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Relationship Agreements and Willingness to Participate in Couples HIV Testing and Counseling Among Heterosexuals in the U.S.

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Abstract: Couples HIV testing and counseling (CHTC) has been used for more than 20 years in African settings and more recently among men who have sex with men in the United States, but little is known about willingness of heterosexuals in the U.S. to use CHTC. We conducted an online survey of heterosexuals in sexual relationships to assess willingness to use CHTC and willingness to discuss relationship agreements within a couples counseling session. We found moderate levels of willingness to use CHTC and somewhat higher levels of willingness to discuss relationship agreements in couples counseling session. The most frequently cited reason people were not willing was that they did not perceive themselves or their partners to be at risk for HIV. These results will be useful in planning for CHTC implementation for heterosexuals in the U.S.

Keywords: Heterosexual couples, HIV, HIV testing, relationship agreements.

INTRODUCTION

Couples HIV Testing and Counseling (CHTC) has been implemented among heterosexual couples in Africa for over 20 years [1, 2]. More recently, CHTC has been adapted for men who have sex with men (MSM) in the United States [3] and was shown to be safe and acceptable in this population [4]. The adapted CHTC testing service includes a discussion of sexual agreements by the couple, supported by the CHTC counselor [5]. CHTC can play an important role in ensuring that sexual partners are mutually aware of each other’s HIV serostatus and provide a safe and supportive venue for discussing sexual agreements (i.e., monogamy, outside partners allowed with conditions, outside partners allowed without conditions, or no agreement) and relationship expectations.

CHTC has been identified as a high-leverage HIV prevention intervention [6]. In studies of heterosexual couples in Africa, CHTC has been shown to reduce HIV and sexually transmitted infection (STI) incidence and increase condom usage among serodiscordant heterosexual couples [2]. In a 2003 study, serodiscordant couples in Zambia increased condom usage from fewer than 3% of sexual encounters to > 80% of encounters following CHTC [1]. More recently, the Centers for Disease Control and Prevention (CDC) has begun to support the implementation of CHTC for all couples in sexual relationships in the U.S., particularly those in high-risk groups or living in geographical areas with high HIV prevalence [7]. Transmission of HIV via heterosexual contact accounted for more than 27% of new cases in the U.S. in 2011 [8]; however, to date there are no published data on willingness to participate in CHTC among heterosexuals in the U.S.

Sexual agreements allow couples of any sexual orientation to be aware of and manage the risk of STIs within their relationship [9], but more is known about sexual agreements in male couples than in heterosexual couples. Studies about agreements in MSM have found open relationships in 25-50% or more of couples [10-12]. Online surveys of U.S. MSM have found estimates of monogamy of 56% [13] and 55% [14]. In a study of MSM couples in San Francisco, 45% reported an agreement of monogamy [10]. However, there are few corresponding data on the extent to which heterosexual couples have agreements, and the types of agreements heterosexual couples report. In a sample of young-adult heterosexual couples from two U.S. cities determined to be at increased risk for HIV based on self-reported risk behaviors (e.g., concurrent sexual relationships), Warren et al. [15] found that 52% of couples had an agreement of monogamy – similar to the level of self-reported monogamy observed in some studies of MSM [12]. In a sample of primarily black and Hispanic heterosexual couples from four U.S. cities, men were more likely to be aware of their partner’s concurrent sexual partners than were women [16]. CHTC provides a mechanism to potentially reduce these disparities in awareness and increase discussion of agreements.

The goals of the current study were to describe different types of relationship agreements among heterosexual couples in the U.S., and to evaluate the willingness of couples to participate in CHTC and to discuss relationship agreements with a counselor during a CHTC session. Understanding these issues will be critical to the success of the broad scale-up of CHTC in the U.S.
METHODS

Participant Recruitment

Participants were recruited via online advertisements and social media posts from December 2012 through September 2013. Advertisements were placed on Facebook targeting men and women in relationships who indicated on their profile page that they were interested in the opposite sex. Social media posts were placed on Twitter and Facebook by celebrities, bloggers, and other high-profile groups (e.g., NAACP, Greater than AIDS). Because black heterosexuals are disproportionately affected by the HIV epidemic in the U.S. [8], we sought to oversample black respondents by focusing our advertising efforts on celebrities and groups that have a large black audience. Respondents were eligible for the survey if they were at least 18 years old, had sex in the previous 12 months, and their most recent sex partner was of the opposite sex. Respondents completed the survey anonymously.

This study was determined to be exempt by the Emory University Institutional Review Board (IRB00062207).

Survey Methods

The survey was hosted on a HIPPA-compliant server by SurveyGizmo (Boulder, CO) and could be completed in 5-10 minutes. No incentives were provided for completion of the survey. Demographic characteristics included gender, age, race/ethnicity, state of residence, marital status, and educational attainment. Relationship status included whether the respondent had a main partner (e.g., someone they feel committed to above all others), the type of partner with whom they most recently had sex (main or casual), and how long it had been since they last had sex with that partner. Relationship agreement questions included agreement type (monogamy, outside partners allowed with conditions, outside partners allowed without conditions, or no agreement) and how the agreement was formed (either discussed or believed to be mutually understood without discussion). If the reported agreement allowed outside partners with conditions then respondents were asked to indicate up to four conditions they and their partner had agreed on. Conditions were grouped into thematic categories (e.g., must use protection, threesomes only) post hoc by the authors. If an agreement towards monogamy was reported, then respondents were asked whether or not they had broken the agreement in the past 12 months and, if so, if they told their partner about the broken agreement.

Willingness questions about CHTC were preceded by a short description of CHTC as described in a previous study [17]; respondents were then asked how likely they were to be HIV tested with a partner in the next 12 months, and the reasons why they were or were not likely to be tested. Respondents were also asked to indicate if they would be willing to discuss relationship agreements with a counselor during a CHTC session. Finally, respondents were asked whether they had ever been tested for HIV and, if so, when their most recent test was and the test result.

Data Analysis

Univariate statistics were calculated to examine the relationship between demographic and relationship characteristics and willingness to participate in CHTC. All responses were stratified by sex of the respondent in order to examine sex-based differences in demographics and relationship characteristics. Categorical variables were examined using Fisher exact tests and the continuous variable (age) was examined using a Mann-Whitney median test. All analyses were performed in SAS 9.3 (Cary, NC).

RESULTS

A total of 868 respondents clicked-through and initiated the survey. Of these, 191 (22%) did not meet eligibility criteria, and 151 (17%) did not finish the survey resulting in 526 (61%) completed surveys. Of the completed surveys, 194 (37%) were recruited from Facebook advertisements, and 180 (34%) were recruited from other social media posts. The remaining surveys (N = 152, 29%) were from other sources (e.g., special interest websites) or were missing source data. Because of the varied sources used for participant recruitment, we are unable to estimate the total number of impressions of the different advertisements and social media posts. That is, we are unable to estimate how many times the advertisements for the survey were seen by potential respondents.

Demographic and relationship characteristics stratified by gender are presented in Table 1. Respondents were mostly female (62%), white (54%) or black (25%), and had at least some college education or higher (87%). Black respondents were overrepresented compared to the general population of the U.S., which is approximately 13% black [18], reflecting efforts to oversample black participants. More than half of respondents reported being married or living with a partner. Most (95%) reported opposite-sex partners only. Female participants were significantly more likely to be younger (p = 0.002), black (p < 0.001), more educated (p = 0.032), and unmarried (p < 0.001). With the exception of Delaware and Hawaii, each state in the U.S. was represented in the sample.

Most respondents (89%) reported having a main partner, that their most recent partner was a main partner (88%), and that they had had sex within the past month (81%; Table 1).

Agreement Types

Monogamy was the most common relationship agreement, reported by 71% of respondents overall. Outside partners were explicitly permitted in 12% of relationships, and 17% reported no agreement. Women were significantly more likely to report monogamy than men (p = 0.005). Among participants reporting monogamy, 9% reported breaking their agreement within the past year or since the agreement was formed, whichever was more recent (data not shown in tables). No difference was observed between men and women respondents with regard to breaking agreements of monogamy or disclosing a broken agreement to their partner.

Among the 43 respondents reporting agreements that permitted outside partners with conditions, the most frequent conditions were use of condoms or other protection (35%), honesty and openness (33%), and threesomes or other group sex involving both partners (28%). Other conditions included no sex with anyone close to the couple (e.g., co-workers or friends; 9%), only specific types of sex permitted (e.g., oral sex; 5%), both partners must meet the outside partner (5%),
Table 1. Demographic and relationship characteristics and willingness to participate in CHTC overall and by gender.

<table>
<thead>
<tr>
<th>Demographic and Relationship Characteristics</th>
<th>Total (N = 526)</th>
<th>Male (N = 198)</th>
<th>Female (N = 328)</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Age [Years; Median (IQR)]</strong>*</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>30 (16)</td>
<td>33 (17)</td>
<td>29 (14)</td>
<td>0.002</td>
</tr>
<tr>
<td>*<em>Race/Ethnicity</em></td>
<td></td>
<td></td>
<td></td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Asian</td>
<td>17 (3)</td>
<td>7 (4)</td>
<td>10 (3)</td>
<td></td>
</tr>
<tr>
<td>Black</td>
<td>129 (25)</td>
<td>34 (17)</td>
<td>95 (29)</td>
<td></td>
</tr>
<tr>
<td>Hispanic</td>
<td>33 (6)</td>
<td>12 (6)</td>
<td>21 (6)</td>
<td></td>
</tr>
<tr>
<td>White</td>
<td>282 (54)</td>
<td>129 (65)</td>
<td>153 (47)</td>
<td></td>
</tr>
<tr>
<td>Other1</td>
<td>65 (12)</td>
<td>16 (8)</td>
<td>49 (15)</td>
<td></td>
</tr>
<tr>
<td>*<em>Education</em></td>
<td></td>
<td></td>
<td></td>
<td>0.032</td>
</tr>
<tr>
<td>High School or Less2</td>
<td>68 (13)</td>
<td>27 (14)</td>
<td>41 (13)</td>
<td></td>
</tr>
<tr>
<td>Some College</td>
<td>148 (28)</td>
<td>49 (25)</td>
<td>99 (30)</td>
<td></td>
</tr>
<tr>
<td>Associate Degree</td>
<td>58 (11)</td>
<td>32 (16)</td>
<td>26 (8)</td>
<td></td>
</tr>
<tr>
<td>Bachelor's Degree</td>
<td>150 (29)</td>
<td>58 (29)</td>
<td>92 (28)</td>
<td></td>
</tr>
<tr>
<td>Graduate Degree</td>
<td>102 (19)</td>
<td>32 (16)</td>
<td>70 (21)</td>
<td></td>
</tr>
<tr>
<td>*<em>Marital Status</em></td>
<td></td>
<td></td>
<td></td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Married</td>
<td>199 (38)</td>
<td>98 (50)</td>
<td>101 (31)</td>
<td></td>
</tr>
<tr>
<td>Living with Partner</td>
<td>90 (17)</td>
<td>27 (14)</td>
<td>63 (19)</td>
<td></td>
</tr>
<tr>
<td>Divorced</td>
<td>44 (8)</td>
<td>15 (8)</td>
<td>29 (9)</td>
<td></td>
</tr>
<tr>
<td>Unmarried1</td>
<td>192 (37)</td>
<td>57 (29)</td>
<td>135 (41)</td>
<td></td>
</tr>
<tr>
<td>Missing</td>
<td>1 (0)</td>
<td>1 (1)</td>
<td>0 (0)</td>
<td></td>
</tr>
<tr>
<td><strong>Gender of Partners</strong></td>
<td></td>
<td></td>
<td></td>
<td>0.302</td>
</tr>
<tr>
<td>Opposite Sex Only</td>
<td>500 (95)</td>
<td>191 (96)</td>
<td>309 (94)</td>
<td></td>
</tr>
<tr>
<td>Both Men and Women</td>
<td>26 (5)</td>
<td>7 (4)</td>
<td>19 (6)</td>
<td></td>
</tr>
<tr>
<td><strong>Has Main Partner</strong></td>
<td></td>
<td></td>
<td></td>
<td>0.566</td>
</tr>
<tr>
<td>Yes</td>
<td>465 (89)</td>
<td>172 (88)</td>
<td>293 (89)</td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>58 (11)</td>
<td>24 (12)</td>
<td>34 (10)</td>
<td></td>
</tr>
<tr>
<td><strong>Most Recent Partner Type</strong></td>
<td></td>
<td></td>
<td></td>
<td>0.220</td>
</tr>
<tr>
<td>Main</td>
<td>457 (88)</td>
<td>167 (85)</td>
<td>290 (89)</td>
<td></td>
</tr>
<tr>
<td>Casual</td>
<td>65 (12)</td>
<td>29 (15)</td>
<td>36 (11)</td>
<td></td>
</tr>
<tr>
<td><strong>Time of Last Sex</strong></td>
<td></td>
<td></td>
<td></td>
<td>0.175</td>
</tr>
<tr>
<td>Within the past month</td>
<td>426 (81)</td>
<td>161 (81)</td>
<td>265 (81)</td>
<td></td>
</tr>
<tr>
<td>1-2 months ago</td>
<td>43 (8)</td>
<td>11 (6)</td>
<td>32 (10)</td>
<td></td>
</tr>
<tr>
<td>3-6 months ago</td>
<td>40 (8)</td>
<td>19 (10)</td>
<td>21 (6)</td>
<td></td>
</tr>
<tr>
<td>7-12 months ago</td>
<td>15 (3)</td>
<td>7 (4)</td>
<td>8 (2)</td>
<td></td>
</tr>
<tr>
<td>*<em>Agreement Type</em></td>
<td></td>
<td></td>
<td></td>
<td>0.005</td>
</tr>
<tr>
<td>Monogamy</td>
<td>349 (71)</td>
<td>118 (64)</td>
<td>231 (75)</td>
<td></td>
</tr>
<tr>
<td>Outside partners, with conditions</td>
<td>43 (9)</td>
<td>21 (11)</td>
<td>22 (7)</td>
<td></td>
</tr>
<tr>
<td>Outside partners, no conditions</td>
<td>15 (3)</td>
<td>11 (6)</td>
<td>4 (1)</td>
<td></td>
</tr>
<tr>
<td>No agreement</td>
<td>84 (17)</td>
<td>35 (19)</td>
<td>49 (16)</td>
<td></td>
</tr>
</tbody>
</table>
or some other condition (33%). Conditions in the ‘Other’ category were reported by only one respondent and included conditions such as the encounter must be recorded on video and all communication (e.g., text messages) with an outside partner must be kept (data not shown).

The method of agreement formation differed across agreement types \( p = 0.03; \) data not shown in tables). Most (65%) respondents reporting monogamy talked directly with their partner about their agreement, but 34% reported that the agreement was understood (but not discussed). The trend was similar among those allowing outside partners with conditions: 83% reported discussing the agreement directly and 17% said that it was understood. Among those allowing outside partners without conditions, 60% reported that the agreement was understood and 40% had discussed it directly with their partner.

### HIV Testing History

Overall, 66% of respondents reported having ever been tested for HIV (Table 1). Of these, 50% had been tested within the previous year (data not shown). Women were more likely to have ever been tested than men \( p < 0.001 \) and to have tested more recently than men \( p = 0.048 \). Self-reported HIV prevalence among those who had been tested was 4% (data not shown).

### Willingness to Participate in CHCTC Sessions

Overall, more respondents reported willingness to discuss relationship agreements during a couples counseling session (68%) than willingness to participate in CHCTC (47%; Table 1). Women were more likely than men to report willingness to discuss agreements \( p = 0.021 \) or participate in CHCTC \( p < 0.001 \).

Table 2 presents select demographic and relationship characteristics stratified by reported willingness to participate in CHCTC. 507 of the 526 survey respondents provided responses to willingness questions. There were no differences in willingness to participate in CHCTC based on whether a main partner was reported, the most recent type of partner, time of last sex, type of agreement, whether the participant had broken an agreement of monogamy, or whether a broken agreement of monogamy had been disclosed. There was greater willingness to participate in CHCTC among women \( p < 0.001 \), those who had ever been tested for HIV \( p < 0.001 \), and those willing to discuss relationship agreements in a couples HIV counseling session \( p < 0.001 \).

Table 3 presents the reasons that respondents cited for being willing or unwilling to participate in a CHCTC session. The most frequently reported reasons that respondents would be willing to participate in a CHCTC session were that they would know each other’s serostatus, that it would strengthen...
them as a couple, and to support each other. The most frequently reported reasons that respondents were not willing to participate in a CHTC session were that the respondent did not need to be tested, was in a monogamous relationship, or they or their partner are not at risk for HIV.

**DISCUSSION**

In a sample of Internet-using heterosexuals in the U.S., we observed high levels of sexual agreements that included monogamy and modest levels of willingness to use a couples testing service for HIV testing. We further observed that
there was a substantial proportion of agreements about monogamy that were understood but not explicitly discussed. These data are useful in considering the potential role of CHTC in HIV testing services for heterosexual couples in the U.S.

Men and women respondents differed with respect to the types of relationship agreements reported, with women being more likely to report monogamy. Rates of monogamy were higher than those reported among MSM or among high-risk heterosexuals in other studies [11, 12, 15]. There were low rates of broken agreements among those reporting monogamy compared to estimates published in other studies.

There were low rates of broken agreements among those reporting monogamy compared to estimates published in other studies. For example, women have been found to use condoms inconsistently in perceived monogamous relationships [20]; if monogamy is not agreed upon by both partners then HIV risk may be increased.

Condom use was only reported as a condition among 35% of participants reporting an agreement of outside partners with conditions. If this reflects the prevalence of condom use within such partnerships then this could be an important source of HIV and STI transmission. Future research should address this question.

Almost half of respondents indicated that they would be willing to participate in a CHTC session with a further 17% not sure if they would or not. These levels of willingness to use CHTC are lower than a recent survey of MSM recruited through the internet and administered the same questions that found 81.5% of respondents were willing to participate in CHTC [17]. Willingness to discuss relationship agreements was much higher: two thirds reported that they would be
willing to discuss relationship agreements in a couples counseling session, with a further 18% not sure if they would be willing to or not. That is, there was greater reported willingness to attend couples counseling session to discuss relationship agreements than to perform HIV testing with a partner. The relatively low willingness to participate in a CHTC session likely reflects the low perceived risk of HIV among respondents. Notably, participants who reported HIV testing in the past were more willing to participate in a CHTC session. CHTC interventions targeting heterosexual couples might see greater response rates if the intervention is targeted to high-risk heterosexuals or framed in terms of couples counseling and relationship agreements rather than HIV testing and counseling. There was some, but not perfect, overlap in willingness to participate in CHTC and willingness to discuss relationship agreements. This suggests that couples might respond to the service differently depending on how it is framed.

Differences were also observed between men and women with regard to willingness to participate in a CHTC session and willingness to discuss relationship agreements with a counselor. Men were significantly less likely to report willingness to participate in either activity. Men and women did not differ in perceived risk for HIV, so this might reflect a general reluctance to discuss relationship dynamics among male respondents. Women were more likely than men to indicate that the opportunity to discuss rules for the relationship as a reason that they would attend a CHTC session. Most respondents that said that they probably would or definitely would not participate in a CHTC session reported that they did not believe themselves to be at risk for HIV. These reasons for willingness or lack of willingness are very similar to the reasons reported by MSM in a similar online survey conducted in 2009 [17].

Our study has limitations. The survey was completed anonymously, so we did not have the ability to check for duplicate responses through comparisons of IP addresses [21]. There were no incentives offered for completion, however, so it is unlikely that someone would respond more than once. There are limits to the generalizability of these results. The study population was a convenience sample recruited from a variety of sources and it is difficult to define a specific source population. The sample is also highly educated, has a self-reported HIV prevalence much higher than the general US population prevalence [22], had a higher prevalence of ever testing for HIV compared to the general US population [23], had higher self-reported prevalence of non-monogamy compared to previous studies [24, 25], and is not representative of heterosexual couples in the U.S.

Overall, the results of this study suggest that some heterosexual couples in the U.S. are willing to participate in CHTC and to discuss relationship agreements during a couples counseling session. The greater willingness to discuss agreements than to participate in HIV counseling and testing suggests that for some couples the way that the service is framed will have an effect on utilization. Despite the limitations in representativeness of this exploratory analysis of willingness to use CHTC, the results provide an initial view of interest among our respondents. Future efforts should include qualitative studies, especially with persons in high-risk couples, to gain a fuller understanding of the motivators and barriers to using a couples testing service. As such an understanding emerges, further studies of willingness in more representative populations may be indicated.

CONFLICT OF INTEREST
The authors confirm that this article content has no conflict of interest.

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