10-26-2025

Exploring Public Health Nurses' Perceptions of Syringe Services Programs in Southern Rural Areas

Joel Lowery
Walden University

Walden University

College of Health Sciences and Public Policy

This is to certify that the doctoral study by

Joel Lowery

has been found to be complete and satisfactory in all respects,
and that any and all revisions required by
the review committee have been made.

Review Committee
Dr. Jeanne Connors, Committee Chairperson, Public Health Faculty
Dr. Heba Athar, Committee Member, Public Health Faculty

Chief Academic Officer and Provost
Sue Subocz, Ph.D.

Walden University
2025

Abstract

Exploring Public Health Nurses' Perceptions of Syringe Services Programs in Southern Rural Areas

by

Joel Lowery

MPH, University of Pittsburgh, 2017

BS, Western Carolina University, 2015

Doctoral Study Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Public Health

Walden University

November 2025

Abstract

Public health nurses are potentially key stakeholders in syringe services program (SSP) implementation in rural areas, where they can act as liaisons between public health, private healthcare, and the community. However, little research reflects an in-depth understanding of how public health nurses perceive SSPs in rural areas. The purpose of this qualitative study was to explore the perceptions of syringe services programs held by public health nurses practicing in rural areas with no existing SSPs in southern states and ascertain their potential roles in facilitating harm reduction for people who inject drugs. This study was guided by a conceptual framework derived from the socioecological model and focused on individual, interpersonal, and community-level factors and their relationships. Semistructured, in-depth interviews were conducted with six public health nurses practicing in rural Louisiana. Four themes emerged: perspectives of harm reduction at the community level, including how such services are accessed and provided; individual level perceptions of syringe services programs regarding their potential utility in rural areas; syringe services programs in rural areas in terms of what similar services exist; and stigma at the individual and interpersonal levels of influence, where nurses detailed the perceptions of stigma from observations in professional practice. This study has the potential to effect positive social change by providing professionals and policy makers with information on the perceptions of SSPs in rural areas of southern states where the magnitude of injection drug use is perceived to be high and hopefully inform strategies to address the increasing risk of harms associated with injection drug use at the community level.

Exploring Public Health Nurses' Perceptions of Syringe Services Programs in Southern Rural Areas

by

Joel Lowery

MPH, University of Pittsburgh, 2017

BS, Western Carolina University, 2015

Doctoral Study Submitted in Fulfillment

of the Requirements for the Degree of

Doctor of Public Health

Walden University

November 2025

Table of Contents

List of Tables

List of Figures

Section 1: Foundation of the Study and Literature Review

Background

In the United States, an opioid epidemic associated with injection drug use (IDU) has resulted in an increasing number of cases of IDU-associated infectious diseases such as hepatitis C (HCV), human immunodeficiency virus (HIV), and infective endocarditis (IE). From 2004 to 2014, the United States experienced an increase in the incidence of acute hepatitis C infections along with a rise in treatment admissions for substance use disorders (SUD). For SUD treatment admissions, significant increases were related to injection drug use (Zibbell et al., 2018). Bosh et al. (2018) found that people with documented co-infections of HIV and HCV were more likely to be injection drug users. From 2002 to 2016, rates of IE related to IDU have almost doubled (Kadri et al., 2019); from 2007 to 2017, hospitalizations due to IE increased 11%, while 17% of valve surgeries performed on patients with IE were performed on patients with a history of IDU (Schranz et al., 2019). With the increases in IDU-associated infectious diseases in the United States, strategies to mitigate IDU-associated infections must be explored.

Syringe services programs (SSPs) are one of many proposed solutions to help combat the increasing prevalence of IDU-associated infectious diseases in the United States. While SSPs offer a variety of services such as infectious disease testing, naloxone distribution, and linkage to opioid use disorder treatment, a primary function of many SSPs is the provision of sterile syringes in exchange for dirty syringes as a means of reducing infectious disease transmission associated with IDU (Behrends et al., 2022; Davis et al, 2018). SSP service provision has evolved to meet common challenges to

access, like transportation, and unique challenges such as the COVID-19 pandemic; this has been accomplished through modalities including mobile van SSPs, pharmacy-based SSPs, mailing of supplies, and telehealth (Behrends et al., 2022; Thakarar et al., 2022). Though SSPs provide necessary services by a variety of means, accessibility can still be impacted by stigmatizing attitudes and behaviors of communities towards both IDU and SSPs.

Stigmatization of people who inject drugs (PWID) and stigmatization of SSPs impact the accessibility and success of SSPs in the United States. Ibragimov et al. (2021) found that the most frequently reported barrier to SSP enrollment in PWID was stigma. Furthermore, stigma towards both PWID and harm reduction practices that include SSPs impede proper planning, implementation, and continued success of SSPs, particularly in rural areas (Childs et al., 2021; Cloud et al., 2019; Ezell et al., 2021b). Community perceptions around drug use and harm reduction practices can also influence political will and result in difficulty in both laying the framework for legally establishing SSPs and acquiring adequate funding (Jones, 2019; Montaque et al., 2022).

Healthcare providers are important to the success of SSPs, but the stigma associated with healthcare and healthcare providers influences the accessibility of SSPs. In healthcare experiences, PWID often cite the perception of discrimination, mistrust, and unfair treatment from healthcare providers (Miller-Lloyd et al., 2020; Motavalli et al, 2020; Muncan et al., 2020). Stigmatization experienced within healthcare settings may lead to a reduction in seeking medical services, including those provided by SSPs (Ibragimov et al., 2021).

There are gaps in the literature regarding both the investigation of SSPs in rural areas of southern states in the United States and the perceptions of SSPs held by public health nurses. Rural and southern areas of the United States bear a significant burden due to IDU and the opioid epidemic, but there is a general lack of investigation into SSPs in these regions, potentially due to a lack of established SSPs (Palombi et al., 2018; Paquette & Pollini, 2018). Some SSPs are operated through a local health department, often to positive reviews from clients (Allen et al., 2019; Lancaster et al., 2020). However, aside from broad stakeholder interviews conducted with SSP and health department staff, there is a lack of in-depth exploration into the perceptions of SSPs by health department staff, particularly those who may be involved in providing services generally administered by SSPs.

The purpose of this study was to explore the perception of syringe services programs (SSPs) held by public health nurses practicing in rural areas of southern states in the United States. This study is needed because public health nurses have the potential to occupy various roles in the delivery of harm reduction services such as SSPs. Public health nurses may also hold a unique understanding of their communities, what health services are needed, and how the community perceives such services. Public health nurses' perceptions of health services such as SSPs may also need to be considered to assess the potential for healthcare-associated stigmatization of drug use and harm reduction practices, which may, in turn, impact the success of SSPs. The results of this study may assist in effecting positive social change by providing an in-depth understanding of perceptions of SSPs held by public health nurses, who may be important

stakeholders in the advocacy for and implementation of SSPs in rural areas, which may ultimately assist in further expansion of SSPs and other harm reduction programs in rural areas of southern states.

Problem Statement

Due to the potential roles public health nurses may serve in the delivery of SSPs to rural communities, this study has relevance to the discipline. Rural localities sometimes turn to the model of operating SSPs out of local health departments (Allen et al., 2019; Lancaster et al., 2020). SSP staff, including nurses, provide a variety of services, including but not limited to syringe exchange, infectious disease testing, and linkage to opioid use disorder treatment (Behrends et al., 2022; Davis et al., 2018). SSP staff interact with PWID to provide such services free of judgment or stigmatization (Allen et al., 2019). However, some PWID avoid utilizing healthcare services due to either perceived or experienced stigmatization from healthcare providers (Ibragimov et al., 2021; Muncan et al., 2020).

It is not known how public health nurses practicing in rural areas of southern states perceive syringe services programs. A focus on rural areas in southern states helps fill a research gap regarding SSPs, partly due to a general lack of established SSPs in rural areas (Palombi et al., 2018; Paquette & Pollini, 2018). Further exploration of these perceptions may provide insight into both how public health nurses are involved in delivering SSP services and how perceptions may influence stigmas around PWID and SSPs in rural areas of southern states.

Purpose of the Study

The purpose of this qualitative study was to explore the perceptions of syringe services programs held by public health nurses practicing in rural areas with no existing SSPs in southern states and ascertain their potential roles in facilitating harm reduction for people who inject drugs. In-depth exploration of these topics guided by the framework of the socioecological model (SEM) may help elucidate personal, community, and healthcare provider perceptions of SSPs and elaborate on how public health nurses may participate in the implementation of SSPs in rural areas of southern states.

Research Questions

RQ1: In localities with no syringe services programs, how do public health nurses practicing in rural areas of southern states perceive syringe services programs?

RQ2: In localities with no syringe services programs, how do public health nurses practicing in rural areas of southern states participate in harm reduction for people who inject drugs?

Theoretical Framework

The SEM was utilized to guide the direction of the study and provide a theoretical framework from which to interpret results. Bronfenbrenner (1977) proposed that an individual is influenced by micro-, meso-, exo-, and macro-level environmental systems, which are each in turn influenced by the individual participating in said systems. McLeroy et al. (1988) expanded and modified these concepts to fit a health promotion context by describing intrapersonal, interpersonal, institutional, community, and public policy factors and how these factors interacted to produce patterned behavior.

The SEM can be used as a framework from which ecological approaches can be derived to address complex public health issues around harm reduction. Saloner et al. (2018) described an ecological approach derived from the SEM that recommended better data collection practices such as improved surveillance systems, improved opioid prescribing practices, media produced to help destigmatize drug use and harm reduction, improved harm reduction practices through increased access to SSPs and supervised consumption sites, advocated for criminal justice reform, and promoted regulatory change around scheduled substances. Saloner et al.'s use of the SEM to develop an ecological approach to an existing problem acknowledged the complexity around the opioid crisis in the United States and highlighted the necessity for interventions to be guided by SEM principles of multiple interacting levels of influence.

The SEM provides a framework for program design and implementation in public health interventions. Kerr et al. (2019) developed and implemented an SSP in Louisville, Kentucky, using policy, community, and organizational constructs from the SEM as guiding principles. With this approach, Kerr et al. guided efforts into facilitating the legal groundwork for SSP establishment at the state and local level, utilizing media to promote SSP visibility and education, and leveraging preexisting organizational relationships to enhance political advocacy, community guidance, and individual patient care. This study provides an example of SEM as a useful framework for exploring and building SSPs in complex legal and community environments, particularly in rural areas where opposition may be historically present.

The SEM has been utilized as the grounding framework for qualitative inquiry of professionals around harm reduction topics. Bunting et al. (2018) investigated barriers to substance use treatment for individuals with opioid use disorder in Appalachian Kentucky by using semistructured interviews of social service clinicians guided by the SEM. Bunting et al. found barriers at each level of influence described in the SEM, noting individual, interpersonal, institutional, community, and system/policy level factors such as high-risk drug use, homogenous social networks, high professional case load, easy access to opioids, and lack of transportation to services, respectively. In this study, the authors used the SEM to both frame their qualitative inquiry and interpret the results of the interviews. This study highlights SEM as a valid framework for qualitative inquiry and interpretation in topics and study populations around harm reduction.

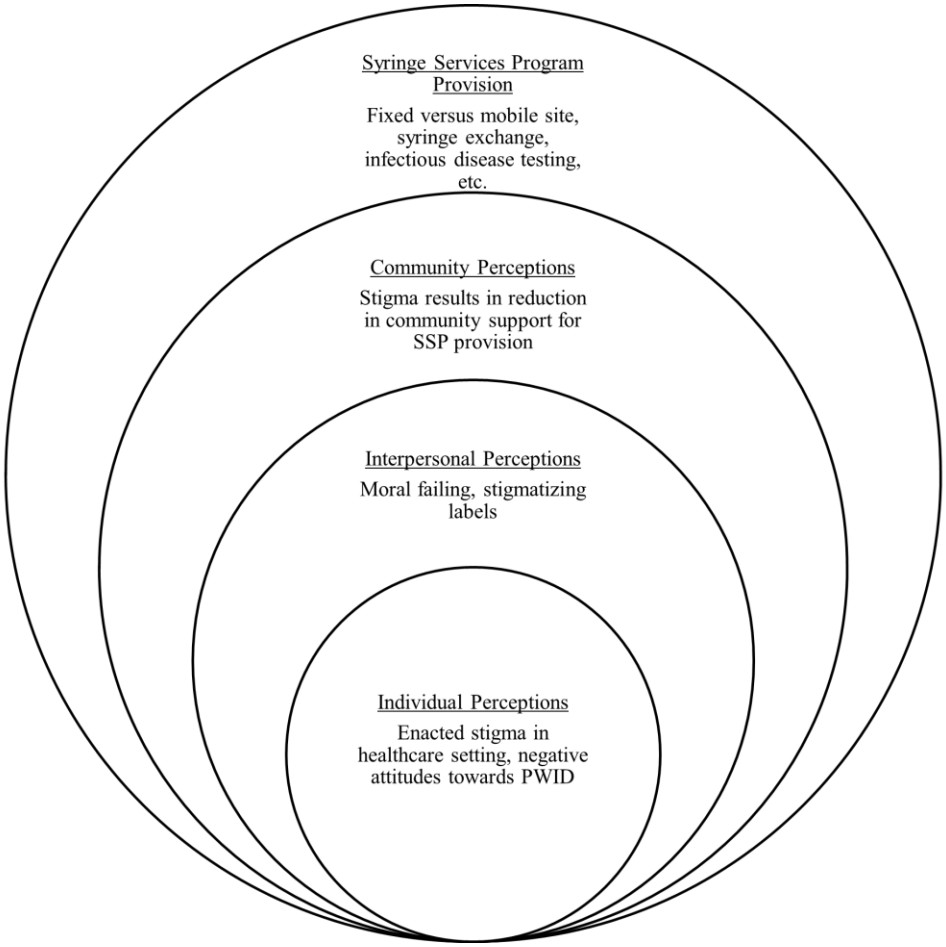
Conceptual Framework

Public health nurses' role in the complex phenomenon of SSP access in rural areas necessitates an investigation that considers multiple potential levels of influence and interrelated factors. As professionals, public health nurses may operate in largely clinical roles in the provision of SSP services at the institutional level, thus acting as healthcare providers. A frequently cited barrier to healthcare services cited by people who inject drugs is perceived and experienced stigma from healthcare providers (Biancarelli et al., 2019; Muncan et al., 2020). As community members in rural settings, public health nurses may understand community-level perceptions around SSPs. Stigma around harm reduction and drug use in rural communities continues to be a barrier to SSP access (Ezell, 2021b). The SEM guided the investigation and interpretation of the ways in

which individual, interpersonal, and community perceptions held or perceived by public health nurses may influence their participation in SSP service provision as healthcare providers in rural areas of southern states.

Figure 1

Proposed Conceptual Framework



Nature of the Study

This study utilized a qualitative approach to investigate the phenomenon in question. According to Crawford (2020), qualitative inquiry is necessary when exploring and ultimately understanding a complex phenomenon of interest. This approach necessitates careful observation and collection of data centered on study participants'

perspectives around a phenomenon of interest. Since the purpose of this study was to explore the perceptions of SSPs, in this case, the phenomenon of interest, held by study participants, public health nurses in rural areas of southern states, a qualitative approach was warranted.

In this study, a phenomenological study design was used. According to Crawford (2020), phenomenological studies examine individuals with shared experiences or characteristics around a common phenomenon. This study sought to explore the perceptions held by public health nurses around the specific phenomenon of SSPs. Semistructured, in-depth interview questions were designed to investigate the multiple levels at which public health nurses operate in the provision of SSPs and how their perceptions of SSPs relate to service provision.

Literature Search Strategy

To conduct the literature search, I utilized databases such as ProQuest, PubMed, CINAHL Plus, Walden University's ScholarWorks, and Google Scholar. For a review of the most recent literature, I limited database searches for peer-reviewed literature published from 2018 to 2023. When necessary for theoretical and seminal works, I obtained articles from more than 5 years prior to the capstone study being completed to help inform the theoretical and conceptual framework of the study.

I investigated the current literature regarding risky behaviors around IDU, syringe services programs (SSPs), community perceptions and stigma regarding IDU and SSPs in rural areas, and healthcare professional perceptions and stigma regarding IDU and SSPs. To explore these topics, I searched the following terms: *syringe services program,*

syringe exchange program, needle exchange program, rural, nonurban, health department, staff, nurse, public health nurse, community health nurse, stigma, stigmatization, and *discrimination.*

There was little current literature explicitly investigating public health nurses in the context of SSP implementation. However, several studies separately described SSPs implemented in conjunction with health departments and general healthcare provider perspectives on SSP implementation, including nurses. Since public health nurses generally operate within health departments and function similarly to nurses in other settings, these concepts allowed for investigation based on presumed similarity in duties.

Literature Review Related to Key Concepts

The literature review explored SSPs, including general services provided and issues affecting accessibility. Perceptions around IDU and SSPs were investigated with attention paid to interpersonal- and community-level perceptions. Additionally, perceptions of IDU and SSPs were explored specifically from the perspective of healthcare workers, including the role of enacted stigma in healthcare delivery. Finally, an overview of the current gaps in the literature around SSPs was conducted, focusing on geographic areas needing further research and public health nurses as a unique population for the purpose of this study.

Syringe Services Programs in Rural Communities

This section reviews the supplies, services, and modalities in which SSPs operate in rural areas. SSPs in the United States feature a variety of supplies and services due to shifting landscapes of infectious disease, drug use, policy, and community support.

Public health nurses may take part in this shifting environment as healthcare providers serving a broad range of clients within the framework of a variety of services, including SSPs and other harm reduction services.

SSPs offer a variety of harm reduction services that differ by location, including but not limited to supplies to support safer injection practices. A primary function of SSPs is the exchange of sterile syringes for nonsterile syringes (Davis et al., 2018). Additional supplies SSPs may distribute to combat opioid-related harms from IDU include naloxone and fentanyl test strips (Behrends et al., 2022; Krawczyk et al., 2022). While sterile syringe exchange has been a staple of SSPs and helps in the prevention of bloodborne infectious diseases, the increase in necessity for supplies to combat opioid overdose reflects the rapidly evolving opioid environment in the United States.

In addition to the distribution of sterile syringes and other supplies, some SSPs offer additional medical services as part of an array to help address other needs in the context of IDU. A necessary service provided by SSPs is on-site testing for HIV, HCV, and other STIs with appropriate linkage to treatment services (Behrends et al., 2022; Davis et al., 2018; Glick et al., 2020). SSPs may also offer mental health services and either on-site or referral for medications for opioid use disorder (MOUD) treatment, along with associated case management (Behrends et al., 2022; Krawczyk et al., 2022). On-site or referral for wound care services may also be offered at some SSPs (Behrends et al., 2022; Krawczyk et al., 2022). Nurses are one of many types of healthcare professionals who help operate SSPs and related services (Davis, 2018); however, their explicit role in providing SSP services is not often stated.

SSPs provide services and supplies through various modalities to meet the evolving needs of their populations of service. Traditional SSPs tend to operate from a fixed site; in rural areas, fixed sites can be based out of local health departments or private organizations (Davis et al., 2018). Mail-based delivery and telehealth have been useful in distributing supplies and providing other services when conventional methods are challenged with unforeseen circumstances such as the COVID-19 pandemic (Wenger et al., 2021). Some SSPs offer services through mobile units, which provide a means of reaching geographically sparse populations; in addition, mobile units provide a means for SSPs to continue service provision in the face of challenges such as the COVID-19 pandemic (Behrends et al., 2022; Bolinski et al., 2022). In a survey of SSPs across 10 states, Krawczyk et al. (2022) found that over half of the programs that offer SSP services utilized peer outreach and recovery services through their programs. While traditional, fixed-site SSPs may have more capacity to offer a larger variety of SSP and other harm reduction services in a convenient location, rural and more sparsely populated areas may benefit from the continued pursuit of mail-delivered supplies, mobile unit services, or telehealth services to increase coverage of harm reduction supplies and linkage to services.

In rural areas, sterile syringe access can be limited due to a lack of access to SSPs and a lack of access to other sterile syringe sources, such as pharmacies. In a rural Kentucky population within an SSP service area, less than half of respondents reported getting syringes from the local SSP due to lack of awareness, fear of stigma, and fear of law enforcement (Lancaster et al., 2020). Rural PWID in Kentucky reported difficulty

finding syringes outside of SSPs due to several factors, including the high cost of syringes and, in some cases, pharmacies' unwillingness to provide sterile syringes (Davis et al., 2019; Ibragimov et al., 2021). Pollini et al. (2021) found that residents of New Hampshire, a largely rural state, were unable to access syringes in pharmacies without a prescription. In some areas, the need for syringe access necessitated traveling to other communities or states (Ibragimov et al., 2021; Pollini et al., 2021). Low SSP coverage in rural areas, coupled with difficulty in accessing sterile syringes by other means, such as pharmacies, may inhibit rural PWID's ability to limit transmission of IDU-associated disease.

The COVID-19 pandemic impacted the operation of SSPs, leading to changes in service provision and modality. Lockdowns enacted during the COVID-19 pandemic led to a need to modify normal SSP operation through modifications such as social distancing, personal protective equipment, and a switch to an outdoor model of service delivery (Thakarar et al., 2022; Wenger et al., 2021). Within rural communities, SSP service delivery sometimes shifted to mobile vans, mail delivery, and the expansion of telehealth services (Bolinski et al., 2022; Thakarar et al., 2022). Many SSPs lost accessibility through a forced shift in operating hours, the inability to provide services indoors, and changes in staffing and operational capacity due to emerging budget constraints (Thakarar et al., 2022; Wenger et al., 2021). The COVID-19 pandemic and challenges presented to SSP service delivery provided a unique perspective for SSP adaptation to limited resources, representative of the challenges faced by rural

communities. The shift to mobile services, mail delivery, and telehealth options may provide a direction for future rural SSPs to modify implementation practices.

Risky Behaviors Around Injection Drug Use

Rural PWID participate in risky IDU behaviors due to a lack of access to sterile syringe sources and places to properly dispose of used syringes. Broz et al. (2018) found that PWID in Scott, Indiana, reported multiple injections per injection episode when using prescription opioid analgesics prepared in an injection solution, which was a contributing factor to a 2015 outbreak of HIV. In a rural environment sometimes characterized by a lack of access to sterile syringes and tight-knit family and friend networks, PWID may both procure non-sterile needles that have been discarded and share needles within social networks (Cloud, 2019; Pollini, 2021). In rural areas, where resources are often constrained and access to sterile syringes may be limited, PWID face additional barriers to avoiding risky behaviors such as syringe sharing; these barriers may be mitigated by increased ability to access sterile syringes.

When sterile syringe sources are available to PWID, they are less likely to participate in risky IDU behaviors such as syringe sharing. Nassau et al. (2020) found that the adjusted odds of syringe sharing among PWID were lower if syringes were obtained from a sterile source compared to a non-sterile source. Through nationally representative data on those reporting drug use in the past year from 2002 to 2019, Marotta et al. (2021) found that syringes obtained through syringe exchange programs (SEPs) were associated with less borrowing of syringes, obtaining syringes from the street, and less syringe reuse. In addition, Marotta et al. found that obtaining syringes

from pharmacies was associated with less borrowing and lending of syringes. Access to sterile syringe sources, whether through SSPs, pharmacies, or another source, appears to decrease the likelihood that PWID participate in riskier IDU behaviors such as sharing and reusing syringes, which in turn decreases the likelihood that they will be exposed to, contract, or spread infectious diseases such as HIV and HCV.

Social Determinants

Syringe sharing and reuse occur in the context of social determinants of health, where economic, social, and physical environments interact over time to increase the likelihood of risky behaviors. In rural Kentucky, lack of employment opportunities, lack of social opportunities in local neighborhoods, weakening economies, and intergenerational poverty preceded risky behaviors around injection drug use (Cloud et al., 2019). Within this environment, some PWID initiated drug use through their families, who comprised close-knit social networks (Cloud et al., 2019). Additionally, White et al. (2021) found that receptive syringe sharing was correlated with transactional sex and unemployment in rural Kentucky. Economic difficulty in rural areas may contribute to the overall lack of resources, which in turn may impact the ability of PWID in rural areas to access SSPs and other harm reduction services.

Place as a social determinant of health is a contributing context to risky IDU behavior. Rural PWID often report IDU at home or trap houses to avoid being seen by the community and law enforcement (Cloud et al., 2019; Ezell et al., 2021a; Fadanelli et al., 2020). Ezell et al. (2021a) found that IDU location choice was more strongly driven by a desire to avoid public view and criticism in rural areas, where there was a lack of

community acceptance. Place provides context to risky IDU in rural areas at multiple levels. At the micro level, an individual may choose to inject at home, but this may be influenced by place at a more macro level, or within a community where IDU is a stigmatized behavior.

Lack of transportation contributes to a higher likelihood of risky injection behaviors in rural areas. Thakarar et al. (2021) found that PWID living in Maine, a largely rural state, reported a higher likelihood of accessing SSPs if living within 10 miles of an SSP. Due to the sparse availability of SSPs in rural areas and the general geographic isolation of some communities, PWID may have to travel hundreds of miles to access harm reduction services (Cloud et al., 2019). Lack of transportation is a frequently cited barrier to accessing SSPs in rural areas (Davis et al., 2018; Carnes et al., 2021). The combination of a low density of SSP services and difficulty finding transportation to harm reduction services in rural areas may contribute to an increasing risk of infectious disease transmission in rural communities through risky injection practices.

Stigma

In rural communities, PWID experience stigmatization from their peers. People living in rural communities sometimes perceive PWID as subject to a moral failing with the use of drugs (Cloud et al., 2019; Ezell et al., 2021b). Particularly in rural communities, PWID have a difficult time separating themselves from negative, stigmatizing labels (Ezell et al., 2021b). Continued stigmatization may discourage PWID from seeking help in the form of SSPs or harm reduction services (Cloud et al., 2019).

Community-level stigma limits the success of harm reduction measures such as SSPs. Baker et al. (2020) found that community stigma was associated with less support for harm reduction programs. Even in circumstances where the legal circumstances support the establishment of SSPs, a lack of community support can impede the process (Jones, 2019). However, with community buy-in, including that of law enforcement, SSPs can be established and operated in ambiguous legal environments, such as those where SSPs may be legal but possession of drug paraphernalia is still prohibited (Davis et al., 2018).

Stigma in the healthcare setting may facilitate negative health experiences and future healthcare avoidance in PWID. Surratt et al. (2021) found that enacted healthcare stigma acted as a mediator between stigmatizing health conditions, such as SUD, and risky injection behaviors, such as shared syringes and other injection equipment. Ibragimov et al. (2021) interviewed rural PWID in Appalachian Kentucky, finding that anticipated stigma around mistreatment by SSP staff may have been influenced by prior medical mistreatment by other healthcare providers. Ellis et al. (2020) produced similar findings in rural Illinois, where PWID delayed medical care until emergency situations due to prior medical mistreatment. In the same types of rural settings in which community stigma contributes to the avoidance of harm reduction services such as SSPs, the further avoidance of healthcare settings and healthcare providers by PWID complicates appropriate access to interventions that may help mitigate the harms associated with IDU.

Definitions

Syringe services program (SSP): A program with the strategic goal of preventing bloodborne infectious disease transmission among people who inject drugs primarily through provision of sterile injecting supplies but may also include additional services (Centers for Disease Control and Prevention [CDC], n.d.)

Public health nurse: A nurse who focuses on population health through primary prevention at all levels of influence (American Public Health Association [APHA], 2013).

Assumptions

A primary assumption of this study is that public health nurses participate in the provision of services analogous to those provided by SSPs. SSPs offer a variety of services, including but not limited to syringe exchange, infectious disease testing, naloxone dispensation, and referral to treatment services for opioid use disorder. This assumption was necessary because, for the purpose of the study, it was important for public health nurses to have either directly or indirectly provided services analogous to SSP services to have a frame of reference to discuss SSPs as a phenomenon.

Scope and Delimitations

This study investigated perceptions held by public health nurses in rural areas of a southern state. As such, nurses employed by private organizations such as hospitals, private practice offices, nonprofit organizations, etc. were excluded. This study was conducted in the southern region of the United States, more specifically in the West South Central Division as defined by the United States Census Bureau (United States

Census Bureau, n.d.). The findings of this study may be transferable to this region due to similar social, political, and cultural environments, but will likely be limited elsewhere.

Limitations

Given the sensitive nature of the topic of discussion, there could have been a risk of social desirability bias in multiple ways. Public health nurses operate as connections between healthcare and the community, thus have perceptions, attitudes, and beliefs that may cross professional and civilian boundaries. Prior research suggests that rural communities stigmatize PWID and harm reduction services. Public health nurses may desire a positive perception by either the community at large or by their professional peers, who may be more supportive of harm reduction. To address potential social desirability bias, confidentiality was ensured.

If conducting interviews in person, travel time and scheduling could have been additional challenges. A potential means to better accommodate challenges associated with travel and scheduling, the option to conduct interviews via telephone or video call was available. This study lacks transferability beyond the region in which it was conducted, and the results may not be transferable to similar professionals in urban environments.

Significance

This study is significant in that it can inform future research on access to syringe services programs in rural areas. Health departments and their collaborations with other healthcare systems will provide a potential avenue for expanding syringe services access in rural areas. Public health nurses can provide insight into the implementation and access

to services. Additionally, public health nurses may act as a point of contact in healthcare, an environment where people who use drugs may encounter further stigma. Public health nurses act as an important connection between healthcare, public health, and the community and may play a key role in facilitating access to syringe services in rural areas through public education to address stigma around drug use and syringe services provision. Results from this research may help identify and elaborate on the extent of public health nurses' role in syringe services access and gauge this population's acceptance of such an intervention.

Summary and Conclusions

SSPs offer a variety of services and service delivery modalities to address shifting drug use, community, and legal environments in rural areas. While the primary function of sterile syringe exchange is often conducted in fixed-site locations, additional functions such as infectious disease testing and naloxone distribution are provided in formats such as mobile vans and telehealth visits. The adaptive nature of SSPs and related services allows for accommodation of PWID who may lack transportation or experience other barriers to access in rural areas, including novel challenges such as the COVID-19 pandemic.

Rural areas provide a unique environment that facilitates riskier injection behaviors in PWID. Tight family and social networks coupled with lack of access to syringe exchange facilitates more injections per injection episode, reuse of syringes, and improper disposal of used syringes. Fear of stigma from rural community peers

influences the place in which PWID inject drugs, where gathering in trap houses or family homes potentially fosters additional syringe sharing practices.

Stigmatization of PWID and harm reduction practices impedes implementation and utilization of SSPs in rural areas. Rural communities characterize PWID with moral failure and SSPs as enablers of drug use practices. Prior negative experiences in healthcare environments influence the likelihood that PWID seek care in the future, including in the context of SSPs.

Research into SSPs in rural areas has documented services provided and in what modalities, as well as barriers and facilitators to implementation and access, including but not limited to the pervasive influence of stigma from multiple levels. Studies have both quantitatively and qualitatively investigated these topics in PWID and professional stakeholders such as SSP program directors, health department representatives, and community representatives from other disciplines. Little to no research has been conducted in which in-depth interviews qualitatively explore the perceptions of public health nurses, who may occupy a unique role as providers of SSP services and community liaisons. Additionally, research into rural areas is somewhat limited in scope and geography, with the southern United States poorly represented.

This study investigated the role of public health nurses in access to SSPs in rural areas of southern states in the United States. Additionally, their perceptions of SSPs were explored. These concepts were investigated using the SEM to guide qualitative inquiry and interpretation of results.

Section 2: Research Design and Data Collection

Introduction

The purpose of this qualitative study was to explore the perceptions of syringe services programs held by public health nurses practicing in rural areas with no existing SSPs in southern states and ascertain their potential roles in facilitating harm reduction for people who inject drugs. The following section outlines the phenomenon of interest, justification of the phenomenological approach as the applied research tradition, explains my role as the researcher, and describes the methodology of participant recruitment, data collection, and data analysis. This section also discusses strategies to address the trustworthiness of this qualitative study and ethical procedures.

Research Questions

RQ1: In localities with no syringe services programs, how do public health nurses practicing in rural areas of southern states perceive syringe services programs?

RQ2: In localities with no syringe services programs, how do public health nurses practicing in rural areas of southern states participate in harm reduction for people who inject drugs?

Research Design and Rationale

SSPs are the central phenomenon explored within this study. The research tradition applied to this study was a phenomenological approach. Phenomenological studies explore experiences shared by a defined group around a specific phenomenon (Crawford, 2020). In the case of this study, SSPs are the phenomenon of interest, and public health nurses practicing in rural areas of a southern state are the defined group.

Role of the Researcher

As the researcher, I acted as the primary data collection tool in a largely observational role. According to Crawford (2020), the researcher can operate on a continuum of observer and participant, where the observer role remains generally removed from the phenomenon or setting and the participant role interacts more directly with the study participants, setting, and phenomenon. As a researcher conducting semistructured interviews about a phenomenon, I had little to no interaction with the phenomenon itself beyond asking questions. I had no professional relationships or prior interactions with the study participants given that I am not an employee of the Louisiana Department of Health and have not directly accessed services provided by nurses in this context.

Entering the study, the biases I held include those I have garnered through academic study and professional experience. I have a bias towards seeing the success and expansion of SSPs into rural areas, given the continued challenge of the opioid crisis in the United States. I believe that SSPs have been demonstrated to contribute to infectious disease reduction and linkage to needed resources for PWID. However, from personal and professional experience in rural environments of the southern United States, I hold the belief that there will be hesitation or a lack of interest in accepting SSPs into rural areas, given a combination of the history of stigma around substance abuse and information dissemination within tight-knit, rural communities.

A primary strategy to reduce the impact of my biases was the use of bracketing. According to Billups (2021), bracketing is useful and necessary in the phenomenological

approach by allowing the researcher to state their biases and preconceptions, set them aside as much as possible, and allow the rich perspectives of study participants to reveal the experiences around the phenomenon being explored. By acknowledging my own biases and how I expect the data to present, I could better separate the distinction between my perspective and those provided by the study participants.

Methodology

I recruited public health nurses through the Louisiana Department of Health (LDH). With appropriate approvals, informational flyers and emails with a brief explanation of the study and my contact information were distributed from the LDH headquarters in Baton Rouge, Louisiana, and regional contacts throughout the state. This distribution method ensured that only nurses working for LDH were recruited. Once interested participants contacted me, I confirmed that they work for a health department serving a rural parish by requesting they verify their work location and cross-referencing the site to the rural parishes of Louisiana by the US Census Bureau specifications. Consent and confidentiality processes were explained, and informed consent was obtained prior to data collection.

Criterion for selecting public health nurses included the following:

1. Must be licensed to practice nursing (LPN, RN, etc.)
2. Must be employed by the Louisiana Department of Health or serve as a contractor for the Louisiana Department of Health
3. Must work in a rural parish of Louisiana (explicitly defined as rural parishes per the US Census Bureau)

4. Must have an understanding of what SSPs are and why they operate
5. Must have served clients with a history of injection drug use

To achieve saturation of themes in qualitative data, this study aimed to utilize approximately 15 open-ended, semistructured questionnaires. In a systematic review of studies that assessed code saturation in qualitative studies using empirical and statistical methods, Hennink and Kaiser (2022) found that code saturation was achieved with an average of 12 to 13 interviews, with a range of 9 to 17 interviews. Hennink and Kaiser noted that saturation was dependent on factors including study population homogeneity and study objective complexity. However, this study achieved six interviews. According to Creswell and Poth (2018), approximately three to 15 interviews are a consistent feature of phenomenological studies.

A pilot study was conducted to ensure the reliability and validity of the semistructured interview protocol. Two volunteers were recruited for a pilot study, and informed consent was obtained via the same protocol described for the main study. The initial interview protocol was conducted with the pilot study volunteers, after which the study questions were reviewed to determine if they were understandable; no adjustments were made to the interview protocol based on feedback provided by the pilot study volunteers. Data from the pilot studies were utilized, given that no changes were recommended by the initial interviewees.

To collect data, I utilized a researcher-developed interview protocol as a guide for a semistructured interview to explore public health nurses' perceptions of SSPs and their participation in access to SSPs in rural areas of a southern state. The questions of the

interview protocol were derived from the literature and guided by the SEM; the questions helped explore public health nurses' perspectives on SSPs, what services they may be responsible for performing, what behaviors they observe in their clients, how their communities may stigmatize PWID and SSPs, and how enacted stigma may manifest in the healthcare environment, including SSPs.

One interview was conducted per study participant, and each interview lasted approximately 30-60 minutes. Interviews were offered via telephone, video call, or in-person. Interviews were recorded with permission, and these recordings were transcribed verbatim to form the data for analysis. Upon completion of the interviews, participants were encouraged to reach out to me with any further questions or concerns.

I used the researcher-generated interview protocol to answer both research questions within the described contextual framework. I used NVivo 15 qualitative data analysis software to conduct thematic coding analysis and identify emergent themes in public health nurses' perceptions of SSPs and their roles and participation in access to SSP services in rural areas of southern states. Mihas (2020) noted that inquiries guided by a conceptual framework are often accompanied by deductive coding; this study framed initial coding within the previously described conceptual framework.

Trustworthiness

To establish credibility within the study, several strategies were utilized. Billups (2021) described member-checking as primarily a means to verify data, though it may be less frequently used to collect additional data. Member-checking helped verify that my interpretations of participant responses are closer to a true representation of their

perspectives. Reflexivity and bracketing allowed me to maintain awareness of my own biases and prevent misrepresenting the perspectives of study participants.

Transferability of this study was achieved through thick description of the study context and procedures. Thick descriptions help reinforce the ability of other researchers to apply the findings of a qualitative study to similar contexts of person, place, and phenomenon through detailed field notes during data collection and other notes through interpretation and analysis (Billups, 2021).

Dependability of this study was achieved through the establishment of audit trails. Audit trails entail the detailed collection and keeping of records of the research process from data collection to analysis, which allows for third-party reviewers to assess the consistency of methods, and there was not too much variation or bias introduced into the study throughout the research process (Billups, 2021; Crawford, 2020). I kept detailed records of my data collection, data storage, reflexive journaling, and data analysis procedures to be made available for review.

Like dependability, I enhanced the confirmability of my study through audit trails and reflexive journaling. Crawford (2020) stated that confirmability is achieved by reducing the impact of researcher bias in a qualitative study, even while the study is inherently subjective. The ability of third parties to audit my procedures and thought processes through audit trails and reflexive journal notes will increase the likelihood that any biases or procedural errors will be reduced and the study results will be confirmable by other researchers.

Ethical Procedures

To ensure an ethically sound research process, several steps were taken to ensure participant informed consent, protect participant privacy and confidentiality, and ensure appropriate management of data. Permissions were obtained from appropriate parties in LDH to gain access to organizational contacts and more effectively distribute flyers and emails for research participant recruitment. The primary ethical concern for this distribution method was the potential for public health nurses to feel compelled or coerced to participate in the study by a supervisor; this was mitigated by requesting that LDH simply distribute the email to the appropriate listserv with no filtering through supervisors. I obtained IRB approval from Walden University prior to any recruitment or data collection activities to ensure compliance with Walden University's ethical standards. This was further addressed during the informed consent process, where I verified with potential participants that they are truly interested in participating in the study.

Informed consent was obtained prior to any data collection from the study participants. Once it was verified that participants met the inclusion criteria for the study, I presented them with a copy of the informed consent document. I communicated that the participants may read the document and ask any immediate questions, then allowed another week for them to continue to review and formulate questions. Once informed consent was obtained, I began the data collection process. The primary ethical concern with the data collection process was participant privacy during the interview. Multiple interview modalities were offered, with those choosing phone or video conferencing

options better able to control their privacy and comfort for the interview. No participant requested in-person interviews.

Following interviews, I stored audio recordings in encrypted files on a password-protected computer. The Word document transcription files for these interviews were also password-protected and encrypted documents, and stored on a password-protected computer. A list of passwords was stored in a separate folder on my computer. The computer in question is only accessible by me and was only accessed by me during this study. Data, including audio files, transcripts, and files generated during thematic coding analysis, will be stored on my computer for 5 years per Walden University policy. Data was only disseminated to my committee. Confidential information such as participant names, phone numbers, and emails was required for follow-up dissemination of results; this information was stored in password-protected and encrypted Word documents in a separate folder on my password-protected computer.

Summary

In this section, I reviewed the rationale for the phenomenological approach as a valid means of answering my proposed research questions. I discussed my role as the researcher, outlined procedures for recruiting study participants, described data collection and analysis plans, and reviewed ethical considerations and procedures for minimizing risk to study participants while conducting a study that provides trustworthy results. Section 3 detailed the results and conclusions of this study, including identified themes and how they fit the conceptual framework outlined in Section 1 of this study.

Section 3: Presentation of the Results and Findings

Introduction

The purpose of this qualitative study was to explore the perceptions of syringe services programs held by public health nurses practicing in rural areas with no existing SSPs in southern states and ascertain their potential roles in facilitating harm reduction for people who inject drugs. In this section, I reviewed the methodological procedures for recruitment, data collection, and data analysis. I presented findings from in-depth, semistructured interviews with public health nurses practicing in rural areas of a southern state. The following research questions guided the development of an interview protocol and subsequent data analysis and interpretation:

RQ1: In localities with no syringe services programs, how do public health nurses practicing in rural areas of southern states perceive syringe services programs?

RQ2: In localities with no syringe services programs, how do public health nurses practicing in rural areas of southern states participate in harm reduction for people who inject drugs?

To answer the above research questions, I utilized the conceptual framework shown in Figure 1 to guide a deductive analysis of interview data from the semistructured interviews with public health nurses.

Setting

Due to the requested format from each participant, I completed five interviews over the phone, and I completed one interview as a video call using Zoom software. Once the Zoom interview was completed, I deleted the video recording of the call while

keeping the audio portion for transcription. I ensured that the area from which I interviewed was private to the best of my ability, and each participant was responsible for ensuring this for themselves. I completed interviews from March 2024 through May 2025 in the state of Louisiana.

Pilot Study

I completed recruitment for the pilot study based on the initial proposed recruitment protocol. Since I reside in the state of Louisiana, recruitment only took place in Louisiana for the sake of feasibility. The partner organization approved my ability to reach out to their employees to obtain participants with oversight from Walden University for data collection and data analysis. A state-level point-of-contact distributed the recruitment materials to all potential participants under their purview in March 2024.

I gained two volunteers from the initial recruitment effort, which was enough to satisfy the minimum requirement for the pilot study. With these participants, I verified their place of work and determined that they practiced at least in part in rural parishes. I emailed a copy of a verbal consent form for their review and scheduled a time for an interview at least a week after the reception of the consent form. I encouraged them to use this time to review the consent form and reach out to me with any questions or concerns.

I conducted both pilot study interviews in April 2024 following the semistructured interview protocol developed during the research proposal process. At the beginning of the interviews, I verbally reviewed the consent forms and asked if there were any questions, comments, or concerns. Before proceeding to the interview

questions, I obtained verbal consent from each volunteer. At the end of the interviews, I took extra time to check with each pilot study participant to determine the reliability and validity of the questions by verifying that the questions were understandable and asking for suggestions for improvement. Neither pilot study volunteer stated that there needed to be changes to the interview protocol as it was constructed, and both participants acknowledged that the questions were understandable. Since no changes were recommended, I determined that the data from the pilot study interviews were suitable to be included in the final data analysis.

Data Collection

During recruitment, I experienced difficulties in acquiring additional interested participants. Beyond the initial two volunteers that constituted my pilot study, no additional volunteers reached out for several months. In this time, I began exploring additional means of recruitment. The partner organization approved further recruitment through regional contacts. From September 2024 to May 2025, I continued to reach out to the regional contacts in an effort to have my recruitment materials redistributed to potential participants.

Out of a possible nine regions of potential recruitment, I confirmed the distribution of materials to potential participants in six regions. From these six regions, an additional five volunteers reached out for potential inclusion in the study. One volunteer withdrew from the study before agreeing to an interview. The remaining four volunteers agreed to interview in March, April, and May 2025.

As with the pilot study volunteers, I reached out to verify that the potential participants met the inclusion criteria for my study:

1. Must be licensed to practice nursing (LPN, RN, etc.)
2. Must be employed by the Louisiana Department of Health or serve as a contractor for the Louisiana Department of Health
3. Must work in a rural parish of Louisiana (explicitly defined rural parishes per the US Census Bureau)
4. Must have an understanding of what SSPs are and why they operate
5. Must have served clients with a history of injection drug use

When determining if participants met the inclusion criteria for the study, I found that several participants did not primarily work in rural parishes; however, all participants' areas of practice either included several rural parishes or included a significant number of clients who resided in rural parishes and traveled to receive services. Due to the overall difficulties in recruiting, I decided to include these volunteers as participants while asking that they focus on their experiences working in rural parishes and serving clients from primarily rural areas.

Once I confirmed the date and time to interview the participants, I sent a copy of the informed consent document for review for at least a week. At this time, I encouraged volunteers to reach out to me with any questions or concerns regarding the study and its outlined procedures. Prior to beginning the collection of data, I verbally reviewed the informed consent document and obtained verbal consent.

As the researcher, I acted as a data collection tool. I utilized a semistructured interview protocol that was validated via a pilot study as a guide to collect data on public health nurses' perceptions of SSPs and how they participate in and facilitate harm reduction in rural areas of a southern state. I completed a total of six interviews, and each was audio-recorded to ensure later accuracy in the transcription process for data analysis. The interviews lasted an average of 32 minutes, with a minimum of approximately 23 minutes and a maximum of approximately 50 minutes.

Data Analysis

I transcribed each interview with a verbatim approach to ensure the transcripts were both accurate and readable for data analysis. I began familiarizing myself with the data as I was transcribing each record, which included at least two passes during transcription and cleaning of the transcripts. I used NVivo 15, a qualitative data analysis software, to help organize and analyze the transcripts from completed interviews. I completed and referred back to reflexive journals upon completing initial transcriptions to help reflect on my experiences and perspectives while also bracketing to keep my biases in check. During a final round of familiarization, I read through the clean transcripts and created memos to capture my thoughts on patterns in the data.

To conduct the data analysis, I used a deductive approach guided by the conceptual framework detailed in Figure 1. I used the codes "Individual Level," "Interpersonal Level," "Community Level," and "Syringe Services Rural" to reflect the different levels of influence guiding my analysis and interpretation of the data. As I again examined the interview transcripts, I began assigning excerpts to each code based on the

codebook definitions. This allowed me to then inductively generate refined themes to apply to answers derived from interview questions that, in turn, addressed the appropriate research questions. I assigned pseudonyms to study participants to protect anonymity in the final results.

Results

As shown in Table 1, all six research participants identified as female. The average age of participants was approximately 50 years. Most participants have spent a significant portion of their public health careers working at the facility at which they are currently located.

Table 1

Demographics of Study Participants.

Participant	Approximate age (Y)	Gender
Grace	44	F
Mia	40	F
Olivia	45	F
Lily	56	F
Elizabeth	53	F
Ava	55	F

Research Question 1

RQ1 aimed to investigate how public health nurses perceived SSPs. Responses addressed general knowledge of SSPs, the perception of access to SSPs for rural communities in the state, and a potential means of mitigating harm in the face of persistent IDU within rural communities.

RQ1: In localities with no syringe services programs, how do public health nurses practicing in rural areas of southern states perceive syringe services programs?

Theme 1: Perspectives of Harm Reduction at the Community Level

Interview Question 7: How would you describe the magnitude of injection drug use in your community?

This question sought to identify whether public health nurses viewed injection drug use as a problem that needed to be addressed at large, looking to establish the need for SSPs and related harm reduction services. Five out of six participants perceived that injection drug use was relatively high in their communities, while the remaining participant described injection drug use as a present issue but not necessarily the most pressing in their area of practice.

Elizabeth stated, “I don’t know the details, but I’m pretty sure there’s significant use in the rural areas.” Ava added, “We just, we know it’s there. We know it’s a bigger problem than what most people think it is.”

Interview Question 8: Tell me about strategies your community implements to address injection drug use. What organizations or programs provide products or services such as sterile syringes, naloxone distribution, bloodborne disease testing, etc.? What kind of referral processes are in place for people who inject drugs to seek these products or services if needed?

This question and its associated probing questions helped to further build a picture of how public health nurses perceived the available resources to address injection drug use in their respective communities. All six participants detailed referral structures that

facilitated PWID to receive services from local health departments and other community organizations. These referral systems involved movement both to and from the local health departments, where sometimes an organization like a rehabilitation facility would send PWID for infectious disease testing, and other times public health nurses would refer clients to outside organizations for testing, treatment, and other follow up for conditions related to IDU.

Grace noted, "Probably the best thing to do is to refer these patients directly to Organization A because they have so many more resources in the area to help get them set up with a place." Lily stated, "We would refer…, and they provide HIV care and bloodwork and medication and testing for clients either with HIV or who have, who are IV drug users." Elizabeth added, "The population that we deal with that inject drugs, they usually come to us through a rehab center. They're already in services."

Theme 2: Individual Level Perceptions of Syringe Services Programs

Interview Question 9: Describe what "syringe services program" means to you.

This question sought to establish the participants' knowledge on the concept of what SSPs are and their understanding of why SSPs operate. All six participants understood the concept of syringe services programs. This understanding extended to the central concept of needle exchange as a means to help prevent the spread of bloodborne diseases. Grace noted the following:

> From my understanding it is an opportunity to decrease the risk of hepatitis C, HIV, and other types of bloodborne diseases… they would use this location as a syringe service to get additional treatment in connection to other social services.

Mia noted

So syringe services program would I guess include all of the aspects including testing and treatment for any bloodborne illnesses associated with it. Then also you know preventive, whether that is going to be referrals for mental health care or treatment facilities. And then also exchange programs.

Interview Question 10: How do you feel about syringe services programs as a strategy to address the opioid crisis in the United States? How would you describe access to syringe services programs in your areas of practice?

This line of questioning sought to further investigate how public health nurses perceived the utility of SSPs in addressing injection drug use and the opioid crisis on a broader scale, including their perception of the accessibility of SSPs in their areas of coverage. For the main question, all six participants expressed the sentiment that SSPs are a potentially needed or helpful intervention for harm reduction in their areas of practice given the likelihood of continued injection drug use. One participant expressed a desire to see more research into the potential downstream effects of SSP establishment in a community, while another expressed a concern with the SSP related service of Narcan distribution leading to higher rates of overdose in their community.

Olivia stated the following:

I mean it's a double-edged sword in a way. I mean people are going to do it regardless. Does it matter if you're offering them free needles or not, they're going to get them somehow, so why not make it a little safer for people?"

Ava added

> I feel that it's needed. It's here. We're not going to snap our fingers and make it go away. If it is here, and if it is something that we have to deal with, then the SSPs are something that are very, very needed, and we need more of them than we have.

From participant responses, a consistent characteristic of SSPs in rural areas is a lack of access. Among the six participants, the perception of a lack of access to SSPs was a regularly expressed sentiment. Several participants noted an awareness of SSPs but noted that rural residents of the state could not reasonably access SSPs. Grace noted, "There's no official syringe service program." Mia also commented, "I don't think that anybody does a sterile syringe exchange outside of City A in our area." Olivia stated the following:

> It's not very easily accessible. It is for some people, but like I said, you get certain criteria that you have to meet, and you do have to live inside a certain area, which is not a majority of the people who need it.

Interview Question 11: If your community or workplace established a syringe services program, how do you think you may be involved? How might your normal job duties or clientele be impacted by the establishment of a syringe services program?

This question and probe sought to elucidate the perceived involvement of public health nurses in the implementation of SSPs in their areas of practice. All six respondents expected that they might be involved with an SSP if established in their area of practice, however, the perceived level of involvement varied by participant. Some expected a more administrative or educational role, while others noted potential roles in clinical

implementation and community promotion. Collectively, participants expressed the sentiment that overall job duties would not necessarily be heavily impacted and clientele would generally stand to benefit, at least clientele with a history of injection drug use. Grace said, "I think I'd be pretty involved in just the organization of it, getting them out, counting, follow up." Ava added the following:

> They would absolutely. We see people on a daily basis who might need the syringe service programs. Who definitely need referrals. Who definitely need help. They need education, they need people who care. When they come in, we offer them everything that we can offer them.

Research Question 2

Research question 2 aimed to address how public health nurses participate in harm reduction for PWID. Relevant interview questions explored typical public health nurse service provision, injection drug use behaviors, and stigma around people who inject drugs in rural areas.

RQ2: In localities with no syringe services programs, how do public health nurses practicing in rural areas of southern states participate in harm reduction for people who inject drugs?

Theme 3: Syringe Services Program Services in Rural Areas

Interview Question 6: What types of services do you typically provide at your place of work?

The most common analogs to SSP service provision offered by public health nurses in rural areas were STI testing, bloodborne disease testing, and a combination of

both referrals to partner organizations for further treatment and receiving referrals from other community organizations.

Grace said, "…STD testing, and of course we coordinate with other providers for different issues such as mental health, behavioral health, HIV." Mia added, "…we also have Narcan, we also do fentanyl test strips, but we don't do syringe exchanges or anything like that." Lily stated, "We test for STIs including those bloodborne diseases as well, the Hep C, HIV, and syphilis."

Interview Question 8: Tell me about strategies your community implements to address injection drug use. What organizations or programs provide products or services such as sterile syringes, naloxone distribution, bloodborne disease testing, etc.? What kind of referral processes are in place for people who inject drugs to seek these products or services if needed?

In addition to providing answers and context to Research Question 1, Interview Question 8 addressed Research Question 2 by expanding on public health nurses' role in facilitating harm reduction through referral to community partner organizations. As previously noted, participants noted how existing referral systems, both formal and informal, helped provide services typical to SSPs to people who inject drugs. Ava stated the following:

> If they come in, if they do disclose to us that they have a substance use disorder, then we are able to give them the services. We can offer them testing, we can offer them condoms. We of course do all the education that we could possibly offer. Then we also have social workers that are available to us so we can refer

them to social workers. We give them Narcan if they will take Narcan, and we give them education on that. We do referrals to treatment centers. We do tell them about SSPs.

Theme 4: Stigma at the Individual and Interpersonal Levels of Influence

Interview Question 12: If you have had clients with a known history of injection drug use, what types of injection behaviors have they typically reported? How often do clients report injecting drugs? With whom do clients report injecting? At what types of places do clients report injecting?

This question investigated injection drug use behaviors in rural areas to help build a picture of the rural drug use environment, including but not limited to how stigma may affect using behaviors. Responses to this line of questioning varied significantly, with public health nurses reporting both that clients willingly offer injection drug use behaviors and others being hesitant to share beyond what is necessary for a clinical assessment. There was also sentiment expressed that these types of questions are not typically asked in a clinical assessment of a person who reports injection drug use behavior. However, in clients that reported use and shared behaviors, some admitted to sharing and using with friends or family present, and locations and timing of use was whenever and wherever possible, which was sometimes at home and sometimes on the streets. Mia said, “One of the recent ones that did you know talk to about it, he lives in a house with four other people that all use drugs, and they just use at home.”

Grace stated the following:

> They do not really tell us if they share or anything or if they clean. They do tell us you know how often they use, and then what methods they use to get a good vein, but that's kind of as far as it goes."
>
> Olivia added
>
> Well we don't really ask 'em that, so I guess I wouldn't really know. We don't really, we just, it's like more presentation, like, we're just like do you use IV drugs or do you have a history of that.

Interview Question 13: How do clients with a known history of injection drug use report accessing syringes to use for injecting drugs?

This question further explored how syringe access is impacted for people who inject drugs, with the potential backdrop of community stigma and the general environment. Five out of six participants stated that where clients access syringes is neither asked nor typically reported by clients. One participant noted that clients in their area of practice reported accessing syringes via pharmacies in the area. Olivia noted, "A majority of them say that they get it from the pharmacy." Elizabeth added, "They don't necessarily report it. They don't necessarily report where they access their syringes."

Interview Question 14: How do you feel about providing services to people who inject drugs?

Participants overall expressed a willingness to respect each individual patient regardless of their history of injection drug use. This sentiment was present even in the context of potential underlying disagreement with personal decisions or behaviors of injection drug users. Grace stated, "I mean they need services just like anybody else, it's

a public health role." Elizabeth added, "So you know, just treat 'em like everybody with just the needs they have at the time. And wish 'em well." Ava stated, "I really, really do try very, very hard not to judge other people based on the fact that we're all humans. Judging somebody isn't helping all of us. It's just making them feel bad."

Interview Question 15: How have clients that reported injection drug use described their experiences with seeking care or treatment for injection drug use and related complications such as bloodborne infections, injection wounds, substance use disorders, etc.?

This question sought to explore further context of injection drug user's experiences with healthcare in rural areas. It also offered insights on comparisons of the participants' clients' experiences in rural health units compared to other organizations that provided similar services in the area. Two participants reported versions of potential stigma, where clients coming in would not explicitly report having negative healthcare experiences related to stigma, but their demeanors would reflect potential negative past experiences. Two participants noted that clients often enroll in harm reduction type services due to being part of a rehab program, where there virtually was not a choice given the other option was jail.

Lily stated the following:

> Well, like I said, the majority of those we see are in our local inpatient rehab, but most of them will say they have been, they have an option of either being jailed or going, attending a rehab program. So of course they choose the rehab program, and most of them say they have been to many in several different places, and the

one that's in our town, oftentimes people say that it's the best one they've ever been to."

Ava said the following:

With the people that we mostly see through our health unit, they all come in and you can tell that they have been hurt or embarrassed or not treated like they should be treated. They come in, they have their head down when you ask them questions, they're not always speaking where you can hear them.

Evidence of Trustworthiness

To establish and maintain credibility within the study, I conducted member-checking within interviews to assure that I heard and understood answers clearly. Throughout data collection and analysis, I maintained reflexive journals and memos to document my thought processes following interviews and familiarization with the data. I conducted bracketing to note my biases and thoughts that may influence my interpretation of data during data analysis.

To ensure transferability of the study, I utilized a thick description approach. I attempted to take notes during interviews to identify context, tone changes, and other nonverbal cues that may have reflected participant feelings or sentiment during responses. During data analysis and writing of results, I attempted to include descriptions of context and meaning behind participant responses.

I maintained and will continue to enhance dependability of this study by establishing and maintaining audit trails of my data collection and analysis processes. My audit trail will include data collection logs, reflexive journals and memos, and

maintenance of secure data storage on my personal device. My established audit trails and reflexive journaling will also help enhance and maintain the confirmability of my study. The documents and files in my audit trails will allow third party reviewers to review my research process as necessary.

Summary

In Section 3, I presented a summary of the results of data collection and analysis. I characterized the broad demographics of the study participants and noted the setting in which data was collected. I noted my process for data analysis. I then presented the results by matching interview questions with selected and representative quotations as well as associated themes guided by my proposed conceptual framework. In Section 4, I interpreted the results and mapped my findings to the proposed conceptual framework. I proposed implications for social change and professional practice based on the results of my study. I also discussed recommendations for future research, study limitations, and summarized the conclusions from this study.

Section 4: Application to Professional Practice and Implications for Social Change

Introduction

The purpose of this qualitative study was to explore the perceptions of syringe services programs held by public health nurses practicing in rural areas with no existing SSPs in southern states and ascertain their potential roles in facilitating harm reduction for people who inject drugs. This study found that IDU was a problem worthy of addressing due to its magnitude in rural areas. Public health nurses viewed SSPs as a viable option to offer harm reduction services; however, they perceived that there is a significant lack of access to SSPs as a resource in rural areas. Public health nurses helped facilitate harm reduction similar to SSPs through normal service provision, including but not limited to infectious disease testing and referral to community organizations for substance use and mental health treatment. Stigma is present in rural settings, where fear of judgment and potential experiencing of stigmatization impact PWID. Public health nurses report holding true to public health principles of community health and avoiding stigmatizing PWID as patients.

Interpretation of the Findings

Theme 1: Perspectives of Harm Reduction at the Community Level

At the community level, public health nurses offered perspectives on the magnitude of injection drug use and the existing community resources to address the issue. The majority of participants acknowledged that injection drug use was a considerable problem in their areas of practice; variation existed in the types of drugs used and, to a lesser degree, where people chose to use drugs. Additionally, there was

variation in the magnitude itself, with one participant expressing that drug use was not the most pressing community issue, while another noted that the community at large may not have been aware of the true magnitude of drug use. These results somewhat mirror the findings of Childs et al. (2021), who posited that misrepresentation of data on drug overdose deaths may prevent communities from understanding the full impact of drug use in their area. The main difference in findings arises from Childs et al., who further explored the reasons behind community misunderstandings of drug use magnitude. However, the findings from this study do somewhat align with those of Baker et al. (2020), who surveyed a convenience sample of adults in a rural Virginia county, finding that 90% of participants believed that IDU was a problem in their county of residence. The findings from this study build on the findings of Baker et al. by showing that health professionals in rural areas, in this case, public health nurses, may be seeing a similar community impact of drug use as community members at large.

Given the lack of established SSPs, harm reduction strategies are presented differently at the community level in rural areas. Most frequently, public health nurses detailed a sometimes complex referral structure to address harm reduction needs from infectious disease testing to substance abuse treatment or referrals. Behrends et al. (2022) detailed how existing SSPs in the United States offered a variety of services that addressed multiple needs of PWID; along with needle exchange, SSPs were found to offer infectious disease testing, mental health treatment or referrals, and wound care. Wenger et al. (2021) noted that an element of SSPs in their adaptation to the challenge of the COVID-19 pandemic was both leaning on existing partnerships with other

organizations within the community and creating new partnerships to increase services provided. These findings, along with those of my study, show a common thread in the provision of harm reduction services for PWID both in areas with established SSPs and those without SSPs: comprehensive harm reduction services are rarely all located in one facility. Based on public health nurse responses, local health units helped clients navigate harm reduction and recovery through formal and informal referral structures to local organizations that would get clients testing for infectious diseases such as HIV and hepatitis C, access to supplies such as Narcan and fentanyl test strips, and referral to mental health and substance use disorder treatment.

Theme 2: Individual Level Perceptions of Syringe Services Programs

Public health nurses shared largely consistent knowledge of SSPs, their reason for existing, and the services typically provided. Participants in this study noted the syringe exchange component inherent to all SSPs but also identified the provision of other related services such as bloodborne disease testing and either treatment or referrals for mental health care. Public health nurses shared similar opinions on SSPs' potential utility in addressing injection drug use in rural communities, speaking to the understanding that PWID would continue using drugs; therefore, harm reduction was a necessary step in protecting the health of the community. While acknowledging this, participants kept some measure of separation between identifying the utility of SSPs and outright supporting their establishment in rural areas of practice. Baker et al. (2020) found a positive correlation between comprehensive harm reduction programs and the belief that these programs would reduce IDU among community members of a rural county in

Virginia. Ezell et al. (2021b) interviewed a variety of community stakeholders, including an emergency medicine physician who similarly noted the reality that PWID may continue using, therefore providing clean needles may be useful regardless of personal reservations about harm reduction strategies.

Participants detailed the perception of a lack of access to SSPs in rural areas of their practice. Of note, study participants identified little to no SSP access in the entirety of the rural areas of service provision. Participants discussed how rural clients could not be reasonably expected to acquire sterile syringes on a consistent basis, given the lack of access to sterile syringes, at least via SSPs. Participants detailed how SSPs most consistently resided in the larger cities located within the state, which meant traveling for an hour or more for clients wishing to access such services. This amounted to most clients not consistently having access to sterile syringes. Davis et al. (2018) described a similar picture in West Virginia, where clients of an SSP reported having to travel one to two hours to access an SSP and its services. Ibragimov et al. (2021) detailed a scarcity of access to clean syringes in rural Kentucky, where PWID faced difficulty purchasing syringes over the counter and would often have to travel considerable distances to access syringes in larger cities. In non-urban communities of Strafford County, New Hampshire, Pollini et al. (2021) found that a frequently reported barrier to accessing syringes was a lack of transportation, whether due to lack of a private vehicle or scarcity of public transportation. Thakarar et al. (2022) also found that PWID in Maine had difficulty accessing SSPs due to a lack of reliable transportation and the distance to the nearest SSP.

When addressing their potential involvement in the establishment of an SSP and providing services related to the establishment of SSPs, participants generally did not expect a significant change in their typical work duties. Varying roles in their respective areas of practice may explain variation in expectation of duties, where some public health nurses expected to take on more educational or administrative roles, while others expected to see potential changes in clinical responsibilities and community promotion of services. In contrast, Davis et al. (2018) conducted a case study of SSPs in West Virginia, one of which was located in a local health department and staffed at least in part by nursing staff. Drawing from a national sample of SSPs, Wenger et al. (2021) noted that three SSPs surveyed in their study were housed in local health departments. Cooper et al. (2022) interviewed staff in established SSPs in Kentucky about their perceptions and experiences before, during, and after the establishment of SSPs in local health departments. Cooper et al. found that several staff initially opposed the establishment of SSPs in their service areas because local health department staff were expected to expand their existing duties and help run the new SSP services. This contrasts slightly with the findings of my study, where the public health nurses at least did not seem to expect to be overwhelmed or overburdened with new responsibilities. The difference, however, may be found in the expectation of an SSP being established out in the community as a separate resource as opposed to being established within the local health unit, like in other rural areas.

Theme 3: Syringe Services Program Services in Rural Areas

While SSPs largely do not exist in rural areas, a combination of professional organizations and public servants fills in to provide equivalent services to comprehensive harm reduction. Participants outlined their typical work duties; alignment with SSP services presented as infectious disease testing for bloodborne pathogens, Narcan distribution, and referral to outside organizations for other services not offered at local health departments. The main service missing, however, is a sterile syringe exchange. In this environment, it is reasonable to assume that at least some needs are being met for local PWID regarding identifying and treating infectious diseases transmitted by IDU and addressing mental health and substance use disorders. Krawczyk et al. (2022) found a similar picture in a survey of programs across 10 states in the United States that offered SSP services and MOUD treatment. Krawczyk et al. found that a variety of organizations addressed SSP and MOUD needs for people who use drugs, though generally a single organization did not offer all services under the harm reduction umbrella.

Additionally, Krawczyk et al. found that such organizations were a mix of non-profit, city or state-run, and university or medical organization-run. Bolinski et al. (2022) interviewed people who use drugs in southern Illinois, which is largely rural, and found that with the assistance of a regional community-based organization that utilized a mobile health unit, harm reduction services were perceived to be accessible, even when faced with the challenge of the COVID-19 pandemic potentially interrupting services. This suggests that, similar to the findings of my study, PWID may have to access multiple

organizations, whether via referral or another process, to receive all services related to harm reduction.

Theme 4: Stigma at the Individual and Interpersonal Levels of Influence

Based on responses from study participants, questions regarding IDU behaviors are typically not asked in a clinical setting, though some clients will volunteer certain information such as locations of use and with whom they inject. Noted places of use varied from virtually anywhere to at home, but the general sentiment was that use is accomplished out of the sight of others, presumably out of fear of stigmatization. This is consistent with findings of Fadanelli et al. (2020), where rural residents of eastern Kentucky detailed use at home and other locations to evade law enforcement and to avoid potential community stigmatization. Similarly, Lancaster et al. (2020) noted barriers to accessing SSP services in rural, Appalachian Kentucky included fear of being seen and breaches of confidentiality. White et al. (2021) found that in a rural county in West Virginia, receptive syringe sharing was correlated with public injection, where public injection was defined as injecting at locations such as businesses, public bathrooms, abandoned buildings, etc. When reporting injection partners, study participants relayed that clients referenced using with friends and family on some occasions. Cloud et al. (2019) found instances of interfamilial drug use in rural Kentucky, where families reportedly contributed to positive aspects such as social support and negative aspects such as patterns of addiction.

In the context of stigma in the healthcare environment, study participants expressed an adherence to the principals of public health practice. Specifically, the

general sentiment identified that while study participants, fellow professionals, or the community at large may have reservations about drug use and harm reduction practices, it is the duty of public health nurses to provide an environment free of judgment and treat patients that come seeking services with dignity and respect. However, some participants observed clients that they believed had negative experiences, though the context of the experienced stigma was not specified to other healthcare settings. Surratt et al. (2021) found that a majority of PWID in their study reported experiencing stigma from healthcare providers; additionally, risky injection behaviors were associated with enacted healthcare stigma in their study. Muncan et al. (2020) interviewed PWID in New York City, finding that prior negative experiences in healthcare settings may have contributed to anticipated stigma in future healthcare settings such as SSPs. However, PWID generally noted more positive experiences when accessing SSPs. While SSPs are generally not accessible in rural areas of my area of study, at least one public health nurse noted clients that reported positive healthcare experiences when receiving services at a local health department compared to prior facilities.

Limitations of the Study

I interviewed a total of six participants for this study. Creswell and Poth (2018) noted that phenomenological studies typically feature somewhere between three and fifteen participants. Although the study participants I interviewed did not perfectly match the stated recruitment criteria, I chose to include study volunteers that most closely matched the criteria. This typically meant that the study participants did not work exclusively with rural populations or at a rural health department. However, each of the

included study participants served rural populations in some capacity, and I requested that during the interview they keep in mind their experiences working in rural areas or with rural populations. This also potentially reduces the transferability of this study to the study population of interest, but it may also expand transferability to professionals that have experience working with both rural and urban populations who have perspective on areas with and without access to SSPs.

Recommendations

In this study, I found that public health nurses generally acknowledged the utility and need of SSPs in areas where injection drug use existed among rural communities. However, at least one participant expressed hesitation and a desire for further research into the potential downstream effects of establishing such a service within the community, particularly effects that could be perceived as negatively impacting the health and safety of others in the community. Additionally, participants in this study shared an ability to respect individuals seeking treatment and harm reduction services despite said individuals performing stigmatized behaviors such as injection drug use; this sentiment was born out of an adherence to the standards of their profession and the practice of public health. Cooper et al. (2022) interviewed staff of existing SSPs and detailed how staff progressed from a position of opposition to SSPs prior to their establishment to becoming advocates shortly afterwards. Drivers of this change in perception and practice arose from technical training, seeing positive outcomes associated with SSP service provision, and partnering with previously established SSPs. Further research could explore similar concepts with rural public health nurses, though in

the context of interviewing potential local health department staff prior to an SSP existing in the area. Research could also explore the willingness of rural public health nurses to become community and organizational advocates for SSPs in their areas of practice, what this would look like in practice, and how specifically it could be accomplished in the context of complex legal, community stigma, and resource poor rural environments.

Implications for Professional Practice and Social Change

Professional Practice

Several study participants noted that questions specific to IDU behaviors like needle sharing partners, locations of injection, and frequency of injection are not typically asked in their patient populations. The study participants noted that while answers to these questions would occasionally be volunteered by clients, they perceived that it was best not to inquire beyond what was necessary from a clinical standpoint, which was ascertaining what infectious disease testing and other referrals were needed. Some participants expressed the belief that pursuing these lines of questioning too much may result in clients feeling judged and act as a deterrent to seeking services further down the line. In practice, at least in rural environments where drug use behavior is highly stigmatized, it may be best to continue with this approach to best serve rural populations. Further inquiry into drug use behavior and identifying where PWID typically access syringes may be useful to inform policymakers of the current community environment and need for SSPs or related services.

A lack of SSPs in rural areas continues to be a barrier to accessing related services for rural PWID, which was noted by the study participants. While public health nurses

are aware of SSPs operating within the state, contact with these organizations was not consistently noted. When health department staff began operating newly established SSPs in Kentucky, one of the boons to their success and acceptance of SSPs as a viable harm reduction strategy was to visit an already operating SSP to see how things functioned, what the typical clientele looked like, and obtain technical assistance for operations (Cooper et al., 2022). A similar process may be advisable in rural areas of other states, where exposure to SSP operations, observing the typical patient population, and seeing the impact of service provision may build confidence in the concept and work towards advocating for these services in more rural communities.

Positive Social Change

This study has the potential to affect positive social change by providing information for professionals and policymakers on the current perceptions of SSPs in rural areas of the state and how public health nurses help facilitate harm reduction. In several rural areas of the state, study participants identified IDU as an issue of significant enough magnitude to need addressing at the community level. Study participants noted the utility in expanding harm reduction services in rural areas, even given community reservations. Several study participants also framed SSPs and harm reduction in the context of protecting community health from further harm, with related services hopefully helping to reduce the transmission of bloodborne pathogens, linking affected individuals to needed substance use services and mental health services, and potentially reducing community exposure to discarded syringes.

Conclusions

The purpose of this qualitative study was to explore the perceptions of syringe services programs held by public health nurses practicing in rural areas with no existing SSPs in southern states and ascertain their potential roles in facilitating harm reduction for people who inject drugs. Interviews helped identify that IDU in rural communities was of a magnitude sufficient to be further addressed. While many services analogous to those provided by SSPs are available through collaboration between local health units and community organizations, there is a lack of access to sterile syringe exchange and SSPs themselves in rural areas, leaving PWID with few options to obtain sterile syringes and prevent spread of bloodborne pathogens such as hepatitis C, hepatitis B, and HIV. Public health nurses practicing in rural areas expressed a desire to protect community health and provide services to PWID without further contributing to potential stigma experienced within the community.

References

American Public Health Association. (2013). *The Definition and Practice of Public Health Nursing*. https://www.apha.org/~/media/files/pdf/membergroups/phn/nursingdefinition.ashx

Allen, S. T., Grieb, S. M., O'Rourke, A., Yoder, R., Planchet, E., White, R. H., & Sherman, S. G. (2019). Understanding the public health consequences of suspending a rural syringe services program: A qualitative study of the experiences of people who inject drugs. *Harm Reduction Journal, 16*(1), 1–10. https://doi.org/10.1186/s12954-019-0305-7

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

Behrends, C. N., Lu, X., Corry, G. J., LaKosky, P., Prohaska, S. M., Glick, S. N., Kapadia, S. N., Perlman, D. C., Schackman, B. R., & Des Jarlais, D. C. (2022). Harm reduction and health services provided by syringe services programs in 2019 and subsequent impact of COVID-19 on services in 2020. *Drugs and Alcohol Dependence, 232*, 109323. https://doi.org/10.1016.j.drugalcdep.2022.109323

Biancarelli, D. L., Biello, K. B., Childs, E., Drainoni, M., Salhaney, P., Edeza, A., Mimiaga, M. J., Saitz, R., & Bazzi, A. R. (2019). Strategies used by people who

inject drugs to avoid stigma in healthcare settings. *Drug & Alcohol Dependence, 198,* 80–86. https://doi.org/10.1016/j.drugalcdep.2019.01.037

Billups, F. (2021). Conducting the qualitative study: Researcher role, access, trustworthiness, and ethical concerns. In Billups, F. (2021). *Qualitative data collection tools: Design, development, and applications* (pp. 23–35). SAGE Publications, Inc. https://doi.org/10.4135/9781071878699

Bolinski, R. S., Walters, S., Salisbury-Afshar, E., Ouellet, L. J., Jenkins, W. D., Almirol, E., Van Ham, B., Fletcher, S., Johnson, C., Schneider, J. A., Ompad, D., & Pho, M. T. (2022). The impact of the COVID-19 pandemic on drug use behaviors, fentanyl exposure, and harm reduction service support among people who use drugs in rural settings. *International Journal of Environmental Health Research and Public Health, 19*(4). https://doi.org/10.3390/ijerph19042230

Bosh, K. A., Coyle, J. R., Hansen, V., Kim, E. M., Speers, S., Comer, M., Maddox, L. M., Khuwaja, S., Zhou, W., Jatta, A., Mayer, R., Brantley, A. D., Muriithi, N. W., Bhattacharjee, R., Flynn, C., Bouton, L., John, B., Keusch, J., Barber, C. A., & Sweet, K. (2018). HIV and viral hepatitis coinfection analysis using surveillance data from 15 US states and two cities. *Epidemiology & Infection, 146*(7), 920–930. https://doi.org/10.1017/S0950268818000766

Bronfenbrenner, U. (1977). Toward an experimental ecology of human development. *American Psychologist, 32*(7), 513–531.

Broz, D., Zibbell, J., Foote, C., Roseberry, J. C., Patel, M. R., Conrad, C., Chapman, E., Peters, P. J., Needle, R., McAlister, C., & Duwve, J. M. (2018). Multiple

injections per injection episode: High-risk injection practice among people who injected pills during the 2015 HIV outbreak in Indiana. *The International Journal on Drug Policy, 52*, 97–101. https://doi.org/10.1016/j.drugpo.2017.12.003

Bunting, A. M., Oser, C. B., Staton, M. Eddens, K. S., & Knudsen, H. (2018). Clinician identified barriers to treatment for individuals in Appalachia with opioid use disorder following release from prison: A social ecological approach. *Addiction Science & Clinical Practice, 13*, 23. https://doi.org/10.1186/s13722-018-0124-2

Carnes, N. A., Asher, A. K., Bohm, M. K., & Bessler, P. A. (2021). Access to HIV, viral hepatitis, and substance use disorder treatment/overdose prevention services: A qualitative analysis of syringe services programs (SSPs) serving rural PWID. *Substance Use & Misuse, 56*(13), 1933–1940. https://doi.org/10.1080/10826084.2021.1958863

Centers for Disease Control and Prevention. (n.d.). *Syringe Services Programs*. https://www.cdc.gov/hiv/effective-interventions/prevent/syringe-services-programs/index.html#:~:text=Syringe%20Services%20Programs%20(SSPs)%20are,injection%20equipment%20for%20each%20injection

Childs, E., Biello, K. B., Valente, P. K., Salhaney, P., Biancarelli, D. L., Olson, J., Earlywine, J. J., Marshall, B. D. L., & Bazzi, A. R. (2021). Implementing harm reduction in non-urban communities affected by opioids and polysubstance use: A qualitative study exploring challenges and mitigating strategies. *The International Journal on Drug Policy, 90*, 103080. https://doi.org/10.1016/j.drugpo.2020.103080

Cloud, D. H., Ibragimov, U., Prood, N., Young, A. M., & Cooper, H. L. F. (2019). Rural risk environments for hepatitis c among young adults in Appalachian Kentucky. *The International Journal on Drug Policy, 72*, 47–54. https://doi.org/10.1016/j.drugpo.2019.05.006

Cooper, H. L. F., Gross, S., Klein, E., Fadanelli, M., Ballard, A., Lockard, S., Batty, E., Young, A., & Ibragimov, U. (2022). Capacity for sustainment of recently established syringe service programs in Appalachian Kentucky: The central role of staff champions. *Drug & Alcohol Review*, *41*(4), 863–872. https://doi.org/10.1111/dar.13436

Crawford, L. M. (2020). Qualitative research designs. In Burkholder, G. J., Cox, K. A., Crawford, L. M., & Hitchcock, J. H. (Eds.)., *Research designs and methods: An applied guide for the scholar-practitioner* (pp. 81–98). SAGE Publications.

Creswell, J. W. & Poth, C. N. (2018). Five qualitative approaches to inquiry. In Creswell, J. W. & Poth, C. N. (Eds)., *Qualitative inquiry and research design: Choosing among five approaches* (p. 124).

Davis, S. M., Davidov, D., Kristjansson, A. L., Zullig, K., Baus, A., & Fisher, M. (2018). Qualitative case study of needle exchange programs in the Central Appalachian region of the United States. *PloS One, 13*(10), e0205466. https://doi.org/10.1371/journal.pone.0205466

Davis, S. M., Kristjansson, A. L., Davidov, D., Zullig, K., Baus, A., & Fisher, M. (2019). Barriers to using new needles encountered by rural Appalachian people who inject drugs: implications for needle exchange. *Harm Reduction Journal, 16*(1).

https://doi.org/10.1186/s12954-019-0295-5

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

Ezell, J. M., Ompad, D. C., & Walters, S., (2021a). How urban and rural built environments influence the health attitudes and behaviors of people who use drugs. *Health & Place, 69*. https://doi.org/10.1016/j.healthplace.2021.102578

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

Fadanelli, M., Cloud, D. H., Ibragimov, U., Ballard, A. M., Prood, N., Young, A. M., & Cooper, H. L. F. (2020). People, places, and stigma: A qualitative study exploring the overdose risk environment in rural Kentucky. *The International Journal on Drug Policy, 85*, 102588. https://doi.org/10.1016/j.drugpo.2019.11.001

Glick, S. N., Prohaska, S. M., LaKosky, P. A., Juarez, A. M., Corcorran, M. A., & Des Jarlais, D. C. (2020). The impact of COVID-19 on syringe services programs in the United States. *AIDS & Behavior, 24*(9), 2466–2468. https://doi.org/10.1007/s10461-020-02886-2

Ibragimov, U., Cooper, K. E., Batty, E., Ballard, A. M., Fadanelli, M., Gross, S. B.,

Klein, E. M., Lockard, S., Young, A. M., & Cooper, H. L. F. (2021). Factors that influence enrollment in syringe services programs in rural areas: A qualitative study among program clients in Appalachian Kentucky. *Harm Reduction Journal, 18*(1), 1–15. https://doi.org/10.1186/s12954-021-00518-z

Jones, C. M. (2019). Syringe services programs: An examination of legal, policy, and funding barriers in the midst of the evolving opioid crisis in the U. S. *The International Journal on Drug Policy, 70*, 22–32. https://doi.org/10.1016/j.drugpo.2019.04.006

Kadri, A. N., Wilner, B., Hernandez, A. V., Nakhoul, G., Chahine, J. Griffin, B., Pettersson, G., Grimm, R., Navia, J., Gordon, S., Kapadia, S. R., & Harb, S. C. (2019). Geographic trends, patient characteristics, and outcomes of infective endocarditis associated with drug abuse in the United States from 2002 to 2016. *Journal of the American Heart Association, 8*(19), 1–10. https://doi.org/10.1161/JAHA.119.012969

Kerr, J., Atlas, M., Crabtree, W., Chen, Y. T., & Moyer, S. (2019). Examining social-ecological factors in developing the Louisville Metro Department of Public Health and Wellness Syringe Exchange Program. *American Journal of Public Health, 109*(3), 454–457. https://doi.org/10.2105/AJPH.2018.304897

Krawczyk, N., Allen, S. T., Schneider, K. E., Solomon, K., Shah, H., Morris, M., Harris, S. J., Sherman, S. G., & Saloner, B. (2022). Intersecting substance use treatment and harm reduction services: exploring the characteristics and service needs of a community-based sample of people who use drugs. *Harm Reduction Journal,*

19(1), 1–10. https://doi.org/10.1186/s12954-022-00676-8

Lancaster, K. E., Cooper, H. L. F., Browning, C. R., Malvestutto, C. D., Bridges, J. F. P., & Young, A. M. (2020). Syringe service program utilization, barriers and preferences for design in rural Appalachia: Differences between men and women who inject drugs. *Substance Use & Misuse, 55*(14), 2268–2277. https://doi.org/10.1080/10826084.2020.1800741

Marotta, P. L., Stringer, K., Beletsky, L., West, B. S., Goddard-Eckrich, D., Gilbert, L., Hunt, T., Wu, E., & El-Bassel, N. (2021). Assessing the relationship between syringe exchange, pharmacy, and street sources of accessing syringes and injection drug use behavior in a pooled nationally representative sample of people who inject drugs in the United States from 2002 to 2019. *Harm Reduction Journal, 18*(1), 1–8. https://doi.org/10.1186/s12954-021-00565-6

McLeroy, K. R., Bibeau, D., & Glanz, K. (1988). An ecological perspective on health promotion programs. *Health Education Quarterly, 15*(4), 351–377. https://doi.org/10.1177/109019818801500401

Mihas, P. (2020). Qualitative analysis. In Burkholder, G. J., Cox, K. A., Crawford, L. M., & Hitchcock, J. H. (Eds.)., *Research designs and methods: An applied guide for the scholar-practitioner* (pp. 99–112). SAGE Publications.

Miller-Lloyd, L., Landry, J., Macmadu, A., Allard, I., & Waxman, M. (2020). Barriers to healthcare for people who inject drugs: A survey at a syringe exchange program. *Substance Use & Misuse, 55*(6), 896–899. https://doi.org/10.1080/10826084.2019.1710207

Montaque, H. D. G., Christenson, E., Spector, A., Wogen, J., McDonald, M., Weeks, M. R., Li, J., & Dickson-Gomez, J. (2022). Mechanisms for expanding harm reduction for opioid use in suburban and rural U. S. settings. *Journal of Drug Issues,* 1. https://doi.org/10.1177/00220426221108694

Motavalli, D., Taylor, J. L., Childs, E., Valente, P. K., Salhaney, P., Olson, J., Biancarelli, D. L., Edeza, A., Earlywine, J. J., Marshall, B. D. L., Drainoni, M., Mimiaga, M. J., Biello, K. B., & Bazzi, A. R. (2020). "Health is on the back burner." Multilevel barriers and facilitators to primary care among people who inject drugs. *JGIM: Journal of General Internal Medicine, 36*(1), 129–137. https://doi.org/10.1007/s11606-020-06201-6

Muncan, B., Walters, S. M., Ezell, J., & Ompad, D. C. (2020). "They look at us like junkies": Influences of drug use stigma on the healthcare management of people who inject drugs in New York City. *Harm Reduction Journal, 17*(1), 1–9. https://doi.org/10.1186/s12954-020-00399-8

Nassau, T., Al-Tayyib, A., Robinson, W. T., Shinefeld, J., Brady, K. A., Burton, D. C., Dean, H. D., & Mermin, J. H. (2020). The impact of syringe services program policy on risk behaviors among persons who inject drugs in 3 US cities, 2005-2015. *Public Health Reports, 135*(Supplement 1), 138S–148S. https://doi.org/10.1177/0033354920930137

Palombi, L. C., St Hill, C. A., Lipsky, M. S., Swanoski, M. T., & Lutfiyya, M. N. (2018). A scoping review of opioid misuse in the rural United States. *Annals of Epidemiology, 28*(9), 641–652. https://doi.org/10.1016/j.annepidem.2018.05.008

Paquette, C. E., & Pollini, R. A. (2018). Injection drug use, HIV/HCV, and related services in nonurban areas of the United States: A systematic review. *Drug & Alcohol Dependence, 188*, 239–250. https://doi.org/10.1016/j.drugalcdep.2018.03.049

Pollini, R. A., Paquette, C. E., Slocum, S., & LeMire, D. (2021). 'It's just basically a box full of disease' – navigating sterile syringe scarcity in a rural New England state. *Addiction, 116*(1), 107–115. https://doi.org/10.1111/add.15113

Saloner, B., McGinty, E. E., Beletsky, L., Blutenthal, R., Beyrer, C., Botticelli, M., & Sherman, S. G. (2018). A public health strategy for the opioid crisis. *Public Health Reports, 133*, 24S–34S. https://doi.org/10.1177/0033354918793627

Schranz, A. J., Fleischauer, A., Chu, V. H., Wu, L. T., & Rosen, D. L. (2019). Trends in drug use-associated infective endocarditis and heart valve surgery, 2007 to 2017: A study of statewide discharge data. *Annals of Internal Medicine, 170*(1), 31–40. https://doi.org/10.7326/M18-2124

Surratt, H. L., Otachi, J. K., McLouth, C. J., & Vundi, N. (2021). Healthcare stigma and HIV risk among rural people who inject drugs. *Drug and Alcohol Dependence, 226*. https://doi.org/10.1016/j.drugalcdep.2021.108878

Thakarar, K., Sankar, N., Murray, K., Lucas, F. L., Burris, D., & Smith, R. P. (2021). Injections and infections: Understanding syringe service program utilization in a rural state. *Harm Reduction Journal, 18*(1), 1–8. https://doi.org/10.1186/s12954-021-00524-1

Thakarar, K., Kohut, M., Hutchinson, R., Bell, R., Loeb, H. E., Burris, D., & Fairfield, K.

M. (2022). The impact of the COVID-19 pandemic on people who inject drugs accessing harm reduction services in a rural American state. *Harm Reduction Journal, 19*(1), 1–13. https://doi.org/10.1186/s12954-022-00660-2

United States Census Bureau. (n.d.). *Geographic levels*. https://www.census.gov/programs-surveys/economic-census/guidance-geographies/levels.html

Wenger, L. D., Kral, A. H., Bluthenthal, R. N., Morris, T., Ongais, L., & Lambdin, B. H. (2021). Ingenuity and resiliency of syringe service programs on the front lines of the opioid overdose and COVID-19 crises. *Translational Research: The Journal of Laboratory and Clinical Medicine, 234*, 159–173. https://doi.org/10.1016/j.trsl.2021.03.011

Zibbell, J. E., Asher, A. K., Patel, R. C., Kupronis, B., Iqbal, K., Ward, J. W., & Holtzman, D. (2018). Increases in acute hepatitis c virus infection related to a growing opioid epidemic and associated injection drug use, United States, 2004 to 2014. *American Journal of Public Health, 108*(2), 175–181. https://doi.org/10.2105/AJPH.2017.304132

Appendix A: Recruitment Flyer

Study seeks public health nurses working in rural areas

I am seeking participants for their perceptions on syringe services programs (SSPs) to help public health professionals better understand the opioid crisis in rural communities. For this study, you are invited to describe what you think and how you feel about SSPs.

About the study:

- One 30-60 minute interview that will be audio-recorded
- To protect your privacy, the published study will not share any names or details that identify you

Volunteers must meet these requirements:

- Must be licensed to practice nursing (LPN, RN, etc.)
- Must be employed by the Louisiana Department of Health or serve as a contractor for the Louisiana Department of Health
- Must work in a rural parish of Louisiana
- Must have an understanding of what SSPs are and why they operate
- Must have served clients with a history of injection drug use

This interview is part of the doctoral study for Joel Lowery, a DrPH student at Walden University. Interviews will take place from February 2024 through November 2025.

To confidentially volunteer, contact the researcher:

Joel Lowery
XXX-XXX-XXXX
XXXX@waldenu.edu

Appendix B: Interview Protocol

Demographic Questions

1. In what year were you born?
2. How would you describe your gender?
3. How would you describe your race and ethnicity?
4. How long have you worked as a nurse in a public health capacity?
5. How long have you been working at your current location?

Interview Protocol

Syringe Services Programs

6. What types of services do you typically provide at your place of work?
7. How would you describe the magnitude of injection drug use in your community?
8. Tell me about strategies your community implements to address injection drug use.
    a. What organizations or programs provide products or services such as sterile syringes, naloxone distribution, bloodborne disease testing, etc.?
    b. What kind of referral processes are in place for people who inject drugs to seek these products or services if desired?
9. Describe what "syringe services program" means to you.
10. How do you feel about syringe services programs as a strategy to address the opioid crisis in the United States?
    a. How would you describe access to syringe services programs in your area of practice?

11. If your community or workplace established a syringe services program, how do you think you may be involved?
    a. How might your normal job duties or clientele be impacted by the establishment of a syringe services program?

Injection Drug Use

12. If you have had clients with a known history of injection drug use, what types of injection behaviors have they typically reported?
    a. How often do clients report injecting drugs?
    b. With whom do clients report injecting?
    c. At what types of places do clients report injecting?
13. How do clients with a known history of injection drug use report accessing syringes to use for injecting drugs?

Stigma

14. How do you feel about providing services to people who inject drugs?
15. How have clients that reported injection drug use described their experiences with seeking care or treatment for injection drug use and related complications such as bloodborne infections, injection wounds, substance use disorders, etc.?