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Partner Relationships and Injection Sharing Practices Among Rural Appalachian Women

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Partner relationships and high-risk practices among rural Appalachian women who inject drugs

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Abstract

Background—The role of relationships in initiating and maintaining women’s risk behaviors has been established. However, understanding factors that may underlie partner relationships and women’s risky drug use, particularly in rural contexts, is limited. This study is the first to examine the association between injecting partners and women’s risky injection practices as a function of relationship power perception.

Methods—Female participants were recruited from three rural jails in the Appalachian region. Women were randomly selected, provided informed consent, and screened for study eligibility criteria. This cross-sectional analysis focuses on women who inject drugs (WWID) during the year before entering jail (n=199).

Main findings—Approximately three-quarters (76%) reported having a recent main male sexual partner with a history of injection drug use (IDU). Although having a risky partner independently increased the likelihood of women reporting shared injection practices, perceptions of relationship power significantly moderated the effect on shared needle (AOR = 0.02 [0.003, 0.23]; $p = .001$) and shared works (AOR = 0.17 [0.03, 0.95]; $p = .04$) use.

Conclusions—This interaction indicated that for WWID with a recent injecting male partner, greater perception of relationship power was associated with a decreased likelihood of shared injection practices. Implications for clinical assessment and intervention are discussed.

Introduction

The transmission of infectious diseases among women, particularly human immunodeficiency virus (HIV) and hepatitis C virus (HCV), has been consistently attributed to injection drug use (IDU) and risky sexual activity (e.g., Kuo et al., 2014; Oser et al., 2006; Staton-Tindall et al., 2007). While women account for only about a quarter of HIV diagnoses nationwide, 86% of HIV cases among women are attributed to heterosexual contact (Centers for Disease Control [CDC], 2017) – suggesting unique risks for women in the context of intimate relationships. Considering the significance of these health issues for women, research is needed on factors which underlie routes of disease transmission among women in underserved areas – such as rural Appalachia. Limited studies have suggested that women living in rural Appalachia may face unique vulnerabilities for disease transmission associated with drug use (Staton-Tindall et al., 2015). The Appalachian region has experienced an increase in prescription opioid use (Keyes, Cerda, Brady, Havens, & Galea, 2014), injection drug use (IDU) (Staton-Tindall et al., 2015), rates of overdose (Rudd, Aleshire, Zibbell, & Gladden, 2016), and HCV (Zibbell et al., 2015). Thus, research with rural women drug users in Appalachia is critically important, yet challenging due to geographic isolation and lack of trust of outsiders.

In general, women’s initiation, maintenance, and relapse to drug use have been theoretically associated with their relationships (Finkelstein & Piedade, 1993; Minieri et al., 2014; Staton-Tindall, et al., 2007). The relational model is a gender-specific framework that suggests women’s relationship “disconnections” can lead to isolation and anxiety, which has been associated with problem behaviors like drug use (Covington & Surrey, 1997; Staton-Tindall, et al., 2007). The role of relationships in drug-using behavior begins at a young age among

women raised in families where use and abuse of illicit substances is prevalent (Hedges, 2012). In these families, substance-using behaviors are normalized, drug use initiation is common, and use is often a marker of transition to adulthood (Hedges, 2012). This is further demonstrated through social networks where the number of other substance users in a woman's network can predict the severity of her substance use (Tracy et al., 2016). Considering the close-knit networks which characterize the cultural uniqueness of rural Appalachia (Jones, 2010), associations of relationships and drug use among women is an important area of study.

Although relationships in general influence women's substance use, the intimate partner relationship is a robust predictor (e.g., Staton-Tindall, et al., 2007). Specific to initiation of drug injection, women can be motivated by either the desire to form a connection with a partner or to maintain an existing relationship that they feared "losing" to drug use (Mayock, Cronly, & Clatts, 2015). The perception of shared intimacy in these types of relationships can lead to other high-risk behaviors, including sharing injection equipment (Bryant, Brener, Hull, & Treloar, 2010). Similarly, condom use with main sexual partners is often perceived as signaling a lack of trust, and a woman's thinking about her risk may be compromised by her desire to be in a trusted, committed relationship (Staton-Tindall et al., 2007). In this sense, the *perception* of a committed relationship with a partner who engages in risk behaviors could increase a woman's vulnerability to also engage in such behaviors.

The association between relationships and substance use has also been observed among rural women. Young, Larian, and Havens (2014) found that female drug users in Appalachia were significantly more likely to report "social pressure" as motivation for initiating IDU and to have received drugs for their initial injection "as a gift," whereas men were more likely to have purchased their own drugs. This study also reported that women were more likely to initially inject in a partner's presence, to have engaged in sexual intercourse either before or after injection, and to report that their partner injected them (whereas men were more likely to be injected by a friend) (Young et al., 2014).

These findings are also consistent for rural women in the broader international literature. Although international research specifically related to women's drug use in rural areas is limited, intimate partnerships have been shown to influence other risk behaviors among rural women, such as inconsistent condom use (Shai, Jewkes, Levin, Dunkle, & Nduna, 2010), insufficient adherence to antiretroviral therapies to treat HIV (Skovdal, Campbell, Nyamukapa, & Gregson, 2011), and lack of understanding of HIV/AIDS prevention and transmission, particularly among women with low relationship power or high dependence on male partners (Burgoyne & Drummond, 2008). These findings also support the notion that rural women may be uniquely susceptible to disease transmission due to IDU practices in the context of risky intimate partner relationships.

Consistent findings related to the role of intimate partners in women's drug use raise questions about factors that may influence a woman's choice to engage in high-risk behaviors in the context of relationships. One of these factors may be the perception of relationship power. Relationship power has been studied as a conceptual framework for gender-based power imbalances that suggest men make most decisions about sex (Connell,

1987; Pulerwitz, Amaro, DeJong, Gortmaker, & Rudd, 2002). Relationship power has also been examined as interpersonal dynamics in decision making dominance regarding sex (Emerson, 1976). These factors were incorporated in the Sexual Relationship Power Scale (SRPS), which assesses how perceptions of gender-based inequality can be experienced in relationships (Pulerwitz, Gortmaker, & DeJong 2000).

It has been suggested that women with low perceptions of relationship power are more likely to engage in sexual risk behavior (e.g., Berenson et al., 2015; Campbell et al., 2009). Specifically, among women, higher scores on relationship power subscales including decision-making dominance (Campbell et al., 2009) and relationship control (Knudsen et al., 2008) have been associated with lower sexual risk, including condom use. However, research is limited on the potential influence of relationship power on other risk behaviors among women – such as drug injection practices – which are uniquely associated with disease transmission. Similar to insistence of condom use, refusal to share injection equipment may be interpreted as a sign of mistrust, which may be offset by desires to maintain the relationship. Some women also perceive that they lack control in drug procurement, preparation, and injection, which may contribute to a sense of limited power in an intimate partner relationship (Bryant et al., 2010; Wagner, Bloom, Hathazi, Sanders, & Lankenau, 2013).

The role of relationships in initiating and maintaining women’s risk behaviors has been established (e.g., Covington, 1998; Staton-Tindall et al., 2007). However, understanding factors that may underlie partner relationships and women’s drug use, particularly in rural contexts, is limited. The Appalachian culture is characterized by a unique sense of “home” and strong relational bonds with kinship and peer networks (Jones, 2010) and rural women may be uniquely affected by perceptions of relationship power due to traditional gender roles (Carter & Borch, 2005; Miewald & McCann, 2004; Powers et al., 2003).

The current study contributes to the literature by examining relationship power as a moderator of the association between relationships with injecting partners and engagement in drug injection practices that increase the risk for HIV and HCV among women who inject drugs (WWID). This study addresses the following research questions: 1) to what extent does relationship power vary among WWID as a function of having an injecting partner? and 2) does the perception of relationship power moderate the association between injecting partner status and women’s injection practices? Addressing these questions has important implications for women’s health and development of targeted interventions.

Material and Methods

Participants

Female participants (N=400) were recruited from three rural jails in the Appalachian region of one southern state. The Appalachian Region is a 205,000-square-mile region that extends from southern New York to northern Mississippi along the spine of the Appalachian Mountains (Appalachian Regional Commission [ARC], 2017). Women who resided in an Appalachian county prior to incarceration were randomly selected from jail rosters, provided informed consent, and screened for the parent study eligibility criteria. These criteria

included: 1) moderate risk of substance abuse as indicated by a score of 4 or more on the NIDA-modified Alcohol, Smoking, and Substance Involvement Screening Tests (ASSIST; NIDA, 2009); 2) engagement in one or more sexual risk behaviors in the three months prior to incarceration; and 3) anticipated release date between 2 weeks and 3 months from screening. Only women who injected drugs in past year and reported a past-year main male sex partner were included in the present analysis (N = 199).

Procedure

The larger parent study utilized a random sampling strategy to recruit drug-using women from jails in three Appalachian counties. The sampling approach has been described elsewhere ([Blinded for review]) and is summarized as identifying women from jail rosters who are nearing the completion of their sentence, randomly selecting 10–20 women depending on the jail census, and inviting them to a group screening session. All women who were nearing the end of their sentence (within at least 2 weeks to 3 months) had an equal opportunity of being selected for study screening.

A group screening session was conducted in a private, confidential room in each of the three jails without representation from jail staff. After obtaining informed consent, interested participants were asked to complete a short pen/paper survey including the NM-ASSIST, five sexual risk questions (unprotected sex, number of partners, etc.), and verification of an Appalachian home county. Research staff scored screening instruments following the session, and eligible study participants were scheduled for baseline interviews.

During the study recruitment phase between December 2012 and August 2015, 900 women were randomly selected, 76.4% participated in the screening sessions, and 64% met eligibility criteria. A small number of women were released from jail prior to being interviewed (n=40), and the remaining 400 participated in face-to-face interviews in a private room in each jail using Computer Assisted Personal Interview (CAPI) software. Research staff were female interviewers from the local Appalachian area. Participants were paid \$25 for the baseline interview, and all study screening and data collection procedures were approved by the University of Kentucky Institutional Review Board (IRB) and protected under a federal Certificate of Confidentiality.

Measures

Sociodemographics—Demographic variables included age, marital status (married versus other status at the time of interview), sexual orientation (heterosexual versus other orientation), employment (unemployed versus employed in the six months prior to incarceration), county of jail recruitment, and education (number of years of formal education completed). These covariates were selected for their potential association with IDU practices and relationship power (e.g., Staton et al., 2017). Race was not included as a covariate because all but two participants were White/Caucasian (99.0%).

“Risky” partner—Risky partner was defined based on women’s self-report of a recent main male sexual partner and whether this sex partner had a history of drug injection (yes/no).

Injection Drug Use—Only women who injected drugs in past year and reported a past-year main male sex partner were included in the present analysis (N = 199). Among WWID, shared injection practices in the year prior to incarceration were examined for this study including: 1) shared needle use with anyone (i.e., a non-new and sterile needle), 2) shared works with anyone (i.e., cookers, cotton, or rinse water), and 3) sharing injection equipment (i.e., needles or works) with a sexual partner.

Relationship Power—Relationship power was measured using the 23-item Sexual Relationship Power Scale (SRPS) (Pulerwitz et al., 2000), including the overall composite Relationship Power (RP) score and the subscales of Relationship Control (RC) and Decision-Making Dominance (DMD). Responses to individual scale items ranged from 0 to 4, with higher values representing higher relationship power. Scores were computed for both the overall composite and the subscale scores. For descriptive purposes, composite scores were also trichotomized into Low, Medium, and High tertiles (see Pulerwitz et al., 2000). Alpha reliability indices were high for the RP composite score ($\alpha = .93$) as well as the RC ($\alpha = .91$) and DMD ($\alpha = .87$) subscales, which are consistent with other studies with incarcerated substance-using women (e.g., Knudsen et al., 2008).

Data Analysis

A series of *t* tests and chi-square analyses were conducted to address the first study objective to examine differences in demographics, IDU, and relationship power as a function of having a risky partner. To address the second study objective, a series of logistic regression models were used to evaluate relationship power as a moderator of the effect of having an injecting partner on three injection practices (sharing needles with anyone, sharing works with anyone, and sharing injection equipment with a sexual partner). Three models were first examined with the RP composite score as the moderator. Then, two additional sets of three multivariable models were evaluated with the RC and DMD subscales. Significant interaction terms were described by determining the conditional effect of having risky partner at low (-1 SD) and high ($+1$ SD) levels of the moderator using the PROCESS macro in SPSS (Hayes, 2013). All moderation models also included sociodemographic characteristics (described above). Continuous variables were mean centered prior to inclusion in the model to improve interpretation. When the moderation effect was not significant, the interaction term was removed and additional models were run with only the partner and relationship power effects. Statistical significance was set a $p < .05$ for all tests and all analyses were conducted using SPSS Statistics, Version 22 (IBM Corporation, Armonk, NY).

Results

Sample

Rural WWID (N = 199) were 30.8 years old (SD = 6.7), white (99.0%) and heterosexual (77.4%) with approximately 11 years of education (SD = 1.9). Most were unmarried at the time of interview (58.8%) and unemployed during the six months prior to incarceration (74.9%).

Bivariate Comparisons by Risky Partner Status

A majority of WWID reported that their most recent main male sexual partner had a history of IDU (*risky partner*, 76.2%). As noted in Table 1, women reporting a recent risky partner were younger (30.2 versus 33.0 years) and more likely to engage in shared injection practices (i.e., shared needles with anyone, shared works with anyone, and sharing injection equipment with a sexual partner). WWID with a recent risky partner reported lower composite overall Relationship Power (RP) scores as well as lower scores on the Decision Making Dominance (DMD) subscales (both signifying lower relationship power). Similar differences were observed for the composite RP score when trichotomized, with fewer women reporting a recent risky partner classified in the High Power tertile (25% versus 41%) and more classified in the Middle (46% versus 43%) and Low Power tertiles (29% versus 17%) compared to those reporting that their recent partner had never injected.

Relationship power as a moderator of shared injection practices

Composite Relationship Power—Table 2 shows results from three logistic regression models evaluating the effect of having a risky partner on shared injection practices, as moderated by relationship power (i.e., RP composite). At mean relationship power, having a recent male sex partner who reported injecting drugs increased the likelihood of WWID endorsing recent needle sharing (AOR = 3.79 [1.45, 9.88]; $p = .006$), works sharing (AOR = 3.74 [1.65, 8.48]; $p = .002$), and sharing injection equipment with a sexual partner (AOR = 9.26 [3.96, 21.65]; $p < .001$). Notably, the composite relationship power measure significantly moderated the effect of having a risky partner on shared needle (AOR = 0.02 [0.003, 0.23]; $p = .001$) and shared works (AOR = 0.17 [0.03, 0.95]; $p = .04$) use. This interaction indicated that for WWID with a risky partner, a greater perception of relationship power was associated with a decreased likelihood of shared needles or works (Figure 1). The conditional effect of having a risky partner at low (-1 SD) and high ($+1$ SD) levels of relationship power indicated that having a risky partner significantly increased the likelihood of sharing needles ($p < .001$) and works ($p = .002$) for WWID with low perceptions of relationship power, but that these effects were not significant for those with high perceptions of relationship power (p values $> .38$). The interaction term for sharing injection equipment with a sexual partner showed a similar magnitude effect, but was not statistically significant (AOR = 0.21 [0.04, 1.06]; $p = .06$). When this interaction term was removed from this model, partner IDU status (AOR = 7.66 [3.39, 17.29]; $p < .001$), but not relationship power, (AOR = 0.61 [0.28, 1.30]; $p = .20$) was significantly associated with sharing injection equipment with a sexual partner.

Additional covariates that reached statistical significance included one county of recruitment being associated with an increased likelihood of needle sharing ($p = .02$), heterosexual WWID reporting a decreased likelihood of sharing works ($p = .04$) and sharing injection equipment with a sexual partner ($p = .02$), and married women reporting an increased likelihood of sharing injection equipment with a sexual partner ($p = .01$).

Relationship Control (RC) and Decision-Making Dominance (DMD)—Results from moderation models using the RC and DMD subscales are shown in Table 3. Outcomes were generally consistent with those using the composite RP score. Namely, the interaction

terms including risky partner and subscale scores were each significant for shared needle use (RC: AOR = 0.03 [0.002, 0.34]; $p = .005$; DMD: AOR = 0.12 [0.03, 0.54]; $p = .006$). These interaction terms were not statistically significant for shared works, but approached significance for the two subscales (RC: AOR = 0.20 [0.03, 1.27]; $p = .09$; DMD: AOR = 0.31 [0.09, 1.08]; $p = .07$). When these interaction terms were removed, DMD (AOR = 0.44 [0.24, 0.84]; $p = .01$) but not RC (AOR = 0.50 [0.21, 1.23]; $p = .13$) was significantly associated with shared works use. The DMD, but not RC, interaction term was significant for sharing injection equipment with a sexual partner (AOR = 0.28 [0.08, 0.91]; $p = .04$). RC scores (AOR = 0.64 [0.27, 1.52]; $p = .31$) were also not related to sharing equipment with a sexual partner in a model that removed the interaction term. Examination of the conditional effects for these significant interactions was similar to those with the RP composite score; thus, for parsimony, they will not be described in additional detail. Covariates that reached statistical significance in the RP models also reached significance in the RC and DMD models (see above).

Discussion

This study is the first to examine the association between partner injection status among rural women who inject drugs (WWID) and their own risky injection practices. The unique cultural context of this study sample is important. Women in this study were recruited from local jails in three Appalachian counties in one southern state. The jails were located in counties designated as some of the most economically distressed rural areas of the country (ARC, 2017) in a region that has been devastated by the recent prescription opioid epidemic, high rates of drug overdose, and increasing prevalence of HCV (Staton-Tindall et al., 2015; Suryaprasad et al., 2014; Zibbell et al., 2015). Coupling these public health concerns with the notion that rural women in Appalachia suffer from some of the most distinct health disparities in the country (American College of Obstetricians and Gynecologists, 2014), research is critically needed on this vulnerable and underserved population.

Among rural WWIDs in this sample, more than three quarters reported that their recent, main sex partner also had a history of drug injection (76.2%). Having a partner with a history of IDU significantly increased the likelihood of WWIDs reporting shared injection practices. Specifically, a significantly higher percentage of WWIDs with a risky partner reported sharing needles and works, including sharing injection equipment with a sexual partner. These findings are consistent with other research that has suggested that women's risky drug use and sexual practices are associated with having high-risk partners (Mayock, Cronly, & Clatts, 2015; Staton-Tindall et al., 2007). The findings also provide support for the important role of relationships with injecting partners in clinical assessment and treatment, particularly as it may relate to women's drug use and related health consequences.

While the relationship between having an injecting partner and injection practices was expected based on previous research, this study incorporated the Sexual Relationship Power Scale (Pulerwitz et al., 2000) to assess relationship power in general, as well as specific indicators of relationship control (RC) and decision making dominance (DMD) as potential moderators. Scores on the overall measure of relationship power (SRPS composite) and subscales with this sample of rural WWIDs were consistent with other studies focused on

incarcerated women drug users (Knudsen et al., 2008; Minieri et al., 2014). Most studies examining relationship power have focused on variations in sexual practices (Berenson et al., 2015; Campbell et al., 2009; Knudsen et al., 2008). These studies have shown that a high degree of relationship power is generally associated with healthier and safer decisions in relationships, including whether or not to have sex (Altschular & Rhee, 2015), decisions about birth control (Harvey et al., 2002), and whether to engage in unprotected sexual behaviors (Knudsen et al., 2008).

Findings from the current study also suggest that perceptions of relationship power significantly moderates injection sharing practices. Specifically, those WWIDs who reported having a recent male injecting sex partner and those with lower perceptions of relationship power were more likely to engage in higher-risk injection practices, including sharing needles and works. Alternatively, WWIDs who reported higher relationship power appeared to be partially protected and reported similarly low levels of risk behavior to women without an injecting partner.

In this analysis, it is important to note that there was no main effect of the SRPS total score in the adjusted models, suggesting that perceptions of relationship power generally did not independently influence the likelihood of shared injection drug use practices after accounting for partner IDU status and/or the moderation effect. This lack of main effects for SRPS total scores may be explained by the fact that a majority of variance in shared injection practices was explained by partner IDU and the moderating effect of relationship power. It should also be noted that there were unique differences in the analysis for the RC subscale (relationship control) compared to the DMD (decision making dominance) subscale, particularly on shared drug injection equipment with a sex partner, which may speak to unique conceptual differences in perception about the partner's efforts to control behaviors like condom use.

The lack of significant differences in the relationship control subscale on sharing injection equipment with a partner may be explained by limited variance in this construct due to traditional gender roles (Campbell et al., 2012), which have been extensively studied in the Appalachian culture. In Appalachia, traditional gender roles are often grounded in family structures where the male partner/husband/father is perceived to be in a primary leadership role (position with the most power) and responsible for important family decisions (McCoy, 1993). Similarly, Appalachian women can grow up with the notion that being a strong wife and mother are central, critical family roles (Fiene, 1991), which may be associated with less power. Within the relational framework for drug-using women (e.g., Covington, 1998; Staton-Tindall, et al., 2007), adherence to or acceptance of these roles may be critical to understanding how women define themselves in the context of relationships, and how that identity relates to their drug use. Based on the current study findings, it is possible that women who perceive less power in relationships may be more vulnerable and likely to engage in shared injection practices in order to sustain a relationship. Considering the potential for injection to be a marker for the severity of substance abuse and possibly dependence, this relationship should be further explored in future research with this population as a contributing factor for disease transmission including HIV and HCV.

This study has limitations. Primary study outcome variables were women's self-report of their own experiences and partner experiences. With study recruitment from rural Appalachian jails, women had varying times of incarceration, which could have affected event recall. Self-report data included sensitive information like drug use and injection practices, which may increase the social desirability response bias. While face-to-face interviews were conducted in a private room at the jails with no officers present, and a Certificate of Confidentiality was obtained to increase protections, it is still possible that women were concerned about confidentiality in the correctional environment. Also, study measures only targeted the injection practices of the most recent main male partner. While potentially a strength of the analysis in terms of targeting the outcomes and relationships closest to entering jail, the current analysis did not address previous relationships with injecting partners, which may be an important area for future research. In addition, study recruitment targeted women from three rural jails in one Appalachian state, which limits generalizability to other substance-using women involved in the criminal justice system, as well as other rural women substance users who are not involved in the criminal justice system. In addition, these data are cross-sectional; therefore, causality cannot be inferred from the findings.

Implications for Practice and Policy

Despite these limitations, this study has implications for practice and research on women's health. Study findings suggest there may be cultural nuances in women's vulnerabilities in relationships with risky partners, and those vulnerabilities may be exacerbated by perceptions of limited power and/or control within the relationship. This finding among Appalachian women could be related to drug-use relationships reinforcing traditional gender roles and should be further explored in future research. Nonetheless, this finding has important implications for development of culturally tailored and targeted assessments and interventions for drug using women in rural Appalachia.

In the last two decades, there has been evolving literature on gender-specific interventions to target risk reduction for women (Wechsberg, et al., 2015). Studies have focused on gender-specific HIV risk reduction interventions for women that have targeted relationships, and specifically how changes in thinking about relationships can influence behaviors (Knudsen et al., 2014; Leukefeld et al., 2012; Staton-Tindall et al., 2007). It is important that these interventions target unique thinking strategies which may empower women to evaluate the risk behaviors of their partners in order to better assess their own high-risk drug use and sexual practices. These findings also speak to the importance of assessment for high-risk women in criminal justice settings with a focus on social networks, relationships and partner influences, and perceptions of gender roles. Findings from this study further support opportunities for risk reduction interventions in the context of relationships for women, with an eye to developing interventions that are culturally relevant.

Conclusions

In this study, women who perceived a higher degree of power in the context of relationships reported fewer injection sharing behaviors, even if they had an injecting partner. While

targeting a “safer” partner may not be a tenable outcome for risk–reduction interventions, empowering women within the context of relationships to make safer decisions about drug use has the potential to significantly influence their behaviors.

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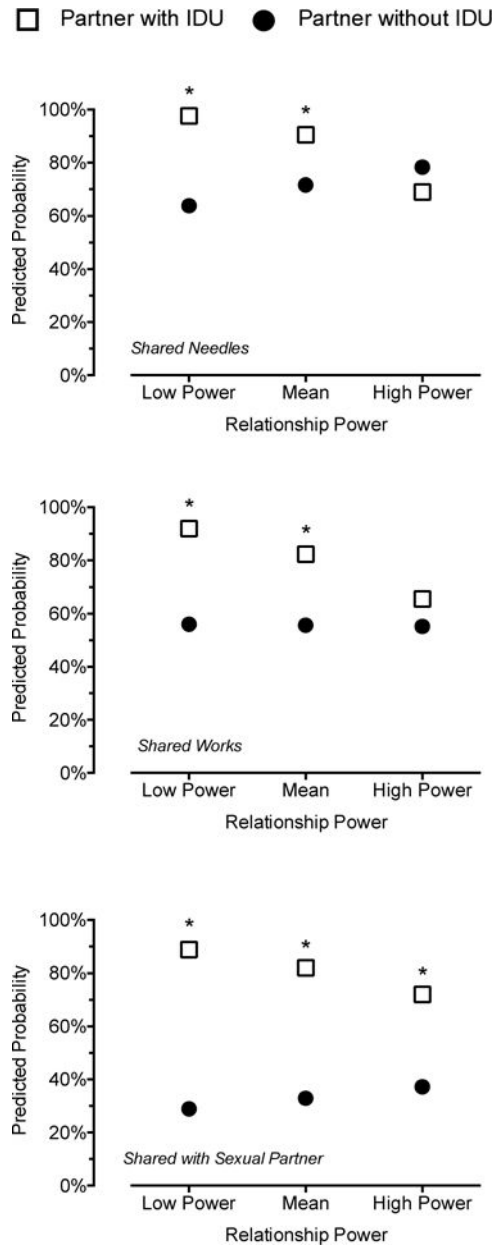


Figure 1. Interactions between perceptions of relationship power and partner injecting status on DVs. Note: Plotted are predicted probabilities of IDU risk practices for women with (closed circles) and without (close circles) a sexual partner with a history of injection drug use (IDU) at lower (−1 SD), mean, and high (+1 SD) composite sexual relationship power. Values are plotted setting all other variables to zero (see Table 1). * $p < .05$ effect of partner injection drug use at plotted relationship power.

Table 1

Rural Appalachian women’s demographics, injection drug use, and sexual relationship power by partner IDU status (N =199)

	Partner With IDU (N = 152; 76.4%)	Partner Without IDU (N = 47; 23.6%)	Test Statistic (t/ χ^2)
	Mean (SD) / %	Mean (SD) / %	
Demographics			
Age	30.2 (6.6)	33.0 (6.8)	2.60*
White	98.7%	100%	0.63
Married	40.1%	44.7%	0.31
Heterosexual	78.3%	74.5%	0.30
Unemployed	73.7%	78.7%	0.49
Years Education	11.0 (1.9)	11.6 (2.0)	1.95#
County			2.42
Perry	28.9%	40.4%	
Leslie	36.8%	27.7%	
Laurel	34.2%	31.9%	
Injection Drug Use			
Past Year Injection	100%	100%	–
Shared Needles ^a	85.5%	72.3%	4.31*
Shared Works ^a	78.9%	57.4%	8.60**
Shared IDU & Had Sex ^a	79.6%	36.2%	31.86***
Sexual Relationship Power			
Relationship Control	2.72 (0.39)	2.80 (0.48)	1.21
Decision-Making Dominance	2.32 (0.60)	2.62 (0.72)	2.87**
Composite Score	2.57 (0.47)	2.77 (0.54)	2.44*
Trichotomized Power Score			5.03#
Low Power	28.9%	17.0%	
Medium Power	46.1%	42.6%	
High Power	25.0%	40.4%	

Note. Shared IDU = shared injection drug use equipment; Sexual Relationship Power scores range from 0 to 4, with higher values representing higher relationship power; All participants reported a past year main male sexual partner.

^aReported in the year prior to incarceration

$p < .10$;

* $p < .05$;

** $p < .01$;

*** $p < .001$

Table 2

Sexual relationship power as a moderator of the relationship between having a risky partner and women's injection practices

	Shared Needles	Shared Works	Shared IDU Equipment With Sex Partner
	OR (95% CI)	OR (95% CI)	OR (95% CI)
Age	0.97 (0.91, 1.03)	1.03 (0.98, 1.09)	0.99 (0.93, 1.04)
Married	1.03 (0.45, 2.33)	1.52 (0.75, 3.10)	2.54 (1.21, 5.37)*
Heterosexual	0.83 (0.29, 2.37)	0.34 (0.12, 0.92)*	0.32 (0.12, 0.85)*
Unemployed	1.19 (0.47, 3.03)	1.76 (0.80, 3.86)	1.29 (0.57, 2.88)
Perry County	3.75 (1.20, 11.68)*	1.09 (0.47, 2.53)	1.23 (0.52, 2.92)
Leslie County	0.88 (0.35, 2.18)	1.08 (0.46, 2.50)	1.19 (0.51, 2.80)
Education	0.96 (0.78, 1.18)	0.95 (0.79, 1.15)	0.93 (0.77, 1.12)
SRPS	2.07 (0.53, 8.08)	0.97 (0.29, 3.24)	1.47 (0.46, 4.73)
Risky Partner	3.79 (1.45, 9.88)**	3.74 (1.65, 8.48)**	9.26 (3.96, 21.65)***
Risky Partner*SRPS	0.02 (0.00, 0.23)**	0.17 (0.03, 0.95)*	0.21 (0.04, 1.06)
Model χ^2	30.61**	29.62**	49.20***
Pseudo R^2	.24	.20	.31

Note. RP = Relationship Power composite score; Risky Partner = most recent male sexual partner has a history of injection drug use. All continuous factors were mean centered prior to model fit. Values represent Odds Ratio (95% Confidence Interval). Pseudo R^2 = Nagelkerke pseudo- R^2 . Main effect terms reported are for the model including the interaction term.

* $p < .05$;

** $p < .01$;

*** $p < .001$

Table 3

Relationship control and decision-making dominance subscales as moderators of the relationship between risky partner and risky injection drug use Practices

	Shared Needsles		Shared Works		Shared IDU Equipment With Sex Partner	
	OR (95% CI)		OR (95% CI)		OR (95% CI)	
Age	0.96 (0.90, 1.03)	0.97 (0.91, 1.03)	1.03 (0.98, 1.09)	1.03 (0.98, 1.09)	0.99 (0.94, 1.04)	0.99 (0.93, 1.04)
Married	1.07 (0.47, 2.44)	0.90 (0.41, 1.99)	1.50 (0.74, 3.04)	1.46 (0.72, 2.96)	2.43 (1.15, 5.13)*	2.48 (1.18, 5.22)*
Heterosexual	0.77 (0.27, 2.19)	0.78 (0.28, 2.21)	0.33 (0.12, 0.89)*	0.33 (0.12, 0.90)*	0.31 (0.12, 0.82)*	0.32 (0.12, 0.86)*
Unemployed	1.17 (0.46, 2.99)	1.11 (0.44, 2.75)	1.68 (0.78, 3.62)	1.74 (0.80, 3.81)	1.25 (0.57, 2.78)	1.27 (0.56, 2.85)
Perry County	3.02 (1.00, 9.07)*	3.80 (1.22, 11.82)*	1.04 (0.45, 2.40)	1.11 (0.48, 2.59)	1.18 (0.50, 2.78)	1.28 (0.53, 3.05)
Leslie County	0.83 (0.33, 2.07)	0.84 (0.34, 2.05)	1.05 (0.46, 2.42)	1.09 (0.47, 2.56)	1.19 (0.51, 2.79)	1.18 (0.50, 2.79)
Education	0.97 (0.79, 1.20)	0.94 (0.77, 1.15)	0.94 (0.78, 1.13)	0.94 (0.78, 1.14)	0.93 (0.77, 1.12)	0.93 (0.77, 1.12)
RC	1.31 (0.27, 6.41)		1.29 (0.33, 5.00)		1.16 (0.30, 4.35)	
Risky Partner	3.47 (1.37, 8.77)**		3.58 (1.64, 7.83)**	8.58 (3.78, 19.74)***		
Partner*RC	0.03 (0.00, 0.34)**		0.20 (0.03, 1.27)		0.37 (0.06, 2.16)	
DMD		1.97 (0.68, 5.75)		0.87 (0.35, 2.16)		1.44 (0.59, 3.49)
Risky Partner		3.16 (1.27, 7.85)*	3.50 (1.54, 7.96)**		9.46 (4.00, 22.36)***	
Partner*DMD		0.12 (0.03, 0.54)**		0.31 (0.09, 1.08)		0.27 (0.08, 0.91)*
Model χ^2	30.35***	23.82**	24.53**	29.56**	46.04***	49.98***
Pseudo R ²	23	19	.17	.20	.29	.31

Note. RC = Relationship Control; DMD= Decision-Making Dominance; Risky Partner = most recent male sexual partner has a history of injection drug use. All continuous factors were mean centered prior to model fit. Values represent Odds Ratio (95% Confidence Interval). Pseudo R² = Nagelkerke pseudo-R². Main effect terms reported are for the model including the interaction term.

* p < .05;

** p < .01;

*** p < .001