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### Authors

Gamarel, Kristi E

Stein, Ellen S

Correll-King, Wesley M

et al.

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## A cautionary tale: Remote research procedures for couples-based HIV prevention intervention studies with transgender women and their partners in the United States

Kristi E Gamarel<sup>1</sup>, Ellen S. Stein<sup>2</sup>, Wesley M. King<sup>1</sup>, Breonna McCree<sup>2</sup>, Jack Johnson<sup>2</sup>, Lance M. Pollack<sup>2</sup>, Torsten B. Neilands<sup>2</sup>, Mallory O. Johnson<sup>2</sup>, Don Operario<sup>3</sup>, Jae M. Sevelius<sup>4</sup>

<sup>1</sup>Department of Health Behavior and Health Equity, University of Michigan School of Public Health, Ann Arbor, MI USA

<sup>2</sup>Department of Medicine, University of California, San Francisco, San Francisco, CA USA

<sup>3</sup>Department of Behavioral, Social, and Health Education Sciences, Emory University Rollins School of Public Health, Atlanta, GA USA

<sup>4</sup>Department of Psychiatry, Columbia University, New York, NY USA

### Abstract

This study investigates baseline differences in couples enrolled in the “It Takes Two” HIV prevention intervention for transgender women and their partners, comparing in-person participation pre-COVID-19 and digital participation during the pandemic. Among 52 couples (40% in-person, 60% digital), bivariate analyses revealed that in-person participants were more likely to be African American, have cisgender male partners, report higher unemployment, incarceration histories, greater relationship stigma, and lower relationship quality. The findings highlight the limitations of digital modalities in engaging transgender women of color and those with structural vulnerabilities. The study emphasizes that reliance on digital methods in HIV research jeopardizes the inclusion of those lacking technological access and literacy, especially communities disproportionately impacted by HIV. Researchers must incorporate hybrid or in-person options and engage communities to ensure equity and inclusion, thus overcoming barriers and ensuring comprehensive population reach in HIV prevention studies.

### Keywords

transgender women; couples-based HIV prevention intervention; online studies

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**Corresponding Author:** Kristi E. Gamarel, PhD, EdM, Associate Professor, Department of Health Behavior and Health Education, University of Michigan School of Public Health, 1415 Washington Heights, Ann Arbor, Michigan 48109-2029, kgamarel@umich.edu.

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**Ethical approval:** All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

**Informed consent:** Informed consent was obtained from all individual participants included in the study.

## Introduction

Over the past decade, there has been a substantial growth in observational and intervention research focused on understanding and addressing the persisting inequities across the HIV prevention and care continua among transgender (trans) women. For several decades, community-engaged research projects intending to reach trans women who experience structural vulnerabilities have relied on in-person study procedures developed through strong local community partnerships [1]. Increasingly, HIV clinical trials are using digital study modalities, which includes partial to full integration of technology into intervention delivery and/or data collection methods [2]. Researchers attempting digital HIV prevention clinical trials with trans communities have had limited success at enrolling and engaging trans women who are most heavily impacted by the HIV epidemic [3]. During the COVID-19 pandemic, many community-engaged HIV prevention research projects with trans women that were originally designed to be solely in-person were forced to pivot to technology-mediated research procedures for research continuity [1, 4]. However, scientists have expressed concern over the implications of adopting exclusively digital research procedures for participant recruitment, assessment, and program delivery with historically marginalized communities [2, 5–7]. We contribute insights into this issue from a recent HIV intervention study with trans communities in California.

Several studies have documented that relationship dynamics between trans women and their primary partners influence engagement in HIV prevention [8–10]. As a result, there has been growing interest in couples-based HIV prevention interventions, including digital clinical intervention trials, that are inclusive of trans populations [11, 12]. To our knowledge, *It Takes Two* (T2) is the first couples-based HIV prevention intervention specifically designed with trans women and their partners. T2 was developed as an in-person intervention and addresses partner dynamics (e.g., communication, shared goals) that can impede engagement in HIV prevention strategies while also addressing the nuanced types of stigma trans women may experience from their cisgender male partners [13]. Further, T2 intends to improve cisgender male partners' use of HIV prevention strategies given the importance and challenges of engaging them in research and service efforts [14]. In a pilot trial, T2 demonstrated acceptability, feasibility, and promise in reducing condomless sex among trans women and their cisgender male partners [15] and, based on those pilot results, is now included in the CDC's Compendium of Evidence-Based Intervention and Best Practices for HIV Interventions [16].

The T2 efficacy trial began in November 2019, and pivoted to a fully digital clinical trial design in March 2020 due to the COVID-19 pandemic. This brief report explores baseline differences in study modality. Specifically, we examine differences between couples recruited and enrolled into the fully in-person study design prior to the COVID-19 pandemic compared to those enrolled into the fully digital study design during the COVID-19 pandemic.

## Methods

### Participants and Procedures

Participants were enrolled in *It Takes Two* (T2), a clinical trial designed to test the efficacy of a couples-based HIV prevention intervention for trans women and their partners. Details of the study objectives and procedures have been previously published [17]. The current study is a secondary analysis of baseline data from 52 enrolled couples ( $N=104$  individuals). We focus on differences in the sample profiles of participants who were recruited, enrolled and followed exclusively in-person versus those who were recruited, enrolled and followed using fully digital study procedures.

The eligibility criteria for couples included both partners reporting being age 18 or older; in a self-reported primary partnership with each other for at least three months; self-reporting penetrative anal or vaginal sex with the primary partner in the last six months; able to provide informed consent; and English-speaking. At least one individual in each couple must: 1) have had condomless sex with any partner in the last six months; and 2) be a trans woman. Couples of any HIV status were eligible for the study.

To determine eligibility, potential participants underwent a brief screening procedure in which staff provided information about the study and asked a series of questions. For those who were interested in participating, rapid HIV antibody testing of each member of the couple was conducted to verify HIV status. Each participant then completed an enrollment visit including informed consent procedures and completion of a baseline survey programmed in REDCap.

Study recruitment and enrollment began in November 2019 using in-person procedures that included outreach to local community organizations, posting of recruitment flyers, and word-of-mouth recruitment via social networks of study staff. All study visits occurred in-person at an accessible field site in the Tenderloin District of San Francisco. In March 2020 due to the COVID-19 pandemic and related shutdown, all study activities were paused. All study operations (outreach, enrollment, assessment, counseling, retention, and follow-up) were adjusted to fully digital modalities to ensure research continuity. Because these adjustments permitted geographic flexibility (participants did not have to travel to attend in-person activities), study eligibility criteria were expanded to include trans women and their partners residing anywhere in the state of California rather than only the San Francisco Bay Area. In January 2021, fully digital procedures were initiated including all data collection and intervention delivery procedures. Digital recruitment occurred through social media advertisements on Facebook and Instagram and sending flyers to organizations. All study procedures, including protocol modifications to accommodate digital activities, were reviewed and approved by the Institutional Review Board (IRB) at the University of California, San Francisco.

Prior to the COVID-19 pandemic, study eligibility, enrollment, and baseline visits took place with both members of the couple present, interacting face-to-face with members of the research team. In contrast, during digital study operation, most interactions between members of each couple and study staff occurred via email communication. Digital links

to self-administer a baseline survey were provided to each member of the couple to complete separately. Participants were mailed rapid HIV antibody tests. Each member of the couple separately completed informed consent procedures via Zoom, and couples who were randomized to the intervention were invited to attend counseling sessions together via Zoom.

## Measures

**Sociodemographic characteristics.**—Participants were asked to report their age, relationship length, race/ethnicity, HIV status, partner gender identity, education, income, housing status, history of arrest and incarceration, and whether they had a sexual agreement. *Relationship length* was calculated as the mean length of time each couple member reported being in a sexual relationship in years. *HIV status* of participants was confirmed with a rapid HIV test or with documentation of a valid photo ID with the name matching either an antiretroviral therapy (ART) medication bottle(s) or a positive HIV test from a provider, which was used to confirm HIV status as eligibility criteria for the study. *Race* was combined into the following categories: African American, Asian, Indigenous, White, Multiracial, and Other. *Ethnicity* was coded as Latinx or Other. Partner gender was categorized as cisgender male, cisgender female, trans woman, trans man, or nonbinary. *Education* had 5 levels: less than high school, high school graduate, some college, college graduate, and any graduate school. Participants were considered *employed* if they reported having a part- or full-time job. *Income* was dichotomized as less than \$1,000 per month versus \$1,000 per month or more. *Housing* instability was defined as spending at least one night in precarious housing situation in the past 3 months; examples included sleeping on the street, in a shelter, or temporarily doubled up with friends or family. Participants were asked if they had ever been *arrested* (yes/no), and those that said yes were asked if they had even been *incarcerated* (yes/no). Participants were asked about the presence and type of *sexual agreements* with the current partner. Specifically, presence of agreement was asked with one item: “In the past 3 months, did you and your main partner have an agreement about whether or not having sex with outside partners was okay?” with response options: “Yes,” “No,” or “Refuse to Answer.”

**Relationship dynamics.**—Participants completed five measures of relationship quality, including relationship satisfaction, commitment, closeness discrepancies, communication, and perceptions of goal congruence. *Relationship satisfaction* was measured using the Dyadic Adjustment Scale ( $\alpha = 0.80$ ) [18]. *Commitment* was assessed with an 8-item scale of Rusbult et al.’s investment model ( $\alpha = 0.91$ ) [19]. *Closeness discrepancy* was assessed using the Inclusion of Other in Self (IOS) Scale, which measures how individuals conceptualize their own perceptions of relationship closeness [20], and we created a discrepancy score by taking the absolute difference between current and ideal levels of their IOS score [21]. *Communication* was assessed with a 12-item conflict resolution style scale  $\alpha = 0.75$ ) [22]. *Perceptions of goal congruence* was assessed with a 7-item scale that measures the extent to which partners perceive they are on the same page about their HIV and other sexual health goals ( $\alpha = 0.86$ ) [23]. For each measure, we calculated the mean scores, and higher scores indicate greater indicators of relationship quality.

**Relationship stigma.**—Participants completed the *relationship stigma* scale that assesses anticipation and experiences of rejection due to being in a relationship in which one partner is a trans woman. The relationship stigma scale has been described previously [24] and demonstrated good internal reliability in this sample ( $\alpha = 0.90$  among trans women;  $\alpha = 0.85$  among partners). Response options range from 0 = “Never” to 5 = “Always.” For these items, participants reported how often they experienced relationship stigma (e.g., “How often does your partner not take you out in public because of your gender identity or expression?” for trans women; “How often are you uncomfortable holding hands with your partner in public because of their gender identity or expression?” for partners of trans women). We calculated the mean of responses and higher scores indicated greater relationship stigma.

**Sexual agreement.**—Type of sexual agreement was assessed with one item: “Now, think about your current agreement or understanding you and your main partner have about sex with outside partners. From the following list, choose the one statement that best describes it.” with response options: “We are monogamous. We have agreed not to have sex with other people.”, “It is okay for us to have sex with other people but there are some restrictions.”, “We do whatever we want and don’t tell each other about it.”, “It is okay for us to have sex with other people and there are no restrictions.”, and “We do not have any type of agreement like this.” Couples were classified as being in monogamous agreement if both partners reported being monogamous. Couples were classified as being in an open agreement if both partners reported that it was okay to have sex with other people with restrictions or they do what they want but don’t tell each other about it. Couples were classified as having no agreement if both partners reported that they do not have an agreement. Couples were classified as discrepant if both partners did not select the same response.

**HIV indicators.**—Participants answered a series of questions about condom use frequency during anal and vaginal sex with their primary partner and with outside partners. Response options regarding condom use in each scenario included “Every time,” “Almost every time,” “Occasionally/sometimes,” “Almost never,” and “Never.” Participants who reported not using condoms in any anal or vaginal sexual encounter with an outside partner were considered to have had condomless sex with outside partners. Participants not living with HIV were asked if they had taken PrEP in the past month. If so, they were asked if they were currently on PrEP (yes/no). Participants living with HIV who reported ever having a viral load test were asked if they had a detectable viral load at any point during the past 3 months (yes/no).

**Mental health.**—Participants completed a shortened 10-item version of the Center for Epidemiologic Studies Depression Scale [25] to assess depressive symptoms in the past week ( $\alpha=0.90$ ). Participants completed the 6-item Brief Symptom Index [26] to assess anxious symptoms in the past week ( $\alpha=0.91$ ). Participants completed a 2-item PTSD symptom screener [27].

## Quantitative Analyses

To account for the dyadic nature of the data, we adjusted for clustering at the couple-level in all analyses. We first calculated sample means and standard errors for all continuous variables and sample proportions and counts for all categorical variables. For continuous variables, we conducted adjusted Wald tests to determine if there were statistically significant differences by study modality, specifically between participants enrolled during in-person study operation and those enrolled during digital study operation. For categorical variables, we used design-based F-tests to determine whether their distribution differed by study modality. Analyses were conducted in Stata 17.0 using the svy commands to adjust for study design.

## Results

The sample (see Table 1) comprised 104 individuals, 21.2% of which were in serodiscordant relationships and in 78.9% seroconcordant negative relationships. In total, there were 11 participants living with HIV and 93 not living with HIV. Participants ranged in age from 18 to 67 years old ( $M = 35.9$ ,  $SE = 1.2$ ) and relationship length ranged from 0.25 to 24 years ( $M = 4.8$ ,  $SE = 0.7$ ). Approximately half of the participants identified as White (51.5%) and one fifth as Latinx (19.6%). The most common partner gender identity was cisgender man (38.5%) followed by cisgender woman (25.0%). Approximately one-third of the sample earned less than \$10,000 annually (35.6%), 18.3% had not graduated high school, and 43.7% were unemployed. Over a third (39.2%) reported they had been arrested in their lifetime, with 85% of these participants reporting a lifetime history of incarceration. Most couples agreed that they were in a monogamous sexual agreement (42.3%) or open sexual agreement (38.5%).

## Comparisons by Study Operation Modality

Over half the sample (59.6%,  $n = 62$ ) was recruited, consented, enrolled, and followed using digital study procedures. As shown in Table 1, there were significant sociodemographic differences by study modality (in-person versus digital). Participants enrolled in-person were significantly older than those enrolled digitally [ $F(1,50) = 24.10$ ,  $p < 0.001$ ]. Race differed significantly by modality [ $F(4.66, 233.06) = 4.68$ ,  $p < 0.001$ ]; for example, 31.0% of participants enrolled during in-person study operations identified as Black compared to only 1.6% of those enrolled during remotely. The probability of being in a serodiscordant relationship was 47.6% among participants enrolled in the in-person study design compared to 3.2% among participants enrolled version of the study online [ $F(1,50) = 13.54$ ,  $p < 0.001$ ]. Additionally, partner gender differed significantly [ $F(3.98, 199.11) = 4.25$ ,  $p = 0.003$ ]; 71.4% of partners were cisgender men in couples enrolled in-person as compared to 16.1% in those enrolled digitally. Education distribution also differed by study modality [ $F(3.62, 181.03) = 4.69$ ,  $p = 0.002$ ]. Overall, participants enrolled digitally reported higher levels of education; 38.7% had a college degree and 19.4% had completed at least some graduate school, compared to 7.1% and 14.3% of participants enrolled in-person, respectively. The participants enrolled digitally were significantly more likely to be employed than those enrolled in-person [66.1% vs. 41.5%;  $F(1,50) = 4.80$ ,  $p = 0.033$ ]. Furthermore, those enrolled digitally were significantly less likely to have been arrested [17.7% vs. 72.5%;

$F(1,50)= 2.15, p<0.001$ ] and, if arrested, they were less likely to have been incarcerated than those enrolled in-person [63.6% vs. 93.1%;  $F(1,24)= 6.43, p=0.018$ ]. There were no significant differences in relationship length, ethnicity, income, or housing instability by study modality.

Table 2 presents baseline differences in relationship characteristics by study modality at baseline. Participants enrolled in-person reported lower relationship satisfaction [ $F(1,50)=4.68, p=0.035$ ], communication [ $F(1,50)=5.66, p=0.021$ ], and perceptions of goal congruence [ $F(1,50)=24.52, p<0.001$ ] than those enrolled during digital operations. Additionally, partners of trans women enrolled in-person had statistically significantly higher relationship stigma scores compared to partners enrolled digitally [ $F(1,49)=5.45, p=0.024$ ]. There were no significant differences in trans women's reported relationship stigma by study modality. As shown in Table 3, there were also no significant differences in PrEP use among participants not living with HIV, viral load among participants living with HIV, condomless sex, or mental health.

## Discussion

This study describes baseline differences between transgender women and their primary partners who were recruited and enrolled into a study using fully in-person procedures prior to the COVID-19 pandemic, compared to those who enrolled into the same study using fully digital procedures, during the COVID-19 pandemic. Those enrolled in-person were more likely to identify as African American, have cisgender male partners, and to report greater rates of unemployment, incarceration. Couples had higher relationship stigma, and lower relationship quality as compared to those enrolled digitally. Our findings add to the evidence that have documented the challenges of using fully digital procedures to engage trans women of color and those who experience structural vulnerabilities [3, 4]. These study findings corroborate qualitative research that highlights the importance of providing in-person options for structurally vulnerable trans women, especially trans women of color who experience intersectional oppression and resultant economic hardships [28]. Fully digital or online programs might, therefore, reinforce inequities in HIV and other health conditions if they are not planned with consideration of population preferences and resources.

Consistent with prior research [10], our results also demonstrate the difficulties of engaging cisgender male partners in HIV prevention studies. The primary partners who were enrolled during in-person study operations reported significantly higher relationship stigma scores compared to those enrolled during digital operations. Our pivot to fully digital clinical trial operations during the COVID-19 pandemic included community-led efforts to create and distribute recruitment materials that would attract cisgender male partners of trans women. It is important to note that our team thoughtfully designed the in-person study procedures, which included engaging cisgender male partners of trans women throughout the study design. During this process, we learned about the importance of an in-person field site that was at a discreet but accessible location in which great care was taken to reduce any potential LGBTQ+ or HIV-related social cues. While social media recruitment and



digital procedures yielded high numbers of trans women and their partners, they did not successfully reach trans women of color or cisgender male partners in our study.

Notably, we also found that those who were enrolled digitally had significantly higher relationship satisfaction, communication, and perceptions of goal congruence compared to those who were enrolled during the fully in-person study period prior to the COVID-19 pandemic. While it is plausible that the COVID-19 pandemic increased relationship satisfaction as couples may have needed to rely upon one another during the height of the pandemic [29], participating in digital studies requires significant dyadic coordination. Thus, it is likely that the digital modality was not able to engage couples who may most benefit from an intervention designed to increase communication skills and shared goal setting.

### Limitations

There are several limitations to this research. First, the COVID-19 pandemic poses challenges to making strong claims about the distinctions between in-person versus digital modalities for couples-based HIV prevention research. However, online recruitment began almost a year after the beginning of the COVID-19 pandemic, and our findings are consistent with other studies of trans women and other digital HIV prevention studies of marginalized populations. Second, we did not assess for technology access or specify digital eligibility criteria when we pivoted to a fully digital study modality, which makes it challenging to fully understand whether participants were unable to engage in the digital version of the study because of barriers to technological access. Further, our study also relied on self-report data which may be subject to social desirability. Finally, recruitment procedures for the fully digital operations did not exactly replicate our in-person procedures as we expanded to social media recruitment rather than drawing on the strong community ties and social networks of our research team. Therefore, our efforts to recruit participants outside of our local geographical region may have differentially appealed to trans women and their partners with greater trust in research.

### Conclusions

Our findings showcase important distinctions in population engagement based on study modality. While digital research endeavors have the potential to circumvent barriers to in-person research such as transportation and space limitations [2, 3], the COVID-19 pandemic confirmed findings about digital divides among marginalized populations experiencing structural vulnerabilities [30, 31]. Despite the proliferation of telehealth during the COVID-19 pandemic, many community and healthcare organizations that serve marginalized populations most heavily impacted by the HIV epidemic had significant challenges with digital access, and clients often lacked technological literacy and resources (e.g., digital connectivity) to access resources [31]. Thus, our findings confirm conclusions drawn from other studies and cautions researchers and funders to thoughtfully consider who will be left behind in HIV research that solely relies on fully or even partial digital study modality without strong community engagement to thoughtfully plan for inclusion and equity, which may necessitate the inclusion of lower-technology, hybrid, or even fully in-person options [2, 4, 28].

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**Table 1.**

Sociodemographic characteristics among trans women and their primary partners by study operations modality (N=104)

	Total	In-Person, n=42	Digital, n=62		
	M (SE)	M (SE)	M (SE)	Test statistic <sup>a</sup>	p-value
Age	35.9 (1.2)	42.7 (1.9)	31.3 (1.3)	F(1,50)=24.10	<0.001
Relationship length (years)	4.8 (0.7)	5.0 (1.0)	4.6 (0.9)	F(1,49)=0.07	0.788
	% (n)	% (n)	% (n)		
Race				F(4.66, 233.06) = 4.68	<0.001
African American	13.6 (14)	31.0 (13)	1.6 (1)		
Asian	13.6 (14)	7.1 (3)	18.0 (11)		
Indigenous	1.9 (2)	4.8 (2)	0		
White	51.5 (53)	47.6 (20)	54.1 (33)		
Other	7.8 (8)	0	13.1 (8)		
Multiracial	11.7 (12)	9.5 (4)	13.1 (8)		
Ethnicity					0.719
Latinx	19.6 (20)	21.4 (9)	18.3 (11)		
Other	80.4 (82)	78.6 (33)	81.7 (49)		
Couple-Level HIV Status				F(1,50)= 13.54	<0.001
Seroconcordant Negative	78.9 (82)	52.4 (22)	96.8 (60)		
Serodiscordant	21.2 (22)	47.6 (20)	3.2 (2)		
Partner Gender <sup>b</sup>				F(3.98, 199.11)= 4.25	0.003
Cisgender Man	38.5 (20)	71.4 (15)	16.1 (5)		
Cisgender Woman	25.0 (13)	14.3 (3)	32.3 (10)		
Trans Woman	17.3 (9)	4.8 (1)	25.8 (8)		
Trans Man	5.8 (3)	4.8 (1)	6.5 (2)		
Nonbinary	13.5 (7)	4.8 (1)	19.4 (6)		
Education					
Less than high school	5.8 (6)	14.3 (6)	0	F(3.62, 181.03)= 4.69	0.002
High school or GED	12.5 (13)	14.3 (6)	11.3 (7)		
Some college	38.5 (40)	50.0 (21)	30.7 (19)		
College degree	26.0 (27)	7.1 (3)	38.7 (24)		
Any graduate school	17.3 (18)	14.3 (6)	19.4 (12)		
Income, past month				F(1,50)= 3.38	0.072
Less than \$1,000	35.6 (36)	46.4 (19)	28.3 (17)		
\$1,000 or more	64.4 (65)	53.7 (22)	71.7 (43)		
Employment				F(1,50)= 4.80	0.033
No	43.7 (45)	58.5 (24)	33.9 (21)		
Yes	56.3 (58)	41.5 (17)	66.1 (41)		
Housing Instability, past 3 months				F(1,50)= 2.15	0.149
No	76.2 (77)	67.5 (27)	82.0 (50)		
Yes	23.8 (24)	32.5 (13)	18.0 (11)		

Arrest, lifetime					F(1,50) = 22.08	<0.001
	No	60.8 (62)	27.5 (11)	82.3 (51)		
	Yes	39.2 (40)	72.5 (29)	17.7 (11)		
Incarceration, lifetime among those arrested					F(1,24)= 6.43	0.018
	No	15.0 (6)	6.9 (2)	36.4 (4)		
	Yes	85.0 (34)	93.1 (27)	63.6 (7)		

<sup>a</sup>Adjusted Wald tests for continuous variables and design-based F-tests for categorical variables

<sup>b</sup>n = 52 partners of trans women

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**Table 2:**

Relationship characteristics among trans women and their primary partners by study operations modality (N=104)

	<b>Total</b>	<b>In-Person</b>	<b>Digital</b>			
	<b>n</b>	<b>M (SD)</b>	<b>M (SD)</b>	<b>M(SD)</b>	<b>Test statistic<sup>a</sup></b>	<b>p-value</b>
Relationship Satisfaction	104	4.1 (0.1)	3.9 (0.1)	4.2 (0.1)	F(1,50)= 4.68	0.035
Commitment	101	7.8 (0.2)	7.7 (0.2)	7.8 (0.2)	F(1,50)= 0.00	0.951
Closeness Discrepancy	103	0.9 (0.1)	0.9 (0.2)	0.9 (0.2)	F(1,50)= 0.04	0.835
Communication	102	3.8 (0.1)	3.6 (0.1)	3.9 (0.1)	F(1,50)= 5.66	0.021
Perceptions of Goal Congruence	93	4.1 (0.1)	3.6 (0.2)	4.5 (0.1)	F(1,50)= 24.52	<0.001
Relationship Stigma (trans women) <sup>b</sup>	56	1.3 (0.1)	1.4 (0.1)	1.2 (0.1)	F(1,49)= 2.02	0.162
Relationship Stigma (partners of trans women) <sup>c</sup>	55	1.4 (0.1)	1.7 (0.2)	1.3 (0.1)	F(1,49)= 5.45	0.024
		<b>% (n)</b>	<b>% (n)</b>	<b>% (n)</b>	<b>Test statistic<sup>a</sup></b>	<b>p-value</b>
Sexual agreement, past 3 months <sup>d</sup>	52				F(3.00, 149.93)= 1.47	0.379
Monogamous Agreement		42.3 (22)	42.8 (9)	41.9 (13)		
Open Agreement		38.5 (20)	28.6 (6)	45.2 (14)		
No Agreement		1.9 (1)	4.8 (1)	0		
Discrepant		17.3 (9)	23.8 (5)	12.9 (4)		

<sup>a</sup>Adjusted Wald tests for continuous variables and design-based F-tests for categorical variables

<sup>b</sup>Only measured for trans women

<sup>c</sup>Only measured for partners of trans women (regardless of participant gender)

<sup>d</sup>Measured at the couple-level

**Table 3:**

Sexual and mental health indicators among trans women and their primary partners by study operations modality (N=104)

		<b>Total</b>	<b>In-Person, n=42</b>	<b>Digital, n=62</b>		
		<b>% (n)</b>	<b>% (n)</b>	<b>% (n)</b>	<b>Test statistic<sup>a</sup></b>	<b>p-value</b>
Any Condomless Sex					F(1,50)= 0.00	1.00
	No	50.0 (52)	50.0 (21)	50.0 (31)		
	Yes	50.0 (52)	50.0 (21)	50.0 (31)		
Condomless Sex with Outside Partners					F(1,50)= 1.40	0.243
	No	88.5 (92)	83.3 (35)	91.9 (57)		
	Yes	11.5 (12)	16.7 (7)	8.1 (5)		
Currently Using PrEP (among those not living with HIV)					F(1,50)= 1.17	0.285
	No	86.7 (78)	80.0 (24)	90.0 (54)		
	Yes	13.3 (12)	20.0 (6)	10.0 (6)		
Viral Load (among those living with HIV)					F(1, 10)= 0.12	0.739
	Undetectable	10.0 (1)	11.1 (1)	0 (0)		
	Detectable	90.0 (9)	88.9 (8)	100 (1)		
		<b>M (SD)</b>	<b>M (SD)</b>	<b>M (SD)</b>	<b>Test statistic</b>	<b>p-value</b>
Depressive Symptoms		14.0 (0.9)	12.9 (1.3)	14.6 (1.2)	F(1,50)= 1.00	0.323
Anxious Symptoms		1.3 (0.1)	1.1 (0.1)	1.3 (0.2)	F(1,50)= 1.40	0.243
PTSD Symptoms		5.4 (0.3)	4.8 (0.4)	5.7 (0.3)	F(1,50)= 3.30	0.075

<sup>a</sup>Adjusted Wald tests for continuous variables and design-based F-tests for categorical variables