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Journal Title: Open AIDS Journal
Volume: Volume 8, Number 1
Publisher: Bentham Open | 2014, Pages 50-57
Type of Work: Article | Final Publisher PDF
Publisher DOI: 10.2174/1874613601408010050
Permanent URL: <https://pid.emory.edu/ark:/25593/msvv7>

Final published version: <http://dx.doi.org/10.2174/1874613601408010050>

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Accessed November 25, 2020 9:45 PM EST

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 a 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.

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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.

	Total (N = 526)	Male (N = 198)	Female (N = 328)	p-value
	30 (16)	33 (17)	29 (14)	0.002
Age [Years; Median (IQR)]*	N (%)	N (%)	N (%)	
Race/Ethnicity*				<0.001
Asian	17 (3)	7 (4)	10 (3)	
Black	129 (25)	34 (17)	95 (29)	
Hispanic	33 (6)	12 (6)	21 (6)	
White	282 (54)	129 (65)	153 (47)	
Other ¹	65 (12)	16 (8)	49 (15)	
Education*				0.032
High School or Less ²	68 (13)	27 (14)	41 (13)	
Some College	148 (28)	49 (25)	99 (30)	
Associate Degree	58 (11)	32 (16)	26 (8)	
Bachelor's Degree	150 (29)	58 (29)	92 (28)	
Graduate Degree	102 (19)	32 (16)	70 (21)	
Marital Status*				<0.001
Married	199 (38)	98 (50)	101 (31)	
Living with Partner	90 (17)	27 (14)	63 (19)	
Divorced	44 (8)	15 (8)	29 (9)	
Unmarried ³	192 (37)	57 (29)	135 (41)	
Missing	1 (0)	1 (1)	0 (0)	
Gender of Partners				0.302
Opposite Sex Only	500 (95)	191 (96)	309 (94)	
Both Men and Women	26 (5)	7 (4)	19 (6)	
Has Main Partner				0.566
Yes	465 (89)	172 (88)	293 (89)	
No	58 (11)	24 (12)	34 (10)	
Most Recent Partner Type				0.220
Main	457 (88)	167 (85)	290 (89)	
Casual	65 (12)	29 (15)	36 (11)	
Time of Last Sex				0.175
Within the past month	426 (81)	161 (81)	265 (81)	
1-2 months ago	43 (8)	11 (6)	32 (10)	
3-6 months ago	40 (8)	19 (10)	21 (6)	
7-12 months ago	15 (3)	7 (4)	8 (2)	
Agreement Type*				0.005
Monogamy	349 (71)	118 (64)	231 (75)	
Outside partners, with conditions	43 (9)	21 (11)	22 (7)	
Outside partners, no conditions	15 (3)	11 (6)	4 (1)	
No agreement	84 (17)	35 (19)	49 (16)	

(Table 1) contd.....

	Total (N = 526)	Male (N = 198)	Female (N = 328)	p-Value
	30 (16)	33 (17)	29 (14)	0.002
	N (%)	N (%)	N (%)	
Broken Agreement⁴				0.840
Yes	30 (9)	9 (8)	21 (9)	
No	312 (91)	105 (92)	207 (91)	
Disclosed Broken Agreement to Partner				0.597
Yes	7 (28)	2 (40)	5 (25)	
No	18 (72)	3 (60)	15 (75)	
Ever Tested for HIV*				<0.001
Yes	314 (66)	99 (56)	215 (72)	
No	162 (34)	77 (44)	85 (28)	
Willing to Participate in CVCT*				<0.001
Yes	238 (47)	66 (35)	172 (54)	
No	169 (33)	69 (37)	100 (31)	
Don't Know	85 (17)	44 (23)	41 (13)	
Prefer not to answer	15 (3)	10 (5)	5 (2)	
Willing to Talk About Agreements in Couples Counseling Session*				0.021
Yes	321 (68)	105 (60)	216 (72)	
No	66 (14)	29 (17)	37 (12)	
Don't Know	85 (18)	40 (23)	45 (15)	

p-values for differences between men and women are from Fisher exact tests for categorical variables and Mann-Whitney median tests for the continuous variable; *p<.05; ¹Includes 8 people who declined to respond and 6 with missing responses; ²Includes 1 missing response; ³Single category includes one widower; ⁴Within previous 12 months, only among those with agreement of monogamy.

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 CHTC Sessions

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

Table 2 presents select demographic and relationship characteristics stratified by reported willingness to participate in CHTC. 507 of the 526 survey respondents provided responses to willingness questions. There were no differences in willingness to participate in CHTC 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 CHTC 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 CHTC session. The most frequently reported reasons that respondents would be willing to participate in a CHTC session were that they would know each other's serostatus, that it would strengthen

Table 2. Select demographic and relationship characteristics overall and by willingness to participate in a CHTC session.

	Willing to Participate in CHTC					p-Value
	Total (N = 507)	Yes (N = 238)	No (N = 169)	Don't Know (N = 85)	Prefer Not to Answer (N = 15)	
	N (%)	N (%)	N (%)	N (%)	N (%)	
Gender*						<0.001
Male	189 (37)	66 (28)	69 (41)	44 (52)	10 (67)	
Female	318 (63)	172 (72)	100 (59)	41 (48)	5 (33)	
Has Main Partner						
Yes	451 (89)	206 (87)	154 (92)	78 (92)	13 (87)	0.241
No	54 (11)	32 (13)	13 (8)	7 (8)	2 (13)	
Most Recent Partner Type						0.298
Main	442 (88)	207 (87)	145 (86)	78 (93)	12 (80)	
Casual	62 (12)	30 (13)	23 (14)	6 (7)	3 (20)	
Time of Last Sex						0.136
Within the past month	412 (81)	181 (76)	146 (87)	74 (87)	11 (73)	
1-2 months ago	41 (8)	24 (10)	11 (7)	5 (6)	1 (7)	
3-6 months ago	38 (8)	25 (11)	7 (4)	4 (5)	2 (13)	
7-12 months ago	15 (3)	8 (3)	4 (2)	2 (2)	1 (7)	
Agreement Type						0.266
Monogamy	337 (71)	144 (66)	118 (74)	65 (78)	10 (71)	
Outside partners, with conditions	41 (9)	27 (12)	9 (6)	4 (5)	1 (7)	
Outside partners, no conditions	15 (3)	6 (3)	5 (3)	3 (4)	1 (7)	
No agreement	81 (17)	41 (19)	27 (17)	11 (13)	2 (14)	
Broken Agreement¹						0.082
Yes	26 (8)	17 (12)	5 (4)	3 (5)	1 (10)	
No	308 (92)	126 (88)	113 (96)	60 (95)	9 (90)	
Disclosed Broken Agreement to Partner						0.249
Yes	7 (30)	6 (35)	0 (0)	0 (0)	1 (100)	
No	16 (70)	11 (65)	4 (100)	1 (100)	0 (0)	
Ever Tested for HIV						<0.001
Yes	314 (66)	184 (81)	78 (49)	46 (58)	6 (50)	
No	162 (34)	42 (19)	80 (51)	34 (43)	6 (50)	
Willing to Talk About Agreements in Couples Counseling Session*						<0.001
Yes	321 (68)	164 (73)	101 (64)	55 (71)	1 (8)	
No	66 (14)	28 (12)	28 (18)	5 (6)	5 (42)	
Don't Know	85 (18)	34 (15)	28 (18)	17 (22)	6 (50)	

p-values for differences between men and women are from Fisher exact tests; *p<.05; ¹ Within previous 12 months, only among those with agreement of monogamy. Denominators may not add up to totals due to missing numbers.

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

Table 3. Reported reasons respondents would or would not be willing to participate in a CHTC session.

	N ¹	%
Reasons why Participations Would Likely Use CHTC²		
We would both know each other's HIV status	161	68
To support each other	141	59
Would strengthen us as a couple	119	50
I would be confident that I knew his or her HIV status	100	42
Would give us a chance to talk about rules for our relationship	78	33
To protect myself if my partner is positive	75	32
To protect my partner if I am positive	67	28
It would help to have a counselor if one of us was positive	58	24
If we were both negative, we could stop using condoms	24	10
Some other reason	12	5
Reasons why Participants Would Not Likely Use CHTC³		
Don't need to be tested	100	59
I am in a monogamous relationship	92	54
I am not at risk for HIV	60	36
My partner is not at risk for HIV	56	33
I would rather learn my own status first, then tell my partner	38	22
Some other reason	25	15
The counselor could ask me questions that I wouldn't want to answer with my partner there	17	10
My partner would not want to be tested together, even if I wanted to be tested together	12	7
Would be hard to schedule time together	12	7
I don't want my partner to know my HIV status	5	3
Afraid my partner might be positive	3	2
Afraid I might be positive	4	2
I don't want to know my partner's HIV status	0	0

¹Participants were instructed to select all that apply, so multiple responses were allowed.

²Among those who reported being somewhat or very likely to use CHTC.

³Among those who reported being somewhat or very unlikely to use CHTC.

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. Nine percent of participants reporting agreements of monogamy reported a relationship with an outside partner, compared to twenty percent in another study of heterosexual adults [19]. We did not recruit couples to complete the survey, so we are unable to assess intra-relationship agreement about agreements. It is notable, however, that one third of those reporting monogamy indicated that their agreement was understood but not discussed. Lack of

common understanding of agreements has clear implications for HIV and STD risk. 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 not 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.

ACKNOWLEDGEMENTS

The authors wish to thank David Sperber at Cyclogram for assistance with participant recruitment and Joshua Betts for assistance with data analysis. This research was funded by the MAC AIDS Fund and facilitated by the Center for AIDS Research at Emory University (P30AI050409).

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Received: October 8, 2014

Revised: November 11, 2014

Accepted: November 13, 2014

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