Individual, Partner, and Relational Factors Associated With HIV Testing Among Heterosexual Young Adults

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This study examined whether HIV testing occurred within the context of specific dating/romantic relationships among a sample of heterosexual men and women, and analyzed the gender specific, individual, partner, and relationship barriers and facilitators to HIV testing. Data were collected from 704 interviews conducted in Toledo, Ohio. Consistent with the public health goal of routine testing, nearly 40% of respondents had an HIV test within the context of their current sexual relationship. Consistent with prior research on having ever taken an HIV test, women (47%) were significantly more likely to have tested within the current relationship than were men (31%). For women, it is both their own risky behavior, *as well as* the partners' characteristics that distinguish testers from non-testers. In contrast, for men, their own risky behavior appears to be more salient in influencing whether men got tested.

Key words: HIV testing

INTRODUCTION

The CDC (2008) recently reported that the HIV/AIDS epidemic is more extensive than previously assumed. The number of persons in the U.S. living with HIV infection (1.1 million) presents enormous personal, public health and social service challenges. Although men who have sex with men are the largest subgroup at risk for HIV, the CDC's revised strategy of focusing on heterosexually transmitted infection reflects the changing face of the HIV/AIDs epidemic: increasing numbers of individuals, especially women, are infected heterosexually through primary and secondary sexual partners. Especially disheartening is that adolescents and young adults are the fastest growing subgroups diagnosed with HIV (CDC 2008).

Behaviors associated with preventing HIV/AIDS include abstinence, consistent use of condoms and engaging in a monogamous relationship with a non-infected partner (Britton, Levine, Jackson, Hobfall, Shepherd & Lavin, 1998). For monogamy to be fully effective, however, both partners must be tested for HIV to ascertain the surety of their negative status (Misovich, Fisher & Fisher, 1997). Thus, HIV testing is critical for prevention as well as treatment (Harris et al. 2006). When individuals know their HIV status, they are less likely to unknowingly transmit the infection to others (Campsmith et al. 2009). However, among adults reporting at least one risk factor for HIV in the 1999 National Health Interview Survey (CDC, 1999), nearly one-third indicated that they had never taken an HIV test. Earlier in the epidemic, one primary reason for not getting tested was the stigma associated with requesting an HIV test, and the anxiety provoked in waiting for results (Chesney & Smith, 1999; Spielberg, Kurth, Gorbach & Goldbaum, 2001). With rapid testing widely available now, it is increasingly more common, presumably less stigmatizing, and less burdensome to get tested. Nevertheless, current estimates indicate that as many as one-fifth of the HIV-infected individuals in the U.S. are

unaware of their HIV status, either because they have never been tested or have not been tested recently (Campsmith et al. 2009; Hall et al. 2008).

Given the benefits of early detection and treatment of HIV, there is an urgent need to better understand factors that facilitate getting tested and possible barriers that may deter some heterosexual men and women from getting tested. The current study relies on structured survey and qualitative data drawn from the fourth wave of a longitudinal study of adolescent and young adults' sexual experiences, the Toledo Adolescent Relationships Study (TARS) (n= 1,114). Objectives of the current investigation are (1) to determine the prevalence of HIV testing within the context of a specific current or most recent relationship among a large, representative sample of heterosexual men and women; and (2) to identify and compare the individual-level, partner risk behaviors, relational-level, and sociodemographic factors that may act as barriers or facilitators to HIV testing for men and women. The focus on testing in a *current or recent* relationship, as opposed to *ever* being tested, is an important step in better understanding HIV testing behavior. As a supplement to these quantitative analyses, a final goal is to describe results of an analysis of in-depth qualitative interviews completed with a subset of 100 respondents who participated in the TARS study, and whose prior survey data reflected high risk profiles. Excerpts from the narrative data are included in order to further explore individuals' self-described reasons for getting/ not getting tested, illuminating aspects of testing decisions that are more difficult to capture via typical survey methods.

BACKGROUND

Because HIV was initially associated with gay men, and later intravenous drug users, most studies of HIV have not focused on heterosexual transmission (Higgins, Hoffman, and Dworkin 2010). Throughout the 1990s, however, heterosexual transmission continued to

increase; and in 1994, heterosexual transmission surpassed intravenous drug use as the major route for infection among U.S. women (CDC, 1994). Moreover, heterosexual sexual contact continues to be the primary mode of transmission for women, and currently it accounts for over 70% of women's HIV cases in the U.S. (CDC, 2006). As such, it is critical to better understand women's testing behavior and the influence of male sexual partners on decisions to get tested for HIV. Although many studies have included women, women's health often seems of secondary importance. For example, much research has focused on pregnant women who could transmit HIV to their newborns, and sex workers who could transmit HIV to their clients (Higgins et al. 2010, p. 435); thus, the focus is on women transmitting HIV as opposed to women's HIV risk. To date, studies have not adequately explained how women's intimate relationships may be a major force contributing to women's heterosexual risk for HIV, and their decisions to get tested. Our focus in this paper is on women's susceptibility to HIV due to aspects of their romantic and sexual relationships, and how these greater social vulnerabilities affect testing behavior.

Many past theoretical models of heterosexual risk for HIV and testing behaviors have focused on motivational processes without paying particular attention to gender. For example, according to self-efficacy as applied to sexual risk and testing behavior, individuals' assessments of their ability to use condoms determines the likelihood of actually using condoms. However, self-efficacy approaches have been criticized for not taking into account the fact that HIV risk is greatest among the most disadvantaged groups, and this is especially true for women. These models assume that women have as much personal control over sexual situations as do men; and "fail to recognize environmental and structural factors affecting risk behavior" (Higgins et al. p. 22) including coercive sex. Such criticisms have led researchers to look at power dynamics as an essential element contributing to women's risk for HIV (p. 22).

In contrast, other scholars criticize what they refer to as the "vulnerability hypothesis" (cite), and suggest that what is most important is to examine individuals' characteristics that put them at risk as opposed to simply focusing on gender. While there are merits to both positions, we argue for the importance of looking at, not just conventional power dynamics, but other dimensions of relationships as well, including feelings of love and trust, which may influence decision making behavior.

Within the HIV testing literature, studies have focused on a variety of individual-level correlates including sociodemographic, social psychological, and behavioral risk factors (e.g., Choi & Catania,1996; Anderson, Carey & Taveras, 2000; Stein & Nyamathi, 2000; Setia et al., 2009), with prior studies generally showing associations between risk awareness and HIV testing. However, these studies focus almost exclusively on the most high-risk populations (e.g., IV drug use). Drawing on studies of HIV testing behavior, we review how demographic background including age, socioeconomic status (SES), race/ethnicity, as well as adolescents' and young adults' own attitudes and sexual experiences might influence testing behavior among a normative sample.

Few studies have gone beyond assessing the individual-level correlates of HIV testing behavior to examine the potential role of partner's risk behaviors as well as relational factors, apart from power, influencing the decision to get tested. These factors may directly affect an individual's reasons to access HIV testing. In our review of the HIV testing literature, we were able to identify only a handful of recent studies that had considered the association between partner's risk behaviors and testing, and romantic relationships and HIV testing practices (e.g., Graffigna & Olson, 2009; Trieu et al., 2010).

We build on prior literature, but move forward by including an understanding of gendered power dynamics, and try to address how structural factors and relational vulnerabilities (e.g., low power, low trust, high passionate love) for both women and men – but for different reasons and via different mechanisms – influences HIV testing. Based on earlier work on adolescent males' perceptions of vulnerability in romantic relations (Giordano et al), our approach transcends the notion that men are a monolithic powerful group and women are powerless in relationships. In addition to assessing whether there are gender differences in getting tested, we examine whether women's and men's testing behavior are influenced by different factors. Below we review key potential correlates of HIV testing.

Individual Characteristics

Permissive Attitudes. Permissive attitudes are associated with multiple sexual partners. Although studies of permissive sexual attitudes and reluctance to get tested for HIV have been found in some African societies, especially for men (e.g., Sternberg, 2008), we argue that this is not likely the case in contemporary American society. Rather, we expect that permissive attitudes are likely associated with getting tested for HIV within the context of a current or recent relationship.

Condom Efficacy. Feminist researchers have argued that gender inequality places women in unequal power positions making requests for condom use difficult . We expect that condom efficacy is associated with HIV testing.

Lifetime Number of Sexual Partners. The life course perspective on attitude formation suggests that individuals' life experiences, skills, and knowledge have greater implications for behavior than do attitudes (cites). We expect that lifetime number of sexual partners likely influences HIV testing.

Socioeconomic Status. Prior research has emphasized that HIV and HIV testing is more common among economically disadvantaged groups. As such, we examine parents' levels of education as a measure of personal social advantage, and expect that lower socioeconomic status will be associated with HIV testing.

Race/ethnicity. Prior research has found HIV testing is more prevalent among non-white individuals regardless of socioeconomic status (Duran et al. 2010). "A national household survey in 2006 showed that the rate of HIV testing in the preceding 12 months was higher among Hispanics (13%) than among non-Hispanic Whites (8%)" (CDC 2008). What has not been examined is whether individuals in the context of a relationship are getting tested. (as opposed to *ever* being tested) Therefore, we examine whether race/ethnicity is related to HIV testing, and expect that Black and Hispanic, relative to White, respondents will report higher odds of being tested.

Relational Dynamics

Love. Due to gendered socialization, there is a premium on love, for women (Worth, 1989; Amaro 1995; Amaro, Raj, and Reed 2001; Blanc 2001; Sobo 1995; Logan, Cole, and Leukefeld 2002). As such, women who score higher on passionate love are expected to be less likely to get tested for HIV. Similarly individuals who report greater trust are less likely to get tested. This is because getting tested may seem antithetical to love, and trust. *Relationship power* dynamics are associated with reduced sexual autonomy, as is *sexual coercion* (Blanc, 2001; Pulerwitz et al., 2002). However, it is unclear how power balance and sexual coercion would affect HIV testing. On the one hand, the individual with more power may be likely to take care of him/herself by getting tested; on the other hand, the individual with less power may get tested because he/she is not sure if the partner is sexually exclusive. Gendered power

dynamics that compromise women's ability to successfully negotiate condom use (Rosenthal & Levy, 2010), may also constrain conversations, *making communicating about sexuality* revolving around the issue of HIV testing, arkward or difficult. Lastly, regarding *pregnancy,* evidence suggests that females are more likely to be tested due to greater access to healthcare, particularly in the context of prenatal care (Bond, Lauby & Batson, 2005).

CURRENT INVESTIGATION

In order to assess the influence of individual, partner, and relational variables on men and women' HIV testing practices, overall, data from a representative sample, as opposed to high-risk populations, are needed. In contrast, many other studies are clinic-based; as such, analyses are often based on individuals who are seeking medical treatment, or studies rely on convenience samples (e.g., Djokic et al. 2009). Our data permit us to focus on a more heterogeneous group of young women and men as opposed to those who are already seeking treatment or for whom the extent of representativeness is unknown. Additionally, multi-methods using both survey and narrative data will likely provide greater insights relative to relying on only one method (Deren et al., 2003).

Relying on a large diverse sample, we first examine the distribution/patterning of getting tested in the context of the current or most recent intimate relationship. We examine predictors of getting tested including individual, partner, and relationship characteristics. Regarding individual characteristics, our analyses compare attitudinal measures and two sexual risk behaviors that may influence HIV testing, and more specifically, testing within the context of the current or most recent sexual relationship. The attitudinal items include general permissiveness, and beliefs about condom efficacy. The sexual risk behaviors include lifetime number of sex partners, and sexual exclusivity within the current or most recent relationship. Net of the

individual's attitudes and risk behaviors, what are the influences of the partner's risk behavior on HIV testing? We examine partner's number of sex partners, and partner's sexual exclusivity. We also measure relationship dynamics which may influence testing including: passionate love, trust, relationship power, difficulty communicating about sex, and sexual coercion. In all multivariate models, we examine the influence of demographic background on HIV testing behavior including: age, race/ethnicity, and parental education.

DATA and METHODS

Data

The survey and narrative data are drawn from the Toledo Adolescent Relationships Study (TARS), a longitudinal study based on a stratified random sample of the year 2000 enrollment records of all youths registered for the 7th, 9th, and 11th grades in Lucas County, Ohio, a largely urban metropolitan area that includes the city of Toledo. The sample came from 62 schools across seven school districts, although respondents did not have to attend school to be in the sample. The sample, devised by the National Opinion Research Center, includes oversamples of Black and Hispanic adolescents. In the first interview (W1) conducted in 2001, 1,316 adolescents participated in the study. Our study relies on data collected during the fourth interview (W4) conducted in 2006-07. In W4, 83% of the original sample (n = 1,088) were interviewed. Interviews were mostly conducted in the respondent's home using preloaded laptops to maintain privacy. Primary parents were administered a paper and pencil instrument at W1 only. Our analytic sample includes unmarried respondents who are or were sexually active within their current or most recent relationship (previous 24 months), resulting in a final sample size of N = 698 respondents (389 = female and 309 = male youths).

In addition to the survey data, we also draw on excerpts from in-depth interviews conducted with a subset (n=100) of the respondents who participated in the wave 4 structured interviews. The respondents were chosen due to their high risk profiles on prior surveys. The in-depth interviews were scheduled separately from the structured interview. Areas covered in general, parallel the structured protocol, but allow a more detailed consideration of respondents' romantic and sexual histories.

The TARS provides a unique opportunity to examine our research questions for several reasons. It includes a sample of adolescents and young adults with a wide range of sociodemographic characteristics that are similar to those of the nation. It includes youths' beliefs about their own risk behaviors as well partners' risk behaviors. It also includes detailed information about relationship qualities (e.g., trust passionate love, etc). Our measures move beyond other studies by examining HIV testing with specific sexual partners whereas many social surveys emphasize having ever been tested or having been tested in the past 12 months. Lastly, the qualitative component of the larger study provides important insights from the perspective of young people regarding why they do/ do not get tested for HIV.

Dependent variable

Having been tested for HIV since being with current or most recent sexual partner is measured by asking: "Since the two of you have been together, have you been tested for HIV/AIDS?" We ask respondents answering with respect to their most recent relationship: "While you were with [*name*], were you ever tested for HIV/AIDS?" Responses are coded no (0) and yes (1).

Respondents' Attitudes and Sexual Risk Behaviors

Permissive attitudes are measured by asking the degree to which respondents agree with the following eight items: (1) "It's okay to sometimes date more than one person at a time;" (2) "Sometimes I like to date a girl [guy] just for the fun of it;" (3) "A person should only have sex with someone they love;" (4) "A person should only have sex if they are married;" (5) "I would have to be committed to a girl [guy] in order to have sex with her [him];" (6) "It would be okay to have sex with someone I wasn't dating;" (7) "I would feel comfortable having sex with someone I was attracted to, but did not know very well;" and (8) "It is okay to have sex with an old girlfriend [boyfriend]." Responses range from strongly disagree (1) to strongly agree (5) and are coded to reflect greater permissiveness. The scale score is calculated as the mean of the eight items. The scale mean and standard deviation are 2.8 and .73 respectively. Cronbach's alpha is .82.

Condom efficacy is measured by asking whether respondents are sure that they could: (1) "plan ahead to have a condom available;" (2) "stop yourself in the heat of passion and use a condom;" and (3) "resist having sex if your partner didn't want to use a condom." Responses range from very unsure (1) to very sure (5).[i] The scale is calculated as the mean of the items answered. For respondents who were missing data on two of the three items (n = 15), missing values are imputed using the scale mean score. Cronbach's alpha for the scale is .82.

Not sexually exclusive is measured by asking: "How often have [did] you gotten [get] physically involved ("had sex") with other girls [guys]? Response categories are never (1), hardly ever (2), sometimes (3), often (4) and very often (5), and for multivariate analyses are coded as (0) sexually exclusive and (1) not sexually exclusive.

Lifetime number of sex partners is measured by asking: "In your lifetime, about how many sex partners have you had?" Lifetime number of sex partners range from 1 to 18, with a mean and standard deviation of 6.3 and 5.4, respectively[ii].

Partner's Sexual Risk Behaviors

Partner's number of sex partners is measured by asking respondents: *"*About how many partners do you think [*name*] had sex with before the two of you became involved?" Responses range from 0 to 12, with a mean response of 3.8[iii]and a standard deviation of 3.8.

Partner's sexual exclusivity is measured by asking respondents: "How often do you think [*name*] has gotten [was] physically involved ("had sex") with other girls [guys]? Response categories are never (1), hardly ever (2), sometimes (3), often (4) and very often (5). For the multivariate analyses responses are coded as partner is believed to be sexually exclusive (0), and partner is not believed to be sexually exclusive (1).

Relationship Dynamics

Passionate love is measured using a modified version of Hatfield and Sprecher's (1986) passionate love scale. Respondents are asked the extent to which they agree with the following statements: (1) "I am very attracted to [*name*];" (2) "The sight of [*name*] turns me on;" (3) "I would rather be with [*name*] than anyone else;" and (4) "[*name*] always seems to be on my mind." Responses range from strongly disagree (1) to strongly agree (5). The scale score is calculated as the mean of the four items. Cronbach's alpha is .83.

Trust is measured by asking how much respondents agree with the statement: "There are times when [*name*] cannot be trusted." Responses range from 1 to 5, with higher scores reflecting greater trust.

Relationship power is measured by asking respondents: "If the two of you disagree[d] about something, who usually gets [got] their way?" Respondents answering that they usually get their way are coded as 1, while those responding either neutrally or that their partner usually gets his/her way are coded as 0.

Difficulty communicating about sex is measured by asking respondents the extent to which they agree with the following statement: "Sometimes I find (found) it hard to talk about sexual matters with [name]." Responses range from strongly disagree (1) to strongly disagree (5).

Sexual coercion is assessed by asking respondents: "How often has (did) [name] insist on or made you have sex with her [him] when you didn't want to?" Response categories are never (1), once (2), twice (3), three to five times (4), 6 to 10 times (5), 11 to 20 times (6), and more than 20 times (7).

Respondent's Demographic Characteristics

Age is calculated from the respondent's date of birth and the date of the interview. Respondents' mean age is 20.6 years, and the standard deviation is 1.7.

Race/ethnicity is classified as white (individuals who identified as non-Hispanic white) and non-white (all other individuals), with white as the contrast category in the multivariate analyses.

Parent's education is measured from the parent's questionnaire, which was completed primarily by mothers. We ask: "How far did you go in school?" If the father answered the questionnaire and was married or cohabiting, we ask: "How far did your partner go in school?" Responses are coded as 0 for 12 years of education or less and 1 for more than 12 years.

Analytic Strategy

We first calculate descriptive statistics for the sample as a whole, comparing differences between those who have been tested and those who have not been tested for HIV. Similarly, comparisons are made between testers and non-testers for women and men separately.

For the multivariate analyses, we use logistic regression to estimate the odds of being tested for HIV since with partner versus not being tested, for women and men separately. We provide a baseline model that includes only the demographic control variables and then estimate separate models for the individual characteristics, partner's characteristics and relational dynamics respectively. Finally we include a model with the full set of covariates. Because of our small sample size we include results significant at the $p < .10$ level.

RESULTS

Descriptive Analyses

Table 1a provides descriptive statistics for comparing those respondents who have been tested for HIV with those who have not been tested. On average, respondents have been with their current partner, or dated their last partner for approximately 9 to 12 months (not shown).

TABLE 1A ABOUT HERE

Forty percent of the sample has been tested for HIV since being with their current or most recent partner. Those who have been tested for HIV report a higher average number of lifetime sex partners (7.2 versus 5.8 partners for non-testers) and are more likely to report not being sexually exclusive. However, respondents who have been tested do not hold more permissive sexual attitudes, nor do they report greater efficacy in using condoms relative to "non-testers." Thus, behavioral manifestations of risk such as a higher number of lifetime sex partners, and sexual non-exclusivity, as opposed to attitudinal differences or differences in condom efficacy, distinguish testers from non-testers at the bivariate level.

Partners' characteristics and believed risk behavior also influence whether respondents get tested for HIV. Testers, compared with those who do not get tested, report that their partners have had a greater average number of prior sexual partners (4.6 versus 3.3 lifetime sex partners).

Moreover, over a fifth (22%) of those who have been tested, relative to 16% of non-testers, believe that their partners are not sexually exclusive. In brief, individuals who get tested assess their sexual partner's behavior as more risky in terms of prior number of sexual partners and lack of sexual exclusivity.

Romantic relationship qualities that distinguish testers and non-testers include passionate love, trust, relationship power and pregnancy with partner. Testers' relative to non-testers rate their relationships slightly higher in terms of passionate love (4.0 versus 3.9), but lower on trust (3.6 versus 3.8). Additionally, a higher percentage of respondents who have been tested report a power dynamic that favors them (35% versus 27%, respectively) and if they experienced a pregnancy within the context of the relationship (31% versus 7%). Thus, in comparison to non-testers, testers describe their relationships, on average, as higher in passionate love, lower in trust, and as providing a power balance more favorable to them.

Regarding demographic background, testers are slightly older (mean age is 20.7 versus 20.4). While Whites constitute 47% of those being tested for HIV, they represent 72% of those who have not been tested. In contrast, non-Whites and Hispanic represent 53% of those being tested and only 28% of those who have not been tested. Fifty-five percent of testers, relative to 38% of non-testers, have mothers whose educational level is high school or less. Moreover, a greater percentage of non-testers have family backgrounds characterized by higher educational attainment (62% relative to 45% for testers). Summarizing the demographic distinctions between testers and non-testers, testers are slightly older, more likely to be non-white, and more likely to have family backgrounds characterized by lower maternal education.

Table 1b compares female testers and non-testers, and male testers and non-testers, allowing us to assess whether the same characteristics predict getting tested for men and women.

Table 1b shows that nearly half (48%) of the women in our sample have been tested for HIV while in their current or most recent sexual relationship. Women who have been tested score slightly lower on the condom efficacy scale relative to the non-testers (4.0 versus 4.2). Women who have been tested, relative to non-testers, report a greater number of lifetime sexual partners (6.0 versus 4.8 sexual partners). Regarding partner characteristics, testers also report that their partners have had a greater number of life-time sexual partners (5.5 versus 4.1, respectively). A higher percentage of women who have gotten tested (25%), relative to non-testers (13%), believe that their partners are not sexually exclusive. Thus, women who get tested likely do so because they are aware that their own behavior (lower confidence in using condoms, higher number of life time partners), as well as their partners' risky behavior (having been tested, higher number of life time partners, lack of sexual exclusivity) put them at risk for HIV.

At the bivariate level, several relationship dynamics including feelings of trust, length of the relationship, power differences, and awkwardness in communicating about sexual issues distinguish women who get tested from those who do not get tested. Those who get tested, on average, score lower when asked whether the partner can be trusted (3.5 versus 3.9). Forty-four percent of testers, relative to 34% of non-testers, report a power differential which favors them. However, women who get tested, on average, score higher when asked whether it is hard to talk about sexual matters with their partners (2.0 versus 1.8). Regarding demographic characteristics which distinguish women who get tested for HIV from those who do not, white women comprise less than half of those who get tested for HIV while constituting over 75% of those who have not been tested. Fifty-four percent of female testers, relative to 40% of non-testers, have mothers whose educational level is high school or less. Moreover, a greater percentage of female non-

testers have family backgrounds characterized by higher maternal educational attainment (59% of non-testers relative to 46% for testers).

TABLE 1B ABOUT HERE

Patterns for male respondents, relative to their female counterparts, show some similarities and some differences regarding factors that distinguish those who get tested from those who do not get tested. Men who get tested, relative to those men who do not get tested, report, on average, more permissive attitudes (3.3 relative to 3.1), and a higher percentage (34% versus 25%) are not sexually exclusive. Thus for male respondents, their permissive attitudes and risky behaviors distinguish those who get tested from those who do not. With respect to characteristics of the partner, while partner's sexual non-exclusivity is related to getting tested, number of sex partners does not distinguish male respondents who get tested from those who do not get tested. Regarding relationship dynamics, men who get tested, on average, score higher on passionate love (3.9 versus 3.8), report a power differential less favorable to themselves, and lower sexual communication scores (1.9 versus 2.2). Similar to women, men who experienced a pregnancy within the context of the relationship were likely to have been tested.

Among men, those who had been tested appear to be slightly older on average than those who have not been tested (21.1 versus 20.4, respectively). Differences by race and parents' education follow a pattern that is similar to those for women.

Summarizing our findings by gender, for women, it is both their own risky behavior as exemplified by lower condom efficacy, their lack of sexual exclusivity, and their higher number of lifetime sexual partners, *as well as* the partners' characteristics (partners' higher number of sexual partners, and the partner's lack of sexual exclusivity) that distinguish testers from non-testers. In contrast, for men, their own risky behavior and permissive attitudes, appear to be

more salient in influencing whether men got tested. Additionally, women and men who get tested, on average, score higher when asked whether it hard to talk about sexual matters with their partners.

Women and HIV Testing

Table 2a shows the odds ratios for the logistic regression of being tested for HIV since with partner for women in our sample. We present an initial model showing the effects for the demographic controls, followed by three models examining separately the effects of each of the domains – respondent characteristics, partner characteristics and relationship dynamics – net of the demographic controls. Model 5 includes all of the variables.

TABLE 2A ABOUT HERE

Model 1 shows that age demonstrates a modest positive effect on the odds of being tested for HIV. Non-white women are three times more likely to be tested compared to white women, and women with more highly educated parents are less likely to be tested.

Once demographic controls and respondent characteristics are examined collectively in Model 2, condom efficacy is no longer significant as demonstrated in the bivariate results. Similarly, inclusion of demographic controls and the other respondent characteristics results in a p-value that is no longer significant for number of sex partners.

Model 3 presents the results for the partner characteristics. Consistent with the bivariate results, both partner's sexual non-exclusivity and number of sex partners remain positively and significantly associated with being tested for HIV net of the control variables.

Model 4 examines the effects of the relationship dynamics. While trust, and sexual communication awkwardness remain significant net of the controls, the effect of greater power in the relationship is reduced to a level of non-significance. Sexual coercion which is not significant at the bivariate level demonstrates significantly lower odds of being tested in model

4. Examination of the covariates reveals that race operates to suppress the effect of sexual coercion on HIV testing. To investigate this further, an interaction term for sexual coercion and race (non-white x sexual coercion) was created and included in the model and was not significant. Thus, while non-white women appear to experience greater sexual coercion within their relationship as reflected in the correlation of these variables ($r = 0.12$, $p < .01$), the impact of this on HIV testing does not differ significantly from white women. Additionally, women who experienced a pregnancy within the context of their relationship were seven times more likely to be tested for HIV compared to those who had not become pregnant.

In model 5 we present the results of the full model which includes all three dimensions along with the control variables. Partner's sexual non-exclusivity, sexual coercion and pregnancy with partner remain significantly associated with HIV testing. The partner's number of sex partners, trust and lack of sexual communication are no longer significant once we examine them in the full context of the romantic relationship. Examination of the covariates reveals that controlling for respondent's own number of sexual partners reduces the effect of partner's number of sex partners on HIV testing. Partner's sexual non-exclusivity diminishes the return on trust, while partner's number of sex partners does so for the effect of lack of sexual communication on HIV testing. Finally, women from racial/ethnic minority groups continue to be significantly more likely to be tested for HIV, while those with parents with higher education are less likely to be tested, even after including respondent, partner and relationship characteristics.

These results highlight that among women, partner characteristics and relationship dynamics are of greater importance than individual characteristics associated with the romantic context in terms of influencing HIV testing behaviors.

Men and HIV Testing

Table 2b shows the odds ratios for the logistic regression of being tested for HIV since with partner for male respondents in our sample. Similar to women, all of the demographic characteristics are significantly related to HIV testing. However, among men, age emerges as a stronger predictor compared to women.

In model 2 once all of the respondent characteristics and demographic controls are included, odds associated with permissive attitudes are reduced and no longer significant. Similarly respondent's sexual exclusivity on HIV testing while positively associated with HIV testing at the bivariate level, is not significant net of the other individual characteristics and demographic control variables. The number of respondent's previous sex partners continues to be associated with increased odds of being tested for HIV.

TABLE 2B ABOUT HERE

Consistent with the bivariate results, model 3 shows that partner's number of sex partners does not appear to impact decisions of being tested for HIV among men. Furthermore, net of the demographic control variables, partner's sexual non-exclusivity is no longer significant.

In model 4 after all of the relationship dynamics and demographic controls are included, odds for passionate love on testing are reduced and no longer significant. Similarly, difficulty communicating about sex is no longer significant in this model. While pregnancy with partner was significantly associated with increased odds of being tested, this had less impact on men that it did on women.

In model 5 when we include individual and partner characteristics, along with the relationship dynamics and demographic controls, number of previous sex partners remains

significantly associated with greater odds of being tested for HIV, as does pregnancy with partner. Finally, age, race and parent education remain significant predictors of HIV testing.

These results show that men are less reliant on the relationship context to inform them on the need to be tested for HIV. Rather it appears men rely on their personal sexual history to inform them on the need to seek HIV testing.

TABLE 3 ABOUT HERE

An Analysis of In-Depth Relationship and Sexual History Narratives

While the quantitative analyses assess individuals' attitudinal and sexual risk behaviors, perceptions of partners' risks, and relationship dynamics associated with testing decisions, our unstructured interviews with about 100 respondents, chosen because of their high risk profiles in prior survey data, highlight ways in which young adults themselves give meaning to getting/not getting tested. The qualitative analyses support the quantitative results (e.g., heterosexual women in intimate relationships are more likely than men to get tested), but provide a more nuanced understanding from both women and men's perspectives (e.g., men often rely on women's negative results to define themselves as 'clean'). These results from the qualitative data also fit well with a symbolic interactionist emphasis as they point out the role of constructed folk wisdoms and meaning construction in the decision to get tested for HIV.

Further as several quotes below document: (a) a number of men indicate that they use their girlfriends' negative status as a proxy for their own negative status; (b) individuals use folk wisdom to decide who is 'clean;' and (c) individuals are aware that partners' past behavior puts them at risk.

Women's Negative Status as a Proxy for Getting Tested.

Interviewer: Did you ever get tested?

Respondent: No. She does.

Interviewer: So you rely on her test. So she doesn't come up positive then you know…?

Respondent: I am not (positive). Exactly.

Interviewer: That would be kind of after the fact wouldn't it?

Respondent: Yeah, I guess. I am not sleeping with whores.

[#0232, 22, Hispanic male, not tested]

Similarly, prior studies (e.g., Bond, Lauby, & Batson, 2005) suggest that women are more likely to be tested due to greater access to healthcare, and our quantitative results suggest that women are more likely to be tested in the context of prenatal care. Consequently, some men in our sample appear to rely on their partner being tested within the context of her annual examinations, and assume this eliminates their need to be tested.

"But I mean she did (get tested), because she had to get put on birth control so… I didn't… I guess I take it for granted that I'm fine. I'm pretty sure I am…" [#0419, 19, white male, not tested]

This belief is present even among those male respondents who do get tested.

"She gets tested every three months. Every time she gets her shot she gets tested. [I: Okay.] So if she ain't got nothing, obviously I ain't got nothing… I've been tested though so we're both clean." [#0917, 22, white male, tested]

However, it is not always clear when respondents are referencing testing for STDs in general and HIV specifically. It is possible that respondents who are going in for routine examinations and having blood work performed are assuming they are being tested for HIV when they are not

(Sobo, 1994). When asked whether they have been tested for HIV, some female respondents will simply state "I get regular exams." There is some ambiguity here in that respondents may assume that they have in fact been tested for HIV, or it may reflect tensions that arise as the prospect of being tested. Such tensions may result from a fear of receiving positive test results (Spielberg, Kurth, Gorbach & Goldbaum, 2001), or fear of a partner's reaction. For example, gendered power dynamics that compromise women's ability to successfully negotiate condom use (Rosenthal & Levy, 2010), may also constrain conversations revolving around the issue of HIV testing. As romantic relationships evolve, individuals may become more motivated to protect the relationship from conflict that occurs as a result of bringing up the subject of HIV testing, even at the expense of self-protection (Misovich, Fisher & Fisher, 1997).

> "It was probably in the back of mind if he had been tested and if he had been with girls who had something… I started to get into a conversation with him and he absolutely took it the wrong way…" [#0086, 22, white female, not tested]
>
> As investment in the relationship accumulates, trust is likely to increase and obviate the perceived need for testing (Misovich, Fisher & Fisher, 1997).

Folk Constructions: Who's 'Clean'

As we noted earlier, in order for monogamy to be fully effective, both partners must be tested for HIV to ascertain the surety of their negative status (Misovich, Fisher & Fisher, 1997). Unfortunately, individuals' assessment of personal risk are often based on myths and misperceptions or what has been referred to as "folk constructions" (Essien, Meshack, & Ross, 2002). As noted by Essien and colleagues, a prime example of a folk construction is assuming that information provided by one's partner with respect to previous sexual activities is accurate

and all inclusive. This does not however, take into account the partner's own risk exposure from previous partners. Awareness of this distinction, as well as awareness of one's own previous partner's activities may provide a cue for HIV testing within the context of the existing relationship.

Another sort of folk construction arises from implicit personality theories. Rather than relying on objective criteria, risk is assessed using subjective information based on the partner's appearance and/or personality (Misovich, Fisher & Fisher, 1997). These unstructured narratives also underscore that many individuals believe that one can 'tell' whether a partner is a risk for HIV based on appearance and demeanor. The unsolicited references men and women make to whether a partner seems clean are important because they signal that more work is needed to get the message out that individuals' appearance is not synonymous with negative HIV status.

Interviewer: Um, the only times that you have not used a condom was with people who had no experience prior to being with you?

Respondent: Mmm hmm.

Interviewer: And then, afterwards, you all were monogamous.

Respondent: Mmm hmm.

Interviewer: How did you know they were monogamous? I mean, how did you know?

Respondent: I guess I didn't know, I mean I trusted them by asking, and (laughs) I don't know, I was with them a lot so, I mean, well me and Matt were long distance or whatever, I knew like, I don't think he would ever, like, I don't know, that's just the kind of person he is.

[#0145, 20, Hispanic female, not tested]

We also found examples in our sample where the respondent extended this reasoning to their partner's previous sexual partners.

"I guess maybe I knew a little bit about the girls he had dated. If that makes sense. He dated nice girls, and he dated them for a long time. He did not date a ton of girls. So I guess because I knew him before we dated. I don't know if that makes it OK?"

[#0086, 22, white female, not tested].

Consistent with other research which finds more consistent condom usage with casual partners compared to main partners (Peterson, Catania, Dolcini, Faigeles, 1993; Manning, Flanigan, Giordano & Longmore, 2009), male respondents in our sample also distinguished between these types of sexual partners with respect to the need for testing. As noted by Misovich and colleagues, the traits associated with a good relationship partner, also equate to lower HIV risk (Misovich et al., 1997).

Respondent: I was scared you know whenever I didn't use a condom so I would get tested…

Interviewer: What about that time made you scared?

Respondent: Probably because I met her at a bar…But I ain't a male whore…She was probably a whore.

Interviewer: Because she was at the bar?

Respondent: Because she met me and I had sex the same night, a one night stand.

[#0669, 23, Hispanic male, tested]

Partner's Past Behavior Puts Me at Risk

Other quotes reflect that individuals are aware that partners' prior behavior can put them at risk.

> "(X), he's been with a lot, I know that. And that was like a lot of the reason where um, I did get testing done..." [#1174, 21, Hispanic female, tested]
>
> "And the HIV and STD test I get done. And, just to make sure. Because my ex-girlfriend, I had found out after we split up, her sex history, and it was not good. She had been around the block more than once. And that made me feel a little bit funny. So I just get tested, just to make sure. It makes me feel better, knowing that neither one of us has something…" [#0079, 19, white male, tested]

As demonstrated above, the first respondent was cued to be tested as he had assessed that a woman who would have sex with him the same night must be a "whore." Further, he notes that this was a "one night stand" effectively closing off any possibility that she would be the type of woman with whom he would pursue a serious relationship. Our second respondent who is already invested in the relationship, makes it a point to specify that this exactly the kind of woman his partner is not. This interview also indicates another common theme among male respondents. Respondents in our sample who had been tested often cited lack of trust as a motivator for getting tested.

> "(Current partner), yeah me and (current partner) were the ones that went down and got tested together… Just I, I mean I knew who she was. I knew I mean I just, basically after me and (previous partner) you know after she kind of messed around on me like that, trust with women wasn't exactly high at the time so I just made sure we both went down there…" [#0473, 18, white male, tested]

"I get checked out like every month make sure I'm doing good because I don't know what you doing but I know what I'm doing, but what are you doing though?" [#1000, 20, black male, tested]

However, even those who have been tested, note that trust does build over time. Accordingly, this may reduce subsequent testing within the context of the relationship.

"I mean for a while there we had trust issues. Um, because I'm not a very trusting person, it took me a while to trust him…Um, I don't know because we were around each other like twenty-four/seven. So it was kind of like you know how could he be cheating, you know, he doesn't go anywhere, he's always here…I mean we literally, we didn't go anywhere without each other. We were attached at each other's hip for like six months straight. And then um, I don't' know, I just like, I need to let go, I need to let go. I need to always stop being negative. I need to stop always, you know saying he's doing this, saying he's doing that." [#912, 20, multiracial female, tested]

DISCUSSION

Our objectives included determining the prevalence of HIV testing within the context of a specific current or most recent relationship among a large, representative sample of heterosexual men and women; and identifying and comparing the individual-level, partner risk behaviors, relational-level, and sociodemographic factors that act as barriers or facilitators to HIV testing for men and women. As a supplement to these quantitative analyses, a final goal is to describe results of an analysis of in-depth qualitative interviews completed with a subset of the respondents who participated in the TARS study. Excerpts from the narrative data are included in order to further explore individuals' self-described reasons for getting/ not getting tested,

illuminating aspects of testing decisions that are more difficult to capture via typical survey methods. While the structured questions tap individuals' attitudinal and sexual risk behaviors, perceptions of partners' risks, and relationship dynamics associated with testing decisions, the unstructured interviews highlight ways in which young adults themselves give meaning to getting/not getting tested. The content of the in-depth interviews we elicited from a subset of the respondents generally accord with results of the quantitative analyses, but provide additional explanation for getting/not getting tested. Consistent with the quantitative results, women in this smaller subset are more likely to be tested than are men.

Summarizing our bivariate findings for women, it is both their own risky behavior as exemplified by lower condom efficacy, their lack of sexual exclusivity, and their higher number of lifetime sexual partners, *as well as* the partners' characteristics (partners' higher number of sexual partners, and the partner's lack of sexual exclusivity) that distinguish testers from non-testers. In contrast, for men, their own risky behavior and permissive attitudes, appear to be more salient in influencing whether men got tested. Additionally, women and men who get tested, on average, score higher when asked whether it hard to talk about sexual matters with their partners.

In the multivariate full model for women, partner's sexual non-exclusivity and sexual coercion, and pregnancy are positively and significantly associated with being tested for HIV. For men, when we include partner characteristics, along with the relationship dynamics and demographic controls, number of previous sex partners remains significantly associated with greater odds of being tested for HIV, as does pregnancy with partner. These results seem to suggest that men are less reliant on the relationship context to inform them on the need to be tested for HIV. Rather it appears men rely on their personal sexual history to inform them on the need to seek HIV testing. Further as several quotes from the qualitative data document: (a) a

number of men indicate that they use their girlfriends' negative status as a proxy for their own negative status; (b) individuals use folk wisdom to decide who is 'clean;' and (c) individuals are aware that partners' past behavior puts them at risk.

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Table 1a. Means and Percentages for All Unmarried Respondents (N = 704)

	Total Sample		HIV Test Since w/Partner		
	Mean / Freq.	SD	Yes (40.0%)		No (60.0%)
Respondent Characteristics					
Permissive attitudes	2.8	0.8	2.8		2.8
Condom efficacy	3.9	1.2	3.9		4.0
Not Sexually exclusive	20.9%		23.0%	***	19.6%
Lifetime number of sex partners	6.4	5.6	7.2	***	5.8
Partner Characteristics					
Partner's number of sex partners	3.8	3.8	4.6	***	3.3
Partner's sexual exclusivity	18.1%		21.6%	***	15.9%
Relationship Dynamics					
Passionate love	4.0	0.8	4.0	†	3.9
Trust	3.7	1.3	3.6	*	3.8
More power	30.2%		35.0%	***	27.2%
Difficulty communicating about sex	2.0	1.0	2.0		2.0
Sexual coercion	1.5	1.1	1.5		1.5
Pregnancy w/partner	16.2%		30.8%	***	7.1%
Demographic characteristics					
Age	20.5	1.7	20.7	**	20.4
Race					
White non-Hispanic	62.2%		47.1%	***	71.7%
Non-White/Hispanic	37.8%		52.9%	***	28.3%
Parent's Education					
High school graduate or less	44.6%		54.7%	***	38.2%
Some college/college degree	55.4%		45.3%	***	61.8%

Source: Toledo Adolescent Relationships Study

† p < .10. * p < .05. ** p < .01. *** p < .001.

Table 1b. Means and Percentages for All Unmarried Respondents by Gender (N = 704)

	HIV Test Since w/Partner (Female) (n =394)			HIV Test Since w/Partner (Male) (n = 310)		
	Yes (48.0%)		No (52.0%)	Yes (30.0%)		No (70.0%)
Respondent Characteristics						
Permissive attitudes	2.6		2.5	3.3	*	3.1
Condom efficacy	4.0	†	4.2	3.8		3.8
Not sexually exclusive	16.9%	***	13.2%	34.3%	***	24.7%
Lifetime number of sex partners	6.0	†	4.8	9.5	***	6.6
Partner Characteristics						
Partner's number of sex partners	5.5	**	4.1	2.7		2.6
Partner's sexual exclusivity	25.4%	***	12.6%	14.5%	**	18.6%
Relationship Dynamics						
Passionate love	4.1		4.1	3.9	†	3.8
Trust	3.5	**	3.9	3.9		3.8
More power	44.2%	***	34.1%	17.7%	**	21.6%
Difficulty communicating about sex	2.0	*	1.8	1.9	†	2.2
Sexual coercion	1.4		1.4	1.6		1.5
Pregnancy w/partner	36.1%	***	6.1%	20.7%	***	7.8%
Demographic characteristics						
Age	20.5		20.3	21.1	***	20.4
Race						
White non-Hispanic	48.3%	***	76.5%	44.9%	***	67.9%
Non-White/Hispanic	51.7%	***	23.5%	55.1%	***	32.1%
Parent's Education						
High school graduate or less	53.9%	***	40.1%	56.2%	***	36.0%
Some college/college degree	46.1%	***	59.1%	43.8%	***	64.0%

Source: Toledo Adolescent Relationships Study

Table 2a. Odds Ratios for the Logistic Regression of Tested for HIV Since with Partner Among Unmarried Female Respondents (N = 394)

	Model 1		Model 2		Model 3		Model 4		Model 5	
	e^b	*SE*	e^b	*SE*	e^b	*SE*	e^b	*SE*	e^b	*SE*
Intercept	0.08†	1.29	0.26	1.47	0.08†	1.31	0.06†	1.55	0.15	1.82
Respondent Characteristics										
Permissive attitudes			0.82	0.18					0.73	0.21
Condom efficacy			0.91	0.10					0.98	0.11
Not sexually exclusive			0.89	0.31					0.66	0.41
Lifetime number of sex partners			1.04	0.03					1.04	0.03
Perceived Partner Characteristics										
Partner's number of sex partners					1.05*	0.03			1.04	0.03
Partner not sexually exclusive					1.82*	0.29			2.29†	0.45
Relationship Dynamics										
Passionate love							1.30	0.17	1.21	0.18
Trust							0.81*	0.10	0.92	0.12
Power										
(Same/less power)										
More power							1.33	0.24	1.34	0.24
Difficulty communicating about sex							1.28†	0.13	1.23	0.13
Sexual coercion							0.75*	0.13	0.70**	0.14
Pregnancy w/partner							7.04***	0.35	7.10***	0.36
Demographic characteristics										
Age	1.12†	0.06	1.09	0.06	1.10	0.06	1.10	0.07	1.07	0.07
Race/Ethnicity										
(White non-Hispanic)										
Non-White/Hispanic	3.02***	0.22	2.97***	0.22	2.69***	0.22	2.09**	0.24	1.97**	0.25
Parent Education										
(12 years or less)										
More than 12 years	0.57**	0.21	0.58*	0.22	0.58*	0.22	0.67†	0.23	0.66†	0.24
Likelihood Ratio χ^2	39.84***		43.68***		49.31***		94.25***		103.30***	

Note: The omitted category is in parentheses. Source: Toledo Adolescent Relationship Study.

† p < .10. * p < .05. ** p < .01. *** p < .001.

Table 2b. Odds Ratios for the Logistic Regression of Tested for HIV Since with Partner Among Unmarried Male Respondents (N = 310)

	Model 1		Model 2		Model 3		Model 4		Model 5	
	e^b	*SE*	e^b	*SE*	e^b	*SE*	e^b	*SE*	e^b	*SE*
Intercept	0.00***	1.75	0.00**	1.96	0.00***	1.77	0.00***	1.99	0.00***	2.35
Respondent Characteristics										
Permissive attitudes			0.97	0.24					1.17	0.26
Condom efficacy			1.04	0.12					1.02	0.12
Not sexually exclusive			0.74	0.34					1.03	0.39
Lifetime number of sex partners			1.08**	0.03					1.08**	0.03
Perceived Partner Characteristics										
Partner's number of sex partners					1.01	0.05			0.96	0.06
Partner not sexually exclusive					0.68	0.38			0.69	0.46
Relationship Dynamics										
Passionate love							1.31	0.19	1.34	0.21
Trust							1.12	0.13	1.15	0.14
Power										
(Same/less power)										
More power							0.88	0.36	0.73	0.38
Difficulty communicating about sex							0.78	0.16	0.76	0.17
Sexual coercion							1.10	0.12	1.11	0.12
Pregnancy w/partner							2.45*	0.39	2.34*	0.41
Demographic characteristics										
Age	1.32***	0.08	1.28**	0.08	1.30**	0.08	1.31**	0.09	1.26**	0.09
Race/Ethnicity										
(White non-Hispanic)										
Non-White/Hispanic	2.66***	0.27	2.39**	0.29	2.71***	0.27	2.56***	0.28	2.09*	0.30
Parent Education										
(12 years or less)										
More than 12 years	0.47**	0.27	0.46**	0.27	0.46**	0.27	0.49*	0.28	0.49*	0.29

Likelihood Ratio χ^2	38.03***	47.60***	39.09***	50.09***	62.14***

Note: The omitted category is in parentheses. Source: Toledo Adolescent Relationship Study.

† p < .10. * p < .05. ** p < .01. *** p < .001.

Endnotes:

[i] Two additional response categories were provided in the original questionnaire so that respondents could indicate that they 1) never use birth control and 2) would never become intimate with someone before marriage. Only a small number of respondents (n = 22) provided one of these answers on one or more of the items. We coded these few responses as missing on the individual items.

[ii] Responses for Lifetime number of sex partners that exceeded 17 were capped at 18. These responses represent the 90th percentile of all responses. That is 90% of all responses fell below 18.

[iii] Responses for Partner's number of sex partners that exceeded 11 were capped at 12. These responses represent the 90th percentile of all responses. That is 90% of all responses fell below 12.