Published in final edited form as:

Psychol Sex Orientat Gend Divers. 2014 March ; 1(1): 63–71. doi:10.1037/0000013.

Dyadic effects of gender minority stressors in substance use behaviors among transgender women and their non-transgender male partners

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Abstract

Background—Despite evidence that interpersonal processes shape health behaviors, research concerning the dyadic effects of gender minority stressors on substance use behaviors of transgender people is scarce. The objective of this study was to use dyadic analysis to examine whether transgender discrimination was associated with substance use among transgender women and their male partners.

Methods—Transgender women and their male partners ($N=191$ couples; $N=382$ individuals) completed questionnaires. Participants' mean age was 37.1; 79.1% were racial/ethnic minority; 61.3% earned <\$500 per-month. The mean relationship duration was 37.9 months. Actor-Partner Interdependence Models were used to examine the associations between transgender-related discrimination and past 30-day non-marijuana illicit drug use adjusting for age, relationship length, financial hardship, and depressive distress among partners in these dyads.

Results—Illicit drug use was reported by 31.4% of transgender women and 25.1% of their male partners. Perceived transgender discrimination was independently associated with increased odds of illicit drug use for transgender women (actor effect) but not for their male partners. Financial hardship statistically predicted drug use for both partners (actor effects). There were no partner effects for financial hardship on drug use. Overall, 34.5% of dyads had discrepant substance use. Discrimination scores of male partners differentiated dyads who reported discrepant substance use.

Discussion—Gender minority stressors are critical to understanding substance use among transgender women and their male partners. Integrating socioeconomic status into gender minority

stress frameworks is essential. Results have implications for substance use prevention and treatment, including the need to incorporate gender minority stressors into interventions.

Keywords

transgender women; substance use; couples; discrimination; financial hardship

Transgender women—individuals assigned a male sex at birth who identify on the trans feminine spectrum as women, female, or male-to-female (MTF) transgender—constitute a socially disadvantaged group who experience high rates of discrimination and stigma (Bockting et al., 2013; Bradford, Reisner, Honnold, & Xavier, 2013; Grant et al., 2011; Poteat, German, & Kerrigan, 2013). Stigma and discrimination are often associated with negative health outcomes (Paradies, 2006; Pascoe & Smart Richman, 2009; Williams, Yu, Jackson, & Anderson, 1997). Transgender women have been shown to disproportionately experience a high burden of substance use behaviors, with approximately 25% of transgender women in U.S. convenience sample studies reporting non-marijuana illicit drug use, such as cocaine, crack, amphetamine, or heroin (Garofalo, Deleon, Osmer, Doll, & Harper, 2006; Herbst et al., 2008). Among transgender women, substance use has also been associated with other adverse health outcomes, including HIV sexual risk behaviors (DeSantis, 2009; Nemoto, Operario, Keatley, Han, & Soma, 2004; Sevelius, Reznick, Hart, & Schwarcz, 2009), and mental health distress and suicidality (Clements-Nolle, Marx, Guzman, & Katz, 2001; Clements-Nolle, Marx, & Katz, 2006).

Minority stress frameworks (Hatzenbuehler, 2009; Herek, Gillis, & Cogan, 2009; Meyer, 2003; Rosario, Schrimshaw, Hunter, & Gwadz, 2002) have been applied to explain the elevated prevalence of substance use behaviors among sexual minorities (lesbian, gay, bisexual; LGB) relative to heterosexuals; however, the application of these theoretical frameworks to gender minorities—transgender and gender nonconforming people—remains in its infancy (Hendricks & Testa, 2012). Existing studies have shown that discrimination experienced by transgender women is associated with psychological distress (Bazargan & Galvan, 2012; Bockting et al., 2013; Sugano, Nemoto, & Operario, 2006). Applying minority stress theory to transgender women, substance use can be conceptualized as a consequence of pervasive experiences of gender-related social stressors, such as internalized transphobia (e.g., hypervigilance, gender-related self-monitoring), interpersonal stressors (e.g., gender inequality in partnerships, gender affirmation, rejection in relationships), and structural stressors (e.g., discrimination in employment, housing, and healthcare, and social and economic marginalization).

Within the broader literature on relationships and health behaviors, romantic relationships have been identified as one of the most important social influences on health outcomes (Kiecolt-Glaser & Newton, 2001; Loving & Newton, 2013). A large body of research has found that romantic relationships are often associated with a reduction in risky habits and the promotion of health-enhancing and health-compromising habits (Reczek & Umberson, 2012; Umberson, 1992). There is substantial evidence for the negative effects of substance use not only on the individuals themselves, but also for their families (Copello, Velleman, & Templeton, 2005; Rotunda & Doman, 2001; Velleman & Templeton, 2007). Romantic

partners may influence each other in complex, bi-directional, and mutually constitutive ways, including in patterns of substance use (Lewis et al., 2006; Schmalting & Goldman, 2000). Romantic relationships may negatively contribute to health outcomes for partners as a result of relationship conflict and/or strain (Wright & Loving, 2011) or influence the other partners' patterns of use (Reczek, 2012). For example, *discrepancies* in substance use behaviors (e.g., mismatched or non-concordant substance use behaviors) in heterosexual couples between husbands and wives have been shown to affect overall marital functioning (lower marital quality) (Mudar, Leonard, & Soltysinki, 2001). Couples in which only one partner uses substances (i.e., discrepant use) report lower relationship satisfaction compared with couples in which both partners use substances (similar frequency and amounts) or in which neither uses substances do not use substances at all (Mudar et al., 2001).

Minority stressors are theorized to lead to relationship strain and disrupt relationship satisfaction (Frost & Meyer, 2009; Otis, Rostosky, Riggle, & Hamrin, 2006). Stigma has been shown to negatively influence relationship quality and mental health among sexual minority couples (Frost & Meyer, 2009; Goldberg & Smith, 2011; Mohr & Fassinger, 2006; Otis et al., 2006). Studies also suggest that male partners of transgender women may experience discrimination from others due to their romantic affiliation with a transgender woman (Operario, Burton, Underhill, & Sevelius, 2008), and such experiences of indirect gender minority stress have been associated with psychological distress and worse relationship quality (Gamarel, Reisner, Laurenceau, Nemoto, & Operario, 2013).

Despite evidence that relationship processes dynamically shape health behaviors, few studies have examined gender minority stressors in relation to health indicators in lesbian, gay, bisexual, transgender (LGBT) couples (Otis et al., 2006; Reczek & Umberson, 2012), including substance use and abuse (Fals-Steward, O'Farrell, & Lam, 2009). Moreover, studies have yet to examine the extent to which minority stressors are associated with concordant (e.g., both partners either abstain or use substances at similar levels) and discrepant (e.g., one partner abstains and the other does not) substance use patterns among LGBT couples. The purpose of this study is to fill a gap in the research literature by examining dyadic-level factors in substance use behaviors of transgender women and their male partners. We hypothesized that the reported substance use behaviors of transgender women and their male partners would be interdependent such that partners' reports of illicit drug use would be similar to one another. We further focused on transgender discrimination, our measure of gender minority stress, which was reported separately by both transgender women and their cisgender male partners. We hypothesized that transgender discrimination experienced by both transgender women and their male partners would increase the probability of their own reports of substance use, as well as elevate the odds of their partners' reports of substance use. Finally, we were interested in the extent to which each partners' transgender discrimination scores were associated with concordant versus discrepant substance use patterns within couples. As a preliminary step in untangling the ways in which gender minority stressors may relate to couple-level substance use behaviors, we did not make any specific hypotheses about the association between discrimination and couple-level patterns of substance use behaviors.

Methods

Participants and Procedures

Participants were 191 couples ($N=382$ individuals) comprised of transgender women and their non-transgender primary male partner. The gender composition of couples was determined based on the overarching study's focus on HIV transmission between transgender women and cisgender men; preliminary findings from a subset of transgender women in this sample has been reported previously (Operario, Nemoto, Iwamoto, & Moore, 2011). Couples were recruited in the San Francisco Bay area using purposive sampling methods by identifying a range of community spaces and venues where transgender women and male partners of transgender women congregate (e.g., community-based organizations, bars, and nightclubs) and posting flyers. Couples who called the study were screened separately for eligibility, and eligible participants were scheduled for an in-person assessment at the research center or a conveniently located community-based organization. Both partners were required to attend the appointment together but were consented and completed survey assessments separately.

Eligibility criteria were as follows: (1) both partners must have reported each other as their primary intimate partner for at least 3 months (defined as a "partner to whom you feel committed above anyone else and with whom you have had a sexual relationship"); (2) one partner in each couple identified as a transgender woman (i.e., categorized as male assigned sex at birth but identify as female, woman, male-to-female, or on the trans feminine spectrum) and the other partner identified as a non-transgender male; (3) at least 18 years old; (4) living or working in the San Francisco Bay area in California; (5) English or Spanish speaking; and (6) able to provide informed consent.

Data were collected between November 2008 and November 2010. Surveys were administered to participants using audio computer-assisted self-interview (ACASI) technology. Survey items were translated into Spanish, but Spanish version surveys were administered via paper; 5 monolingual Spanish participants completed the Spanish survey. Surveys took approximately 1 hour to complete and participants received \$50 reimbursement and a brochure with a list of local community organizations addressing transgender issues. Procedures were approved by the Institutional Review Boards (IRB) at the

Measures

Illicit Drug Use, Past 30 Days (Outcomes)—Participants reported whether they had used crack, cocaine, methamphetamine, and/or heroin in the previous 30 days (yes/no). We created a single outcome measure of illicit drug use that included any of the above substances versus none in the past 30 days (outcome 1). We also created an indicator of couple-level discrepant illicit drug use (neither partner used, both partners used, male partner used only, transgender woman used only). This categorical variable was collapsed into a binary outcome to model within-dyad *discrepant* illicit drug use (either male partner or transgender woman only reported illicit drug use vs neither or both partners reported illicit drug use) (outcome 2). The justification for collapsing discrepant use into two

categories was two-fold. Statistically, we were underpowered to conduct multinomial logistic regression (e.g., comparing discrepant substance use, concordant substance use, concordant substance non-use) given the dyadic nature of these data. Conceptually, we were interested in whether each partner's reports of discrimination were differentially associated with discordance (differing reports of past 30 day illicit drug use by partners) versus concordance (aligned reported use).

Transgender-Related Discrimination (Gender Minority Stressor)—The Everyday Discrimination Scale (Williams et al., 1997) was adapted to assess lifetime discriminatory experiences that participants attributed specifically to being a transgender woman (i.e., “In your general day-to-day life, how often are you treated with less respect *because you are a transgender woman*”). Similarly, male partners were asked to about their experiences of being discriminated as a result of being in a relationship with a transgender woman (i.e., “In your general day-to-day life, how often have you been called names *because you are in a relationship with a transgender woman*”). Response options ranged from 0= “never” to 4= “always.” The scale demonstrated good psychometric properties within our sample ($\alpha = 0.94$).

Demographics (covariates)—Participants self-reported age, gender, race/ethnicity, self-reported HIV serostatus (HIV-positive or HIV-negative/unknown), and educational attainment. Participants also provided the duration of the primary relationship (in months). Income was assessed and financial hardship was operationalized as low monthly income (less than \$500 a month) versus not (greater than or equal to \$500 a month).

Depressive Distress (confounder)—The Center for Epidemiologic Studies Depression Scale (CES-D; Radloff, 1977) was administered to measure depressed mood in the past week. The CES-D consists of 20 items (i.e., “could not get going”). Participants responded on a 4-point scale ranging from 0= “rarely or none of the time” to 3= “most or all of the time” (scores ranged from 0 to 60). Internal consistency for composite scores on the CES-D were good within our sample ($\alpha = 0.88$). Participants were classified as experiencing clinically-significant levels of depressive symptoms if their CES-D score was 16 or higher. This clinical cut off of 16 or above is widely accepted to indicate the presence of clinically significant depressive symptoms (Berkman, Berkman, & Kasl, 1986; U.S. Department of Health and Human Services, 2004).

Statistical Analysis

Descriptive statistics (frequency distributions, and means and standard deviations) were obtained to summarize demographic characteristics, transgender-related discrimination, depressive distress, and illicit drug use for both transgender women and their male primary partners. Bivariate statistics were estimated. Analyses of dyadic data were based on procedures described by Kenny, Kashy, and Cook (2006). Assessment of consequential dependence was estimated using the intraclass correlation (ICC) (Kenny et al., 2006). Similar to Pearson's r , the ICC values range between -1 and $+1$ (in the case of dyads). An ICC of zero implies that members of the dyad are no more similar to one another than members of different dyads. Cohen's Kappa (K) is an analogous measure of association for

dichotomous variables; its interpretation is identical to that of the ICC coefficient (Kenny et al., 2006). To examine relationships among the major study variables, ICC and Cohen's Kappa estimates were calculated separately for transgender women and their male partners.

Statistical models examining the association between transgender-related discrimination and substance use (outcome 1: past 30-day use of illicit drugs yes/no) were conceptualized using the Actor-Partner Interdependence Model (APIM) (Kenny et al., 2006). APIM models are models that account for the organization of individuals within dyads. Two types of effects are examined: *actor effects* in which an individual's own score on a measure is used to predict her/his own score on the outcome, and *partner effects* in which an individual's score on a measure is used to predict her/his partner's score on the outcome (Kenny et al., 2006). Appropriate dyadic modeling was carried out using a multilevel structural equation modeling approach described by Kenny and colleagues (2006). Because financial hardship actor and partner effects were similar in direction and magnitude, they were constrained to be equal across both transgender women and their non-transgender male partners. Constraints for financial hardship actor and partner effects, $\chi^2(9) = 8.64, p = 0.49$, were consistent with the data. The model was controlled for age, financial hardship, depressive distress, and relationship duration. Models containing race and HIV status as additional covariates were also tested and results did not differ substantively. All analyses were conducted in Mplus 6.1 (Muthén & Muthén, 2010).

We then modeled a couple-level outcome (outcome 2: discrepant substance use yes/no) to capture differing substance use behaviors reported by transgender women and their male partners. The associations among couples' drug use patterns and partners' reports of discrimination were tested using logistic regression. We regressed this outcome variable on transgender women and their non-transgender partners' reports of transgender discrimination. Couples who reported concordant drug use patterns served as the referent category. All models accounted for the age of both the partners, financial hardship, depressive symptoms, and relationship length. We report the odds ratio (OR), representing the change in odds of the outcome relative to the reference group per unit change in the independent variable, the 95% CI for the odds ratio, the standardized beta (β) representing the change in the odds of the outcome relative to the reference group per standard deviation change in the independent variable, and the p -value testing the null hypothesis that the OR = 1.00 (i.e., the null hypothesis of no association).

Results

Descriptive and Bivariate Statistics: Sample Overview

Descriptive characteristics and bivariate statistics are presented in Table 1. The majority of the sample (79.1%) self-identified as a member of a racial/ethnic minority group. More than half of the sample (61.3%) reported earning less than \$500 a month. Participants had an average age of 37.12 ($SD = 11.25$) years. The average mean length of relationship was 37.9 ($SD = 51.0$) months. Past 30-day illicit drug use was reported by 31.4% of transgender women and 25.1% of their male partners. As shown in Table 1, there was significant dependence in illicit drug use ($K = 0.18; p < .05$). There was also significant dependence in race/ethnicity, income, HIV status, and age between partners. Transgender women were less

likely to have an HIV-positive serostatus compared to their primary male partners ($p<.001$) and were significantly younger in age than their male partners ($p<.05$).

Dyadic Modeling

Transgender women and their male partners' reports of illicit drug use in the past 30 days were regressed on their reports of transgender-related discrimination (Table 2). There were significant actor effects for transgender-related discrimination (aOR=1.03; 95% CI=1.01, 1.06) for transgender women, but not for their male partners. There were no partner effects.

Financial hardship (e.g., low income) significantly increased the odds of substance use (aOR=1.69; 95% CI=1.02, 2.78) for both transgender women and their male partners. Older age was associated with increased odds of illicit substance use for transgender women (aOR=1.04; 95% CI=1.00, 1.07). Depressive distress was not associated with illicit substance use for either partner.

Discrepant Substance Use in the Dyad

Table 3 descriptively presents the discrepancy of partners' substance use. Overall, 33.5% of couples had discrepant substance use behaviors (20.4% male partner reported illicit drug use and transgender woman did not; 14.1% transgender woman reported substance use and male partner did not). Table 4 presents results from logistic regression analysis comparing couples who were discrepant (one partner reported illicit drug use and the other did not) to those who were concordant (neither or both partners reported illicit drug use). Discrimination scores of non-transgender male partners significantly differentiated those dyads who reported discrepant substance use (aOR=1.05; 95% CI=1.01, 1.10), such that higher self-reported discrimination scores by male partners were associated with increased odds of couple-level discrepancy in past 30 day illicit drug use.

Discussion

This study examined the dyadic effects of gender minority stress in the form of transgender discrimination on substance use among transgender women and their non-transgender male partners. First, there was significant dependence in illicit drug use between transgender women and their male partners. As shown in prior dyadic research on substance use behaviors in non-transgender couples (Merline, Schulenberg, O'Malley, Bachman, & Johnston, 2008; Mudar et al., 2001; Schmalting & Goldman, 2000), transgender women and their male partners' health behaviors are interrelated. Three mechanisms have been proposed through which lesbian, gay, and straight couples (same-sex and other-sex couples) contribute to one another's health behaviors (Reczek, 2012; Reczek & Umberson, 2012): unilateral unhealthy habit diffusion (one partner's unhealthy habits directly influence the other partner's habits); bilateral unhealthy habit diffusion (both partners' unhealthy habits are reinforced via mutual pleasure seeking or mutual failed motivation); personal responsibility (both partners purposefully fail to deter one another's unhealthy habits). No research to date has explored these mechanisms in couples with a transgender partner. This represents an area for future mixed-methods research.

Second, self-reported transgender-related discrimination was associated with an increased odds of past 30 day illicit drug use for transgender women, but not for their male partners in this sample. Findings support prior research showing the association of substance use to cope with mistreatment and discrimination among transgender people (Bradford et al., 2013). Contrary to our hypothesis, however, there were no significant partner effects for discrimination – i.e., discrimination experienced by a partner did not significantly alter the probability of substance use for the other partner. Our findings suggest that transgender women uniquely experience the effects of gender minority stress. Male partners of transgender women in our sample reported high levels of discrimination due to having a transgender partner—indeed, their mean scores were higher than for transgender women themselves. However, transgender-related discrimination was found to have an independent influence on past 30-day illicit substance use for transgender women only, and not for their male partners. Importantly, the measure of transgender discrimination we used was conceptually different such that transgender women were asked to report on their individual experiences with discrimination as a transgender woman; whereas, male partners were asked to rate their experiences of discrimination due to their relationship affiliation with their partner. Future research is warranted to consider whether gender minority stress processes experienced at the dyadic level (i.e., both partners' experiences of discrimination due to their relationship affiliation) contribute to substance use behaviors, as well as other health outcomes, including depressive symptomatology.

Third, male partners' perceptions of discrimination were associated with increased odds of dyad-level discrepant substance use. Given the evidence that couples who use substances similarly (e.g., concordance in abstinence, or in frequency and amount of use) report greater relationship satisfaction than those in which partners are discrepant in their substance use (e.g., partners have dissimilar substance use patterns) (Mudar et al., 2001), these findings suggest that discrimination based on relationship affiliation with a transgender woman may also be associated with marital discord or disconnection. Gender affirmation is a key aspect of transgender women's lives (Sevelius, 2013), and male partners in relationships with transgender women likely also experience and/or are affected by gender affirmation processes. Additionally, research has shown that couples may influence one another's health behaviors and become more similar overtime (Reczek, 2012). Thus, transgender discrimination experienced by male partners may directly influence relationship quality and indirectly influence their partners' substance use behaviors. Future research using longitudinal designs is warranted to examine the ways in which relationship dynamics, such as communication, are associated with substance use patterns and gender minority stressors among transgender women and their male partners overtime.

Fourth, financial hardship (earning less than \$500 per month) was associated with a 69% increased odds of past 30-day illicit drug use in our sample for both transgender women and transgender men. Research has documented that transgender people are disproportionately economically disenfranchised (e.g., Conron et al., 2012; Grant et al., 2011). We found that the self-reported financial status of transgender women was highly correlated with the income reported by their male partners. Findings suggest that financial hardship represents a gender minority stressor that is critical to understanding the substance use behaviors of both transgender women and their male partners. Socioeconomic status represents a key

theoretical variable—not just a socio demographic covariate—that necessitates integration into a gender minority stress model.

The family stress model of romantic relationships was developed to explain how financial problems influence the lives of couples and families (Conger, Conger, & Martin, 2010). Financial hardship impacts couples through increased economic pressures or strains (Conger & Conger, 2002; Conger, Rueter, & Elder, 1999; Conger et al., 2002; Wickrama, Hwa Kwag, Lorenz, Conger, & Surjadi, 2010; Wickrama, Surjadi, Lorenz, Conger, & Walker, 2012), such as unmet material needs (e.g., food and clothing), inability to pay bills, cutting back on necessary expenses (e.g., health insurance, medical care, or therapy/mental healthcare). Economic pressures or strains are, in turn, related to increased emotional distress (e.g., depression, anxiety, anger, alienation) (Conger et al., 2010). Importantly, economic pressures represent tangible, objective adverse events that occur in peoples' lives when they experience financial hardship, not simply subjective perceived stressors. Researchers, family therapists, and practitioners working with couples need to consider the complex relational issues that couples face—such as tensions in relationships, communication problems, and difficulties resolving conflicts—as well as the social and economic contexts in which these struggles occur—poverty, unemployment, inadequate financial resources, and ongoing transgender-related discrimination in couples where one or both partners have a stigmatized social identity. Environmental constraints, such as poverty or discrimination, may mean fewer resources of support for couples. Additionally, these high external demands may also make it difficult for couples to mobilize coping skills, even when they do have adequate shared coping abilities (Karney & Bradbury, 2010; Neff & Karney, 2009).

Notably, older age was also associated with illicit drug use for transgender women in this sample. Developmental considerations warrant attention in substance use research with transgender women, including in research of their intimate relationships. For example, a New York City study found that the association of gender-related abuse and mental health distress was strongest among transgender women ages 19–39 years, compared to those ages 40–59 years (Nuttbrock et al., 2010). Although this study is not comparable to ours due to differences in recruitment and study aims, findings suggest that substance use may serve different motivational processes depending on the individual's context – e.g., in coping with abuse among younger transgender people versus within the context of a primary relationship. Understanding the contextual and developmental determinants of substance use as a health outcome, and as a form of coping with early-life stressors, may offer promising directions for future intervention.

Several limitations are important to consider in light of the current findings. First, we were not able to control for family substance use indicators in participants' families of origin which have been shown to be powerful predictors of current substance use in their offspring and a potential confounder (Kendler, Davis, & Kessler, 1997; Velleman & Templeton, 2007). Second, this is a convenience sample of transgender women and their male partners in the San Francisco area in California and may therefore not generalize beyond that geographic urban region. Third, transgender women have diverse sexual orientations and can be attracted to males, females, and other transgender people. This study recruited and

enrolled transgender women in a relationship with a non-transgender male partner, thus findings cannot be generalized to transgender women with partners who identify of other genders. Fourth, as a cross-sectional study, we cannot assert that financial hardship is causally associated with substance use; reverse causation, that substance use is associated with financial hardship, cannot be ruled out. Lastly, our approach to modeling discrepant versus concordant drug use as a couple-level variable did not account for partner gender (i.e., whether it was the transgender woman or male partner who reported drug use) and categorized couples as concordant if either both partners or neither partner reported drug use (i.e., treated these as equivalent). Future research is warranted that examines gender differences and disentangles couples in which both partners report use or are abstinent.

Limitations notwithstanding, this is the first study that we are aware of to use dyadic modeling to examine substance use in transgender women and their male partners, representing a methodological innovation in both dyadic couples and transgender health research. Additional research is needed to understand the *mechanisms* of how discrimination experienced by both partners may influence health behaviors. For example, couples may mutually influence one another on some health outcomes and not on others. Additionally, relationship quality and communication may inhibit or promote negative health behaviors among members of the dyad. Intensive longitudinal diary studies are recommended in future research to capture the dyadic associations of stressors and health over time (Bolger, Davis, & Rafaeli, 2003; Laurenceau & Bolger, 2005; Neff & Karney, 2009). For example, we utilized a static cross-sectional assessment of perceived transgender discrimination. Better measurement using daily diary methods may allow for more dynamic investigation and understanding of couples' mutual influence, including whether and how discrimination affects couples' substance use behaviors.

This study has implications for behavioral intervention design and adaptation. Family systems and couples approaches have been shown to be effective for substance use treatment and prevention (Carroll & Onken, 2005; Fals-Stewart, O'Farrell, & Birchler, 2004; McGovern & Carroll, 2003; Stanton & Shadish, 1997); however, no studies that we are aware of have examined the efficacy or effectiveness of these approaches with transgender people. The substance use sequelae of discrimination do not appear to be at the couple-level for transgender women and their male partners in this study; however, this null finding should be interpreted with caution as our measure of discrimination was not the same for both partners and the original hypothesis of a cross-over effect warrants further analysis. Although the substance use behaviors of the individuals within couples in our study were interrelated, the presence of actor effects for transgender women and not for their male partners, and lack of partner effects for both dyad members, suggests an individual-level approach may be best when working to intervene on substance use.

Characterizing the determinants of substance use for transgender women and their partners has implications for psychosocial interventions aimed at improving the well-being of both partners. Contextualizing health risks of transgender women within social systems, including experiences of gender-based discrimination, is critical to public health efforts and psychosocial interventions for this population. Discrimination represents an important gender minority stress-related pathway and a potential target for future intervention, given

its association with substance use in transgender women. Although efforts to reduce transgender stigma at a societal level may be beyond the reach of psychology and public health professionals (yet remain worthy of policy attention), interventions that improve individuals' and couples' capacities to cope with stress, provide one another mutual social support, and develop resilience may have consequences for psychological and behavioral health outcomes among partners. Gender minority stress mediators, including discrimination and financial hardship, should be incorporated as key intervention targets to ensure cultural responsiveness of substance use prevention and treatment interventions for transgender women and their male partners. This is especially important given the documented lack of transgender cultural competence in substance abuse treatment programs (Lombardi, 2007). Public health prevention, intervention, and policy efforts informed by gender minority stress frameworks (Hendricks & Testa, 2013) may have the greatest likelihood of successfully contributing to positive relational outcomes and addressing substance use behaviors. Future research would benefit from understanding stress and coping processes at the dyadic level (Bodenmann, 2005; Bodenmann, Pihet, Shantinath, Cina, & Widmer, 2006; Bodenmann & Randall, 2012; Bodenmann, Widmer, Charvoz, & Brandbury, 2004; Papp & Witt, 2010).

Acknowledgments

This project was funded by grants R01DA018621 and R34MH093232 from the National Institutes of Health. We gratefully thank the couples who participated in the study; staff members; and colleagues Mariko Iwamoto, Lynae Darbes, and Colleen Hoff for their valuable feedback on this project.

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Table 1Overall Sample ($N = 382$) and Couple-Level Bivariate Associations ($N = 191$)

	Female Partner	Male Partner	Test Statistic	K
Race/ Ethnicity			$\chi^2(4) = 32.17^{***}$	0.27 ^{***}
Asian	40 (20.9)	8 (4.2)		
Black	42 (22.0)	65 (34.0)		
Latino/ Hispanic	40 (20.9)	33 (17.3)		
White	30 (15.7)	50 (26.2)		
Mixed/Other Race/Ethnicity	39 (20.4)	35 (18.3)		
Educational Attainment			$\chi^2(3) = 4.62$	0.06
Less than HS	35 (18.5)	46 (24.2)		
HS or GED	72 (38.1)	63 (33.2)		
Some college	62 (32.8)	52 (27.4)		
College degree or more	20 (10.6)	28 (15.3)		
Income, Past 30 Days			$\chi^2(1) = 0.08$	0.25 ^{***}
<\$500 last month	118 (62.4)	116 (61.1)		
\$500 last month	71 (37.6)	74 (38.9)		
HIV Serostatus			$\chi^2(1) = 21.58^{***}$	0.28 ^{***}
HIV-positive	35 (18.3)	75 (39.5)		
HIV-negative	156 (81.7)	116 (60.7)		
Depressive Distress			$\chi^2(1) = 0.86$	– 0.01
No (CES-D <16)	109 (57.1)	100 (52.4)		
Yes (CES-D 16+)	82 (42.9)	91 (47.6)		0.18 [*]
Non-Marijuana Illicit Drug Use, Past 30 Days			$\chi^2(1) = 1.86$	
Yes	60 (31.4)	48 (25.1)		
No	131 (68.6)	143 (74.9)		
	M (SD)	M (SD)	Bivariate test statistic	ICC
Age (in Years)	36.32 (10.82)	37.92 (11.65)	$t(190) = 2.11^*$	0.51 ^{***}
Transgender Discrimination	10.55 (7.92)	11.34 (8.56)	$t(190) = 0.81$	– 0.01

*
 $p < .05$.**
 $p < .01$.***
 $p < .001$.

HS: High School. GED: General Educational Development. HIV serostatus was self-reported. Depression: Center for Epidemiologic Studies Depression Scale (CES-D) scores 16 or above were considered a positive screen for clinically significant depressive distress; scores less than 16 were not. Illicit Drug Use, Past 30 Days: Use of crack, cocaine, methamphetamine, or heroin in the past 30 days.

Table 2

Actor and Partner Effects Predicting Past 30-Day Non-Marijuana Illicit Drug Use

	Transgender Women Partners' Drug Use			Non-Transgender Male Partners' Drug Use		
	aOR	95% CI	p-value	aOR	95% CI	p-value
<i>Actor Effects</i>						
Age	1.04	1.00, 1.07	0.029	1.02	0.99, 1.04	0.236
Financial Hardship	1.69	1.02, 2.78	0.040	1.69	1.02, 2.78	0.040
Depression	0.99	0.48, 2.07	0.983	1.74	0.86, 3.54	0.126
Discrimination	1.05	1.00, 1.09	0.035	1.02	0.98, 1.06	0.405
<i>Partner effects</i>						
Age	0.99	0.95, 1.02	0.424	1.01	0.98, 1.04	0.386
Financial Hardship	0.95	0.58, 1.55	0.834	0.95	0.58, 1.55	0.834
Depression	0.95	0.43, 2.10	0.895	1.34	0.67, 2.69	0.413
Discrimination	1.04	0.99, 1.10	0.107	0.99	0.95, 1.03	0.405

aOR = Adjusted Odds Ratio, 95% CI = Confidence Interval

Author note: Model adjusted for relationship duration Financial Hardship = Income<\$500 last month (past 30 days)

Table 3

Discrepant and Congruent Couple-Level Drug Use: Self-Reported Past-30 Day Non-Marijuana Illicit Drug Use

Couple-level Drug Use (<i>N</i> = 191 couples)	
	<i>N</i> (%)
<i>Past 30-Days Non-Marijuana Illicit Drug use</i>	
None – neither partner engaged in drug use	105 (55.0)
Congruent – both partners engaged in drug use	20 (10.5)
Discrepant –one partner engaged in drug use	66 (34.5)
Only male partner engaged in drug use	39 (20.4)
Only transgender woman engaged in drug use	27 (14.1)

Table 4

Logistic Regression Model Predicting Couple-Level Discrepant vs Congruent Past 30-Day Non-Marijuana Illicit Drug Use.

	Discrepant vs Congruent Drug Use in Partnership		
	aOR	95% CI	p-value
<i>Female Partner</i>			
Transgender Discrimination	1.01	0.97, 1.05	0.67
Gender Relationship Inequity	1.00	0.94, 1.06	0.93
Depression	0.94	0.58, 1.86	0.87
Financial Hardship	0.86	0.44, 1.68	0.67
Age	1.02	0.99, 1.05	0.27
<i>Male Partner</i>			
Transgender Discrimination	1.05	1.01, 1.10	0.03
Gender Relationship Inequity	0.96	0.90, 1.03	0.25
Depression	0.88	0.43, 1.78	0.72
Financial Hardship	1.68	0.85, 3.34	0.14
Age	0.99	0.96, 1.03	0.99
<i>Couple-level</i>			
Relationship length	1.00	0.99, 1.01	0.59

aOR = Adjusted Odds Ratio. 95% CI = Confidence Interval

+Discrepant drug use (one partner engaged in drug use and the other did not; 34.5%) was compared with concordant drug use (neither partner or both partners engaged in drug use).