HHS Public Access

Author manuscript

Couple Family Psychol. Author manuscript; available in PMC 2020 December 01.

Published in final edited form as:

Couple Family Psychol. 2019 December ; 8(4): 221–232. doi:10.1037/cfp0000128.

The Utility of Index Case Recruitment for Establishing Couples' Eligibility: An Examination of Consistency in Reporting the Drug Use of a Primary Partner Among Sexual Minority Male Couples

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Abstract

Sexual minority men are disproportionately impacted by substance use, which is associated with greater HIV transmission behaviors. Novel approaches to drug use prevention and treatment are needed. Couple-based approaches have garnered significant attention. The recruitment of couples into substance use interventions has proven challenging. We evaluate an index-case approach to screening participants in couples' research. Seventy index cases, aged 18-29, and their main partner (140 individuals), were recruited. At screening, index participants reported their drug use and their partners' drug use for the previous 30 days. At baseline, both partners reported their drug use over the past 30 days. Individuals' self-reports and perceptions of their partner's concurrency were compared within couples using the κ (Kappa) coefficient. We found high levels of personal predictive accuracy from screening to baseline for cannabis (κ = .81, p < .01) and cocaine/crack (κ = .70, p < .01). Predictive accuracy of index case reporting of their partner's drug use behavior were moderately high among cocaine/crack use (κ = .68, p < .01) and MDMA/GHB/Ketamine (κ = .56, p < .01). Perceived partner similarity for recent drug use was also high for all drugs, with the highest levels among cocaine/crack (κ =.82) and prescription drugs (κ =.81). This study demonstrates that index partners report drug use with differing levels of agreement between drug types. Index recruitment has advantages in determining drug use-related eligibility requirements. Discrepancies in reporting were more frequently false positives, which reduces the risk of screening out potentially eligible couples.

Keywords

index case; recruitment; eligibility; couples; drug use

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BACKGROUND

Sexual minority men continue to face disproportionate rates of HIV infection. In 2015, 67% of all new infections were attributed to condomless anal sex among these men, a 4% increase since 2010 (Centers for Disease Control and Prevention, 2016). Further, research suggests that main partnerships represent an especially critical context for HIV infection, accounting for one-to two-thirds (Goodreau et al., 2012; Sullivan, Salazar, Buchbinder, & Sanchez, 2009) of new HIV infections among sexual minority men. Various factors converge to place partnered gay men at increased risk for HIV infection. For instance, primary relationship partners report high rates of condomless anal sex with one another (e.g., Hoff, Chakravarty, Beougher, Neilands, & Darbes, 2012; Mitchell & Petroll, 2013); they also report substantial rates of non-monogamous sexual agreements (Hoff & Beougher, 2010; Parsons, Starks, Dubois, Grov, & Golub, 2013; Feinstein, Dellucci, Sullivan, & Mustanski, 2018). Concurrent sex with main and casual partners has the potential to introduce HIV into the primary partnership. These risks are heightened in the context of substance use given that the association between substance use and HIV transmission risk behaviors, such as condomless anal sex, is well documented (Berg, Michelson, & Safren, 2007; Daskalopoulou, et al., 2014; McCarty-Caplan, Jantz, & Swartz, 2014; Hirshfield, Remien, Humberstone, Walavalkar, & Chiasson, 2004; Parsons & Halkitis, 2002).

In response to their increased risk for HIV infection, intervention research has emerged focused on reducing HIV risk and/or associated drug use in the context of main and casual sexual partnerships. This body of research encompasses interventions focused on drug use (e.g. Fals-Stewart, O'Farrell, & Lam, 2009), those focused on both drug use and HIV prevention (Wu et al., 2011) and those focused exclusively on HIV prevention (Mitchell, Lee, & Stephenson, 2016; Sullivan et al., 2014). As research in this area has grown, researchers have employed a variety of strategies to secure dyadic data utilizing index-partners.

Approaches to recruitment in couples research

One approach recruits partners sequentially. In this sequential index-approach, one partner (the "index-partner") initially completes the study and subsequently recruits his partner to participate. This sequential approach to gathering data from both partners has been utilized in online studies (e.g., Mitchell, 2014; Starks, Millar, & Parsons, 2015), as well as studies involving in-person participation (e.g. Eaton, West, Kenny, & Kalichman, 2009; Johnson et al., 2012).

One concern regarding this sequential index-partner approach is the possibility that the couples' functioning changes in meaningful ways between the time the index-partner completes the study and the time the recruited partner provides data. In order to facilitate simultaneous participation, some have used street-intercept recruitment efforts to gather data in social venues where both members of the couple are present (e.g. Macapagal, Feinstein, Puckett, & Newcomb, 2018; Parsons, Starks, Gamarel, & Grov, 2012; Wu, El-Bassel, Donald McVinney, Fontaine, & Hess, 2010). While this approach permits simultaneous data collection from both partners, it is limited to sampling only those couples who jointly attend specific social events.

A final group of studies have utilized a hybrid approach in recruiting same-sex male couples. In these studies one member of the couple is initially screened through an index procedure and asked to subsequently participate in a baseline survey together, as a whole couple. This approach permits simultaneous data collection while facilitating the recruitment of partners who might not be encountered together in social venues targeted for recruitment (e.g., Hoff & Beougher, 2010; Mitchell & Petroll, 2013; Neilands, Chakravarty, Darbes, Beougher, & Hoff, 2009; Sullivan et al., 2014). Despite being widely used, less is known on the reliability of this method. This is an important gap to consider, given that researchers who utilize an index approach to recruitment for simultaneous data collection often preliminarily deem couples eligible solely based on the index-case's responses.

The use of this hybrid index-partner approach implicitly relies on two assumptions, which have not been fully tested to date. First, it assumes that self-reported data at screening will accurately predict baseline reported behavior. Support for this assumption can be found in the sexual health and substance use literature. Specifically, studies have shown that individuals can reliably and accurately report their drug use and their sexual risk behaviors over a 48 hour time period (Dowling-Guyer, Johnson, & Fisher, 1994; Needle et al., 1995).

This hybrid-approach also assumes that the index partner's report of their partner's behavior will accurately predict their partner's report at baseline. Limited studies have examined the index partner's accuracy in reporting their recruited partner's behavior. Collectively, these studies suggest that individuals are not accurate in reporting their partner's sexual health behaviors (Mitchell, Lee, & Stephenson, 2016; Mitchell, 2014; Mitchell & Horvath, 2013), and that their accuracy decreases over time (Conroy et al., 2016). For example, one study among heterosexual couples found that only 26% of the sample correctly reported that their partner was having sex with outside partners (Drumright, Gorbach, & Holmes, 2004). Similarly, another found that participant's perceptions of sexual risks contradicted with their partner's self-reports on sexual risk behaviors (Ellen, Vittinghoff, Bolan, Boyer, & Padian, 1998; Stoner et al., 2003). To date these studies have focused primarily on sexual health and examine partners' responses in the same assessment period. Missing from the literature is an understanding of the accuracy of partners' report of substance use across two assessment periods. Our study assesses participants at two different time periods: preliminarily screened eligible, and later during the baseline assessment.

Sources of bias and inaccuracy in reporting relationship partner behavior

One prospective reason for the inaccurate reports of their partners' sexual behaviors is a bias of assumed similarity – or when individuals assume the behavior of their partner is similar to their own (Kenny & Acitelli, 2001). Evidence for this bias has been found in studies examining sexual agreements among gay and bisexual men in relationships, which have found that 8% to 19% of couples have a discrepant sexual agreement (Hoff, Beougher, Chakravarty, Darbes, & Neilands, 2010; Hoff et al., 2012; Parsons et al., 2012). Despite these inaccuracies, assumed similarity can also lead to accurate perceptions of a partner's behavior, because individuals in a relationship often enter into a relationship with people who are similar to themselves (Parsons & Starks, 2014; Rhule-Louie & McMahon, 2007). In these cases, accuracy in reporting their partners behaviors can be attributed to their

assumptions about similarity, perceptions of actual behavior, or to both (Cornelius & Kershaw, 2017; Murray, Holmes, Bellavia, Griffin, & Dolderman, 2002).

As the drug use literature and the couple-focused literature continues to grow, it is important to understand the extent that partners within a couple can accurately report each other's drug use. Thus, the purpose of this study is to evaluate the utility of the hybrid index-case approach to recruitment screening in research with same-sex male couples. Specifically, we examined the consistency and predictive accuracy of participants' report of their own and their partners' behavior using four indicators. First, personal predictive accuracy was assessed by comparing index partners' self-reported drug use at screening and baseline. Second, perceived similarity was assessed using index case reports' self-reported drug use and their report of the partner's drug use. Third, actual partner similarity was directly assessed by comparing index case's self-reported drug use and their partner's self-reported drug use at baseline. Finally, predictive accuracy was evaluated by comparing index case's report of their partner's drug use at screening with their partners' self-reported drug use at baseline.

METHODS

Procedures

Screening Activities.—Data were collected between December 2015 and November 2016. Screening data were collected using a 10-minute interviewer-administered survey conducted via telephone. This screening survey was used to establish eligibility for participation in *We Test*, a randomized controlled trial of adjunct Couples HIV Testing and Counseling (CHTC) components. The recruitment strategy included internet advertisements (e.g., social networking sites, geosocial networking apps, and nightlife email distribution lists), and in-person outreach campaigns with both active (e.g., gay bars/clubs and community events) and passive methods (e.g., flyers, palm cards, word of mouth and participants recruited through previous studies). Internet ads contained brief information about the study with a secure link to an internet-based preliminary screener to help predict full eligibility for the *We Test* intervention. Active outreach shifts were conducted by study staff at local gay bars/clubs and community events. During active outreach recruitment shifts, research staff approached individuals in order to complete a preliminary screener on a programmed computer tablet.

Participants were screened eligible one of two ways. For most of those recruited via the internet and through in-person methods, a preliminary online screener was taken to determine eligibility for the *We Test* study. Potential index participants were preliminarily eligible if they reported that either they or their partner were between 18 to 29 years old, either they or their partner used an illicit drug in the past 3 months, and either they or their partner were HIV-negative. Those who were preliminarily eligible based on survey responses were subsequently assigned a random couple identification number (ID). Participants were also asked to provide contact information (e.g., name, phone, and email address), which was not linked to their study ID. Study staff then contacted these individuals to administer the telephone study specific screener. Neither member of the couple was notified of their partner's responses to survey items.

Baseline Activities.—Data were also collected during the baseline assessment. After preliminary eligibility based on the index case responses, the index case and his primary partner were invited to our research center in New York City. Couples were asked to complete a baseline survey independently in separate assessment rooms. The baseline survey contained an embedded screening survey use to re-confirm the eligibility of couples into the study. After the participants completed the survey and were still found to be eligible, the participant was enrolled into the trial. Participants were compensated $30 each for completing the baseline assessment. All study related protocols were approved by the Hunter College IRB.

Measurement

Baseline demographic characteristics.—Index case and partner participants provided information on personal characteristics, including age, current gender identity, gender assigned at birth, race/ethnicity, education, HIV status, and PrEP uptake. Additionally, participants reported on the length of their relationship.

Drug use behavior at screening.—At screening index participants reported whether or not they used each of the following drugs in the past 30 days: a) cannabis, b) cocaine/crack, c) methylenedioxymethamphetamine (MDMA), d) gamma-hydroxybutyric acid (GHB), e) ketamine, f) crystal methamphetamine (crystal meth), g) prescription drugs taken for fun or to get high (e.g., opiates, benzodiazepines, Adderall or other prescription simulants), and h) hallucinogen (e.g., mushrooms, LSD). To create parity between the screening variables and the baseline variables, drugs which are usually taken in nightclubs and rave parties such as MDMA, GHB and ketamine, were grouped into one variable, *club drugs* (Daskalopoulou et al, 2014; McCarty-Caplan, Jantz, & Swartz, 2014). Participants were also asked to indicate whether their partners used any of the drugs listed in the past thirty days. The response format was “yes/no” to each drug in the past 30 days.

Drug use behavior at baseline.—At baseline both partners reported their own use of each of the following drugs in the past 30 days: a) cannabis, b) cocaine/crack, c) MDMA, d) GHB, e) ketamine, f) crystal meth, g) opiates, h) benzodiazepines, i) Adderall or other prescription stimulants to get high, and j) hallucinogen. To create parity between the screening variables with the baseline variables, opiates, benzodiazepines, Adderall other prescription stimulants were grouped into one variable, *prescription drugs.*

The response format was “yes/no” to each drug in the past 30 days.

Analytic Plan

The κ coefficient (*Kappa*) has become the de facto standard for evaluating inter-rater agreement for a variety of tasks when the responses are categorical (Eugenio & Glass, 2004; McHugh, 2012). This coefficient is used widely in the medical literature where more than provider (inter-rater) are measure their consistency of diagnosing a condition and determining its severity (Sim & Wright, 2005). In qualitative psychometric research, the κ coefficient is similarly used to measure the degree of agreement in the interpretation of data by different raters (Brennan & Hays, 1992). An alternative, yet less rigorous method of

determining consistency, is examining the percent agreement. This method may be seen as practical and easy to implement; however, the κ coefficient is seen as more robust as it takes into account the proportion of agreement which is expected by chance alone, whereby reducing the probability of error (Maclure & Willett, 1987). Guidelines for interpreting κ state that scores below 0.40 are poor agreement, those between 0.41 – 0.60 are moderate, 0.61 – 0.80 high, and 0.81 – 1.00 near perfect similarity (Fleiss, 1981). Therefore, deriving κ coefficients were principal in measuring consistency and accuracy of responses among index partners and the perceived behavior of their partner in the current study. All analyses were run in IBM SPSS Statistics version 25.

First, to personal predictive accuracy (i.e., consistency of reporting by the index partner at two time points) we examined their responses at screening and baseline assessment periods on factors are traditionally thought to be stable, demographic characteristics. We derived κ coefficients for these specific variables to determine an initial pattern for the index partner's consistency.

Secondly, we derived four sets of κ coefficients to examine the consistency of index case drug use report. First, to assess stability over time, we calculated κ coefficients for index cases' self-report of drug use at screener and baseline ($\kappa_{I\ screening\ –\ I\ baseline}$). Second, to estimate perceived similarity, we calculated κ coefficients using drug use reports at screener using index case reports' self-reported drug use and their report of the partner's drug use ($\kappa_{I\ screening\ –\ IoP\ screening}$). Third, we then sought to examine actual partner similarity by calculating κ coefficients using the index case's self-reported drug use and their partner's self-reported drug use at baseline ($\kappa_{I\ baseline\ –\ P\ baseline}$). Fourth, we measured the predictive accuracy of the index partner's drug use by calculating κ statistics using the index case's report of their partner's drug use at screening and comparing it with their partners self-reported drug use at baseline ($\kappa_{IoP\ screening\ –\ P\ baseline}$).

Lastly, we provide a descriptive analysis (percent agreement of the reporting partner drug use) to examine the homogeneity of responses for each substance. Although these techniques are traditionally used to derive percent agreement, this method will provide a descriptive representation of responses traditionally used to calculate similarly in responses. Calculating percent agreements in addition to a kappa analysis is standard in examining consistency in responses, particularly if a reported behavior is subject to "guessing" (McHugh, 2012).

Results

A total of 365 individuals completed the telephone screening survey. Of the 365 index individuals, 70 index cases met the inclusion criteria, subsequently recruited their partner and were enrolled into the *We Test* study (n = 140). Screening and baseline data from the 70 couples were used in this analysis.

In Table 1, we present demographic characteristics as reported at screening and baseline. Among the index cases that were enrolled into the study (n = 70), over half (51.4%) were of ethnic minority descent. Most of the index cases reported having a 4-year college degree

(60.0%). The majority of index cases reported being HIV-negative (84.3%). Regarding the recruited partner, similar demographic trends were found with over half (57.1%) were of ethnic minority descent. Most of the recruited partner reported having a 4-year college degree (64.5%). The majority of recruited partners reported being HIV-negative (91.4%).The average time between index case screening and baseline assessment was 10.47 days (SD = 9.04).

Table 2 contains κ statistics related to the 4 dimensions of consistency of this study. Results indicated that κ was statistically significant across most drugs assessed. Each dimension of consistency is listed with its corresponding result:

First, to assess stability over time, we calculated κ coefficients for index cases' self-report of drug use at screener and baseline ($\kappa_{I\ screening\ –\ I\ baseline}$). A near perfect personal predictive accuracy ($\kappa_{I\ screening\ –\ I\ baseline}$) was observed in reporting cannabis (κ = .81, p < .01) and high predictive accuracy for cocaine/crack (κ = .70, p < .01). All other reports of drug use indicated a moderate degree of personal predictive accuracy across the screening and baseline assessment periods with κ's ranging from .64 –. 67 (p < .01) with hallucinogen use reports having the lowest yet moderate degree of consistency (κ = .41, p < .01).

Second, to estimate perceived similarity, we calculated κ coefficients using drug use reports at screener using index case reports' self-reported drug use and their report of the partner's drug use ($\kappa_{I\ screening\ –\ IoP\ screening}$). Regarding perceived partner similarity, ($\kappa_{I\ screening\ –\ IoP\ screening}$), the highest degree, of perceived partner similarity was observed in cocaine/crack use (κ = .82, p < .01) and prescription drugs use (κ = .81, p < .01) indicating a near perfect similarity. Additionally, high degrees of perceived partner similarity in specific drug use were found in MDMA/GHB/K use (κ = .74, p < .01) and crystal meth (κ = .74, p < .05), and hallucinogen (κ = .65, p < .05). The association was non-significant between index case report and the perceived cannabis use of their partners (κ = .17, p > .15), suggesting a no degree of perceived partner similarity in use with these specific drugs.

Third, we then sought to examine actual partner similarity by calculating κ coefficients using the index case's self-reported drug use and their partner's self-reported drug use at baseline ($\kappa_{I\ baseline\ –\ P\ baseline}$). Actual partner similarity was subsequently assessed in baseline data by examining the degree of consistency in the reports of drugs from both the index partner and recruited partner's independent report ($\kappa_{I\ baseline\ –\ P\ baseline}$). The results indicated a high degree of partner similarity in MDMA/GHB/K use (κ = .75, p < .01) and cocaine/crack use (κ = .62, p < .01). Poor degrees of partner similarity were found prescription drugs use (κ = .33, p < .01) and hallucinogen (κ = .25, p < .01). The results indicated no degree in correspondence between the index case drug use and their partner's drug use for marijuana use at baseline (κ = .06, p = .60) and crystal meth (κ = .21, p = .07).

Fourth, we measured the predictive accuracy of the index partner's drug use by calculating κ statistics using the index case's report of their partner's drug use at screening and comparing it with their partners self-reported drug use at baseline ($\kappa_{IoP\ screening\ –\ P\ baseline}$). In Table 2, we also present the κ coefficients illustrating the predictive accuracy of index case reporting of their partner's drug use behavior ($\kappa_{IoP\ screening\ –\ P\ baseline}$). The accuracy of this prediction

is particularly important because index partners' reports were used to determine preliminary study eligibility for the couple. The results indicate that accuracy in index partners' reports of their partner's drug use was high for some drugs and low for others. The κ coefficients for the reporting of cocaine/crack use (κ = .68, p < .01) was high and for MDMA/GHB/K (κ = .56, p < .01) was moderate. The remaining drugs; cannabis (κ = .46, p < .01), prescription drugs (κ = .42, p < .01), hallucinogen drug use (κ = .38, p < .01), and crystal meth use (κ = .30, p < .05) reports were deemed to have a moderate to poor accuracy of reporting.

To examine the extent to which these sources of error were present in the data, we examined the percent agreement of $IoP_{screening}$ and $P_{baseline}$ reports for specific substances (Table 3). We additionally examined if time between screening and baseline was associated with percent agreement (consistent reporting) and non-agreement (inconsistent reporting). The percent agreement of cannabis use reports reflected that 38.6% of index cases incorrectly reported their partner's cannabis use with 12.9% of index cases indicating there was no cannabis use when the partner indicated there was (false negative). On the other hand, 25.7% of index cases indicated there was cannabis use when the partner indicated there was not (false positive). Regarding incorrect reporting of cocaine/crack, only 2.9% were false negative and 8.6% were false positives and MDMA/GHB/K reports included 4.3% false negatives and 10.0% were false positives. Further, 14.2% of index cases inaccurately reported their partner's prescription drug use with 7.1% being false negatives and 7.1% were also false positives. Interestingly, with the exception of cannabis use reports, high percent agreement was found in most drugs in relation to the non-use. That is, 75.7% – 94.3% of the index cases correctly indicated that their partner had not engaged in use of specific drug types. Regarding the association between the time (between screening and baseline assessments) the percent agreement (consistent reporting) and non-agreement (inconsistent reporting), we found that the time between screener and baseline was not different for index participants who consistently reported their partner's drug use relative to those who did not.

Discussion

The current study largely provided support for implementing index recruitment strategies for same-sex male couples-based drug use studies. Specifically, index partners were consistent in reporting their own drug use from screening to baseline. This provides evidence that self-reported drug use data provided at recruitment does not change significantly between point of recruitment and point of initial participation in the study – fulfilling the first assumption of index recruitment. Index partners were also accurate in reporting their partners' use of certain drugs – partially supporting the second assumption of index recruitment. While generally these findings supported the utility of index recruitment, results also indicated that index partner's perceptions of drug use similarity may bias responses to several drug use questions.

Index partners' reports of their own drug use were generally stable over time between screening and baseline. In accordance with the guidelines for interpreting κ (Fleiss, 1981), index partners were highly consistent in reporting their cannabis use. Cannabis is used at greater rates than other drugs. The ubiquity of use may make it easier to report consistently at two different time points (Volkow, Baler, Compton, & Weiss, 2014). Index partners were

also highly consistent at reporting their use of cocaine, club drugs, crystal meth, and prescription drugs. In contrast, index partners were least consistent in reporting their use of hallucinogen drugs between screening and baseline assessments. Hallucinogen use was only moderately consistent between the two time points. The general infrequency of hallucinogen substance use may offer a possible explanation for this lack of consistency. For example, one study examining substance use patterns across seven U.S. urban areas found that only 1.4% of men used hallucinogens 1 or more times per week (Thiede et al., 2003). Given the infrequency of hallucinogen use generally, it is possible that initial reports of hallucinogen drug use during screening occurred outside the 30-day time frame during the baseline assessment.

Results generally supported the predictive utility of index partners' reporting of their partner's substance use across a number of substances. Specifically, index partners' screening reports of partner behavior were most consistent with partner' actual baseline reported use of cocaine and club drugs (i.e., MDMA, GHP, ketamine). Additionally, there was moderate predictive utility in index partners' reports of their partner's cannabis use. In contrast, index partners' reports of their partner's use of crystal meth, hallucinogen, and prescription drugs were at or below the threshold of moderate and poor similarity. According to this study, index reported screening for these drugs are not good predictors of what their partner will report at baseline. This is notable, given that the use of these specific drugs may be infrequent and may occur within recruitment windows but not within baseline windows (e.g. in the past 30 days).

Follow-up analyses suggest that inconsistencies between index-partners' screening reports of their partners' substance use and partner-reported use run little risk of excluding potentially eligible sexual minority men into studies of drug use. Across all drugs, index partners who were inaccurate in reporting their partner's use of drugs reported more cases of false positive use and fewer false negatives. Inaccuracies in reporting drug use at recruitment might lead to the baseline assessment of couples who are ultimately ineligible with respect to drug use eligibility recruitments.

The current study also examined perceived and actual similarity in partners' drug use. Across drugs at screening, index partners reported that their personal drug use was highly similar to their partners' use for all drugs except cannabis. This is not surprising given the bias for assumed similarity, which states that a person frequently perceives their partner's behaviors to be similar to their own (Kenny & Acitelli, 2001). A comparison of actual similarity between independent responses from both partners at baseline and perceived similarity (based upon index-partner responses at screening) suggest that this assumption of similarity may account for accuracy among some drugs and may be associated with inaccuracies in others. Specifically, the actual similarity of drug use reported independently by both partners at baseline was highly similar in their use of cocaine and club drugs; whereas, the similarity between both partner's reports of their own prescription and hallucinogen drug use at baseline was poor, and partners were not similar in their crystal meth use. These inaccuracies may account for the poor predictive utility across these three drugs.

Interestingly, the patterns between perceived and actual similarity in partners' use of cocaine and club drugs were different from, crystal meth, hallucinogen, and prescription drug use. For cocaine and club drugs, perceived and actual similarities were congruent; whereas perceived and actual similarities were incongruent for crystal meth, hallucinogen, and prescription drugs. These trend differences may be attributed to the context in which the drugs are used. It is possible that couples may use cocaine and club drugs together but use other drugs in the absence of their main partner without disclosing the use of these drugs to their main partner.

At screening cannabis was the only drug that index partners did not report using similarly to their partner. Additionally, reported cannabis use by both partners individually at baseline was not similar. Despite partners not being similar to one another, the index partner's reported cannabis use by their partner at screening had predictive utility at baseline, suggesting that there is a unique effect of cannabis reporting and possible use. One possible explanation is that partners are more comfortable disclosing their use of cannabis without their partner present because cannabis is a more accepted and normalized drug (Duff, 2003; Hathaway, Comeau, & Erickson, 2011; Ninje, 1980; Parker, Williams, & Aldridge, 2002).

The findings of the current study highlight the utility and the limitations of index-partner recruitment. First, index recruitment may have greater utility for some drugs compared to others. Specifically, index recruitment that uses the reporting of club drug use is feasible even if eligibility requirements require that one or both partners use substances. Additionally, the current findings suggest that Index partners' report of their partner drug use was generally accurate even when taking into account the time that elapses between the screen and baseline survey, however, future studies should examine this effect further. Second, index recruitment may be particularly efficient in studies which require that only one partner in the couple uses drugs. Index partners' report of their own use was generally stable from screening to baseline, and where inaccuracies emerged in partner report, the risk of screening out potential eligible was relatively low. In studies which require both partners to use substances, or which specifically require that the unscreened partner uses, the proportion of false positives may present some concern. While restricting data collection to one partner in the couple has some benefits with respect to efficiency and reductions in barriers to participation, these current analyses of similarity bias illustrate the utility of having dyadic level data collected concurrently from both partners.

Future studies which examine perceived and actual similarity of primary partners' sexual behaviors, including, sexual agreements, condom use, and PrEP/ARV uptake/adherence would provide meaningful context for understanding biases that may shape data in instances where researchers are unable to gather responses from both partners in a relationship. Additionally, studies on partner support related to tobacco cessation may benefit from examining perceived and actual similarity of primary partners' tobacco use. As the current results indicated that predictive utility varied based on drug type, future research should to assess the impact and severity of self-reported partner drug use. Further research on perceived and actual similarities between partners should be contextualized within the couple's relationship functioning and if the similarities are a predictor of intervention efficacy or intervention attendance.

These findings must be viewed in light of several limitations. First, this study focused on NYC-based, gay male couples. Findings may not generalize well to couples in smaller communities or rural areas. Second, these data were taken from a study focused on HIV testing and related prevention strategies for couples. As a result, findings may not generalize to couples in which both partners are HIV positive or those focused on enhancing HIV related outcomes for men living with HIV. Third, the index cases were asked to respond in the affirmative or negative in regards to if their partner used a specific drug. The current screener did not allow for index cases would to report unknown or uncertain about specific drug uses. These responses may have a different predictive utility than the standard "yes/no" response. Lastly, at baseline index cases were not asked about their partners drug use, thus we are unable to measure the accuracy of partners' drug use reports for a specific assessment period.

Despite these limitations, these findings provide support for utilizing an index approach to recruitment and baseline data collection in HIV prevention and intervention research. Specifically, index-reporting of cocaine, club drugs, and cannabis had either high or good predictive utility. Although other drugs had lower predictive utility, false positives were more common than false negatives across all drugs, suggesting that studies will be able to enroll the maximum amount of participants during the baseline assessment with minimal exclusion due to inaccurate reporting of partner's drug use.

Acknowledgement:

Collection and analysis of these data were supported by a National Institute on Drug Abuse grant (R34 DA036419; PI Starks). The analyses of these data were additionally supported by a Research Supplement to Promote Diversity in Health-Related Research funded by the National Institute of Drug Abuse (R01DA045613-01S; PI-Starks, Awardee-Robles). The authors acknowledge the contributions of the *We Test* Project Team, particularly Patrick Sullivan, Robert Stephenson, Jeffrey T. Parsons, Nahuel Smith Becerra, Mark Pawson, Andrew Cortopassi, Chris Hietikko, and Scott Jones. We also thank Rich Jenkins for his support of the project as well as PRIDE Research Consortium staff, recruiters, interns and our participants who volunteered their time.

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Table 1:

Demographic characteristics at baseline (N = 140)

	N_{Index}(%)	$N_{Partner}$(%)
	70 (100.0)	70 (100.0)
Race/Ethnicity		
White	34 (48.6)	30 (42.9)
Black/African American	13 (18.6)	10 (14.3)
Latino	16 (22.8)	19 (27.1)
Other	7 (10.0)	11 (15.7)
Education		
4 year-degree	42 (60.0)	45 (64.3)
Less than 4-year degree	28 (40.0)	25(35.7)
HIV Status		
Unknown	3 (4.3)	3 (4.3)
Positive	8 (11.4)	3 (4.3)
Negative	59 (84.3)	64 (91.4)
	M (SD)	***M (SD)***
Age	27.4 (6.3)	26.6 (5.2)

Table 2:

Consistency of index partner drug use reports (N = 70 Couples)

	Index Self-Report (I)		Index Report Partner use (IoP)	Partner Self-Report (P)	Personal Predictive Accuracy	Perceived Partner Similarity	Actual Partner Similarity	Predictive Accuracy of Partner Use
	Screening	Baseline	Screening	Baseline	$\kappa_{I\ screening\ –\ I\ baseline}$	$\kappa_{I\ screening\ –\ IoP\ screening}$	$\kappa_{I\ baseline\ –\ P\ baseline}$	$\kappa_{IoP\ screening\ –\ P\ baseline}$
Cannabis	82.9%	80%	81.4%	70.0%	.81**	.17	.06	.46**
Cocaine/Crack	21.4%	20.0%	15.7%	15.7%	.70**	.82**	.62**	.68**
MDMA/GHB/K	17.1%	14.3%	15.7%	11.4%	.67**	.74**	.75**	.56**
Crystal Meth	7.1%	5.7%	4.3%	4.3%	.64**	.74**	.21	.30*
Prescription	12.9%	15.7%	14.3%	14.3%	.65**	.81**	.33**	.42**
Hallucinogen	5.7%	7.1%	2.9%	4.3%	.41**	.65**	.25**	.38**

*$p < .05$

**$p < .01$

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Table 3:

Distribution of drug use reporting consistency

	Partner Self-report of drug use at baseline (P)			
	No n (%)		Yes n (%)	
Index Report of Partner Drug Use at Screening (IoP)				
Cannabis				
No	3	4.3	9	12.9
Yes	18	25.7	40	57.1
Cocaine/Crack				
No	53	75.7	2	2.9
Yes	6	8.6	9	12.9
MDMA/GHB/K				
No	55	78.6	3	4.3
Yes	7	10.0	5	7.1
Crystal Meth				
No	63	90.0	2	2.9
Yes	4	5.7	1	1.4
Prescription				
No	55	78.6	6	8.6
Yes	5	7.1	4	5.7
Hallucinogen				
No	94	91.4	2	2.9
Yes	3	4.3	1	1.4

Note: Percentages are indicative of total sample