individual and their environment for the purpose of conceptualizing behavior change. The socio-ecological analysis views the individual at the center of the model, interacting with levels of influence, such as interpersonal, organizational, and societal, which impact the person's perspectives on community resources, or the gaps in those resources (1979,1992). This is congruent with models of the U.S. opioid crisis that have pulled on Bronfenbrenner's socio-ecological framework for modeling the perpetuating factors and potential intervention points (e.g., [32]). Themes identified by musicians tended to span multiple levels of ecological analysis.

The Community Leadership Team expressed their satisfaction with the accuracy and acceptability of the themes upon completion of the consultation; thus, the themes presented in results are considered a valid depiction of musicians' perspectives as informed by community members.

## Results

Emergent themes and sub-themes are presented here, with descriptions of themes roughly presented in order of expanding socio-ecological lens, beginning with individual and then broadening to include interpersonal, organizational, community "scene", and societal level factors. With guidance from the Community Leadership Team, an ecologically-informed figure of themes and subthemes was also developed to reflect musicians' observations, concerns, and identified needs and barriers to lay harm reduction interventions (see Fig. 2).

Interestingly, themes related to both musicians' perceptions of intra-scene use and harm reduction needs, as well as needs and barriers facing the wider community. Given that this project reflects a CBPR approach and musicians collaborated in the design and the analyses of data, musicians opted to include both of these broad foci (musicians and communities) in the results. Musicians justified this dual focus through their perceived interdependent role with the communities in which they perform. The context of the presented assessments of need (e.g., within musicians' communities, within bars, within South Carolina communities) are made explicit in our presentation of themes and our socioecological model.

### Observations of substance use within the music scene and broader community

Musicians spoke about the topic of substance use with a matter-of-factness and nonjudgmental tone. They noted that although substances vary by scene and by establishment. Commonly used substances in venues include alcohol, cigarettes, cannabis, and cocaine, with cocaine use typically being pre-show and post-show. Musicians described psychedelics being used among musicians as well, but typically not during gigs. Cigarette smoking, smoking cannabis, and drinking alcohol during set breaks were cited as common among both musicians and patrons. Musicians reported that they only knew of some use because of discussions with others at the establishment (e.g., behind-the-bar use), and did not directly witness because of their physical locations within an establishment; they shared that this mas largely use among venue attendees or patrons.

Individually, some musicians noted that they themselves refrain from substances during gigs so as not to

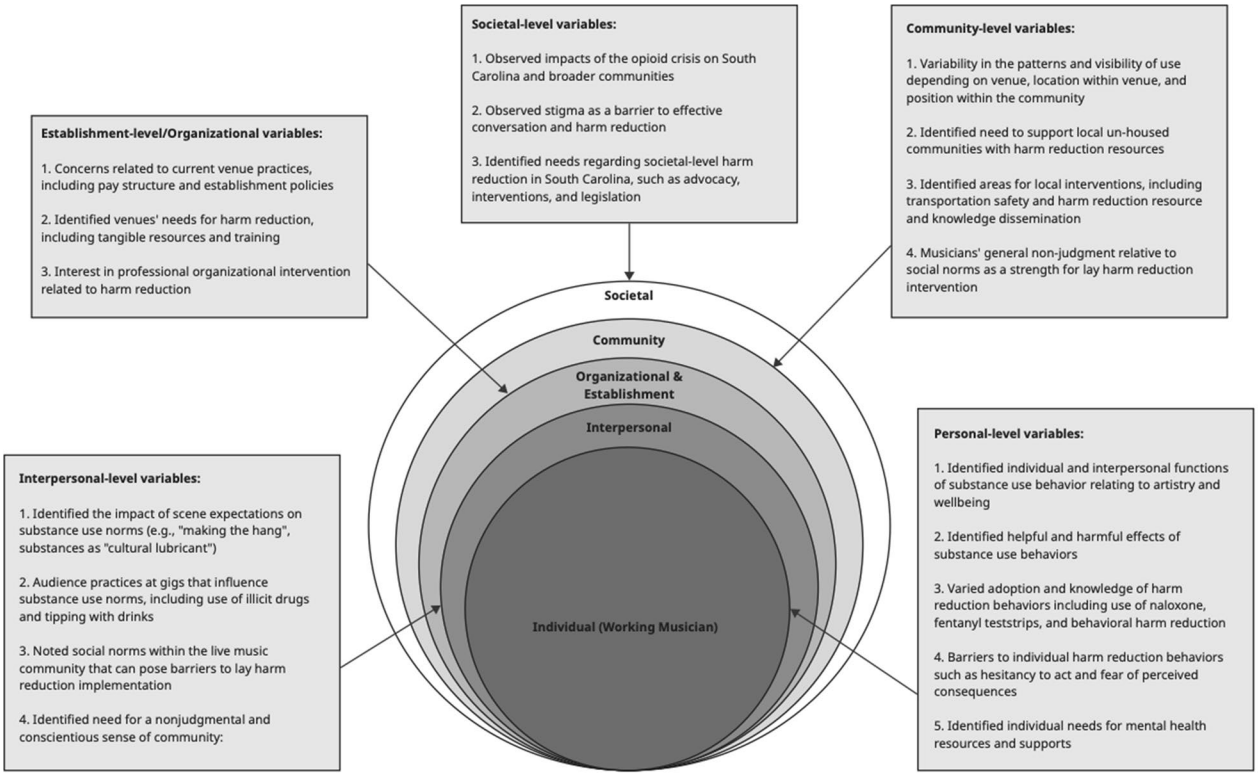


**Fig. 2** *Visualization of socioecological analysis.* This visualization was developed by the PI and the community leadership team based on the results of the rapid qualitative analysis conducted with focus group data. Each concentric circle represents a level of ecological analysis and the thematic categories that pertained to them as reported by participating musicians. These variables are features of the ecological assessment of perceived community need and barriers as they relate to substance use and lay harm reduction

affect their performances, while others expressed that use was necessary to complete gigs. Some noted that substances may induce the same "high" that musicians seek when performing, creating a link between substance use and affective aesthetic experience. Other musicians explained that music as a career or activity tends to attract people with heightened emotional sensitivity, with one participant likening substance use to "self-medication" among musicians who are coping with emotional hardship or stress. The disinhibiting effect of certain substances was described by some as a useful way to "loosen up" or enhance performance.

Musicians shared that there are a diversity of motivations to drink, with one saying that, "there's like, as a musician, it's like there's always a reason to drink." Socially, musicians expressed the idea that substance use is inextricably linked to the musical community, with substance use being taken for granted as a part of participation within specific music scenes. Some musicians attributed substance use to what was referred to by participants as a "coolness factor" or a perceived expectation of what is socially desirable within a scene. Several musicians cited the idea of "making the hang" – an approach to social connection to the scene associated with participation and looseness, and which not only has an impact on social standing but also, by extension, one's gig prospects. One musician shared that, "I've had plenty of gigs where I've decided to not drink on and people are just like, are you okay? Are you feeling all right? Is something wrong? Like, why don't you want to drink?", demonstrating the pressures within scenes to participate in substance use as a matter of "normal" social behavior. Musicians also brought [13], [14] chronosystem context to their perspectives, noting the histories of their specific musical traditions and the impacts of substance use on musicians throughout time (e.g., within the history of jazz or hip-hop) and shared a sense of connection with the developers of their medium.

### Musician-identified concerns related to substance use

Musicians identified patterns of use in the general community that impact what they described as concerning substance use behaviors. They noted examples of concern, such as patrons drinking and driving to and from shows, drugs like cocaine being laced with fentanyl, and high levels of problematic substance use among the unhoused population of downtown areas. Musicians noted that they perform at various locations and within several different subgroups, often without a predictable schedule. Musicians identified bars and breweries, jazz clubs,

ticketed and non-ticketed events, and small to medium capacity venues as places where their concerns of the communities' substance use are formed.

Nearly all musicians indicated that substance use is normalized in the music scene and is viewed as a mechanism to connect and create a sense of belonging, but is complicated by factors like peer pressure, neurodivergence, and introversion. One participant expressed when discussing recreational drug use that, "Oh well, that's just a part of being a musician. That's just a part, like, you're gonna do drugs". Some musicians become reliant on substances to perform, and musicians shared that recreational use can quickly lead to dependence. One musician stated, "At a certain point, a lot of people that are there are using for deeper reasons, or they have issues that they're not taken care of," referencing the perceived "self-medication" within the scene. The presence of neurodivergence or mental health concerns among musicians results in the interaction of many kinds of drugs (e.g. alcohol, antidepressants).

Musicians emphasized an important balance between expressing concerns for another person's substance use and safety, as well as supporting their autonomy. Specific effects of substances were mentioned, such as avoiding sloppy performance due to alcohol consumption. One musician offered an example of a conversation between himself and another musician, whom he told: "[…] you play better drunk than I will probably ever play sober. And he said as a joke, like, the trick is to practice drunk. Which, it's like a horrible thing to say, but that's, there's definitely some […] truth to […] it.". Musicians also observed increased aggression with particular use, with one musicians sharing that "[…] when it comes to like the coke stuff… I've seen a lot more like anger and like arguments, and […] it can sometimes lead to like violence." Musicians described having witnessed drunk driving, both by members of the music scene and general community members. Some shared strategies for how they approached conversations with bandmates about their increasing consumption of substances, while others discussed this as a matter of deciding when to remove oneself from a band or a venue where substance use is having a harmful effect on them or others. One musician noted that they had known of three musicians that had died in the last five years with deaths linked to substance use; another noted that they had known someone in a scene in college that had overdosed on a laced supply while at a music venue.

Despite speaking more frequently about observations of fellow musicians, participants expressed significant levels of concern about substance use in the larger community of central South Carolina. At an establishment level, over-selling and over-consumption of alcohol was reported to be common because of the incentivization caused by low pay or reliance on tips by bartenders and staff. One participant stated, "To be successful [as a musician] you have to promote the consumption of alcohol, which is like, ethically, an extremely gray area". In some cases, musicians explained that alcohol was used as a form of payment by a venue or as a tip by audience members. Some also noted a sense of professional obligation to purchase alcohol to support a venue where they or their friends play, given that connecting with peers and supporting venues can come with some expectation to drink, smoke, or otherwise use substances. They identified that specific venues, often non-ticketed venue bars, encourage this or even chastise musicians not partaking in alcohol consumption, given its impact on the bar or venue's profits; one participant went so far as to say, "Like you're not in the music business, you're in the alcohol business." Musicians across focus groups noted the lack of "cover charges" (i.e., charging audience members to enter the venue) in most South Carolina establishments as being a part of their and venues' considerations when making decisions about purchasing alcohol. Musicians noted that management by establishments are typically aware of use by people within or outside of the establishments. They observed that management frequently discourages or expels un-housed people (many of whom use substances) from sitting inside establishments, often creating circumstances for people using substances sitting just outside of venues. Across levels, musicians noted that stigma is a challenge to having discussions about substance use, but that musicians' general willingness to be reflective and nonjudgmental in their discussions about these topics is an asset they possess above the general population.

### Perceptions of harm reduction and other health promotion efforts

Some musicians expressed unfamiliarity with harm reduction as a concept, and most expressed unfamiliarity with harm reduction practices. Musicians could identify some general harm reduction practices (e.g., naloxone use, syringe service programs) but could not identify any local harm reduction efforts, particularly for drugs other than opioids. Musicians expressed that South Carolina laws and statewide policies tend to be punitive (e.g., arresting individuals using drugs, increasing the insurance burdens on venues serving alcohol), which some identified as incompatible with long-term harm reduction community saturation efforts. Musicians identified knowing of only minimal local programming to support individuals in recovery from substance use disorder.

Musicians suggested—many of them adamantly—that harm reduction efforts are necessary, especially to address potential overdose among un-housed individuals in their communities. Many said that increasing public

knowledge, along with reducing the stigma associated with substance use, may support achieving this goal. Musicians suggested that they may be uniquely situated to offer harm reduction because they can observe the audience during performances and notice when others need support and can do so non-judgmentally; one musician volunteered the perspective that "[p]eople for a million different reasons might use drugs, and just telling them no or punishing them is not going to work[…]", a perspective shared across each focus group. They described that their working hours correspond to the time and places where risky use may occur (e.g., late at night, in downtown areas, inside or outside of music venues), making them opportune harm reduction lay people.

### Facilitators and barriers to supporting potential harm reduction efforts

Musicians reported that the South Carolina music community fosters tight interdependent connections between musicians, in part because of its small size. These connections were explained to be important because peers within a scene connect others with gigs and because the sense of community built around art is motivating and sustaining. Musicians noted that there are connections between most musicians within a scene, frequently transcending genre. Due to this closeness, many musicians become acquainted with more people involved in the nightlife in the city which gives them a unique perspective on substance use in their locality. Playing gigs at venues exposed musicians to many different groups of people that they would otherwise encounter less frequently, such as bartenders, waitstaff, venue patrons across "walks of life", and un-housed community members. Many of these groups (e.g., youth, un-housed people) and environments (e.g., college bars, other music venues) were described as being high-risk for potentially harmful drug use behaviors.

Musicians want to be able to respond to overdoses, but many did not believe they possess the knowledge of how to identify overdoses or disseminate harm reduction knowledge and/or tools. "We can call an ambulance, but I, I do think that, I wish there was more education on like, what these medications are, what we can do in a situation like that. Because I know a lot of us, you know, we, we want to help, but we get cold feet in the moment because we don't want to make something worse or we don't know what to do." Musicians noted that some venues rely on alcohol sales to make money for live concerts, which can be directly tied to the amount of money musicians take home from a gig. Musicians reported that they were unsure if harm reduction efforts led by musicians would be supported by venues and the community at large or would end up being financially inviable. They noted the give-and-take of cover charges, with attendance likely decreasing following cover charge implementation that could be an outcome of a community harm reduction intervention. Musicians shared concerns that their gigs are replaceable, and that intervening mid-set may be impractical or optically challenging. They also shared that musician-led mid-gig intervention may be impossible, given the set-up of most venues, and that harm reduction resources should also be available through the venues themselves. The stigma around substance use is a barrier to starting conversations about harm reduction, including among scene members themselves, and musicians worry that they will end up shouldering a burden that venues, staff, and community-members should carry concurrently.

### Addressing barriers and identifying facilitators to harm reduction

Musicians shared that encouraging nonjudgmental, supportive dialogue about substance use can encourage other community members to do so as well, and this type of effort can be perceived as harm reduction in itself. One participant noted that, "Harm reduction is bringing people in from margins, so that you can actually be there to support rather than judging." Further, encouraging venue staff or management to non-judgmentally help or offer harm reduction informed intervention to audience members was identified as potentially supportive of this goal. Musicians stated that providing naloxone training and advocating for wages that are not tied to alcohol sales would be beneficial in addressing the barriers, as would increasing the awareness of existing local harm reduction organizations and/or resources. Musicians identified specific strengths that their skills and attitudes could lend to harm reduction community saturation efforts. Musicians voiced that they tend to be very nonjudgmental when compared to the general population's perspectives towards substance use. Participants also reported that musicians trained in overdose reversal would be especially helpful given their proximity to risky use, as would venues providing naloxone on-site.

Musicians brought up other harm reductions efforts unrelated to substance use, including prevention efforts related to hearing loss and tinnitus prevention, are already disseminated among musicians at national and international organizational levels (e.g., advertisement campaigns, conferences and festival pop-ups [40, 55, 65]). They suggested that efforts to reduce harms associated with substance use might be modeled on these efforts, and shared that top-down organizational leadership may be helpful for addressing lack of knowledge or self-efficacy for harm reduction, given that musicians in SC are not organized as a formal collective. They shared specific concerns regarding changes to local liquor license laws, which have threatened establishments' ability to maintain

operations, and that these decisions impact establishments' approaches to encouraging alcohol consumption. They mentioned that musicians may form a helpful advocacy coalition when discussing legislation's role in substance use behavior or the survival of local music scenes.

## Discussion

This study used ecologically-informed CBPR and qualitative methods to gather perspectives from working musicians in South Carolina on local substance use patterns, awareness and knowledge of harm reduction. This method also allowed the assessment of ways in which musicians may contribute to harm reduction community saturation efforts. The study, the first of its kind to the authors' knowledge, yielded novel findings that may inform future implementation of harm reduction programming in central South Carolina, as well as in other communities of working musicians. Analysis of focus group-derived data identified themes related to sense of community, how musicians understand different ecological levels of intervention, and preferences for involvement in harm reduction efforts.

Musicians shared a distinctive lens in viewing substance use that could be differentiated into three categorical appraisals: observations, impacts, and concerns. Musicians described themselves as situated uniquely within the community to observe and interact with individuals using substances across a variety of recreational spaces (e.g., bars, venues, restaurants). These findings are consistent with existing literature about musicians' roles within the community and specifically their perceived and actual proximity to risky substance use [16]. Importantly, musicians observed behaviors including alcohol consumption, cigarette smoking, cocaine use, and cannabis use by both musicians and audience members, but they did not describe any cases of observed *intentional* opioid use; rather, musicians largely spoke of unintentional opioid use due to laced supplies. Musicians voiced concerns about unintentional opioid use and overdose, and these concerns are consistent with the alarming rates of opioid overdose in South Carolina – with overdoses, mostly of which are unintentional, exceeding 2000 deaths per year [60]. Given that most musicians identified as being within the jazz, funk, R&B, and rock scenes, use patterns observed are likely not exhaustive or representative of all venues in the area or musicians broadly [44]. However, this information is helpful for tailoring messaging and harm reduction resources for specific establishments or scenes, as harm reduction differs based on the substance and potential harms, including harms from substances that one may not be aware they are using (e.g., counterfeit pills, cocaine, or methamphetamine containing fentanyl; [69]).

From an ecological systems standpoint, musicians identified factors affecting risky substance use at the intra-and interpersonal-levels (e.g., "self-medication" for coping with stress or mental health concerns, "making the hang"); establishment- and institutional-levels (e.g., encouragement of alcohol consumption by venues, payment and tips in drinks); and community- and societal-levels (e.g., financial challenges, lack of mental health or substance use recovery resources, existing stigma). The levels of analysis presented by musicians mirror that of previous conceptualization of perpetuating factors in the U.S. opioid and polysubstance use crises [32]. The theme of musicians using substances to "self-medicate" may be due to a multitude of factors, including financial challenges, lack of access to formal healthcare, high levels of stress, and mental health concerns. Musicians identified the general culture of using substances as a catalyst for connectedness and sense of belonging within their social networks, but this important aspect of scene culture is further complicated by peer pressure, neurodivergence, and additional socioecological factors.

Musicians highlighted potential harm reduction interventions that reach beyond individual levels of analysis and focused on systemic support for reducing concerning substance use behaviors. For example, musicians identified that consistent, livable standards for wages for musicians may alleviate the financial burdens that influence behaviors like "self-medication." Localities elsewhere in the US have addressed this concern through musicians' unions that set standards for pay, ratio of gig-time to breaks, cover charges, and other factors [3]. Other society-level interventions may include increased access to mental health resources. While some organizations exist to support professionals in the food and beverage industry [10], no organization to the authors' knowledge specifically focuses on musicians' mental health needs, which musicians identified as factors in misuse and potentially in harm reduction behaviors among musicians.

Although musicians did discuss the behaviors of audiences or the community, they spent little time doing so relative to discussions of intra-scene use and misuse discussions. One potential explanation for this focus would be proximity to and concern for the immediate artistic community. Musicians rely on artistic networks for livelihood and fulfillment [70], and threats to well-being within their scene may impact them more directly than substance use broadly. Another potential interpretation might be that musicians within this specific community witness only certain kinds of use because of their distinct positionality within recreational spaces. One musician explained that they see un-housed individuals or patrons who are under the effect of drugs or alcohol removed from the bar simply because the musicians perform by

the front door, and thus witness entrances and exits from the establishment more readily. Musicians may perform at locations where they are best suited to observe specific types of use behaviors (e.g., alcohol consumption or overconsumption) rather than others (e.g., illicit drug use occurring in private spaces, behind the bar). The above interpretations speak to CBPR methods yielding thematic categories pertaining to both musicians and to wider communities that researchers did not anticipate. Many participants discussed community-level harm reduction needs to address substance use behaviors of the audience and community members, while many others described intra-scene needs and barriers among musicians themselves. This points to musicians and the nightlife community (i.e. venue staff, audiences, un-housed population) as an intrinsically tied ecosystem and indicates another strength that a very integrated scene may have when acting within the role of lay harm reduction promoters.

Musicians strongly advocated for their potential role in harm reduction efforts, based on their general non-judgmental stance and their frequent prominent role in recreational spaces. They identified harm reduction-promotive behaviors within their scenes, including moderating their own use of substances to avoid sloppy performance. They identified a strong sense of community, community connectedness, and interdependence. A sense of community has been found in previous research to be supportive to lay health promotion efforts [61]. Musicians support for autonomy, allowing themselves to strike a balance between expressing concern of harmful substance behavior and supporting one's choice to use, is consistent with the philosophies of harm reduction [42]. Pre-existing assets of this community could act as a mechanism of harm reduction for keeping others in the scene safe while using substances.

Although musicians stated they could be effective harm reduction promoters, they shared likely barriers to enacting harm reduction. Most shared that they lack both knowledge of harm reduction and actual harm reduction tools. Musicians expressed strong receptivity to the harm reduction and naloxone facilitation training offered after the focus groups—all musicians chose to participate in the harm reduction and naloxone facilitation training, and several voiced their gratitude for the training, as they had wondered for several years how to find and use naloxone—but musicians noted that few opportunities like this exist. They highlighted that training specifically tailored to musicians' experiences, or the experiences of hospitality professionals generally would be helpful. While some harm reduction efforts tailored to or run by musicians exist (e.g., [4], [35]), there are currently limited examples of this in South Carolina—a largely rural southern state where cannabis remains criminalized and few harm reduction organizations are operating.

Musicians identified a diversity of substances used within scenes, with particular focus on alcohol. While many initiatives focused on harm reduction for opioid use have emerged nationwide and in South Carolina, comparatively little public focus on alcohol-related harm reduction matches these initiatives in their scope. While behavioral harm reduction education for alcohol and other non-opioid related substances was provided during the harm reduction workshop after focus groups, additional education may be helpful in musicians' efforts to support harm reduction for alcohol and other drugs. Potential alcohol and other drug harm reduction interventions may include: building networks of knowledge related to moderation and safe tapering of use; decreasing simultaneous use of drugs and alcohol; and identification of overconsumption, both among patrons and musicians, to prevent driving under the influence Partnerships with local alcohol and drug recovery and harm reduction organizations may aid in the development of these knowledge networks. Importantly, however, musicians' reliance on alcohol sales for their livelihood poses a barrier to alcohol-focused harm reduction, as venues or establishments may not be supportive. This dilemma is an area for further study; this challenge is likely to impact more than the South Carolina music scene. Substance use harm reduction literature related to community organizing or covert substance use harm reduction efforts is sparce.

Harm reduction training should be tailored to local scene culture or to working musicians' professions; however, musicians in these focus groups did not explicitly identify preferences for location, trainer, or format of training. Harm reduction community saturation efforts involve multiple stakeholders, and musicians felt that they could not carry the responsibility of harm reduction efforts alone. Coalitional harm reduction efforts that involve other hospitality professionals as well as musicians may be helpful for promoting harm reduction within venues, bars, and other establishments.

## Limitations

This study has a number of key limitations that impact interpretation of results. This study included musicians who self-selected to participate, and these participants were identified via snowball sampling. This likely yielded a population of working musicians who were both more likely to have an interest in the subject of harm reduction and who may be more integrated into specific social groups that are concerned about the harms of substance use and interested in community-based response. The participants were also on average young adults, with a mean age in their early-to-mid-twenties. The experiences of younger working musicians may differ from those who either have been gigging longer or started later in life. The

sampling methods and the characteristics of our sample may have yielded a sample with specific perspectives that, although important, may not represent all perspectives in the given geographic area. Future similar studies assessing the role that musicians can play in community saturation of harm reduction may wish to consider these factors and recruit a more diverse sample of musicians. Similarly, few participants endorsed problematic substance use behaviors themselves. Including musicians who engage in harmful substance use, have a history of substance use disorder, and/or are in recovery may be helpful for understanding the perspectives of individuals who are able to speak openly about their direct experiences with drug use.

One strength of this study is the applicability and adaptability of community-based methods to other locales, which are likely to have unique concerns related to harm reduction and substance misuse. Although an obvious limitation of this work is its geographic specificity, research on intervention development and intervention mapping [21, 71] suggests that tailoring interventions to a particular area and culture for which the intervention is intended is more likely to yield effective, sustainable results [45]. Thus, this study may provide preliminary results that can help to inform future assessments and intervention development to meet community needs. It is imperative that future community-based work prioritizes potential lay knowledge-holders and sub-communities within their locales, and these communities may not always include working musicians. Additionally, findings also suggest that the ecosystem of the hospitality community within a locale will have a broad diversity of perspectives informed by the positionality of all involved (e.g., bartenders, bouncers, waitstaff, or venue owners), and these perspectives may lend additional important information about harm reduction community saturation in future research.

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SG.F. wrote the main manuscript text with support from T.B., C.J., and J.P. C.J. prepared Figs. 1 and 2. H.B., C.H., M.L., M.F., and R.D. contributed to the creation of the study's procedure, transcribed focus group recordings, and consolidated themes found in methods and results, respectively. A.J., N.O., and B.E. advised project design and reviewed resulting themes from the community perspective. SB.H. and S.H. supervised the manuscript project. All authors reviewed the manuscript.

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**Data availability**
Not applicable.

## Declarations

**Ethics approval and consent to participate.**
The following study was approved by an institutional review board at the University of South Carolina (No. Pro00130341).

**Consent for publication**
By submitting my article I agree to pay the APC in full if my article is accepted for publication (unless it is covered by an institutional agreement or journal partner, or a full waiver has been granted).

**Competing interests**
No, I declare that the authors have no competing interests as defined by BMC, or other interests that might be perceived to influence the results and/or discussion reported in this paper.

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## Publisher's Note