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Gendered contexts: psychopathy and drug use in relation to sex work and exchange

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Abstract

Few scholars have examined psychopathology correlates of sex work. It has been suggested that sex work may reflect manifestations of impulsive-antisocial psychopathic traits (e.g., reckless disregard, delinquency) in women more than men. The current work examined relative contributions of drug dependence and distinct psychopathic features in relation to traditional forms of sex work (i.e., prostitution) in women, along with gender differences in psychopathy relationships with casual forms of sex exchange (i.e., trading sex for necessities). Study 1 included 171 community-dwelling women offenders, and Study 2 included 319 participants (42.3% women) with histories of drug use and/or violence. Participants completed the Psychopathy Checklist: Screening Version, prostitution was measured as self-report and/or public record data across studies, and sex exchange in Study 2 was assessed using a questionnaire based on prior research on sexual risk-taking. Findings across both studies demonstrated that while psychopathic traits, particularly impulsive-antisocial features, were associated with prostitution in women above the use of drugs, drug dependence did not moderate the relationship between psychopathic traits and prostitution in women. Analyses of Study 2 data revealed that impulsive-antisocial traits were associated with sex exchange at low, but not high, levels of interpersonal-affective traits across participants. As well, interpersonal-affective traits were significantly positively related to sex exchange in men and not significantly (and negatively) related in women. In sum, impulsive-antisocial traits related to prostitution among women, suggesting that women may manifest these traits within intimate contexts. Moreover, findings indicated gender differences in the manifestation of interpersonal-affective traits within sexual exchange contexts.

Keywords

psychopathy; drug dependence; sex work; sex exchange; prostitution

Women who engage in sex work or prostitution are at an increased risk for an assortment of mental (e.g., depression, anxiety, drug use) and physical (e.g., HIV/AIDS) health problems, and are likely to become entangled in the criminal justice system (Brody, Potterat, Muth, & Woodhouse, 2005; Burnette et al., 2008; Gilchrist, Gruer, & Atkinson, 2005). In fact, nearly 30,000 women were arrested in the United States for prostitution in 2012 (FBI, 2012). Sex

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work may exist in various forms, and individuals involved may take on different roles, which are typically gendered (e.g., females as providers vs. males as solicitors). Scholars have conceptualized the construct as ranging from direct sex work (i.e., traditional forms of prostitution or direct street work) to more indirect sex exchange (e.g., casual exchanges of sex for drugs or material goods), highlighting the heterogeneity and relatively ubiquitous nature of these sexual interactions in high-risk populations (Harcourt & Donovan, 2005; Kim et al., 2005; Vandepitte et al., 2006).

Despite implications of sex work for mental health, most of the research on the construct has been limited to its connections to HIV risk (see Baral et al., 2012 for review), drug use (Sallmann, 2010; Surratt, Inciardi, Kurtz, & Kiley, 2004; Weber, Boivin, Blais, Haley, & Roy, 2002), and structural-economic adversity in sociological studies (Shannon et al., 2008; Vanwesenbeeck, 2001). Little work has examined psychopathology and individual difference correlates, in combination with major contributing factors like drug use, in sex work contexts. Considering the risk associated with sex work for those who are providers and solicitors, further research on pathological personality traits that may inflate risk and/or partially account for sex work involvement has the potential to be far-reaching.

Psychopathic traits may be key in terms of psychopathology correlates of sex work in women. Psychopathy is a personality disorder identified through a collection of interpersonal, affective, and behavioral traits (Hare, 1996). The disorder is commonly assessed using ratings on the Psychopathy Checklist-Revised (PCL-R; Hare, 2003) and its progeny, including the Screening Version (PCL:SV; Hart, Cox, & Hare, 1995), based on a semi-structured interview and review of record information. Psychopathy is often examined as a multidimensional construct by way of two closely related sets of traits, termed Factor 1 and Factor 2 (Harpur, Hare, & Hakstian, 1989; Hart et al., 1995). The two overarching factors are further bifurcated into four facets. Factor 1 traits encompass the interpersonal (Facet 1: grandiosity, manipulation) and affective (Facet 2: callousness, lack of empathy) features. Factor 2, on the other hand, comprises the impulsive and lifestyle (Facet 3: impulsivity, irresponsibility) and antisocial (Facet 4: criminal behavior, juvenile delinquency) features.

The study of relationships between psychopathic traits and sex exchange may shed light on how the intersection of individual vulnerabilities and established risk factors (i.e., drug use) may elevate propensity to engage in risky sexual behavior, especially in women for whom sex work and exchange are more salient. Exploring psychopathic traits may aid in the identification of individuals with elevated risk for unsafe sex. Specifically, providers of sex exchange who are high in Factor 1 traits (particularly the affective features, like callousness and manipulativeness) may be less likely to be disturbed by the emotional or physical consequences of sex work in their quest to obtain money and goods. Likewise, solicitors high in Factor 1 may be more likely to demonstrate a lack of care for providers of sex and abuse them or involve them in unsafe sexual practices. Furthermore, individuals high in Factor 2, especially the impulsive and lifestyle facet, are likely to not consider the consequences to their actions and may put themselves and others at risk. Therefore, the present studies seek to explore the manner in which psychopathic traits and gender may intersect with drug use within such intimate settings.

Gender and Manifestations of Psychopathic Traits

In recent years, scholars have begun to consider gender differences in psychopathy, resulting in an upsurge of research exploring the construct in women (Verona & Vitale, 2006). Gender differences have been reported in the prevalence of psychopathy and mean scores on psychopathy measures, suggesting lower levels of psychopathy in women than men (Verona & Vitale, 2006). At the same time, a handful of investigators have contemplated that men and women with similar levels of psychopathy may exhibit distinct psychopathic traits and behaviors, with some work pointing to gender differences in PCL-R item functioning across both Factor 1 and Factor 2 (Bolt, Hare, Vitale, & Newman, 2004; Cooke & Michie, 1997; Salekin, Rogers, & Sewell, 1997; Schrum & Salekin, 2006). These data show that some traits (e.g., juvenile delinquency, criminal versatility) are less common in women than men at the same level of the latent trait. In light of these variations, several studies have proposed that men and women may actually exhibit differences in the manifestation of psychopathic traits. In one conceptualization, it has been suggested that women may show some traits more than others, with studies reporting that women high in Factor 1 are portrayed as more manipulative, provocative, and sexually seductive compared to men (Kreis & Cooke, 2011). A second perspective is that men and women demonstrate differences within the contexts in which particular psychopathic traits are manifested, such that women may be more apt to express psychopathic features within interpersonal and/or intimate settings in particular (e.g., child/partner aggression versus aggression toward strangers) (Goldstein et al., 1996; Kreis & Cooke, 2011). The current work extends prior findings by exploring gender differences in the expression of psychopathic traits within the intimate context of sex work or exchange.

Psychopathy and Sexual Risk-Taking

Although little has been done to investigate psychopathic traits in relation to sex work, psychopathy and antisocial personality disorder (APD) have been associated with risky sexual behavior in general. Psychopathy has long been linked to sexual promiscuity, and scholars have suggested that these encounters may be quite reckless due to their impulsive and irresponsible nature (Cleckley, 1988; Ellis, 1987; Hare, 2003). In his notable writings on psychopathic personality profiles, Cleckley (1988) describes several individuals as having a number of casual sexual relations. In fact, Cleckley (1988) attributes this sexual promiscuity as relating more closely to their “almost total lack of self-imposed restraint than to any particularly strong passions or drives (p. 363).”

Recent work has investigated the relation between psychopathy factors and risky sexual behavior in women. Studies using different measures of psychopathy collectively suggest that Factor 2, particularly Facet 3 (lifestyle) features, may elevate propensity for sexual risk-taking in women, whereas unique variance in the facets comprising Factor 1 may be less related to sexual risk-taking in women (Fulton, Marcus, & Zeigler-Hill, 2014; Richards, Casey, Lucente, & Kafami, 2003). In recent work on gender differences, Visser and colleagues (2010) found that Self-Report Psychopathy-III (SRP-III; Paulhus, Neumann, & Hare, in press) Factor 1 (i.e., interpersonal manipulation, callous affect) and Factor 2 (i.e., erratic lifestyle and antisociality) were positively related to number of sexual partners in

adult men, whereas only Factor 2 was related in women. Similarly, Fulton and colleagues (2010) found a positive association between Psychopathic Personality Inventory (PPI; Lilienfeld & Andrews, 1996) impulsive-antisociality and risky sexual behavior across genders, whereas fearless dominance was positively connected to risky sexual behavior only in men. Thus, sexual risk-taking appears to be linked to Factor 2 related traits in men and women, with evidence suggesting that impulsive lifestyle traits may be of particular importance in women's sexual risk-taking. However, there may be gender differences in associations with interpersonal and affective psychopathy traits, such that these traits may be more risky in men only, although at least one study has found the opposite pattern (Hudek-Knežević, Kardum, & Krapić, 2007). An intention of the present paper is to investigate relations among interpersonal-affective and impulsive-antisocial traits of psychopathy and a specific form of sexually risky behavior, sex work or exchange.

Correlates of Sex Work: Psychopathic Traits and Drug Use

A myriad of studies within social science fields have investigated women's engagement in sex work (Farley & Kelly, 2000). Due to varying definitions of sex work, Harcourt & Donovan (2005) developed a comprehensive typology of sex work, in which two primary subtypes, “direct” and “indirect”, were identified. “Direct” sex work constitutes prostitution, which includes escort services and street sex work, defined as “clients soliciting on the street, park or other public place (p. 202).” “Indirect” sex work, in contrast, consists of sex exchange for drug, food, and security-related reasons in less formal contexts, as well as broader sexual services (e.g., phone sex worker) (Harcourt & Donovan, 2005). Given that sex exchange may occur in a “casual” sense, such that individuals who engage in the behavior may not identify it as “prostitution” or criminal behavior per se, distinguishing between formal and informal subtypes is informative among participants not currently involved in the legal system. Moreover, studies have supported the terms “direct” and “indirect” as a method of discerning formal and informal sex work subtypes (Kim et al., 2005; Vandepitte et al., 2006).

Few studies to date have explored specific connections among psychopathic features and sex work or exchange. Antisociality has been related to women's provision of sex work, although given the illegal nature of sex work in the United States, there is some circularity to these findings. Nonetheless, women who provide sex work have been characterized as impulsive sensation-seekers, a term common to psychopathy (Brody & Potterat, 2010; Compton, Cottler, Shillington, & Price, 1995; Goldstein et al., 1996; O'Sullivan, Zuckerman, & Kraft, 1996; Strachan, 1993). Gibson-Ainyette et al. (1988) found that female adolescents engaged in prostitution scored higher than delinquent and control groups on the psychopathic deviate scale of the Mini-Mult, a short version of the Minnesota Multiphasic Personality Inventory (Kincannon, 1968). In sum, there are too few studies to make conclusions about sex work links with psychopathic traits; thus, the current work strives to advance the literature by examining relations among distinct psychopathic traits and sex work and exchange in men and women.

Few studies have examined psychological correlates of sex work involvement in men, with most focusing on their role as consumers. Scholars have suggested that male consumers tend

to purchase sex for reasons related to impulse, convenience, and thrill seeking (Farley et al., 2011), and male consumers have been shown to display elevated levels of sensation seeking (Xantidis & McCabe, 2000). Moreover, Jewkes et al. (2012) found that male sex work consumers, relative to non-consumers, scored higher on the PPI dimensions of Blame Externalization and Machiavellian Egocentricity, assessing narcissism and callousness and blaming others, respectively (Benning, Patrick, Hicks, Blonigen, & Krueger, 2003; Lilienfeld & Andrews, 1996). Moreover, whereas research has primarily linked antisociality to sex work provision among women, some have suggested a similar link among male providers of sex work (Compton et al., 1995). Taken together, these findings suggest that both Factor 1 (e.g., callousness) and Factor 2 (e.g., impulsivity) traits of psychopathy may be pertinent to male involvement in sex work.

Unlike the scant research on psychopathy and sex work, considerable work has examined associations between drug use and sex work. While numerous drugs have been identified in connection with the construct, investigations have repeatedly linked crack and/or powder cocaine to sex work involvement in men and women, above and beyond other drugs (J. Edwards, Halpern, & Wechsberg, 2006; Hoffman, Klein, Eber, & Crosby, 2000; Logan, Cole, & Leukefeld, 2003; Maranda, Han, & Rainone, 2004; Tross et al., 2009). Inciardi & Surratt (2001) found that, among women who had traded sex for goods, 94.9% had reported having used crack cocaine in their lifetime, and 59.9% reported having used the drug daily within the prior month. Of interest, in their particular sample, sex work behavior *predated* initial use of crack cocaine. However, other sources support the reverse sequence, in that drug use may actually introduce men and women to sex work (Morrill, Kasten, Urato, & Larson, 2001; Potterat, Rothenberg, Muth, Darrow, & Phillips-Plummer, 1998; Young, Boyd, & Hubbell, 2000).

Beyond simply linking drug use to sex work involvement, studies have also suggested that level of drug use (i.e., frequency, intensity) may influence the degree to which individuals are engaged in sex work or exchange (J. Edwards et al., 2006; Hoffman et al., 2000). For example, Edwards and colleagues (2006) found that women who reported “heavy” crack use, defined as having used more than 15 of the past 30 days, were more likely to have traded sex than those who reported less heavy crack use (≤ 15 days). Furthermore, Hoffman et al. (2000) found that women who used crack daily (and five or more times per day) exhibited a higher rate of sex exchange relative to those who reported less frequent/intense use. Considering this work, one additional question we hope to address in this study is whether drug use and psychopathic traits interact in explaining variance in sex work or exchange. While research suggests that these constructs may individually elevate proneness to engage in such behavior, it has also shown that marked levels of drug use, indicative of dependence, are particularly promotive of sex work (e.g., J. Edwards et al., 2006; Gibson-Ainyette et al., 1988; Hoffman et al., 2000). Thus, the current studies explore whether drug use disorder symptoms modulate the extent to which psychopathy relates to sex work or exchange. It is possible that psychopathic traits may play less of a role in sex work or exchange in women with higher symptoms of dependence, given that severe drug addiction itself is likely a strong motivator of engagement (e.g., monetary support). Hence, the influence of psychopathic traits may be more apparent among women demonstrating lower levels of drug dependence.

Present Studies

To summarize, existing research offers some support for a relation among drug use, impulsive-antisocial features of psychopathy, and sex work; however, the literature is lacking in terms of understanding the manner in which drug use and distinct psychopathic traits, especially the interpersonal-affective features of psychopathy, may contribute to engagement in this type of behavior. In addition, there is a need for investigators to explore potential gender differences in the associations between psychopathic traits and involvement in the context of direct and indirect forms of sex work (as providers or solicitors of sex). The present studies address these important gaps in the interest of advancing our knowledge of these behaviors.

Study 1

Study 1 sought to investigate associations among psychopathy, drug dependence, and *direct* sex work in a sample of women offenders. The associations were explored by three primary study aims. The first aim was to determine the relative contribution of drug dependence (including cocaine use) and psychopathy scores, including Factor 1 (interpersonal-affective) and Factor 2 (impulsive-antisocial) dimensions of the construct, in relation to direct sex work (i.e., prostitution). Whereas previous research has independently linked both drug use and psychopathic traits to sex work, studies to date have not examined whether they interact in increasing or modulating sex work. Whereas elevated drug dependence presumably increases a woman's likelihood of sex work involvement, it is currently unclear whether the relationship between psychopathy and sex work or exchange depends on level of drug dependence, as measured by number of drug use disorder symptoms. Thus, the second aim sought to examine whether drug dependence moderated the relationship between psychopathic traits and direct sex work in adult women. Finally, given that little work has explored sex work in relation to facet-level psychopathic features, the third aim was exploratory and sought to test associations among direct sex work and the four facets of psychopathy, as per the four facet model (Facet 1: interpersonal; Facet 2: affective; Facet 3: lifestyle; Facet 4: antisocial; Hare, 2003; Walters et al., 2007). Given the scant literature exploring such associations with sex work, these analyses were exploratory in nature and, as such, a priori hypotheses were not generated.

Method

Participants

171 female offenders ranging from 18 to 53 years (M = 31.01; SD = 8.82) were recruited from a Midwestern community as part of a larger study on genes, psychopathy, and mental health (e.g., Sadeh, Javdani, & Verona, 2013). Participants were recruited from jail sites (n = 40; 23.4%), probation or parole (n = 42; 24.6%), substance use treatment agencies (n = 14; 8.2%), or community advertisements/flyers (n = 53; 31%). Participants self-identified their ethnicity as Caucasian (n = 79; 46.2%), African-American (n = 76; 44.4%), Mixed Ethnicity (n = 7; 4.1%), Hispanic (n = 3; 1.8%), and Other (n = 2; 1.2%), while four participants (2.3%) did not report ethnicity information. Education level was primarily reported as some college/college degree (n = 82; 48.0%), followed by less than high school (n = 55; 32.2%)

and high school diploma/GED (n = 32; 18.7%). Two participants (1.2%) did not report education level. Offenders of both genders were recruited for testing; however, only women were included in this study due to the low prevalence of direct sex work in men (n = 2; 0.6%). All participants provided informed consent and received $15 per hour for their participation. The sample used here has been further characterized in previous studies (e.g., Schoenleber, Sadeh, & Verona, 2011).

Psychopathy

Psychopathy was assessed using the Psychopathy Checklist: Screening Version (PCL:SV), which has been shown to be a reliable and valid measure of the construct (Hart et al., 1995). The PCL:SV is rated based on the typical semi-structured interview evaluating participant school, employment, and relationship history, juvenile conduct problems, adult antisocial behavior, and legal status (Hart et al., 1995). The instrument, based on the PCL-R (Hare, 2003), consists of 12 items and was rated by an interviewer on the basis of the semi-structured interview, along with a review of record information. Interviewers were clinical psychology doctoral students or advanced undergraduates thoroughly trained by a Ph.D.-level licensed clinical psychologist with expertise in psychopathy.

Participants are scored from 0 (*not at all characteristic*) to 2 (*extremely characteristic*) on each item, resulting in a total score ranging from 0 to 24. Total PCL:SV scores ranged from 1 to 21 (M = 9.68; SD = 4.35), where scores 12 and above are middle scores and those 18 and above are considered indicative of high psychopathy. Factor 1 and Factor 2 were significantly positively correlated, r (169) = .53, p < .001. Fifty-five PCL:SV interviews of women were dual-rated (by primary interviewer and trained secondary rater) and a high degree of inter-rater reliability was found for Total (ICC = .98, p < .001), along with both Factor 1 and Factor 2 (ICC = .96, p < .001 for both).

Drug Dependence

The Structured Clinical Interview for DSM-IV-TR Axis I (SCID-I; First, Spitzer, Gibbon, & Williams, 2002) was used to measure onset and severity of drug dependence symptoms for an individual's drug of choice (except alcohol), defined as the drug having caused the most problems for the individual. Participants were evaluated on seven symptoms of lifetime drug dependence (e.g., persistent desire to use, withdrawal), according to DSM-IV-TR criteria. Each symptom was scored from 1 (*absent*) to 3 (*threshold*). A total of 103 women (60.2%) met threshold for a lifetime diagnosis of drug dependence. Drug of choice was most frequently identified as cocaine (n = 59; 34.5%) and cannabis (n = 59; 34.5%), followed by opioid (n = 13; 7.6%), poly drug (n = 9; 5.3%), hallucinogen (n = 6; 3.5%), sedative (n = 3; 1.8%), stimulant (n = 2; 1.2%), and other drug (n = 2; 1.2%). An illicit drug of choice was not identified for seventeen participants (9.9%) due to no endorsement of illicit drug problems, and one participant (0.6%) was missing data on drug of choice. Number of drug dependence symptoms ranged from 0 to 7 (M = 3.63; SD = 2.58). Forty-eight SCID-I diagnostic ratings of drug dependence were dual-rated, with raters demonstrating strong inter-rater reliability for drug dependence symptoms (ICC = .89, p < .001).

Alcohol was not included in the symptom sum as it is typically illicit drug use, and not alcohol use, that is associated with sex work (Potterat et al., 1998; Sterk & Elifson, 1990).

Direct Sex Work

Self-report data on "direct" sex work involved asking women whether they had ever engaged in "prostitution", and the answer was rated as yes or no. In conjunction with the interview, trained raters checked public records and documented if any prostitution charges were contained in participants' records. Women were coded as participating in direct sex work if they had self-reported engagement (n = 14; 8.2%), had official public record charge(s) (n = 1; 0.6%), or both (n = 8; 4.7%). This method was used to account for: (1) women engaging in direct sex work without ever receiving an official charge, or (2) women failing to self-report engagement despite having a charge. There was moderate agreement between self-report and public record data (κ = .48, p < .001), with many women self-reporting without having public record charges. In total, 23 (13.5%) women were coded as having engaged in prostitution.

Data Analytic Plan

For the first aim, hierarchical logistic regressions were conducted to test whether psychopathy traits contributed unique variance above drug dependence symptoms to direct sex work in women. Variables were entered accordingly: 1) covariates (age, education), 2) drug dependence symptoms, and 3) PCL:SV total score in the first model, and the two PCL:SV factor scores simultaneously in the second model, and 4) the interaction of psychopathy factors (Factor 1 × Factor 2) only in the second model. All continuous variables were first mean centered. To elaborate on the role of drug use, secondary analyses explored the relationship between direct sex work and drug of choice (replacing drug dependence symptoms), for the two most common in our sample (cocaine and cannabis). Two dummy variables were created (cocaine use vs. cannabis use; cocaine use vs. use of any substance other than cocaine or cannabis) and entered instead of drug dependence in the above regressions. Participants who did not identify an illicit drug of choice (n = 17) or were missing data on drug of choice (n = 1) were excluded from these analyses.

For the second aim, examining whether drug dependence moderates the relationship between psychopathic traits and direct sex work, we performed three hierarchical logistic regressions to test interactions between drug dependence and Total, Factor 1, and Factor 2 separately. In each model, age and education were entered first, followed by psychopathy total, Factor 1 or Factor 2 in separate analyses, along with drug dependence entered second. Finally, the interaction between psychopathy total or factor score x drug dependence was entered third. Factor 1 and Factor 2 were entered separately in the second and third models, respectively, to test if drug dependence moderates the relationship between distinct psychopathic traits and direct sex work. Odds ratio (OR) estimates are included as an effect size measure, with values greater than one representing increase in odds (e.g., OR = 1.20; 20% increased odds) and values smaller than one indicating decrease in odds of direct sex work (e.g., OR = 0.80; 20% decreased odds). For the third aim, exploratory analyses were conducted to test relationships between direct sex work and psychopathy facets. Zero-order point biserial correlations were first run between direct sex work and interpersonal, affective,

lifestyle, and antisocial psychopathy facet scores. Partial point biserial correlations were then run between direct sex work and each facet score in order to examine unique variance associated with each, when adjusting for the other facets.

Results

There were no significant differences in age, t (164) = 1.62, p = .11, d = .38, ethnicity (Caucasian vs. non-Caucasian: χ^2 = .76, *OR* = .67, p = .38), or education (high school or less vs. college education: χ^2 = .73, *OR* = 1.49, p = .39) between women who had and had not engaged in direct sex work. Descriptive statistics for psychopathy, drug dependence, and direct sex work are presented in the top panel of Table 1 (left side), and results from independent samples t-tests examining relations among drug dependence, psychopathy, and direct sex work are shown in the bottom panel of this table (left side). Women who had engaged in direct sex work were higher in drug dependence and psychopathy compared to those who had not engaged in direct sex work.

Drug Dependence and Psychopathy Trait Associations with Direct Sex Work

Table 2 (top panel) summarizes statistics for each model. In the first model involving PCL:SV Total as an independent variable, there was a main effect for age (*OR* = 1.07, 95% CI [1.01, 1.14], p = .01) and drug dependence (*OR* = 1.38, 95% CI [1.08, 1.75], p = .009), such that for every unit increase in age and dependence symptom count, there was a 7% and 38% increase in odds of direct sex work, respectively. Psychopathy total score also emerged with a significant main effect (*OR* = 1.26, 95% CI [1.10, 1.46], p = .001), suggesting a 26% increase in odds of direct sex work for every unit increase in total score. In the second model exploring the unique contributions of the two psychopathy factors, there was again a main effect for both age and drug dependence. While the positive relation between Factor 1 and direct sex work did not reach significance (*OR* = 1.21, 95% CI [.93, 1.57], p = .17), Factor 2 was significantly associated with direct sex work, above drug dependence (*OR* = 1.33, 95% CI [1.01, 1.74], p = .04). Specifically, for every unit increase in Factor 2 scores, the incidence of direct sex work was elevated by 33%.

In the secondary regression analyses involving drug of choice, the odds of engaging in direct sex work were 7.35 times (*OR* = .14, 95% CI [.03, .54], p = .005) greater for women whose drug of choice was cocaine relative to those whose drug of choice was cannabis. Additionally, women whose drug of choice was cocaine were at 7.14 times (*OR* = .14, 95% CI [.03, .67], p = .01) greater odds for direct sex work involvement compared to those whose drug of choice was identified as any substance other than cocaine or cannabis. While Factor 1 was again not significantly associated with direct sex work (*OR* = 1.14, 95% CI [.88, 1.47], p = .32), significant main effects were found for psychopathy total (*OR* = 1.24, 95% CI [1.09, 1.42], p = .002) and Factor 2 (*OR* = 1.36, 95% CI [1.04, 1.76], p = .02), suggesting that unique variance in total and Factor 2 scores is relevant to direct sex work, above that of drug of choice.

Moderating Effect of Drug Dependence

The second aim of this study was to test the moderating effect of drug dependence in the association between psychopathy traits and direct sex work in women. In the first regression examining the moderating effect of drug dependence on PCL:SV total, the interaction between drug dependence and Total score was not significant (*OR* = 1.00, 95% CI [.94, 1.06], *p* = .98). Similarly, in the next set of analyses testing drug dependence as a potential moderator on Factor 1 and Factor 2, the interactions between drug dependence and Factor 1 (*OR* = .97, 95% CI [.87, 1.07], *p* = .49) and Factor 2 (*OR* = 1.05, 95% CI [.96, 1.15], *p* = .30) both failed to reach significance.

Psychopathy Facet Associations with Direct Sex Work

The third aim of the study was to test associations between direct sex work and psychopathy facet scores. As shown in Table 4 (left panel), zero-order point biserial correlations revealed moderate positive relationships (*r*'s = .23 to .28) between direct sex work and interpersonal (Facet 1), lifestyle (Facet 3), and antisocial (Facet 4) psychopathic traits, each of which were significant. The relationship between direct sex work and the affective (Facet 2) traits was small and not significant. Partial point biserial correlational analyses were then conducted to examine the unique variance of each psychopathy facet associated with direct sex work. Results indicated that, when controlling for the other three facets, relationships between direct sex work and Facet 1, Facet 3, and Facet 4 remained positive and small to moderate in size; however, only lifestyle (Facet 3) traits remained significant.

Study 1 Discussion

The results of Study 1 provide support for independent relationships between direct sex work and both drug dependence and Factor 2 in adult women offenders. With respect to the first aim, findings corroborate past work in that both drug dependence and psychopathy scores were related to having engaged in direct sex work in the women's lifetimes (J. Edwards et al., 2006; Inciardi & Surratt, 2001; Strachan, 1993). In terms of specific psychopathic traits, Factor 2 contributed unique variance, above drug dependence and cocaine as drug of choice, to direct sex work involvement. Facet-level correlational analyses implicate the unique influence of lifestyle (i.e., impulsive, irresponsible) features of Factor 2, and antisocial (i.e., criminality) features to a lesser degree (and failing to reach significance), promoting the notion that women displaying such traits may be inclined to express them within sexually intimate contexts. However, results did not offer support for the role of drug dependence as a moderator of the relationship between psychopathic traits and direct sex work. Contrary to our expectations, the latter findings imply that psychopathic traits do not seem to be more strongly related to prostitution in women with lower levels of drug use.

While this study presents preliminary support for independent connections among drug dependence, cocaine in particular, and Factor 2 traits and direct sex work in adult women, it is important to recognize a few limitations. First, this study tested associations with *direct* sex work, or prostitution. Such that direct sex work is commonly viewed as an illegal activity, we recognize that a number of both men and women likely engage in more indirect types of sex exchange, without identifying these encounters as criminal behavior. Second,

direct sex work and psychopathy data were both obtained as part of the interview and record review. Thus, it is possible that direct sex work reports may have contributed to Factor 2 scores, and the antisocial facet in particular, by influencing PCL:SV ratings of adolescent and adult antisocial behavior, both of which encompass participation in criminal activities including prostitution.

Given limitations of Study 1, Study 2 was included to: (1) replicate direct sex work findings in a sample of women offenders displaying more severe drug use, and (2) examine whether Study 1 results extend and generalize to a sample of community-dwelling offenders of both genders, when using a self-report measure of indirect types of sex exchange (as providers or solicitors).

Study 2

The first goal of Study 2 was to investigate whether Study 1 results for direct sex work (unique and moderating influences of psychopathy and substance use) would replicate in a community sample of adult women recruited for histories of drug use. The second goal was to explore gender differences within more indirect forms of sex exchange by including both men and women. This expansion involved two important contributions. First, we used a measure of indirect sex exchange that involved questioning on the prevalence of broadly trading or exchanging sex in more informal ways (i.e., for money/drugs, basic necessities). Second, we used a sample of men and women in order to better understand potential gender differences in the relation between psychopathy and involvement in the broader context of indirect sex exchange, in which men and women engage as providers and/or solicitors of sex.

Method

Participants

Three hundred and 19 participants (n = 135; 42.3% women) with a history of substance use and/or violence were recruited through probation/parole (n = 3; 0.9%), outpatient substance treatment programs (n = 22; 6.9%), or through advertisements/flyers or other forms of recruitment (n = 294; 92.2%) in a Midwestern community. Participants ranged from 18 to 62 years (M = 34.79; SD = 11.96). Ethnicity was self-identified as African-American (n = 154; 48.3%), Caucasian (n = 116; 36.4%), Hispanic (n = 9; 2.8%), Asian (n = 9; 2.8%), Native American (n = 3; 0.9%), Mixed Ethnicity (n = 21; 6.6%), and Other (n = 4; 1.3%). Three participants (0.9%) did not have ethnicity information. Approximately half of the participants reported their education level as some college/college degree (n = 179; 56.1%), followed by high school diploma/GED (n = 81; 25.4%) and high school dropout (n = 59; 18.5%). Men and women did not significantly differ in age, ethnicity, or education level. Participants provided informed consent and $35 payment was given for participation.

Psychopathy

Psychopathy was again measured using the PCL:SV (Hart et al., 1995). PCL:SV interviews (n = 183) were dual-rated and inter-rater reliability was strong for Total (ICC = .98, p < .001), Factor 1 (ICC = .95, p < .001), and Factor 2 (ICC = .97, p < .001). Total scores ranged

from 0 to 22 (M = 10.30; SD = 5.03), and Factor 1 and Factor 2 were significantly correlated, r (317) = .61, p < .001.

Drug Dependence

As in Study 1, participants were evaluated on symptoms of lifetime drug dependence using the SCID-I for DSM-IV-TR (First et al., 2002). Symptoms were scored from 1 (*absent*) to 3 (*threshold*), and dependence symptoms at threshold were summed for an individual's drug of choice. Two hundred and 30 participants (72.1%) met the threshold for a lifetime diagnosis of drug dependence, an even higher percentage relative to Study 1. Drug dependence symptom count ranged from 0 to 7 (M = 4.18; SD = 2.23). Dual-ratings were conducted on SCID-I interviews (n = 176) and inter-rater reliability was good for dependence symptom counts (ICC = .91, p < .001).

Drug of choice was most frequently identified, similar to Study 1, as cannabis (n = 131; 41.1%) and cocaine (n = 119; 37.3%) in both men and women, followed by opioid (n = 33; 10.3%), stimulant (n = 13; 4.1%), poly drug (n = 6; 1.9%), hallucinogen (n = 5; 1.6%), sedative (n = 2; 0.6%), and other (n = 2; 0.6%). Eight participants (2.5%) did not identify an illicit drug of choice due to no endorsement of illicit drug problems. Men and women did not significantly differ in dependence symptom count, t (317) = .76, p = .45, d = .08, or drug of choice (cocaine use vs. cannabis use: χ^2 = 3.26, p = .07, OR = 1.53; cocaine use vs. any substance other than cocaine or cannabis: χ^2 = .19, p = .66, OR = .88). As in Study 1, alcohol was not included as it was not pertinent to the main goals of the study.

Direct Sex Work

During the interview, participants were asked to report whether or not they had ever engaged in prostitution. If a participant self-reported as having engaged in prostitution, they were coded as “yes” for participation in direct sex work. Such that this served as a replication to Study 1, self-report of this behavior was only included for women (men self-reported at very low rates: n = 5; 2.7%). In total, twelve (8.9%) women self-identified as having engaged in direct sex work. Given that only self-report data and not public record data is included in this study, it is important to note that Study 2 is not a direct replication of Study 1 (i.e., both self-report and public record data).

Indirect Sex Exchange

“Indirect” sex exchange referred to having traded or exchanged sex for money, drugs, or other basic necessities, and was assessed to extend Study 1 findings using a broader definition of the construct (Harcourt & Donovan, 2005). Data were collected using a modified sex exchange questionnaire, adapted from prior research on risky sexual behavior (Darke, Hall, Heather, Ward, & Wodak, 1991; Tull, Gratz, & Weiss, 2011). The questionnaire assesses the frequency of sex exchange and scores from this test have been shown to be a valid and reliable measure of such behavior (Lejuez, Simmons, Aklin, Daughters, & Dvir, 2004). The current study focused on two specific items designed to measure number of sexual partners with whom an individual had penetrative sex in exchange for “*money or drugs*” and “*shelter, food, or other basic necessities*” in their lifetime. Participant responses could range from 0 (*none*) to 7 (*60+*). Based on prior research, the

average of the two items was used as a measure of indirect sex exchange (α = .75), and scores ranged from 0 to 7 (M = 0.68; SD = 1.18) across genders (Verona, Murphy, & Javdani, 2015, in press). As expected, women who had engaged in prostitution (n = 12) scored significantly higher on indirect sex exchange (M = 2.45; SD = 1.44) compared to those who self-reported no engagement in prostitution (M = 0.50; SD = 0.98), t (134) = 6.09, p < .001, d = 1.58. Men and women did not significantly differ in reports of involvement in indirect sex exchange, t (316) = .19, p = 0.85, d = .03, which may be attributable to the measure tapping into roles of both provision and solicitation of sex in these contexts.

Data Analytic Plan

For our first aim, we attempted to replicate Study 1 results for direct sex work (prostitution) by running the same series of hierarchical logistic regression and facet-level correlational analyses as Study 1.

For our second aim of determining gender differences in psychopathy relationships with involvement in the broader context of indirect sex exchange, we conducted two negative binomial regressions. The first regression had PCL:SV total and the second had the two psychopathy factors entered simultaneously as predictors, with relevant interaction terms between gender and respective psychopathic traits (as well as between the two psychopathy factors) included. Incidence rate ratio (*IRR*) estimates are included as effect size measures in the regression models, in which values greater than one represent an increase in odds of lifetime indirect sex exchange and values smaller than one indicate a decrease in odds of lifetime indirect sex exchange. All continuous variables were mean centered.

Results

Descriptive statistics for psychopathy, drug dependence, direct sex work, and indirect sex exchange are in Table 1 (top panel-right side). While there were no significant differences across gender in drug dependence, t (317) = .76, p = .45, d = .08, men scored significantly higher than women on PCL:SV total (d = .51), Factor 1 (d = .46), and Factor 2 (d = .45). Table 1 (bottom panel-right side) presents gender differences in relationships between key variables and sex work. Results from independent sample t-tests indicated that women with a history of direct sex work did not differ on drug dependence from women with no such history. However, women who engaged in direct sex work scored significantly higher on PCL:SV total and Factor 2 compared to those who did not engage in direct sex work. For indirect sex work, drug dependence and psychopathy total and factor scores were related to indirect sex exchange in men, whereas only drug dependence and Factor 2 were positively related to indirect sex exchange partners in women.

Drug Use, Psychopathy, and Direct Sex Work: Replication

Table 2 (bottom panel) shows a summary of statistics for the model involving direct sex work (i.e., prostitution). The first logistic regression revealed that neither drug dependence (*OR* = 1.26, 95% CI [.91, 1.74], p = .17) nor PCL:SV total (*OR* = 1.13, 95% CI [.98, 1.30], p = .10) were significantly related to direct sex work. The second regression involving psychopathy factors revealed no main effect for Factor 1 (*OR* = .88, 95% CI [.65, 1.18], p = .

39) and a significant main effect for Factor 2 (*OR* = 1.49, 95% CI [1.07, 2.07], *p* = .02). For every unit increase in Factor 2, there was an approximate 49% increase in odds of direct sex work. In analyses with drug of choice instead of drug dependence as a predictor, surprisingly neither drug of choice dummy variable exhibited a significant effect for direct sex work (cocaine use vs. cannabis use: *OR* = .65, 95% CI [.13, 3.33], *p* = .61; cocaine use vs. use of any substance other than cocaine or cannabis: *OR* = .63, 95% CI [.11, 3.67], *p* = .60). These analyses revealed a main effect for Factor 2 only (*OR* = 1.54, 95% CI [1.10, 2.16], *p* = .01), and not for total psychopathy (*OR* = 1.14, 95% CI [.99, 1.31], *p* = .06) or Factor 1 (*OR* = .87, 95% CI [.65, 1.18], *p* = .37).

Logistic regressions examining drug dependence as a potential moderator in the relationships between psychopathy total and each factor and direct sex work in separate analyses revealed, similar to Study 1, no significant interactions between drug dependence and PCL:SV total (*OR* = 1.01, 95% CI [.94, 1.08], *p* = .89), Factor 1 (*OR* = 1.02, 95% CI [.91, 1.15], *p* = .73), or Factor 2 (*OR* = .99, 95% CI [.87, 1.13], *p* = .91).

In sum, these results reveal both similarities and differences to those found in the previous study. Replicating findings from Study 1, Factor 2 was positively associated with involvement in direct sex work in women. However, in contrast to Study 1, significant relationships were not found between direct sex work and drug dependence (cocaine in particular), or psychopathy total.

Gender Differences and Indirect Sex Exchange: Expansion

Table 3 presents results from the negative binomial regression models in which gender was tested as a moderator in the relationship between psychopathy traits and indirect sex exchange. In the model which included PCL:SV total score and drug dependence, along with gender, as predictors, there was a significant positive relationship between drug dependence and lifetime number of indirect sex exchange partners (see Table 3, top panel). That is, for each unit increase in dependence symptom count, there was a 21% increase in number of lifetime indirect sex exchange partners. However, with regard to psychopathy, neither PCL:SV total score nor the PCL:SV total × Gender interaction was significant.

In the models in which gender was tested as a moderator in the relationship between the two psychopathy factors (entered simultaneously) and indirect sex exchange, drug dependence again exhibited a main effect for indirect sex exchange and both the Factor 1 × Factor 2 and Factor 1 × Gender interactions reached significance (see Table 3, bottom panel).

As illustrated in Figure 1 (right side), Factor 2 was positively related to indirect sex exchange across gender among individuals low (*b* = .14, *IRR* = 1.15, 95% CI [1.02, 1.29], *p* = .02), but not high in Factor 1 (*b* = .01, *IRR* = 1.01, 95% CI [.91, 1.13], *p* = .80) (Aiken, West, & Reno, 1991). Figure 1 (left side) illustrates the decomposition of the Factor 1 × Gender interaction. Analyses revealed a significant positive relationship between Factor 1 and indirect sex exchange in men (*b* = .13, *IRR* = 1.14, 95% CI [1.01, 1.28], *p* = .03), and a non-significant negative relationship in women (*b* = -.10, *IRR* = .90, 95% CI [.79, 1.04], *p* = .16). Specifically, for every unit increase in Factor 1 scores, men had a 14% increase in lifetime sex exchange partners and women had a 10% decrease. These data suggest that

Factor 1 relates to greater involvement in men but potentially less involvement in women in these indirect sex exchange contexts.

Psychopathy Facet Associations with Direct and Indirect Sex Work

Zero-order point biserial correlations revealed small to moderate non-significant positive associations among direct sex work and interpersonal (Facet 1) and lifestyle (Facet 3) traits, and a moderate, and significant, positive association between direct sex work and antisocial (Facet 4) traits. When accounting for the other facets, partial correlation results revealed similar positive relationships between direct sex work and Facet 1, Facet 3, and Facet 4, and a significant negative relationship between direct sex work and affective (Facet 2) traits of moderate size (see Table 4 – right panel), the latter suggesting a cooperative suppressor effect.

Results from correlational analyses exploring associations between indirect sex exchange and psychopathy facet scores in men and women are presented in Table 4 (right panel). Men displayed small to moderate, and significant, positive relationships between number of indirect sex exchange partners and all four psychopathy facets. While all relationships remained positive when controlling for other facets, they decreased in size and none of them remained significant. In women, relationships between indirect sex exchange partners and the interpersonal (Facet 1) and affective (Facet 2) traits were both negative and relatively small in size. Instead, women displayed a significant moderate association between number of indirect sex exchange partners and antisocial (Facet 4) traits, and a small to moderate positive association for lifestyle (Facet 3) traits, of which only the Facet 4 association remained moderate in size, after controlling for the other facets.

General Discussion

These studies present evidence for a link between Factor 2 psychopathic traits and direct sex work (prostitution) across two samples of adult women offenders, and highlight how relationships differ when expanding the construct of sex work to indirect sex exchange. The indirect sex exchange models also showed an effect of Factor 2, but only at low levels of Factor 1, suggesting that interpersonal-affective traits may actually be protective of more casual or indirect forms of sex exchange among those high in impulsive-antisocial traits. Another novel finding in this study involved differences between men and women in the relation between indirect sex exchange and the interpersonal-affective traits of psychopathy. In particular, a Gender × Factor 1 interaction revealed a significant positive association between Factor 1 and sex exchange in men and a small non-significant negative association in women.

Aim 1 and 2: Psychopathy, Drug Use, and Direct Sex Work in Women

The present studies examined psychopathic traits and drug dependence in tandem so as to test their relative contributions to direct sex work or prostitution. Consistent with prior work, women who had engaged in direct sex work in Study 1 exhibited elevated levels of drug dependence, particularly cocaine, relative to women who had never participated in such work (Hoffman et al., 2000; Inciardi & Surratt, 2001). The relationship between drug

dependence and direct sex work was not significant in Study 2 (although drug dependence was related to indirect sex exchange in Study 2). Given the high prevalence of dependence in Study 2, an association between drug dependence and direct sex work may have failed to reach significance due to either limited variability in dependence symptoms (i.e., elevated number of maximum symptoms) or lack of sufficient power due to fewer women reporting direct sex work ($n = 12$) than in Study 1 ($n = 23$). This is plausible given that, despite differences in p values, effect sizes for drug dependence in terms of direct sex work were similar across both studies (Study 1: $OR = 1.41$; Study 2: $OR = 1.26$).

Factor 2 also demonstrated an independent relationship with direct sex work across both samples of women, indicating that women with higher levels of Factor 2 characteristics are more likely to engage in direct sex work. Across the two studies, the lifestyle (Facet 3) and antisocial (Facet 4) psychopathic traits showed similar small to moderate relationships with direct sex work engagement in women, although the former was significant in Study 1 and the latter in Study 2. Direct sex work is often considered risky and dangerous, with an alarming number of prostitutes reporting assault during engagement (Farley & Barkan, 1998; Farley et al., 2004); therefore, Factor 2 traits of impulsivity and sensation seeking may be directly relevant for those who participate (Farley & Barkan, 1998). Equally plausible, a woman with a history of irresponsible conduct, evidenced by irregular employment, may fall into direct sex work as a source of income. At the same time, it is also possible that sex work is yet another reflection of a propensity to antisocial behavior, both in adolescence and adulthood, and these results are consistent with the contention that sex work represents a female manifestation of antisocial traits.

In contrast to Factor 2, Factor 1 played a more minimal role in direct sex work among women in both studies. This may be because women high in Factor 1, and particularly the affective facet (Facet 2), may elect to obtain goods in a more callous and dominant manner, such as aggression or intimidation, without having to become directly involved in prostitution, that puts one in a more vulnerable position. Alternatively, given that Factor 1 typically exhibits smaller effect sizes than Factor 2 in relation to criminal behavior per se, the sample sizes of women involved in direct sex work may not have been large enough to fully detect Factor 1 effects. Nonetheless, facet level analyses revealed that when adjusting for the facet inter-correlations, the affective facet was negatively related to direct sex work in women. In sum, findings for our first aim support the notion that women with impulsive-antisocial psychopathic traits manifest these within intimate contexts, including prostitution, and the interpersonal-affective traits are not related, or potentially negatively related to this behavior in women.

With respect to our second aim, findings demonstrate that drug dependence and Factor 2 play somewhat independent roles in direct sex work, as drug dependence does not moderate the relationship between psychopathy and direct sex work. Given that drug addiction is a powerful motivator itself for individuals with drug dependence, we expected the relationship between Factor 2 traits and sex exchange to be stronger for individuals with lower levels of drug dependence. A moderating effect of drug use symptoms may not have been detected given that our participant sample exhibited severe substance use problems (dependence symptoms). Alternatively, these findings can suggest that what drug use and Factor 2 do

NOT share is important to understanding involvement in direct sex work in women. Krueger's spectrum of externalizing may be particularly useful in teasing apart their unique contributions (Krueger, Markon, Patrick, Benning, & Kramer, 2007). For instance, while Krueger et al. (2007) found that irresponsibility and problematic impulsivity adequately measured the general externalizing latent factor (shared variance across conduct disorder, adult antisociality, substance use, and disinhibition), which overlaps substantially with Factor 2 psychopathy (Patrick, Hicks, Krueger, & Lang, 2005), they did not appear to simultaneously measure the variance uniquely associated with aggression and substance use. Thus, the risk conferred by Factor 2 traits and substance use represent distinct vulnerabilities in regard to sex work behavior. Considering the current findings, more research is needed to understand which trait phenotypes may account for unique roles of Factor 2 and substance use in regard to direct sex work, in particular.

Aim 3: Indirect Sex Exchange Across Genders

Findings in regard to Factor 2 and drug use contributions were slightly different for indirect sex exchange. In terms of number of indirect sex exchange partners, neither drug dependence nor Factor 2 showed significant main effects in the negative binomial model, although zero-order correlations between these variables and sex exchange partners were significant albeit small to medium in size (see Table 1). Such that their individual contributions are decreased when both are together in the model would suggest that, in contrast to direct sex work findings, the common variance across drug use and Factor 2 may help explain engagement in more casual forms of sex exchange. Therefore, based on Krueger's externalizing-spectrum model, irresponsibility and problematic impulsivity linked to the general externalizing factor may help explain whether an individual engages in indirect sex exchange. However, a caveat to this is that Factor 2 was related to sex exchange, even in the presence of drug dependence, but only at low and not high levels of Factor 1. These findings highlight that Factor 1 traits appear to modulate the relationship between Factor 2 and indirect sex exchange. Those with high Factor 1 traits may channel their antisocial behaviors in other ways that do not involve sex exchange to obtain money or other needs.

Importantly, unique results were found in regard to Factor 1. Results indicate gender differences in the way that Factor 1 traits relate to involvement in sex exchange contexts. First, while not significant, the unique variance in Factor 1 traits was modestly negatively related to number of sex exchange partners in women. Facet-level analyses indicated that the interpersonal (Facet 1) and affective (Facet 2) traits each exhibited negative relationships with indirect sex exchange in women, although these correlations were not significant. Thus, the combined Factor 1 traits may be implicated in sex exchange involvement. For instance, it is possible that higher scores on traits of superficial charm, manipulation, remorselessness and callousness may reflect heightened skill at obtaining desired goods (e.g., money, drugs) from others through less sexually risky means than sex exchange. For example, women high in Factor 1 may utilize their charm and slick demeanor to manipulate and/or callously take advantage of others to get what they want (e.g., conning, stealing).

Second, the unique variance in Factor 1 was positively associated with number of sex exchange partners in men. The distinct roles of males and females within sex exchange contexts may provide insight into the gender-opposite Factor 1 relationships with sex exchange. For instance, in a previous study on men and women crack-users, Logan and colleagues (2003) suggested that men are more often the ones soliciting sex, while women tend to be the ones providing sex. Specifically, they found that men were more likely to report having propositioned someone for sex exchange (39% of men vs. 0% of women) and women were more likely to have been propositioned by someone else (69% of women vs. 43% of men) (Logan et al., 2003). Therefore, our results may reflect that interpersonal-affective traits of psychopathy are positively associated with solicitation and negatively associated with provision of sex exchange; however, this interpretation is speculative given that the current study was unable to directly assess distinct roles in sex exchange contexts. At the same time, it is also possible that the relationship between Factor 1 and indirect sex exchange may be due to true differences in traits related to sex exchange in men and women. Logan et al. (2003) reported that approximately half of men, who were primarily solicitors, reported trading money/drugs in exchange for sex for reasons related to ease and convenience, and one third reported reasons related to power and excitement. In contrast, women typically reported exchanging sex for reasons related to drug or monetary gain (Logan et al., 2003). Other work has shown that men who buy sex are more likely to engage in sexually coercive behavior, lack empathy for the women providing the sex, and seek out sexual contexts that lack emotional connection (Farley et al., 2011). Considering this set of findings, it makes sense that men with elevated Factor 1 scores may seek excitement and power in these settings, and exchange money or material goods for sex so as to gain a sense of power or control (e.g., grandiose sense of self-worth) or satisfy sexual urges without emotional connection and potentially using coercive or aggressive sexual tactics.

Limitations, Strengths, and Future Directions

Our findings should be interpreted in light of some limitations. As to be expected, there were relatively few men and women reporting engagement in sex exchange; a greater number of offenders endorsing the behavior may have allowed us to discover more robust and/or additional relations between drug dependence, psychopathy, and sex work. Given that the self-report measure of sex exchange in Study 2 only assessed casual sex exchange encounters, we were limited in our ability to tap into other manifestations of indirect sex exchange (e.g., pornography, phone sex operators) and could not distinguish between solicitors and consumers of sex work. Lastly, the data do not allow us to make inferences with regard to causality. Therefore, while able to establish useful links between the constructs, we are unable to decompose the temporal details (e.g., psychopathic traits follow sex exchange). It would be advantageous for future studies to further tease apart these associations, to better understand the means by which individuals become involved in dangerous and risky behavior, including drug use and sex exchange.

At the same time, the present studies possess a number of strengths. First, each study utilized relatively large offender samples, consisting of individuals with varying histories of drug use, aggression and/or violence, and criminal behavior. Access to these samples allowed us to examine clinical levels of drug dependence and psychopathy, and increased the

odds for inclusion of individuals who had participated in sex work or exchange. Second, the inclusion of two studies allowed us to test whether our direct sex work results would replicate across independent samples. The current findings also hold implications for risk assessment, treatment efforts, and public health policies aimed at HIV risk-reduction. The results implicate individual vulnerabilities (e.g., Factor 2 psychopathic traits) that may be important to consider, both independently and together with established risk factors (e.g., drug use), when designing evaluation tools to identify those at heightened risk for sexually risky behavior. Furthermore, this research can help distinguish among individual susceptibilities (e.g., those with general risk for externalizing vs. those with a specific risk for illicit drug use) that may increase involvement in sex work, with implications for tailoring assessment efforts based on individual needs.

In conclusion, this study provides evidence for a link between sex work and both the use of illicit drugs, cocaine in particular, and presence of particular psychopathic traits. First, impulsive-antisocial traits are risky for engagement in direct sex work like prostitution in women, and relate to more casual forms of sex exchange in participants with low levels interpersonal-affective traits. In general, these results are consistent with the idea that antisocial women may manifest these traits within intimate and gendered contexts. Second, men and women exhibit distinct relations between more casual types of sex exchange and interpersonal-affective psychopathic features. In particular, although Factor 2 traits are promotive for direct sex work, Factor 1 traits are protective of indirect sex exchange in women. The latter traits may help women discover other means to survive or gain income or drugs. If replicated, these findings can prove helpful to disseminate to health professionals and sex workers in terms of educating them about especially risky situations and persons.

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General Scientific Summary

This study supports the idea that women may manifest impulsive-antisocial psychopathic traits within intimate and gendered contexts, such as sex work and exchange. Findings suggest that impulsive-antisocial features of psychopathy are associated with traditional forms of sex work over and above drug dependence in adult women, and interpersonal-affective psychopathic traits exhibit differential relationships with more casual forms of indirect sex exchange in men and women, such that they are significantly positively associated with sex exchange in men and not significantly (and negatively) related in women.

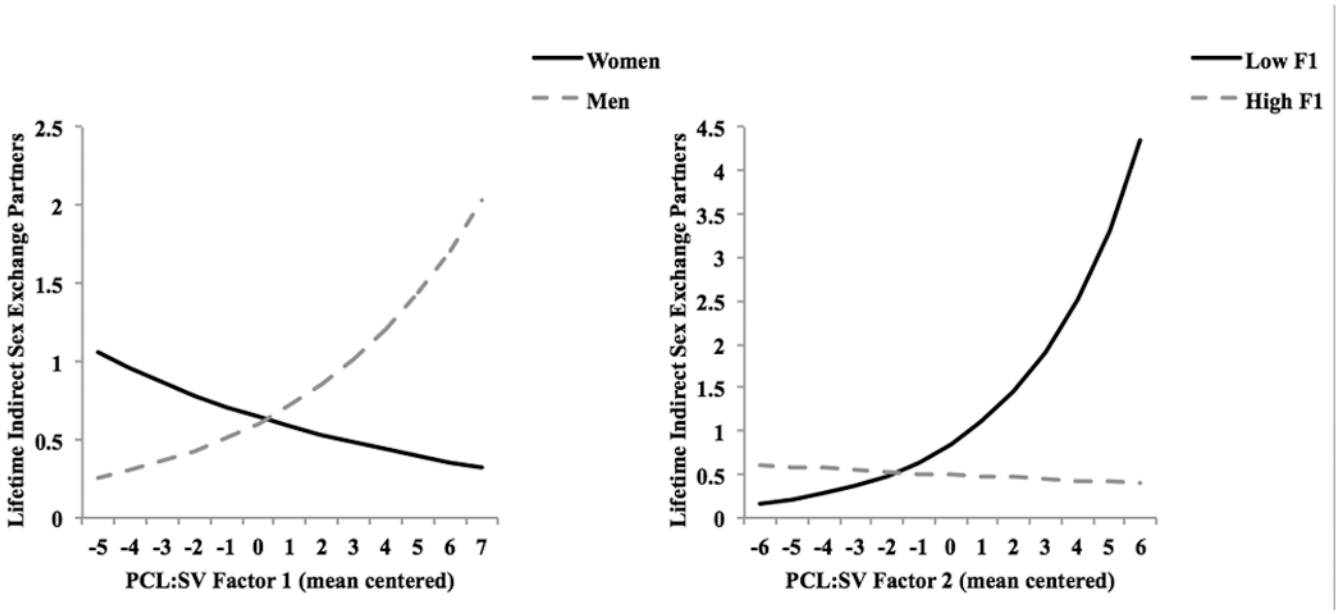

Figure 1.

The graph on the left represents indirect sex exchange as a function of interpersonal-affective psychopathic traits (Factor 1) and gender. The graph on the right represents indirect sex exchange as a function of impulsive-antisocial traits (Factor 2) and interpersonal-affective traits (Factor 1) across gender.

Table 1

Descriptive Statistics and Associations Among Psychopathy, Drug Dependence, and Sex Work

	Study 1						Study 2		
Descriptives									
	Women			*Men*			*Women*		
	M	***SD***	***Range***	***M***	***SD***	***Range***	***M***	***SD***	***Range***
PCL:SV									
Total	9.68	4.35	1 – 21	11.35	5.06	0 – 22	8.87	4.64	0 – 20
Factor 1	3.62	2.25	0 – 10	4.91	2.64	0 – 12	3.70	2.57	0 – 10
Facet 1	1.53	1.36	0 – 6	2.46	1.70	0 – 6	1.76	1.43	0 – 5
Facet 2	2.09	1.35	0 – 5	2.45	1.44	0 – 6	1.95	1.54	0 – 6
Factor 2	6.06	2.72	0 – 12	6.45	3.00	0 – 12	5.16	2.68	0 – 12
Facet 3	3.27	1.50	0 – 6	3.31	1.54	0 – 6	2.90	1.57	0 – 6
Facet 4	2.81	1.70	0 – 6	3.14	1.97	0 – 6	2.27	1.58	0 – 6
SCID-I									
Drug Dependence	3.63	2.58	0 – 7	4.10	2.13	0 – 7	4.29	2.37	0 – 7
Indirect Sex Exchange									
Number of partners	---	---	---	0.69	1.21	0 - 7	0.66	1.15	0 – 5.5

Differences between those with and without sex work

	Direct Sex Work				*Direct Sex Work*				*Indirect Sex Exchange*	
	Yes	*No*			*Yes No*				*Men*	*Women*
PCL:SV	*M (SD)*	*M (SD)*	*t*	*d*	*M(SD)*	*M(SD)*	*t*	*d*	*r*	*r*
Total	12.83 (4.56)	9.18 (4.15)	3.86***	.84	11.50 (3.85)	8.61 (4.64)	2.09*	.68	.22**	.15
Factor 1	4.87 (2.69)	3.42 (2.14)	2.47**	.60	4.25 (2.53)	3.65 (2.57)	.77	.24	.22**	.003
Factor 2	7.96 (2.36)	5.76 (2.65)	3.75***	.88	7.17 (1.85)	4.97 (2.68)	2.78**	.96	.18*	.25**
SCID-I										
Drug Dependence	5.36 (2.08)	3.31 (2.55)	3.59***	.88	5.17 (1.95)	4.20 (2.40)	1.30	.44	.18**	.34***

Notes. Study 1: direct sex work = self-report and/or public record engagement. Study 2: direct sex work = self-report engagement (percent reflects women only). Cohen's d and Pearson correlation coefficient values depict effect sizes.

*** $p \leq .001$,

** $p \leq .01$,

* $p \leq .05$

Table 2
Studies 1 and 2: Hierarchical Logistic Regressions for Direct Sex Work in Women

Step	*Variable*	*B*	*SE(B)*	*Wald*	*OR*	*95% CI*	χ^2
Study 1							
1	Age	.07**	.03	6.04	1.07	1.01 – 1.14	7.44*
	HS or Less vs. Some College	.88	.52	2.82	2.40	.86 – 6.68	
2	Drug Dependence	.32**	.12	6.87	1.38	1.08 – 1.75	8.50**
3	PCL:SV						12.63***
	Total	.23**	.07	10.34	1.26	1.10 – 1.46	
1	Age	.07**	.03	6.04	1.07	1.01 – 1.14	7.44*
	HS or Less vs. Some College	.88	.52	2.82	2.40	.86 – 6.68	
2	Drug Dependence	.32**	.12	6.87	1.38	1.08 – 1.75	8.50**
3	PCL:SV						12.81**
	Factor 1	.19	.14	1.92	1.21	.93 – 1.57	
	Factor 2	.28*	.14	4.15	1.33	1.01 – 1.74	
4	Interaction						.45
	F1×F2	.03	.05	.45	1.03	.94 – 1.13	
Study 2							
1	Age	-.01	.03	.14	.99	.94 – 1.04	.77
	HS or Less vs. Some College	.53	.63	.71	1.70	.50 – 5.77	
2	Drug Dependence	.23	.17	1.91	1.26	.91 – 1.74	2.10
3	PCL:SV						2.71
	Total	.12	.07	2.66	1.13	.98 – 1.30	
1	Age	-.01	.03	.14	.99	.94 – 1.04	.77
	HS or Less vs. Some College	.53	.63	.71	1.70	.50 – 5.77	
2	Drug Dependence	.23	.17	1.91	1.26	.91 – 1.74	2.10
3	PCL:SV						6.43*
	Factor 1	-.13	.15	.73	.88	.65 – 1.18	
	Factor 2	.40*	.17	5.50	1.49	1.07– 2.07	
4	Interaction						.41
	F1×F2	-.04	.06	.39	.97	.86 – 1.08	

Notes. One dummy variable was devised to code for education level (HS or less versus some college/college degree). F1 = Factor 1; F2 = Factor 2.

*** $p \leq .001$,

** $p \leq .01$,

* $p \leq .05$

Table 3

Study 2: Negative Binomial Regressions for Indirect Sex Exchange Across Genders

Model 1	***b***	***SE***	***IRR***	***95% CI***	χ^2	***p***
Gender	-.03	.21	.97	.64, 1.48	.02	.88
Drug Dependence	.19	.05	1.21	1.09, 1.32	14.98	.0001
Total	.04	.04	1.04	.96, 1.12	.95	.33
TotalxGender	.03	.05	1.03	.94, 1.13	.48	.49
Model 2	*b*	*SE*	*IRR*	*95% CI*	χ^2	*p*
Gender	-.06	.23	.94	.60, 1.46	.08	.78
Drug Dependence	.17	.05	1.19	1.07, 1.31	11.61	.0007
F1	-.10	.07	.90	.79, .96	1.82	.18
F2	.12	.07	1.13	.98, 1.30	2.72	.10
F1×F2	-.06	.03	.94	.90, 1.00	4.11	.04
F1×Gender	.27	.10	1.31	1.08, 1.60	7.54	.006
F2×Gender	-.09	.09	.91	.76, 1.08	1.11	.29
F1×F2×Gender	.03	.03	1.03	.97, 1.11	.98	.32

Notes. Total = PCL:SV total score; F1 = PCL:SV Factor 1; F2 = PCL:SV Factor 2.

Table 4

Descriptive Statistics and Associations Among Psychopathy Facet and Sex Work Variables

	Study 1		Study 2					
	Direct Sex Work		*Direct Sex Work*		*Indirect Sex Work*			
	Women		*Women*		*Men*		*Women*	
PCL:SV	r_{pb}	*partial* r_{pb}	r_{pb}	*partial* r_{pb}	*r*	*partial r*	*r*	*partial r*
Facet 1: interpersonal	.23**	.14	.16	.16	.16*	.08	-.06	-.16
Facet 2: affective	.14	-.05	-.02	-.25**	.20**	.09	.06	-.06
Facet 3: lifestyle	.28***	.16*	.15	.08	.14*	.03	.11	-.01
Facet 4: antisocial	.23**	.11	.26**	.27**	.16*	.03	.33***	.36***

Notes. Study 1: direct sex work = self-report and/or public record engagement. Study 2: direct sex work = self-report engagement (reflects women only). Partial correlations co-vary additional facet scores.

*** $p \leq .001$,

** $p \leq .01$,

* $p \leq .05$