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Violent Victimization and Substance Dependency: Comparing Rural Incarcerated Heterosexual and Sexual Minority Women

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Abstract

This exploratory study examines the relationship between sexual identity and violent victimization experiences as predictors of differences in illicit substance and alcohol use and substance use problems among a sample of incarcerated women in rural Appalachia (N = 400). Results indicated that, compared to heterosexual women, sexual minority women were more likely to have a lifetime history of weapon, physical, and sexual assault, and were younger at the time of their first violent victimization. Sexual minority women were younger than heterosexual women at the age of onset for intravenous drug use and at the time they first got drunk, and were more likely to report having overdosed. Multivariate analysis found violent victimization to be the strongest predictor of a history of overdose and substance use problems.

Keywords

incarcerated women; sexual minority offenders; victimization; substance dependency; rural substance use

The number of women incarcerated in the United States has been growing significantly over the last few decades (Minton, 2012). Many of these women have extensive and complex histories involving multiple experiences of physical and sexual assault, as well as significant alcohol and illicit drug use problems (McDaniels-Wilson & Belknap, 2008; Reisig, Holtfreter, & Morash, 2006). Despite mounting evidence suggesting that the lives of criminal justice-involved women are significantly impacted by violent victimization and substance abuse, we know little about how these factors may intersect in the lives of women who identify as sexual minorities (women who self-identify as something other than heterosexual), with the lives of sexual minority women incarcerated in rural areas absent from scholarly inquiry.

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The utility of early research examining alcohol and drug use and related problems among sexual minorities was limited by a number of methodological issues, including reliance on small convenience samples, predominantly gay male participants, and samples from a few large metropolitan areas (e.g., San Francisco, New York City, Los Angeles) (Bux, 1996). Over the last two decades, a growing body of work has continued to refine our understanding of the nature and scope of alcohol and drug use among individuals who identify as gay, lesbian, bisexual, and to a lesser extent, transgender (Green & Feinstein, 2012; Institute of Medicine, 2011).

Research focusing on women has identified higher rates of alcohol (Burgard, Cochran, & Mays, 2005) and substance use (Cochran, 2001; Hughes & Eliason, 2002, Marshal, et al., 2008), greater likelihood of reporting alcohol and drug use-related problems (Cochran, Ackerman, Mays, & Ross, 2004; Cochran, Mays, Alegria, Ortega, & Takeuchi, 2007; Drabble, Midanik, Trocki, 2005; Lehavot, & Simoni, 2011; Midanik, Drabble, Trocki, & Sell, 2006), greater likelihood of experiencing violent victimization (Hughes, McCabe, Wilsnack, West, & Boyd, 2010), and disproportionate rates of justice system involvement (Brown & Manning, 2013; Irvine, 2010) among sexual minority women (the majority of which identify as lesbian or bisexual) compared to heterosexual women. Despite this body of work, we know little about how these factors may intersect to produce similar or different outcomes in the lives of sexual minority women compared to heterosexual women, especially among women living in rural areas. For instance, the rural context may place sexual minority women at increased risk for victimization and substance use problems due to their marginalized status. While there is limited scholarship that explores some of these issues among rural sexual minority women, there are no known studies examining these issues among criminal justice-involved women. With this in mind, the current research considers the relationships between histories of violent victimization, substance use problems, and sexual identity among incarcerated women living in a rural area.

Literature Review

In 2013, Bureau of Justice (BOJ) data indicated that nearly 214,000 women were incarcerated in U.S. jails or prisons, with women constituting approximately 7 percent of the total inmate population (Glaze & Kaeble, 2014). While the proportion of incarcerated men is significantly greater, since 1980 the rate of increase in incarceration for women has been 1.5 times that of men, with a significant portion of the increase coming as a result of drug-related offenses (Guerino, Harrison, & Sabol, 2011).

Criminal justice system data that has been collected through survey research indicates that sexual minority men and women are disproportionately represented among incarcerated adults in the United States (National Institute of Corrections, 2013). Although the continued marginalization of sexual minorities makes accurate estimates difficult, a variety of national studies have produced estimates indicating that between 2.3 and 6.8 percent of the US population identifies as a sexual minority (Gates, 2011; Patterson & D'Augelli, 2012), with an estimated 3 to 4 percent of women identifying as something other than heterosexual (Gates & Newport, 2012). While sexual identity data is not collected as a part of the formal inmate intake process, in 2008 the Bureau of Justice Statistics conducted an inmate survey

that found that approximately 8 percent of the jail population self-identified as a sexual minority (Beck & Johnson, 2012). Other studies have identified disproportionate representation of LGBT youth (Himmelstein & Brückner, 2011; Irvine, 2010; Majd, Marksamer, & Reyes, 2009) and transgender adults (Grant et al, 2010; Brown & Manning, 2013) within justice system data. Despite this, we know fairly little about the life experiences, criminal trajectories, and needs of incarcerated sexual minority women.

Sexual Minority Women in Rural Areas: The Relevance of Place

Despite the absence of research focused on the experiences of incarcerated sexual minority women living in rural areas, research on the relevance of context in the lives of those who identify as sexual minorities is warranted. Rural communities are often characterized as places where everyone knows everyone else (Websdale, 1995), and rural life is informed by a strong adherence to traditional gender norms, conservative political views, and fundamentalist religious beliefs (Dillon & Savage, 2006). In studies that have either focused on heterosexual women or assumed that the respondents were heterosexual, these factors have been found to contribute to greater risk of intimate partner violence (Basile & Black, 2011; DeKeseredy, Donnermeyer, Schwartz, Tunnell, & Hall, 2007; Rennison, Dekeserdy, & Dragiewicz, 2013). For sexual minorities living in rural areas, these cultural values and norms contribute to social isolation, discrimination, victimization, and internalized homophobia, as well as a fear of being outed, should one wish to conceal her/his sexual identity (Barefoot, Rickard, Smalley, & Warren, 2015; Boulden, 2000; Herek, 2002; Horwitz, 2014; Snively, Kreuger, Stretch, Watt, & Chadha, 2004). Meyer (2007) forward the minority stress model to account for ways these factors may put sexual minorities at increased risk for a variety of mental and physical health issues. The central tenet of the minority stress model is that stigma, homophobia, marginalization, and discrimination create a hostile environment that produces unique stressors in the daily lives of sexual minority men and women. These stressors are uniquely associated with one's status as a sexual minority, and they exist in addition to the many stressors that may impact the lives of all individuals. Thus, the additive effect of minority stressors helps account for increased rates of mental health, physical health, and drug and alcohol-related problems identified in the literature. Against the backdrop of the minority stress framework, these studies highlight the need to examine the substance use and victimization experiences of incarcerated sexual minority women residing in rural regions of the U.S.

Violent Victimization Experiences and Substance Use among Criminal Justice Involved Women

Arrest intake data and descriptive studies have consistently identified the prominent role of substance use and abuse, as well as the presence of significant histories of violent victimization, in the profiles of incarcerated women (Browne, Miller, & Maguin, 1999; DeHart, 2008; DeHart, Lynch, & Belknap, 2014; McDaniels-Wilson & Belknap, 2008; Radatz & Wright, 2015).

Substance Use among Incarcerated Women—Over the last twenty years a growing number of studies have documented high rates of substance use among incarcerated women, with many finding that women's rates of substance use and abuse are often much higher than

those reported by incarcerated males. Greenfeld and Snell (1999) reported that approximately half of the incarcerated women in their study were using drugs or alcohol at the time of their arrest and 25 percent of the sample indicated that they had engaged in daily drinking behavior in the year preceding their arrest. Bureau of Justice data for 2011 found that 25 percent of women in state prisons and 59 percent of women in federal prisons were serving time for drug-related crimes (Carson & Sabol, 2012). While the overall proportion of drug-related arrests for women is down from the 58 percent reported by BOJ in 2003, based on self-reported substance use behavior, the reduction is likely a reflection of changes in practices within the criminal justice system rather than any actual decline in drug and alcohol use or involvement in other drug related activity (Lynch, DeHart, Belknap, & Green, 2012).

Regardless of whether or not women were arrested for a drug-related crime, a multi-site study of women in rural and urban jails ($n = 491$) found that 17 percent of the women met the definition for alcohol dependence and 33 percent met the definition for drug dependence (Lynch, DeHart, Belknap, & Green, 2012). These numbers rose to 39 percent and 56 percent, respectively, when you considered lifetime prevalence of alcohol and drug dependence. In a study involving a random sample of 1,272 female arrestees detained in the Cook County Department of Corrections in Chicago, 19 percent met criteria for an alcohol disorder, 47 percent for a drug disorder, and 12 percent met criteria for both drug and alcohol disorders (Abram, Teplin, & McClelland, 2003). By comparison, the National Epidemiologic Survey on Alcohol and Related Conditions, a population-based survey of more than 43,000 non-institutionalized adults in the U.S., identified past 12 months and lifetime prevalence of alcohol disorders among women of 4.9 percent and 19.5 percent, respectively (Hasin, Stinson, Ogburn, & Grant, 2007). Only one known study has compared incarcerated rural and urban women. Specifically, Staton-Tindall and colleagues (2007) found that the two groups of women experience similar (high) rates of substance use and victimization; however, the small sample size limited the exploration of sexual identity.

Despite the lack of research that considers sexual identity differences in substance use and dependence among incarcerated women, a significant body of work focusing on substance use and abuse among sexual minority women, as well as research that compares prevalence, severity, and types of use among heterosexual and sexual minority women in the general population, does exist (Green & Feinstein, 2012; Hughes & Eliason, 2002; Saulnier & Miller, 1997). This research has been fairly consistent in identifying higher levels of alcohol and drug use, as well as substance use-related problems, among sexual minority women compared to women who identify as heterosexual only (Gattis, Sacco, & Cunningham-Williams, 2012; Green & Feinstein, 2012; King, et al., 2008; McCabe, et al., 2009), with a number of studies finding the highest levels of problematic substance use among women who identify as bisexual (Green & Feinstein, 2012; Hughes, Wilsnack, & Kristjanson, 2015; Kerr, Ding, Burk, & Ott-Walter, 2015; McCabe et al., 2009). A secondary data analysis of the 1996 National Household Survey on Drug Abuse compared heterosexual and sexual minority women on lifetime, past 30 days, and daily use of nine classes of drugs. Sexual minority women were more likely to report having used any illicit drug in their lifetime, and they were more likely to indicate that they had used marijuana and analgesics in the 30 days prior to being surveyed (Cochran, Ackerman, Mays, & Ross, 2004). Additionally, lesbian

and bisexual women are typically younger than their heterosexual counterparts at the time of their first drug use (Marshall et al., 2008).

Research examining high risk drug use behavior among sexual minority women is sparse, but does indicate that these women are often managing multiple disadvantaged statuses. For example, in another study involving a convenience sample of 65 sexual minority women who were intravenous drug users living in New York City, Young and colleagues found that the women they interviewed were not only marginalized from the larger predominantly heterosexual community due to their sexual identity, but they were also marginalized from the LGBT community due to their involvement in illicit drug use (Young, Friedman, & Case, 2005; Young, Friedman, Case, Asencio, & Clatts, 2000; Young, Stuber, Ahern, & Galea, 2005).

Violent Victimization Experiences among Incarcerated Women—Violent victimization rates among criminal justice-involved women have been shown to be consistently high across a variety of settings. While BOJ statistics from the 2013 National Crime Victimization Survey reported rates of violent victimization for women in the general population of approximately 23 percent (Truman & Langton, 2014), substantially higher rates have been reported among incarcerated women. Studies have identified lifetime histories of physical and sexual abuse ranging from 43 to 94 percent (Aday, Dye, & Kaiser, 2014; Bloom, Chesney-Lind, & Owen, 1994; Covington, 1998; McDaniels-Wilson & Belknap, 2008; Snell & Morton, 1994; Tripodi & Pettus-Davis, 2013). Browne and colleagues found that 85 percent to 90 percent of incarcerated women reported having experienced one or more incidents of violent victimization (Browne, Miller, & Maguin, 1999), with 59 percent reporting that the first incidents occurred prior to their eighteenth birthday. Similarly, in a study involving 102 incarcerated women, 90 percent of the women reported past year experiences of physical and sexual abuse by a partner (Lynch, Fritch, & Heath, 2012). Sexual violence in adolescence (i.e., ages 14-18), as opposed to early childhood, was often part of the history of criminal justice-involved women whose trajectory included involvement with the juvenile justice system (Arata, 2000; Hall-Smith, White, & Holland, 2003).

Violent victimization experiences of women who identify as sexual minorities are not well documented; however, a few population-based studies have attempted to identify prevalence rates of victimization involving this population. Rothman and colleagues conducted a systematic review of a decade of published findings (1989-2009) examining prevalence rates of sexual abuse among sexual minority women and men (Rothman, Exner, & Baughman, 2011). Although rates varied widely across studies, reported prevalence rates among sexual minority women were as follows; childhood sexual abuse approximately 14.9 percent to 76 percent (median = 34.5%), adult sexual abuse approximately 11.3 percent to 53.2 percent (median 23.3%), and lifetime sexual abuse approximately 15.6 percent to 85 percent (median = 43.5%).

Intersection between Violent Victimization and Substance Use—Alcohol and other substance use have been linked to experiences of violent victimization across numerous studies, with the vast majority of the research involving women focusing on

intimate partner violence (IPV), childhood histories of sexual and/or physical abuse, and/or the relationship between the two. In a systematic review of the research looking at the relationship between IPV and alcohol consumption, Devries and colleagues (2013) concluded that the vast majority of research supported the linkage, despite the lack of clarity on causal direction of the relationship (Devries, et al., 2013). Research considering the relationship between violent victimization, and alcohol and drug use, among sexual minorities is limited at best. Given the continued stigmatization of sexual minorities, access to representative samples of LGBT persons is unrealistic thus available research must be interpreted with caution (Institute of Medicine, 2011). With that cautionary note in mind, research does indicate sexual minorities are targets for violent victimization due to their sexual orientation, and much of this victimization occurs during adolescence, often at the hands of family members and peers (Institute of Medicine, 2011). Often as a result of the challenges associated with stigmatization and victimization, many sexual minority youth and adults struggle with alcohol and drug use issues.

The Current Study

The current study examines the relationship between victimization experience, substance use, and substance use-related problems in a sample of women in a rural Appalachian jail. Given the lack of research involving incarcerated sexual minority women, the analysis will begin by comparing the profiles of heterosexual and sexual minority women in the sample. Next, we draw on two bodies of research – research involving incarcerated women (where sexual identity is generally not addressed) and the research involving sexual minority women in the general population – to address the following:

- Aim 1. Examine the relationship between sexual identity and violent victimization history among a sample of incarcerated rural women.
- Aim 2. Examine the relationship between sexual identity and types and numbers of illicit drug use or alcohol abuse among incarcerated rural women.
- Aim 3. Examine sexual identity differences in the relationship between violent victimization history and the following substance abuse indicators: having ever overdosed and substance abuse-related problems.

Method

Participants

As part of a larger study (NIH/NIDA 1R01-DA033866), data were collected from 400 rural women. The women were recruited from rural jail facilities located in three Kentucky counties in Appalachia and interviewed between December 2012 and August 2015. Women were eligible for the study based on the following selection criteria: 1) NIDA-modified Alcohol, Smoking and Substance Involvement Screening Test (NM-ASSIST) score of 4+ for any drug, indicating at least moderate risk for substance abuse (NIDA, 2009); 2) engagement in at least one sex risk behavior in the past 3 months; and 3) willingness to participate.

Procedure

This study was approved by the university IRB, and due to the sensitive nature of drug use, mental health, and health risk questions, a federal Certificate of Confidentiality was obtained to further ensure privacy of data for this incarcerated sample. In summary, recruitment took place at each of three jails on a randomly selected day each month by trained research staff. On the selected recruitment day for each jail, a cluster random sampling procedure was used based on potential participant's projected release dates from the jail. Using this approach, all women residing in the jail on the day of screening who had a projected time frame for release between 2 weeks and 3 months had an equal opportunity of being selected for study screening (verified by on-line jail records). From the sampling frame, study staff randomly selected participants for screening using the Research Randomizer computer-based program (www.randomizer.org). Recruitment and screening procedures are further described by Staton-Tindall and colleagues (2015).

Women selected for the study were invited to a short screening session at the jail. Participants were provided informed consent, allowed to ask questions about the study, and ensured confidentiality. Study screening included the NM-ASSIST, five questions to ascertain risky sexual behavior, and other items to assess study eligibility. Participants meeting study eligibility were scheduled for a baseline interview within 2 days. During the baseline recruitment phase, 880 women were randomly selected for screening, 730 participated in the screening session (150 were released early between random selection and screening), and 425 were eligible to participate in the baseline. Of those eligible to participate, 25 were released early prior to being scheduled for the baseline for a final sample size of 400.

For the current analysis data from the 2012 baseline interviews were utilized. These interviews were conducted face-to-face at the jail in a private room by trained rural female interviewers. While jail security staff assisted in securing the private room, no jail staff were present during the data collection interview. Participants were asked to respond to questions about drug use, mental health, and HIV risk behaviors prior to entering the jail using Computer Assisted Personal Interview (CAPI) software. Participants were paid \$25 for their time.

Measures

Demographics

Primary demographic variables for the study included age (participant's age in years at baseline interview), education (number of years of formal education), current marital status (1 = married/living as married, 0 = not married/living as married), and employment status in the 6 months prior to incarceration (1 = employed, 0 = not employed). Because all but one participant reported being white/Caucasian, race is not included as a variable in the analyses.

Sexuality

Respondents were asked to self-identify as one of the following: heterosexual, bisexual, homosexual, gay or lesbian, questioning or curious, non-sexual/asexual, and not sure. For

the current study, those who identified as non-sexual/asexual and not sure were removed ($n = 4$), and those who identified as bisexual, homosexual/gay or lesbian, and questioning or curious were combined into the sexual minority category. While research has noted that there are often group differences in the experiences of women who identify as something other than exclusively heterosexual (e.g. mostly heterosexual, bisexual, lesbian), regardless of specific self-identification, sexual minorities tend to differ from women who identify as exclusively heterosexual (Przedworski, McAlpine, Karaca-Mandic, & VanKim, (2014). Although the women were also asked about sexual behavior, the question did not distinguish between behaviors that occurred while incarcerated versus behavior within the community setting. For this reason, sexual identity was viewed as preferable for the current analysis.

Violent Victimization

Three items were used to capture lifetime experiences of violent victimization (did not occur, occurred): being attacked with a weapon (“Has anyone ever attacked you with a gun, knife, stick, bottle, or other weapon?”), being physically assaulted (“Has anyone ever hurt you by striking or beating you to the point that you had bruises, cuts, or broken bones or otherwise physically abused you?”), or having forced sex (“Has anyone ever pressured or forced you to participate in sexual acts against your will, including your regular sexual partner, family member, or friend?”) (United States Department of Justice, 2015). In this study, the experience of violent victimization was examined in terms of having ever experienced any of the events (yes = 1, no = 0), having experienced each of three types of violent victimization at least once, as well as a series of analyses considering each of the three forms of victimization separately. A summative measure of exposure to different types of violent victimization was created by adding the three types of victimization together (possible range of scores = 0 – 3).

Substance Use

Participants were asked about their alcohol and drug use, including the use of prescription drugs for reasons other than prescribed. Alcohol use and abuse was captured for three time periods in the year prior to arrest: last 30 days, last 6 months, and last year. Specifically, respondents were asked the number of days of alcohol consumption (alcohol use) and the number of days of consumption to the point of being drunk. For drug use, the following types of drugs were examined: marijuana (yes=1, no=0), inhalants (yes=1, no=0), hallucinogens (PCP and LSD; possible range of scores = 0 – 2), stimulants (e.g., methamphetamine, cocaine, crack; possible range of scores =0-4), and opiates (e.g., oxycodone, hydrocodone, morphine; possible range of scores =0-10).

Substance Use Problems

Substance use problems were examined using the GAIN—Substance Problem Scale, as well as several behavioral measures. The GAIN-Substance Problem Scale (GAIN-SPS) consists of 16 self-reported indicators of alcohol and drug use disorders, including substance-related health and mental health problems, substance abuse, and dependency in the year prior to incarceration (Dennis, Titus, White, & Unsicker 2008). The scale score is based on a summed count of the 16 items, with scores 1 and higher viewed as having issues consistent with a substance use problem (mean = 12.68, sd = 4.69). The measure has been found to be

highly reliable in a range of studies involving adults and adolescents, with alphas ranging from .80 to .90. Cronbach's alpha for the current study is .94.

Several behavioral measures were also used to assess substance use problems. Participants were asked if they had ever overdosed in their lifetime (yes = 1, no = 0). The women were also asked about high risk behaviors associated with intravenous drug use. For the current analysis, responses to the following questions were used to examine high risk intravenous drug use behavior: In the past year, “how many people did you share needles with?”, “how many people did you share works with (i.e., cooker, cotton, rinse water)?”, and “Of the people [insert identified number of people] you shared with, how many did you have sex with in the past year?”

Analysis

All analyses were conducted using SPSS version 20 (IBM, Somers, NY). Descriptive statistics for all variables are presented. The first two research aims are addressed through a series of bivariate analyses (chi square-based and t-tests) that examined differences between heterosexual and sexual minority women for each of the measures of violent victimization and the five illicit drug categories (marijuana, inhalants, stimulants, opiates, and hallucinogens). A series of t-tests were conducted to examine the relationship between each type of violent victimization (occurred/did not occur) and scores on the GAIN-SPS. To address the third research question, separate regression models predicting substance abuse problems based on having ever overdosed (yes/no) and scores on the GAIN-SPS examined sexual identity and each of the three types of victimization, while controlling for age and number of years of education.

Results

The sample consists of 400 criminal justice-involved rural women in one southern state. Table 1 summarizes sample characteristics and provides bivariate comparisons of sexual minority women and heterosexual women for the primary study variables. The majority of women in the sample identified as heterosexual (n=317, 79.3%) and nearly 21% identified as a sexual minority (self-identified as something other than heterosexual, n=83, 20.7%). The women ranged in age from 18 to 61 years (mean age of 32.8 years, sd = 8.24), with an average of 11 years of education (mean = 11.10, sd = 2.28). The women, like the vast majority of people in the rural Appalachian area in which they live, are white. Differences in juvenile arrest history and age of onset of involvement with the criminal justice system were also found for the two groups. Although only 13.6% of the women report having been arrested as a juvenile, sexual minority women were significantly younger (mean age = 20.88 years, sd = 3.68) than heterosexual women (mean age = 23.87 years, sd = 6.85) at the time of their first arrest.

Study Aim 1: Sexual Identity and Violent Victimization History

The first study aim was to examine sexual identity differences for each of the three measures of violent victimization (see Table 1). For each of the forms of violent victimization, chi square analysis indicated that sexual minority women were more likely to have experienced

violent victimization, with the largest difference (19.6%) being for having ever been attacked with a weapon ($\chi^2 = 9.85$, $p = .01$, $\phi = .158$) (62.5% of sexual minority women compared to 42.9% of heterosexual women). Analysis of the summative scale combining the three forms of violent victimization (0 – 3) indicated that compared to heterosexual women, sexual minority women were more likely to indicate that they had experienced all three forms of violent victimization. While the majority of the women had experienced one or more types of violent victimization, sexual minority women were significantly younger than heterosexual women at the time of their first violent victimization, and 86% of sexual minority women were under the age of 18 at the time, compared to approximately 65% of heterosexual women ($\chi^2 = 11.48$, $p = .001$, $\phi = .190$).

Study Aim 2: Sexual Identity and Drug and Alcohol Use

For the second study aim contingency tables were used to examine the association between sexual identity, prevalence of alcohol use, use of five different classes of drugs, and engagement in high risk IV drug use practices. No group differences were found for the number of days the participants reported being intoxicated in the last 30 days, 6 months, or year. Heterosexual and sexual minority women did not differ in prevalence of use for opiates, hallucinogens, or stimulants; however, sexual minority women were more likely to report use of inhalants ($\chi^2 = 8.06$, $p = .005$, $\phi = .421$). For the summative measures capturing the number of different drugs used within each category, the mean number of opiates (H mean = 6.52, SM = 7.28; $t = 3.21$, $p = .002$) and stimulants (H mean = 2.61, SM = 2.91; $t = 2.14$, $p = .034$) was significantly higher for sexual minority women compared to heterosexual women. Similarly, compared to heterosexual women, sexual minority women had significantly higher means on two of the three intravenous drug use indicators of substance use problems – number of people with whom they shared needles ($t = -2.07$, $p = .05$) and number of people with whom they shared works ($t = -2.13$, $p = .05$). Despite the lack of significant differences related to prevalence of drug and alcohol use, sexual minority women's average GAIN-SPS scores were significantly higher than those of heterosexual women (13.88 and 12.38, respectively; $t = 3.13$, $p = .002$). Finally, sexual minority women were more likely to indicate that they had overdosed at some time in their lives ($\chi^2 = 11.48$, $p = .001$, $\phi = .190$).

Study Aim 3: Sexual Identity, Violent Victimization, and Substance Abuse

Tables 2 and 3 summarize the outcomes of analyses predicting having ever overdosed (Table 2) and scores on the GAIN-SPS (Table 3). For each analysis, education and age were included as control variables.

Separate binary logistic regression models predicting having ever overdosed were considered for each of the three types of victimization along with sexual identity, while controlling for years of education and age (See Table 2). For each of the three separate models, having experienced victimization was a significant predictor of the likelihood of having ever overdosed. Specifically, women who had experienced weapon assault and women who had experienced physical assault were each three times more likely to report having ever overdosed, with women who reported sexual assault being approximately two and half times more likely to have overdosed at some point in their lives. In the model

including physical assault, sexual minority women were found to be more likely to report having overdosed compared to heterosexual women, while the model including sexual assault found sexual minority women to be less likely to report having overdosed. Sexual minority status approached significance in the model predicting weapon assault (SM OR = 1.69, Wald = 3.18, $p = .074$). Neither of the control variables made a significant contribution to the final models predicting having ever overdosed.

Table 3 provides a summary of three separate hierarchical linear regression models which were computed to examine the relationship between respondent's scores on the GAIN-SPS and sexual identity (sexual minority = 1) and each of the forms of violent victimization (experienced victimization = 1). Sexual minority status and victimization were entered in the first step, with age and education entered as controls in step 2. Prior to entering the control variables, both sexual minority status and each of the three types of violent victimization were significant predictors in their respective models. After the inclusion of the controls, only violent victimization remained significant. In each case, violent victimization predicted significantly higher scores on the GAIN-SPS (weapon assault $\beta = .183$, $p < .001$; physical assault $\beta = .115$, $p < .05$; sexual assault $\beta = .169$; $p < .001$)

Discussion

This exploratory study sought to compare heterosexual and sexual minority incarcerated women's experiences with substance use and violent victimization. The consideration of sexual identity in examining this relationship among rural women is unique within the literature on criminal justice-involved women. To date, few studies have specifically explored differences between sexual minority and heterosexual inmates beyond limited attempts to document the percentage of the incarcerated population that may identify as something other than heterosexual. Additionally, the geographic location of the sample within a rural Appalachian state further contributes to the distinctiveness of these findings, as little research has explored the substance use and violent victimization experiences of the populations of sexual minority women living in any rural area. The norms and values that characterize life in rural Appalachia may be particularly challenging for women who identify as sexual minorities, however. Beyond the adherence to traditional gender norms, the strong influence of fundamentalist religious views which impacts life throughout the community increases the likelihood that sexual minority women will feel the need to hide their stigmatized identity (McCarthy, 2000).

The profile of sexual minority women in this sample has a number of things in common with previous studies. First, sexual minority women in the current study were more likely to indicate that they had experienced multiple types of violent victimization (Roberts, Austin, Corlis, Vandermoriss, & Koenen, 2010). Compared to heterosexual women in the sample, sexual minority women were significantly younger when they experienced their first encounter with the justice system. The disproportionate involvement of sexual minority youth in the juvenile justice system has been well documented, with the vast majority of LGBT youth indicating that they had experienced at least one encounter with the law at some point. Juvenile detention data indicates that sexual minority females are likely to be detained as a result of sex work, and are often homeless as a result of either being kicked out

of or fleeing an abusive home environment where sexual and or physical abuse has occurred (Durso & Gates, 2012). Although the perpetrator of the reported violent victimization is unknown, consistent with previous research, the vast majority of sexual minority rural women in the current study reported that their first victimization occurred prior to turning eighteen. Notably, while the prevalence of victimization prior to eighteen years of age was significantly higher for sexual minority rural women, also consistent with previous research, approximately three out of four heterosexual women also reported having been victimized as youth (Raj et al., 2008; Wright et al., 2008). These findings are consistent with extant research which has identified prevalence rates of childhood sexual abuse of approximately 55% and childhood physical abuse of 47% (Browne et al., 1999; Warren et al., 2002).

In this sample of women incarcerated in a rural jail, differences between sexual minority women and heterosexual women's drug and alcohol use and abuse behaviors may be reflective of the higher rates of substance abuse behaviors typically found among incarcerated women and rates found among sexual minority women in the general population. Sexual minority rural women in this study were significantly younger than heterosexual women when they first injected an illicit drug. Sexual minority women were also more likely to use a larger number of different illicit drugs compared to heterosexual women, yet within this sample of incarcerated women, few differences were found in terms of prevalence of drug use. This is likely attributed to the fact that substance use was a criterion for study eligibility and the prevalence of use was high across the sample. Our findings are consistent with the separate bodies of research – one focusing on sexual minority women and the other on incarcerated rural women – each of which, when compared to heterosexual women in the general population, supports higher rates of problematic substance use within their respective areas of study (Drabble, Trocki, Hughes, Korcha, & Lown, 2013; Hughes, 2003, 2005).

In addition to patterns of drug use, these study findings are consistent with previous research involving incarcerated women that found that heterosexual women who had a past history of violent victimization were more likely to report substance use problems than heterosexual women without a history of violent victimization (Bradford, Ryan, & Rothblum, 1994; Salisbury & Van Voorhis, 2009). Salisbury and Van Voorhis suggest that women's involvement in the use of illicit substances may be due to efforts to self-medicate in response to mental health issues that occurred as a consequence of childhood victimization. The significant numbers of incarcerated women who have been diagnosed with a mental illness, often co-occurring with problematic substance use, seems to support this assertion (Drapalski, Youman, Stuewig, & Tangney, 2009).

The lack of significant differences in the relationship between substance use problems and experiences of violent victimization among sexual minority rural women warrants further exploration. Past research which has demonstrated similar unexpected absences of statistically significant differences has offered some potential insights, however. The minority stress model has been used to explain the impact of victimization, discrimination, and marginalization on mental well-being among sexual minorities (Meyer, 2007; Rosario, Schrimshaw, Hunter, & Gwadz, 2002). While the majority of participants in the current study indicated that they had experienced one or more types of violent victimization, there

are a number of other types of victimization that sexual minority women may experience on a daily basis as a result of their stigmatized status (e.g., sexual harassment, verbal assault, destruction of personal property). In fact, these types of victimization may be more pronounced in a rural cultural context. Thus, the minority stress model may help account for both the similarity in severity of substance use problems for all sexual minority rural women in the study, regardless of their experiences with the types of victimization assessed here, as well as the similarity between sexual minority women's scores and those of heterosexual women who had experienced violent victimization. However, it is noteworthy that sexual minority women, when compared to heterosexual women, had significantly higher GAIN-SPS scores in this sample of incarcerated rural women.

With estimates of the lesbian population across the U.S. ranging from 2.3 to 6.8, and research indicating that sexual minorities are more likely to be concentrated in urban areas, the proportion of sexual minority women in our sample is notable (Gates, 2011). Given those estimates, although research suggests that a disproportionate number of sexual minority women are involved in the criminal justice system, the presence of such a large number in a rural Appalachian sample is particularly striking. A little over twenty percent of the incarcerated women in this sample identified as something other than heterosexual, with the majority of them identifying as bisexual. Even as higher rates of alcohol and drug use and dependency have been identified among sexual minority women in general, a number of studies have found that women who identify as bisexual are more likely to develop substance use problems (Green & Feinstein, 2012) and are less likely to seek services for either victimization or substance use treatment (Balsam & Mohr, 2007). One possible explanation for both of these outcomes is the likelihood that women who identify as bisexual may be less likely to have access to a support network due to being marginalized by both the LGBT community and the heterosexual community (Balsam & Mohr, 2007).

Limitations

This exploratory study offers a number of unique insights into the relationship between violent victimization, substance use, and sexual identity among incarcerated women in a rural area. The contributions to knowledge that can be gleaned from this unique sample are worthy of consideration, and can serve as building blocks for further inquiry. Despite the utility of this information, there are a number of limitations that must be considered as well.

With a growing body of work underscoring the importance of considering variation within sexual identity, the impact of sample size on our capacity to consider differences between women who identify as lesbian versus bisexual is a limitation of the current study. Approximately 17 percent of this sample of incarcerated women identified as bisexual, yet we do not know anything about how these women experience identifying as a sexual minority, both in terms of their comfort with their self-identification (particularly in the jail-based setting) and the response of others to that stigmatized identity, especially in a rural context. Additionally, the potential impact of the use of a sexual identity measure to distinguish between sexual minority women and heterosexual women warrants consideration. Although research on the distinction is limited, a handful of studies have suggested that sexual behavior, rather than identity, may play a bigger role in terms of

negative mental health consequences (Busseri, Willoughby, Chalmers, & Bogaert, 2006; Murphy, 2007). Further investigation is needed to understand the unique experiences of rural women and how high-risk health profiles related to drug use and victimization may be associated with their experiences as sexual minorities (based on self-identification and/or same-sex sexual behavior).

Our capacity to explore complex relationships among the variables was limited by measurement issues and the cross-sectional nature of the data. Although this data captured the type of victimization that occurred, we do not know the nature of the relationship between the women in the study and their perpetrators, nor do we have information on whether a sexual minority woman may have been the victim of a hate crime – targeted because of her sexual minority status. Research suggests that women who felt they had been victimized due to their sexual minority status experienced more negative outcomes compared to those who did not consider their victimization experience to be related to their lesbian or bisexual identity (Herek et al., 1999; Perry, 2001; von Schulthess, 1992). Given the number of different types of victimization experienced by women in the study, with sexual minority women being more likely to report having experienced each of the three, it seems likely that one or more of these events could be related to their sexual minority status. While future research may offer some clarity on the influence of sexual minority-focused hate crime versus victimization that occurs for other reasons, research suggests that sexual minority women are less likely to report hate crime victimization than sexual minority men (Herek, 2009). Under-reporting of victimization may be even more common in rural areas with small populations. For example, rural women may have connections to law enforcement and may believe their reports may not be handled professionally. Moreover, for many sexual minority women who are victims of violent crime, the assumption is that they are being victimized due to their status as women, rather than their sexual minority status (Meyer, 2012).

Conclusion

Despite these limitations, this study makes a novel contribution to the literature and provides guidance on future research directions. Sexual identity has rarely been explored among women residing in less densely populated areas of the U.S. While the individuals in this study are at the intersection of multiple disadvantaged statuses as incarcerated females, identifying as a sexual minority in a rural area was associated with different victimization and substance use problems as compared to those who identified as heterosexual. Incarcerated rural women who identified as a sexual minority became involved with the criminal justice system at a younger age and experienced more victimizations than heterosexual rural women. These findings are in accordance with previous studies which did not consider the potential impact of geographic context on criminal involvement (Brown & Manning, 2013; Irvine, 2010) and violent victimization rates (Hughes, et al., 2010). This suggests there may be a need for culturally-informed trauma support services for sexually victimized lesbian or bisexual women to reduce the likelihood of coping or self-medicating with substance use, incarcerated rural women are less likely to use behavioral health services (Staton-Tindall, Duvall, Leukefeld, & Oser, 2007) and these services are a traditionally limited in rural areas (Logan, Evans, Stevenson, & Jordan, 2005; Lohmann & Lohmann,

2005; Ricks, 2011). Additional research is needed to understand the casual mechanisms between victimization and substance use problems among incarcerated rural women who identify as a sexual minority. In addition, future studies should seek to understand how these relationships may vary among rural women with different stigmatized sexual identities and if the victimization is a sexual minority-focused hate crime.

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Table 1

Descriptive Statistics for Characteristics of Sample of Heterosexual and Sexual Minority Incarcerated Women in Rural Appalachian Jails

Variable	Heterosexual (n=316)	Sexual Minority (n = 80)	Test Stat X ² /t-test
Age (mean, sd)	33.64 (8.56)	29.48 (5.70)	t = 5.22***
Married (%)	37.9	26.3	$\chi^2 = 3.76^*$
Employed (%)	23.7	18.8%	ns
Arrested as a juvenile (%)	13.0	16.3%	ns
Age at first arrest (mean, sd)	23.87 (6.85)	20.88 (3.68)	t = 4.88***
Ever been to prison (%)	14.2	23.8	t = 4.31 [*]
Age at 1 st violent victimization (mean, sd)	15.68 (8.19)	13.07 (5.55)	t = -3.13 [*]
Age when first drank to intoxication	14.62 (3.29)	13.03 (3.79)	t = -3.13 [*]
Age first injected any drug (mean, sd)	25.39 (7.27)	21.81 (5.71)	t = -3.13 [*]
# of people shared needles (mean, sd)	2.74 (5.62)	5.15 (8.36)	t = -2.07 [*]
# of people shared works (mean, sd)	4.33 (6.97)	8.00 (11.49)	t = -1.97 [*]
# of people shared works & had sex (mean, sd)	1.72 (2.55)	1.67 (1.29)	ns
Ever overdosed (%0	32.2	48.8	$\chi^2 = 7.66$
GAIN-SPS (mean, sd)	12.38 (4.92)	13.88 (3.48)	t = -3.13 [*]
Attacked with Weapon (%)	42.9	62.5	$\chi^2 = 9.85^{**}$
Physical Assault (%)	61.5	77.5	$\chi^2 = 7.15^{**}$
Forced Sex (%)	42.0	60.0	$\chi^2 = 8.38^{**}$
Experienced all 3 types (%)	25.6	46.3	$\chi^2 = 6.95^*$
Any violent victimization (%)	70.0	85.0	$\chi^2 = 7.27^{**}$

Descriptive statistics for characteristics of sample of heterosexual and sexual minority incarcerated women in rural Appalachian jails

* p < .05

** p < .01, ***p < .001

Table 2

Binary Logistic Regression Models for Ever Overdosed by Sexual Identity and Violent Victimization Type

	B	SE	Wald p	Exp(B)	95% CI	EXP(B)
Weapon Assault	-1.165	.779	27.19***	3.20	2.07,	4.97
Sexual Minority	.486	.272	3.18	1.63	.954,	2.77
<i>Control Variables</i>						
Age	-.006	.014	.174	.994	.967,	1.02
Education	-.035	.050	.500	.965	.875,	1.06
Physical Assault	1.168	.251	21.60***	3.21	1.96,	5.26
Sexual Minority	.528	.269	3.85*	1.69	1.00,	2.87
<i>Control Variables</i>						
Age	-.005	.014	.134	.995	.968,	1.02
Education	-.045	.049	.833	.956	.869,	1.05
Sexual Assault	.887	.219	16.39***	2.428	1.58,	3.73
Sexual Minority	-.532	.268	3.93*	.587	.347,	.994
<i>Control Variables</i>						
Age	-.006	.014	.178	.994	.968,	1.02
Education	-.037	.048	.590	.964	.877,	1.06

** p < .01, *** p < .001

* p < .05

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Table 3

Hierarchical Linear Regression Models Predicting GAIN-SPS scores by Sexual Identity and Violence

Weapon Assault (Y)	1.68	.469	.179***	1.72	.466	.183***
Sexual Minority (Y)	1.16	.583	.099*	.874	.592	.075
Age				-.066	.029	-.116*
Education				-.217	.103	-.104*
R ² (Adj. R ²)		.047 (.042)			.068 (.058)	
F		9.76***			7.11***	
Physical Assault (Y)	1.06	.493	.108*	1.13	.490	.115*
Sexual Minority (Y)	1.32	.587	.113*	1.04	.596	.089
Age				-.064	.029	-.112*
Education				-.231	.104	-.111*
R ² (Adj. R ²)		.028 (.023)			.048 (.039)	
F		5.56**			4.98***	
Sexual Assault (Y)	1.51	.471	.160***	1.59	.469	.169***
Sexual Minority (Y)	1.21	.584	.104*	.909	.593	.078
Age				-.069	.029	-.120*
Education				-.224	.103	-.107*
R ² (Adj. R ²)		.041 (.036)			.063 (.053)	
F		8.46***			6.58***	

* p < .05

** p < .01, *** p < .001

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