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Can Young Adults Accurately Report Sexual Partnership Dates? Factors Associated with Inter-partner and Dyad Agreement

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Abstract

Background—Sexual partnership dates are critical to STI/HIV research and control programs, though validity is limited by inaccurate recall and reporting.

Methods—We examined data from 302 heterosexual adults (151 index-partner dyads) to assess reliability of reporting. Dates of first and last sex were collected through individual interviews and joint dyad questionnaires which partners completed together. We compared index- and partner-reported dates to estimate inter-partner agreement (IPA). We used log-linear regression to model associations between inter-partner differences and partnership characteristics. To assess validity, we compared individually-reported dates to those from joint dyad questionnaires.

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Results—Most partnerships (66.2%) were 2 years in duration and many (36.2%) were non-monogamous. IPA to within 1-, 30-, and 365-days was, respectively, 5.6%, 43.1% and 81.3% for first sex; and 32.9%, 94.5%, and 100.0% for last sex. In adjusted models: longer relationship duration was associated with disagreement on first sex dates; partnership non-monogamy was associated with disagreement on dates of first and last sex. Within dyads, several participant characteristics were associated with reporting dates closer to joint dyad responses [e.g., for first sex date, female gender (54.7%), having fewer sex partners (58.5%), and greater relationship commitment (57.3%)]. However, percent agreement to within 30, 60, and 90 days was similar for all groups for both first and last sex dates.

Conclusions—Agreement was high on date of last sex but only moderate on date of first sex. Methods to increase accuracy of reporting of dates of sex may improve STI research.

Keywords

Reliability; Agreement; Validity; Sexual Partnership; Dates

Introduction

Dates of sexual activity are regularly collected in and critical to STI research and control activities. However, reporting of dates is subject to methodological challenges such as memory failure, imprecision, and reporting bias.¹⁻⁷ Inaccuracy and imprecision have implications for STI research, where incorrect dates may lead to misclassification in estimates of partnership duration and concurrency,^{8,9} and for STI control programs (e.g., Disease Intervention Specialist investigations), where incorrect dates could influence the number of correctly identified potentially exposed partners in a given time period. Assessing the quality of sexual intercourse dates is important for establishing margins of error, identifying factors associated with greater reporting error, and suggesting interventions to improve accuracy. Although studies have assessed the quality of many facets of sexual partnership data--^{2,10-17} such as number of sex partners,^{11,12} which sex acts occurred,^{10,17,18} age of first intercourse,¹² frequency of sex,^{12,13,16,18,19} and condom use--^{2,16,19} research on the quality of sexual partnership dates^{16,20,21} is limited.

Comparing dates of sexual activity from individuals in a dyad provides an opportunity to assess agreement which, in the absence of a “gold standard,” may be a surrogate for validity. In one dyad study,¹⁶ De Boer and colleagues reported 3-day agreement of estimated time since last sex as 63.2% for HIV sero-concordant and 65.0% for sero-discordant dyads. Brewer and colleagues found moderate agreement on date of first sexual intercourse among 774 sexual dyads: 56% agreed to the exact date, an additional 32% agreed to the month, and the remaining 12% to the year.²⁰ That study also found that dyads identified through HIV partner tracing provided less reliable reports. Thus, available literature suggests moderate inter-partner agreement, with lower agreement from those more at risk for HIV.

An additional opportunity to estimate quality arises from comparing individual reports to joint dyad reports in which both partners collaborate on their responses. Joint dyad reports allow partners to remind each other about relevant information (“collaborative recall”) and corroborate one another’s recall.²²⁻²⁴ Therefore, joint dyad reports may provide more nearly

valid information than that obtained from individuals in the dyad.²³ A potential liability of joint dyad reporting is the possible influence of dyadic power dynamics.²⁵ This concern, however, has been raised specifically for value-laden measures such as condom use, relationship status, and satisfaction, rather than for less sensitive or stigmatizing information such as dates of sexual activity. Though joint dyad reports have been used to qualitatively explore reasons for disagreement in partners' reported dates,¹⁰ no studies have utilized joint dyad reports to assess agreement on dates of sexual partnership.

In this paper, we present agreement estimates on dates of first and last sexual intercourse based on comparisons 1) between individual members of a dyad, and 2) between individual participant interviews and a joint dyad questionnaire.

Materials and Methods

Study Population and Data Collection

We analyzed dyad data from the Project on Partner Dynamics (POPD), a longitudinal study of heterosexual adults in the Los Angeles area. Between 2006–2008, POPD recruited index participants directly from STD and family planning clinics and community organizations, and indirectly through print and online advertisements. Eligible index participants were 18–30 years of age and reported unprotected sex in the previous three months plus at least one additional risk factor: more than one sex partner in the previous year; history of STI treatment in the previous two years; sex with a partner who had an STI in the previous year or who was HIV+; or history of injection drug use. Exclusion criteria included self-reported HIV infection, speaking neither English nor Spanish, current pregnancy, or anticipating moving outside the study area within a year.

Eligible, consenting index participants completed interviewer-administered, computer-based interviews in English or Spanish every four months for one year. At 8-month interviews, index participants were invited to recruit one current sex partner of the opposite-sex into the study. Both the index participant and his/her partner (i.e., “partner participant”) were interviewed individually. After the partner participant's interview, the two participants completed a self-administered joint dyad paper questionnaire together. At 12-month interviews, the index participant was invited to bring the same recruited partner participant for a follow-up interview.

Individual interviews asked participants about sexual partnerships during the preceding four months (i.e., since the previous interview, for index participants). For each partnership, dates of first and last sex (defined as vaginal or anal) were obtained with the questions: “What was the date of the first [last] time you had sex with [PARTNER]?”. Date of last sex was collected at each interview for as long as the relationship was active. For index participants, date of first sex was reported only once, during the first interview where the partnership was reported. For partner participants, date of first sex was reported upon recruitment into the study. Thus, as was usually the case, when an index participant recruited a partner s/he had reported in an earlier interview, the index participant would have reported the date of first sex months before the partner participant was asked that date (the variable “recall interval” refers to the amount of time between index and partners' reporting of date of first sex).

Individual interviews also included questions on participant's age, race/ethnicity, age at first sexual intercourse, number of sex partners in lifetime and in past 4 months, history of STD and injection drug use, and for each sexual partnership: nature of relationship, sexual exclusivity, coital frequency, relationship commitment and power, and substance use before or during sex. Relationship commitment was measured with a 7-question subset of the Investment Model Scale during individual interviews;²⁶ of the two members of each dyad, the one with the higher score was coded as having "greater commitment" in dyad analyses.

In joint dyad questionnaires, dyads were instructed to agree upon the day, month, and year, and provide a consensus answer to the question, "What is the date of the first [last] time you had sex with one another?". Dyadic power was collected during joint dyad questionnaires with the question "*Thinking about one another, who do you think has more power in the relationship?*". We coded responses "*She does*" and "*both partners but more her*" as indicating the female participant had more dyadic power; male participants were coded similarly.

POPD was approved by Institutional Review Boards from all participating universities. The present analysis was approved by the UNC Chapel Hill Institutional Review Board.

Exclusions, Missing Data, and Logic Checks

In order to make our analysis most relevant for interpreting data in a typical study—where data would be cleaned but where comparisons to partner and dyad reports would not be available—we corrected out-of-range and apparently erroneous dates using only information within the same interview. For example, if a reported date was later than the interview date, we considered a possible mistake in reported year (e.g., forgetting to increment calendar year in January). If there were no obvious errors, we excluded the date. If a date of last sex was earlier than date of first sex, we corrected obvious errors in the year or, failing that, excluded both dates. These procedures resulted in 10 intercourse dates being corrected (approximately 1%). Individual and/or joint dyad date information was missing or incomplete for 11 dyads, so if they provided complete data at the 12-month interview, the latter data were used instead.

Inter-Partner Agreement

For dates of first and last sex, we quantified agreement between index and partner reports (Inter-Partner Agreement, IPA) by calculating absolute differences, in days, and summarizing distributions with means, medians, quartiles, and percent agreement to customary time points used in STI research and control programs: within 0, 7, 14, 30, 90, 180 and 365 days.

We used linear regression to estimate associations with log-transformed absolute inter-partner differences, which addressed positive skew and helped reduce the impact of outliers. Exponentiated model coefficients therefore estimate ratios of geometric means between covariate groups. Regression covariates were known or hypothesized to be associated with agreement: duration of partnership^{17,20}, age difference between partners¹⁷, difference in reported frequency of sex between partners^{2,15}, exclusivity^{14,15,17}, STD history of either index or partner (hypothesized), and alcohol or other drug use before or during sex with each

other¹⁷. Because index participants could have reported dates of first sex during an earlier interview than partner participants, we also included the time between index and partner interviews (recall interval²⁰) in first sex models.

Individual-Dyad Agreement

For each dyad, we identified which participant's reports agreed more closely with joint dyad reports in relation to gender, age, role in study, lifetime number of sex partners, relationship commitment, and relationship power (as reported in joint dyad questionnaires). Using the joint dyad report as a reference, we calculated the proportion of participants in each category whose individual reports matched to within 30-, 90-, and 180-days. For each comparison, we summarized absolute differences, in days, between dates in dyad questionnaires to individual interviews with means and medians.

All analyses were conducted using SAS 9.4 (SAS Institute; Cary, NC).

Results

Among the 377 total index participants in the POPD study at the time of recruitment, 315 reported at least one current sex partner. Among these, 169 POPD index participants (53.7% of index participants with at least one current sex partner) recruited a partner for the dyad sub-study (i.e., 169 dyads). Excluding 14 dyads with missing information and 4 dyads in which index participants were also interviewed as partners of another index participant, 151 dyads (302 unique participants) were included in this analysis (Figure 1).

Index participants in the dyad sub-study were similar to all baseline POPD participants in terms of gender, age, race/ethnicity, history of STD, number of sex partners in lifetime, and age of sexual debut. Index participants in the dyad analysis were somewhat more likely to be Hispanic/Latino (33.8% vs. 27.8%), and less likely to report alcohol/other drug use during sex in the past 4 months (63.4% vs. 74.6% than all index participants at baseline. Also, whereas POPD index participants classified 36.4% of their baseline partnerships (60.7% of their partnerships at 8-months) as "Dating exclusively", "Engaged", or "Married", index participants in the dyad sub-study classified 80.4% of their partnerships in these categories. Index participants' commitment ratings were higher for partnerships represented in the dyad sub-study (mean 5.9) than for all partnerships eligible for recruitment (mean 4.6).

Index and partner participants, respectively, had average ages of 23 and 25 years, and average lifetime numbers of sex partners of 16 and 12 (Table 1). Partnerships in the dyad sub-study had average duration of 1.9 years (median 1.2 years); in over one-third (36.2%) of dyads, at least one participant was non-monogamous in the past 4 months (Table 2).

Date of First Sex: Inter-Partner Agreement

Dates of first sex reported by partners in a dyad were a median of 47 days apart (Interquartile Range (IQR)= 9–309)). Although the majority of dyads (62.5%) reported date of first sex to within 90 days, less than half (43.1%) did so to within 30 days, and very few (5.6%) reported the exact same date (Table 3). The distribution of differences was highly skewed, so that the mean was 265 days, and in 27 dyads the index and partner participant

reports differed by more than one year (Figure 2). Even among dyads reporting dates less than a year apart, the mean difference was 71 days (median 25 days), and 25% of differences were greater than 86 days. Date reports from partnerships less than a year in duration differed by a median of 13 days (IQR=5–62) and a mean of 172 days; reports from partners in relationships greater than a year in duration differed by a median of 96 days (IQR=23–365) and mean of 322 days.

Longer partnership duration (ratio of geometric means: 1.5, 95% confidence interval [CI]=1.1, 1.8) and greater recall interval (2.3, 95% CI=1.1, 4.9) were associated with greater disagreement in unadjusted analyses. In adjusted analyses, longer partnership duration (1.5, 95% CI=1.3, 1.8) and partnership non-monogamy (2.5, 95% CI=1.1, 6.1) were associated with greater disagreement (Table 4).

Date of First Sex: Individual-Dyad Agreement

The distribution of individual-dyad absolute differences for date of first sex was also positively skewed. The median and mean of these differences between dates of first sex reported in the joint dyad questionnaire and by the index participant were 22 days (IQR =4 – 101) and 149 days, respectively. Median and mean differences between dates reported in the joint dyad questionnaire and by the partner participant were 2 days (IQR =0 – 73) and 154 days, respectively.

Within dyads, the older participant reported a date closer to the joint dyad questionnaire date in 51.1% of dyads, the female participant in 54.7%, the partner participant in 62.4%, the participant with fewer sex partners in 58.5%, the participant with greater relationship commitment in 57.3%, and the participant with less relationship power in 51.4%. The comparative distances from the dyad report were larger in relation to age (7 days for younger vs. 17 days for older), role in the study (22 days for index vs. 2 days for partner), and partnership commitment (7 days for greater vs. 17 days for less relationship commitment) (Table 5). However, percent agreement to 30-, 90-, and 180- days was similar across all groups.

Date of Last Sex: Inter-Partner and Individual-Dyad Agreement

Reports of dates of last sex had much higher agreement than dates of first sex (Table 3), and the distribution was much less skewed. The median difference was only 1 day (IQR =0 – 4), and the mean difference only 6 days. In unadjusted and adjusted analyses, dyads in which both participants reported non-monogamy were less likely to agree on date of last sex (unadjusted ratio of geometric means: 2.7, 95%CI=1.7, 4.3; adjusted: 2.8, 95%CI=1.7, 4.5) (Table 4).

Closer agreement with the joint dyad report was observed for index participants (53.8%, vs. 46.3% for partner participants) and participants who were younger (52.4, vs. 47.6% for older), were female (62.5%, vs. 37.5% for male), had fewer sex partners (54.8%, vs. 45.2% for greater sex partners), had greater relationship commitment (52.9%, vs. 47.1% for less commitment), and had greater power (53.3%, vs. 46.7% for less power) (data not shown). However, differences between dates in the joint dyad questionnaire and those reported by the individual partners were small, with mean absolute differences of 3 and 5 days for index and

partner, respectively. Comparing individual reports with joint dyad questionnaires, mean differences were less than 6 days for all groups (medians of less than 1 day for all groups), and over 93% of each comparison group agreed within 30 days of joint dyad reports (data not shown).

Discussion

We examined agreement on sexual intercourse dates obtained from individual partners' reports and joint dyad questionnaires to assess accuracy of reported sexual intercourse dates. Overall, we found substantial agreement on dates of last sex, and low-to-moderate agreement on dates of first sex. Due to collaborative recall and corroboration,^{22,27} joint dyad reports are likely to be the most accurate of these sources and were used to investigate validity.

Our observation of high inter-partner agreement on date of last sex, with the majority of participants agreeing to within a week, is similar to a previous assessment of time since last intercourse.¹⁶ Agreement on date of last sex was likely affected by study design: index participants recruited partners from ongoing sexual relationships within the preceding 4 months and, thus, date of last sex necessarily fell within the past 4 months. However, even with high agreement overall, dyads in which both partners were non-monogamous provided systematically less consistent reports for date of last sex, similar to a previous study on test-retest agreement.²⁸

In contrast to a previous assessment which found moderate agreement on first sex²⁰, over half of our dyads reported dates of first sex more than 30 days apart, over one-third reported dates more than 90 days apart, and nearly one-fifth reported dates more than 365 days apart. The dramatically elevated mean differences reflect this highly skewed distribution and suggest that the date of first sex responses for a significant proportion of participants were largely uninformative. Several factors may account for the magnitude of disagreement we observed. First, index and partner participants often had dates of first sex collected on different occasions, with the majority of index participants (68.9%) reporting date of first sex 8-months before the partner participant's report. However, even for the 24 dyads who reported date of first sex at the same interview, responses differed by a median of 22 days and a mean of 324 days. Second, although at the beginning of the interview, sex was defined to include both anal and vaginal intercourse, participants may have used a different definition at the point of recall, which has contributed to discrepancies in previous studies.^{3,10} Third, many relationships were terminated and re-initiated; in these relationships, some participants may have reported the very first date of sex with the partner, while others might have reported the first sex date for the most recent re-initiation of the partnership. We also found that longer duration and non-monogamous relationships were associated with lower agreement on dates, which could reflect the cognitive demands posed by remembering more distant events and differentiating events between multiple partners.

Inter-partner agreement is sometimes used as a surrogate for validity, particularly where no "gold standard" (diaries, for example) is available. However, inter-rater agreement can be high even when both sources are inaccurate and, conversely, low agreement does not

preclude one source from being accurate. Although validity studies are needed to evaluate the quality of reported sex dates, a gold standard is infrequently collected, in part due to logistical complexities.

Using joint dyad questionnaires as a standard, we found that, for both first sex and last sex, joint dyad dates more closely matched reports of participants who were female, had fewer lifetime sex partners, or had greater relationship commitment. Though these patterns were consistent for first and last sex, the relative differences between comparison groups were not appreciable, and all groups had only moderate agreement with joint dyad reports for date of first sex. However, use of joint dyad data is a novel approach, and more research is needed to understand its utility and interpretation.

Our analysis highlights several issues of particular relevance to STD research and control. Although we examined only partnerships active within the past 4 months rather than the past year, high agreement on dates of last sex is reassuring since these are typically more important for STI/HIV control activities. On the other hand, the substantial inter-partner disagreement we observed on date of first sex could result in misclassification in date-specific research (e.g., concurrency, partnership duration, and gap length studies). Although a previous simulation²⁹ showed minimal effects of imprecision on measures of concurrency and duration, inter-partner agreement in our data was appreciably lower than in previous studies²⁰. More research is needed to understand the robustness of time-specific outcomes (concurrency and duration, e.g.) to moderate and high levels of imprecision in dates. The marked skewness in the distribution of differences of first sex dates—including 18% of dyads who disagreed on the year—reinforces the need for question clarity, and emphasizes the importance of memory aids and verification of the calendar year (e.g., by enforcing consistency with age at partnership start). For example, among the 27 dyads where index and partner disagreed on year of first sex, had they agreed on the year, the dates reported by 15 dyads would have differed by less than 31 days, including the 9 dyads that reported the same calendar month.

Various methods of increasing accuracy of date reports have been proposed, including incorporating reminders of terminology definitions, double-entry of responses, computer-generated validation checks, and use of life calendars³⁰. Technology-based interventions – for example, referencing social media or mobile applications as personal life calendars – may also help. Finally, our analysis of joint dyad questionnaires did not identify any meaningful differences related to individual characteristics and – for date of first sex – we found only modest agreement for all comparison groups. Thus, improvement of recall among all individuals, rather than the targeting of specific groups, is needed.

Conclusions

We found high agreement on reported date of last sex, but only low-to-moderate agreement on date of first sex. Techniques that improve accuracy of reported sexual partnership dates could benefit sexual behavior research and possibly STD control effectiveness as well.

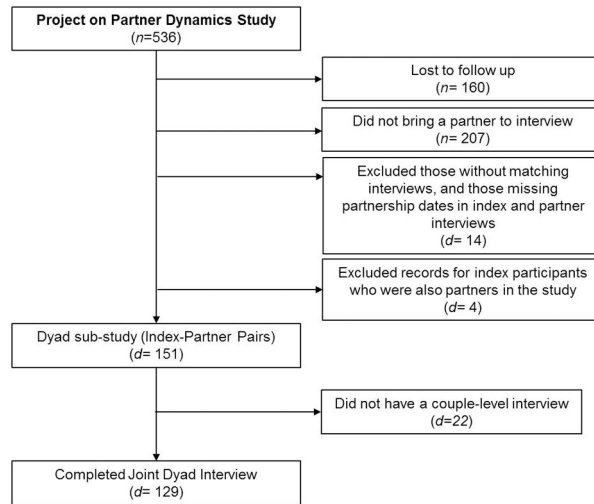
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n = individual participants originally enrolled in POPD study (i.e., index participants)
d = dyads (i.e., index-partner pairs)

Figure 1. Participants and Dyads Enrolled in the Project on Partner Dynamics, 2006–2009
n = individual participants originally enrolled in POPD study (i.e., index participants)
d = dyads (i.e., index-partner pairs)

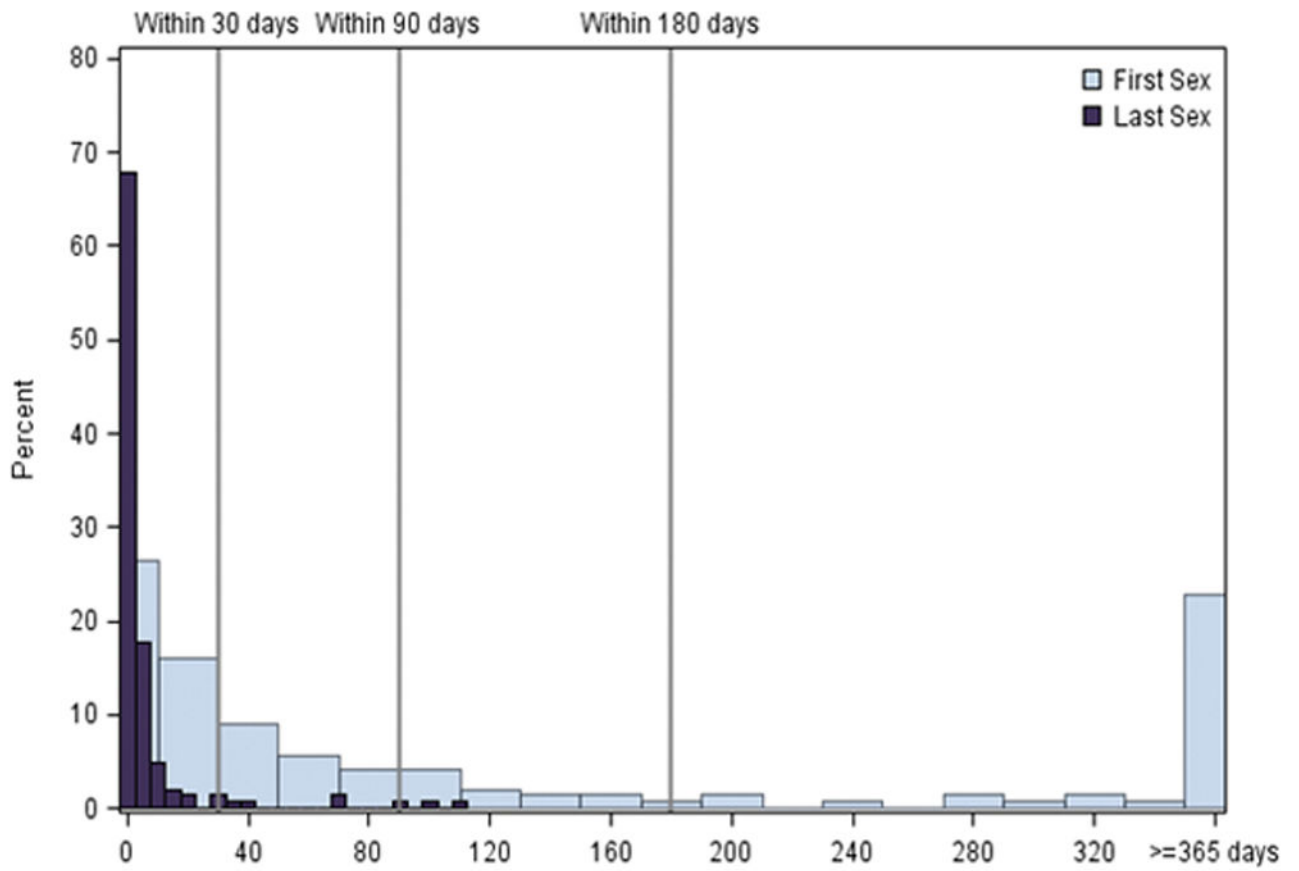


Figure 2. Histogram of Absolute Differences, in Days, Between Index- and Partner-reported Dates of First and Last Sexual Intercourse

Table 1

Select Characteristics of Index and Partner Participants Enrolled in the Project on Partner Dynamics, 2006–2009

Characteristic	Index Participants (N=151)		Partner Participants (N=151)	
	N ^a	%	N ^a	%
Sex - Female	73	48.3	78	51.7
Race/ethnicity				
White, non-Hispanic	38	25.2	48	34.0
Black, non-Hispanic	37	24.5	32	22.7
Hispanic/Latino	51	33.8	36	25.5
Other	25	16.6	25	17.7
Age ^{b,c}	23.1 ± 3.7		24.8 ± 6.1	
18–24	97	64.2	94	62.3
25–30	54	35.8	32	21.2
>30			25	16.6
Number of sex partners, lifetime ^b	16 ± 21.6		12 ± 15.1	
Number of sex partners, past 4 months ^b	1 ± 1.3		1 ± 1.1	
Sex frequency (number of acts), past 4 months ^b	34.5 ± 30.9		43.4 ± 48.3	
Age at sexual debut ^b	16 ± 2.9		16 ± 2.6	
History of STD	44	29.1	34	22.7
History of injection drug use	7	4.6	3	2.0
Alcohol/other drugs during sex, past 4 months	78	63.4	88	62.4
Reported description of partnership status				
Just friends	12	8.1	11	7.5
Dating casually	11	7.4	17	11.6
Dating exclusively	78	52.3	86	58.5
Engaged	21	14.1	17	11.6
Married	21	14.1	13	8.8
Other	6	4.0	3	2.0
Commitment Scale ^{b, d}	5.9 ± 1.9		6.2 ± 1.9	
Perception of partner with more power				
Partner Participant	4	3.2	7	5.0
Both, but more the partner participant	32	25.6	50	36.0
Both, but more index participant	75	60.0	67	48.2
Index Participant	14	11.2	15	10.8
Not Applicable/Missing	26		12	

^aTotal number of non-missing observations: race/ethnicity (10 missing for partner participant); history of STD (1 missing for index, 1 missing for partner participants), history of injection drug use (1 missing for partner participant), alcohol or other drug use (28 missing for index; 10 missing for partner participants), description of partnership status (2 missing for index; 2 for partners).

^bMean ± Standard Deviation.

^cIn order to be eligible for the POPD study, index participants had to be between 18–30 years of age. Recruited partner participants did not have an age eligibility criterion.

^dScore based on a 7-question subset of the Investment Model Scale, with higher responses (8 on a given question) representing more commitment, and lower scores (0 on a given question) representing lower commitment.

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Table 2

Select Characteristics of Dyads (n=151) Enrolled in the Project on Partner Dynamics

Characteristic	N	%
Duration of sexual partnership, years ^{a,b}	1.9 ± 1.9	
1 Year	57	38.5
>1– 2 Years	41	27.7
>2– 4 Years	32	21.6
>4–10 Years	18	12.2
Missing	3	
Interval between interviews for ascertainment of first sex date ^c		
0 Months (i.e., date asked at same visit from both partners)	24	16.2
4 Months	12	8.1
8 Months	102	68.9
12 Months	10	6.8
Missing	3	
Monogamy, past 4 months		
Mutually report being monogamous	95	63.8
One partner reports being non-monogamous	28	18.8
Both partners report being non-monogamous	26	17.5
Missing	2	
Age difference between partners, years ^b	3.5 ± 4.2	
Mean absolute difference in reported sex frequency, past 4 months ^b	25.8 ± 45.1	
Joint dyad response: which partner has greater relationship power ^d		
The female partner	8	6.7
Both, but more the female partner	47	39.2
Both, but more the male partner	57	47.5
The male partner	8	6.7
Missing/Not Present at Couple Interview	31	
Joint dyad response: which partner has greater relationship power ^d		
Partner Participant	10	8.3
Both, but more the partner participant	35	29.2
Both, but more index participant	69	57.5
Index Participant	6	5.0
Missing/Not Present at Couple Interview	31	

^aDuration of partnership was calculated as the difference between last sex and first sex, as reported by the index participant.

^bMean ± Standard Deviation. Median relationship duration was 1.2 years. Median age difference was 2 years, and the median difference in reported sex frequency was 12.

^cRecall interval between partners was calculated as the amount of time between index and partner participant recalling date of first sex. Date of last sex was always collected on the same interview date. Missing values for recall interval occurred when a date of first sex was missing for the partnership.

^d Responses captured in the joint questionnaire with the question “*Thinking about one another, who do you think has more power in the relationship?*”. Responses were originally expressed as “the male” vs. “the female”] and were converted, where indicated, to index vs. partner participant.

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Table 3

Inter-partner Agreement on Dates of First and Last Sexual Intercourse

	Inter-partner Agreement ^a			
	First sexual intercourse (N=144)		Last sexual intercourse (N =146)	
	N	%	N	%
Same date	8	5.6	48	32.9
Within 7 days	34	23.6	125	85.6
Within 14 days	47	32.6	133	91.1
Within 30 days	62	43.1	138	94.5
To calendar month ^b	57	39.6	130	89.0
Within 90 days	90	62.5	144	98.6
Within 180 days	101	70.1	146	100.0
Within 365 days	117	81.3	146	100.0

^aInter-partner agreement compares reported dates of first and last sexual intercourse provided by the index and partner participants in individual interviews.

^bCalendar month represents a subset of agreement to within 30-days where participants agreed to the exact month reported (for example: participants reporting date of first sex in November of the same year).

Table 4
Crude and Adjusted Associations Between Partnership Characteristics and Log of Mean Inter-partner Difference

	Inter-Partner Agreement, First Sexual Intercourse				Inter-Partner Agreement, Last Sexual Intercourse				
	N ^a	Mean days ^b	Geometric mean days ^b	Ratio of geometric means, crude (95% CI)	Ratio of geometric means, adjusted (95% CI)	Mean days ^b	Geometric mean days ^b	Ratio of geometric means, crude (95% CI)	Ratio of geometric means, adjusted (95% CI)
<i>Model intercept</i>									
<i>2.15</i>									
Recall interval ^c									
0–4 Months	36	279	26	Ref	Ref				
8–12 Months	112	261	58	2.3 (1.1, 4.9) [*]	1.4 (0.6, 3.3)				
Duration of partnership (β, 1-year)				1.5 (1.1, 1.8) ^{***}	1.5 (1.3, 1.8) ^{***}			1.0 (0.9, 1.1)	1.0 (0.9, 1.1)
Difference in age (β, 1-year)				1.0 (1.0, 1.1)	1.0 (1.0, 1.1)			1.0 (1.0, 1.0)	1.0 (1.0, 1.0)
Mean absolute difference in reported sex frequency, past 4 months (β, 1-act)				1.0 (1.0, 1.0)	1.0 (1.0, 1.0)			1.0 (1.0, 1.0)	1.0 (1.0, 1.0)
Monogamy, past 4 months									
Mutually monogamous	95	242	46	Ref	Ref	4	Ref	2	Ref
One partner non-monogamous	28	286	59	1.3 (0.5, 3.1)	2.5 (1.1, 6.1) [*]	7	1.3 (0.8, 2)	3	1.2 (0.8, 1.9)
Both partners non-monogamous	26	322	36	0.8 (0.3, 1.9)	1.2 (0.5, 3.0)	15	2.7 (1.7, 4.3) ^{***}	6	2.8 (1.7, 4.5) ^{***}
STD ever, index or partner									
No	88	226	38	Ref	Ref	5	Ref	3	Ref
Yes	63	315	63	1.7 (0.9, 3.3)	1.2 (0.7, 2.4)	8	1.2 (0.8, 1.8)	3	1.2 (0.9, 1.8)
AOD use before or during sex, index or partner									
No	47	386	64	Ref	Ref	9	Ref	4	Ref
Yes	103	212	41	0.6 (0.3, 1.3)	0.9 (0.5, 1.8)	5	0.7 (0.5, 1.1)	3	0.9 (0.6, 1.3)

^{*} P<0.05

^{**} P<0.01

^{***} P<0.001

^a Corresponds to dyads with complete, non-missing data for covariates and dates of first [last] sexual intercourse.

^gArithmetic and geometric mean number of days between index and partner's reports on date of intercourse. Geometric means estimated using regression.

^cRecall interval represents the time between index and partner participants being asked about date of first sex.

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Table 5
 Characteristics of Dyad Members' Distance to Joint Dyad Date of First Sexual Intercourse

Participant Characteristics	Proximity to Joint Dyad Report, Date of First Sex		
	Median Days	Wilcoxon <i>P</i>	
			N (%) Within 30 days N (%) Within 90 days N (%) Within 180 days
Age			
Older participants	7		67 (66.3) 76 (75.3) 80 (79.2)
Younger participants	17	0.2	64 (61.5) 79 (76.0) 85 (81.7)
Sex			
Male participant	12		77 (61.1) 96 (76.2) 102 (81.0)
Female participant	11	0.7	83 (65.9) 95 (75.4) 102 (81.0)
Role in Study			
Index participant	22		73 (57.9) 93 (73.8) 102 (81.0)
Partner participant	2	<0.001	87 (69.1) 98 (77.8) 102 (81.0)
Number of sex partners ^a			
Participant with more sex partners	12		67 (58.8) 85 (74.6) 91 (79.8)
Participant with fewer sex partners	4	0.2	80 (69.0) 89 (76.7) 95 (81.9)
Commitment ^b			
Participant reporting greater commitment	7		73 (65.2) 90 (80.4) 91 (79.8)
Participant describing less commitment	17	0.2	69 (61.6) 82 (73.2) 87 (77.7)
Power in relationship ^c			
Participant with more power	12		74 (62.7) 92 (78.0) 99 (83.9)
Participant with less power	8	0.5	77 (65.8) 88 (75.2) 91 (77.8)

^aNumber of sex partners in lifetime, ascertained at baseline for index and at partner interview for partners.

^bScore based on 7-question subset of the Investment Model Scale; participant with the higher score within the dyad was coded as having "greater commitment", and vice-versa.

^cRelationship power was measured using question from the joint dyad questionnaire: "thinking about one another, who would you say has more power in your relationship?".