UNIVERSITY OF CALIFORNIA, SAN DIEGO
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Sexual Partner Concurrency among Female Sex Workers and Their Intimate Male Partners in Two Mexico-U.S. Border Cities

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requirements for the degree Doctor of Philosophy

in

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by

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The Dissertation of Angela Marie Robertson is approved, and it is acceptable in quality and form for publication on microfilm and electronically:

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Chapter 4, in full, is a reprint of the material as it was submitted to *Sexually Transmitted Infections*: Robertson AM, Syvertsen JL, Rangel MG, Staines HS, Morris M, Patterson TL, Strathdee SA. Concurrent sexual partnerships among female sex workers and their intimate male partners in Tijuana and Ciudad Juárez, Mexico. Angela Robertson was the primary investigator and author of this paper.

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2. Robertson AM, Vera A, Gallardo M, Pollini RA, Patterson TL, Case P, Nguyen L, Strathdee SA (2010). Correlates of seeking injection assistance among injection drug users in Tijuana, Mexico. *The American Journal on Addictions*. 2010;19(4):357-363.

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1. Robertson AM, Syvertsen JL, Rangel MG, Staines H, Morris MW, Patterson TL, Ulibarri M, Strathdee SA. Prevalence and correlates of sexual partner concurrency among female sex workers and their intimate male partners in Tijuana and Ciudad Juarez, Mexico. *Sexually Transmitted Infections* (revise/resubmit).

2. Robertson AM, Syvertsen J, Amaro H, Martinez G, Rangel MG, Patterson TP, Strathdee SA. Can't buy my love: a typology of female sex workers' commercial relationships in the Mexico-U.S. border region. *The Journal of Sex Research* (submitted).

3. Robertson AM, Syvertsen JL, Martinez G, Rangel MG, Palinkas LA, Staines H, Stockman JK, Ulibarri M, Strathdee SA. Acceptability of vaginal gel microbicides among female sex workers and their intimate male partners in two Mexico-U.S. border cities: a mixed methods analysis. *Global Public Health* (submitted).

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ABSTRACT OF THE DISSERTATION

Sexual Partner Concurrency among Female Sex Workers and Their Intimate Male Partners in Two Mexico-U.S. Border Cities

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Background: Concurrent (overlapping) sexual partnerships potentiate transmission of HIV and other sexually transmitted infections (STIs), yet patterns of concurrency among female sex workers (FSWs) and high risk couples in the U.S.-Mexico border region remain poorly described.

Aims: The aims of this dissertation were to: (1) qualitatively characterize relationship dynamics and behavioral norms within FSWs' different types of concurrent commercial relationships; (2) determine the prevalence and correlates of concurrency among FSWs and their intimate male partners; and (3) assess acceptability of pre-exposure prophylaxis (PrEP) including microbicides among these dyads.

Methods: Chapter 2 describes the prospective, social-epidemiological study of HIV/STIs among FSWs and their intimate male partners in Tijuana and Ciudad Juárez, Mexico that this dissertation was nested within. Chapter 3 used in-depth interviews to explore relationship dynamics within FSWs' concurrent commercial relationships. Chapter 4 used questionnaires to determine the prevalence and correlates of concurrency among FSW-intimate partner dyads.

Chapter 5 employed an iterative mixed methods approach to assess microbicide acceptability among these dyads.

Results: Chapter 2 describes methods to recruit, screen and enroll 214 high risk couples (n=428) and provides recommendations for couple-based research. In Chapter 3, FSWs (n=46) described a range of commercial relationship dynamics and how the development of longer-term relationships with more lucrative clients rendered condom negotiation increasingly difficult. Chapter 4 found that, among 214 couples (n=428), 16% reported past-year steady (recurring) concurrency, which was associated with FSWs' income, men's caballerismo (positive form of traditional masculinity), and men's belief that steady partners had HIV/STIs. Chapter 5 found that microbicide interest was high among 185 couples (n=370), but couples had concerns about male partners' potential anger and implications of mistrust/infidelity (n=56).

Conclusions: As a first examination of sexual partner concurrency among high risk FSW-intimate partner dyads, these findings carry important implications for couple-based HIV/STI prevention programs. Since condom use becomes increasing difficult as relationships become closer, additional HIV/STI prevention modalities may be needed. However, the ultimate effectiveness of PrEP will depend on product adherence, requiring couple-based interventions that promote risk communication and carefully involve male partners.

CHAPTER 1: INTRODUCTION

Sexual partner concurrency (i.e., multiple sexual relationships that overlap in time) potentiates HIV/STI transmission by decreasing the time between sexual contacts and increasing the risk that infected persons will transmit disease to uninfected persons.[1] Despite a wealth of international research, concurrency patterns among high risk couples in resource-poor settings in the Americas remain poorly understood. Given the potential public health of impact of concurrency in the U.S.-Mexico border region, where the HIV/STI prevalence is increasing among female sex workers (FSWs),[2] the specific aims of this dissertation include the following:

1. To explore the relationship dynamics and behavioral norms within FSWs' different types of commercial relationships, which may be concurrent (overlapping) with their intimate (non-commercial) relationships (Chapter 3);
2. To determine the prevalence and correlates of concurrency among high risk dyads (couples) of FSWs and their intimate male partners (Chapter 4); and
3. To assess the acceptability of vaginal microbicides, a female-initiated form of pre-exposure prophylaxis (PrEP) with promise in reducing the disease transmission risks associated with concurrency, among these dyads (Chapter 5).

OVERVIEW

This dissertation includes four manuscripts in addition to this Introduction (Chapter 1) and a Discussion (Chapter 6). The first manuscript (Chapter 2), entitled "Study protocol for the recruitment of female sex workers and their non-commercial partners into couple-based HIV research," provides background on the state of couple-based HIV research and a detailed description of the recruitment, screening, enrollment, and other procedures used in *Proyecto Parejas* [Couples Project], the prospective, mixed methods study within which this dissertation is nested. The next three chapters report original research studies based on the primary dissertation study aims. The first of these studies (Chapter 3), "Can't buy my love: a typology of female sex

workers' commercial relationships in the Mexico-U.S. border region," explores FSWs' commercial relationships in Tijuana and Ciudad Juárez, Mexico. The second study (Chapter 4), "Concurrent sexual partnerships among female sex workers and their intimate male partners in Tijuana and Ciudad Juárez, Mexico," determines the prevalence and correlates of steady, recurring sexual partner concurrency among these FSW-intimate partner dyads. The third study (Chapter 5), "Acceptability of vaginal microbicides among female sex workers and their intimate male partners in two Mexico-U.S. border cities: a mixed methods analysis," assesses interest in and acceptability of microbicides for the prevention of HIV transmission among FSWs and their intimate male partners. The final chapter (Chapter 6) discusses the relationships between these manuscripts, situates the findings within the broader literature on sexual partner concurrency, and provides directions for future research and couple-based HIV/STI prevention interventions.

BACKGROUND & SIGNIFICANCE

Intimate Relationships and HIV/STI Risk

HIV/STI transmission is inherently a social event occurring between individuals, often within the context of sexual relationships.[3] In intimate relationships, low rates of condom use persist in the presence of drug- and sexual-related risk behaviors that may promote disease transmission into and within relationships.[4-8] In a variety of settings, sexual risk behaviors within intimate relationships have been associated with intimacy,[9-12] trust,[13-17] commitment,[18,19] relationships satisfaction,[20] attachment,[21] poor communication,[22-25] and power imbalance between partners.[26-34]

Increasing condom use in primary relationships may be most feasible when individuals' perceptions of risk are high,[35,36] yet individuals in intimate relationships tend to believe that their partners cannot harm them,[37] and that condoms, if introduced, would signify the absence of trust or even threaten relationship stability.[38,39] Individuals within intimate relationships may thus perceive risk on two different levels: risk to oneself and risk to their relationships.[40] Even when knowledge of sexual risk from intimate partners is high, individuals may act in seemingly irrational

ways and avoid introducing condoms to protect their intimate relationships from the perceived "relationship risks" (e.g., mistrust, implications of infidelity) posed by condoms.[40-44] Due to the paucity of research on the role of these relationship dynamics in influencing risk behaviors among FSWs, the first aim of this dissertation will be to conduct an in-depth examination of the relationship dynamics and behavioral norms within FSWs' different types of commercial and any related behavioral norms (Aim 1).

Sexual Partner Concurrency

Concurrent sexual partnerships, or multiple sexual relationships that overlap in time, potentiate HIV epidemics in three ways: (1) decreasing the time between sexual contacts, (2) increasing the risk that infected individuals will transmit disease to uninfected individuals, and (3) promoting the "bridging" of disease from high to low risk populations.[1,45,46] Mathematical modeling suggests that when half of a population engages in concurrency, an HIV epidemic will be ten times larger after five years than it would be under sequential monogamy.[1] Empirical evidence implies that the significance of concurrency cannot be understated. In the United States, concurrency is thought to have significantly contributed to the documented racial disparities in HIV/STI prevalence[47-49] and increases transmission of Chlamydia,[45] gonorrhea,[50] and syphilis.[51,52] In the general population, while adjusting for possible underreporting, ~11% of U.S. men and ~8% of women engage in concurrency,[53,54] but prevalence varies widely according to demographics, drug use and sexual risk profiles (e.g., history of sex with men among men, exchanging sex for money or drugs among women).[54]

Empirical evidence points to concurrency as a primary driver of HIV epidemics in Sub-Saharan Africa.[55-57] Concurrency has also been shown to promote the epidemiological "bridging" of disease from high risk populations such as FSWs' male clients to the general population including clients' lower risk spouses and steady partners in Thailand.[58] Internationally, the prevalence of concurrency varies by demographic factors[59] and other sexual and drug-related risk behaviors for HIV/STI transmission.[60-63] While concurrency has been widely studied throughout much of the world, it has rarely been investigated among high risk, marginalized populations in

the Americas. Furthermore, since much of the existing research on concurrency prevalence and correlates involves inconsistent definitions, measurement problems (e.g., recall), and other methodological challenges,[64] this dissertation follows specific UNAIDS guidelines[65] to measure concurrency.

An emerging international literature on the motivation for concurrency suggests that cultural norms[60,66-70] and relationship factors are important drivers.[71] Important interpersonal motivators include increasing relationship duration,[72] low trust,[70] relationship dissatisfaction,[68,73] instability,[70] poor risk communication,[24] sexual dissatisfaction,[66,69,70,74] and emotional and physical abuse.[59,69] Mutual non-monogamy (i.e., "reciprocal concurrency") is also common: individuals who suspect that their steady partners are not faithful are more likely to engage in concurrency themselves,[75] perhaps as a form of retaliation.[73,74,76-79] Some women in resource-poor settings have concurrent partners for the purposes of economic survival, yet others may be driven by love, passion, or an expectation of gifts.[73,80,81] Due to this contextual specificity of concurrency,[52,71] HIV/STI prevention efforts require an improved understanding of concurrency behaviors in a variety of intimate relationship contexts,[56,65] including FSWs' relationships in resource-poor settings. The second aim of this dissertation will be to determine the prevalence and correlates of concurrency among FSWs and their intimate male partners (Aim 2).

Female Sex Workers, their Intimate Relationships, and HIV/STI Transmission

Globally, FSWs experience a multitude of occupational risks,[82,83] including a disproportionately high burden of HIV/STIs.[35] With average HIV prevalence of nearly 12%, FSWs experience 13.5 times higher odds of HIV infection than other women of reproductive age.[84] Although FSWs' ability to successfully negotiate consistent condom use is often controlled by clients and sex work establishment owners,[82,85] interventions have been successful in improving FSWs' condom use in sex work settings.[35,86-89] However, abundant research indicates that FSWs are less than half as likely to use condoms with intimate, non-commercial male partners than with clients.[12,90-97]

As in other intimate relationship contexts, the most commonly cited reasons for FSWs' low levels of condom with their non-commercial partners include intimacy,[10,12,42,98] trust,[90,92,94,99] emotional attachments including love,[97] and gender norms that result in power imbalances between partners.[34,95,100] FSWs in some settings have reported using condoms as emotional "barriers" between themselves and clients, reserving unprotected sex for their intimate partners.[10,42,100] This divisive potential of condoms within FSWs' intimate relationships may be particularly important in light of drug and related financial need and marginalization.[40,41,43,101] FSWs' intimate male partners may engage in sexual and drug-related risk behaviors outside of their primary relationships with FSWs: a study in Benin found that 66% of FSWs' boyfriends reported concurrency, often with high risk partners.[91] However, very few studies have explored the complexity of high risk FSWs' intimate relationships,[10,98] and none to date have focused on FSWs and their intimate male partners in the Mexico-U.S. border region. Given the low prevalence of condom use within intimate relationship contexts, the third aim of this dissertation will be to assess the interest and acceptability of alternative HIV prevention technologies including vaginal microbicides among FSW-intimate partner dyads (Aim 3).

STUDY SETTING

The proposed study will take place in Tijuana and Ciudad Juárez, two cities on Mexico's northern border with the United States. Although communities across the Mexico-U.S. border share common cultures and languages, the international border also delineates extreme disparities in income,[102] access to economic opportunities,[103] and health outcomes.[104] The economic and structural differences between the two countries have historically facilitated a wide array of illicit activities in border communities.[103] Today, widespread sex work, availability of illicit drugs, persistent poverty and economic inequality characterize the region's HIV/STI risk environment.[105]

Adjacent to San Diego, California, Tijuana is located in the northern Mexican state of Baja California Norte, which borders the U.S. states of California and Arizona. With 1.6 million

residents (49% of the state population), Tijuana is the largest city along Mexico's northern border.[106] Ciudad Juárez is located in the state of Chihuahua and is adjacent to El Paso, Texas. With 1.3 million residents in 2010 (39% of the state population), Ciudad Juárez is the second largest Mexican border city.[106] These data may underestimate the populations of both cities, given the significant inflows of Mexican and Central American migrants seeking work in agriculture and manufacturing (e.g., maquiladoras) and/or attempting migration to the United States. In recent years, return migration including U.S. deportation has also contributed to both cities' migrant populations.[106] Tourism comprises a large share of economic activity in these cities and includes sex tourism from the United States.[107]

Commercial sex is socially and culturally tolerated in Mexico.[108,109] Both Tijuana and Ciudad Juárez have neighborhoods where sex work is known to occur, but important legal and environmental differences exist. In Tijuana, an estimated 9,000 FSWs [110] work in a red light district (zona roja) and are legally required to register as sex workers with the Municipal Health Department to obtain work permits and complete routine health exams.[111] However, less than half of FSWs are registered,[112] and the registration system, as found in other settings,[113] excludes the most marginalized, street based, and drug-involved FSWs.[114] No registration system exists in Ciudad Juárez, where the historic red light districts have been dismantled,[115] but an estimated 6,500 FSWs work in several districts of the city.[103,116] FSWs' HIV prevalence in Tijuana and Ciudad Juárez has risen from less than 2% in 2004 to nearly 6% in 2006, and prevalence of gonorrhea, Chlamydia, and active syphilis (titers ≥1:8) was estimated at 6%, 13% and 14%, respectively.[2]

Increased HIV/STI prevalence among FSWs in Tijuana and Ciudad Juárez may be exacerbated by drug abuse and injection drug use, which are supported by major northbound drug trafficking routes carrying heroin, cocaine and methamphetamine into the United States.[117,118] Differences in FSWs' drug abuse between these cities may reflect trafficking patterns,[119] with heroin and methamphetamine use being more common in Tijuana and heroin and cocaine use in Ciudad Juárez.[116] Drug abuse contributes to FSWs' financial need and related

risk behaviors: consistent condom use is less likely among FSWs who use methamphetamine or inject drugs.[120] FSW-IDUs generally have higher risk profiles than other FSWs, including higher prevalence of HIV/STIs (72% recently tested positive for at least one STI including HIV),[121] longer duration working in sex work, and more frequent drug use before sex.[122] A behavioral intervention (described below)[86] did not increase FSW-IDUs' condom use with clients to the same extent as it did with other FSWs, reinforcing findings that addiction compromises women's abilities to negotiate safer sex with clients.[123] Unfortunately, limited access to quality addiction treatment and harm reduction services (e.g., syringe exchange programs), combined with abusive policing practices (e.g., confiscation of syringes, solicitation of sexual favors) continue to challenge drug involved FSWs' abilities to adopt safer behaviors in both cities.[121,124,125]

Approximately one-third to one-half of FSWs in Tijuana and Ciudad Juárez are believed to have intimate, non-commercial male partners (e.g., boyfriends, spouses or common-law partners)[126] with whom they are twice as likely to have unprotected sex compared to clients.[127] Although a behavioral intervention successfully reduced cumulative STI incidence by 40% in the intervention group and increased FSWs' condom use with their male clients,[86] it did not increase their condom use with non-commercial partners.[128] A study among these intervention participants found that half of FSWs with intimate partners believed that their partners had outside, concurrent sexual partners, yet the majority (74%) reported unprotected vaginal sex with these partners in the past month.[126] Taken together, these limited findings suggest that HIV/STI transmission from intimate partners could pose an important risk for FSWs' HIV/STI acquisition,[128] providing the basis for *Proyecto Parejas* (Couples Project), the parent study within which this dissertation is nested (Chapter 2). This dissertation will utilize the prospective, mixed methods design of *Proyecto Parejas* to investigate FSWs' commercial relationship dynamics (Aim 1), concurrency among FSWs and their intimate male partners (Aim 2), and the acceptability of alternative HIV prevention modalities among these high risk dyads (Aim 3).

THEORETICAL FRAMEWORK

To guide our study of sexual partner concurrency within FSWs' intimate relationships, we drew from two theoretical models. First, the Theory of Gender and Power[129] underlies the overall study design (Chapter 2) and all three dissertation research studies (Aims 1-3; Chapters 3-5). Second, social action theories[130,131] contribute additional guidance qualitative inquiry into relationship formation within high risk environments (Aim 1; Chapter 3). Each of these theoretical models, which are described in detail below, recognize how relationship dynamics are situated within and influenced by broader social and cultural norms and structural constraints at higher levels of analysis.[132] However, the primary focus of this dissertation research is the intimate relationship context.

The Theory of Gender and Power

In 1986, Connell developed an integrative theory drawing from previous theoretical work on sexual inequality, gender, and power imbalances. The Theory of Gender and Power identifies three major structures that interact to shape the gendered relations between men and women in society: (1) the sexual division of labor, (2) the sexual division of power, and (3) the structure of cathexis, which represents social norms and affective attachments.[129] These three structures are produced and maintained at two levels. First, at the societal level, gendered structures are produced through societal norms and sociopolitical forces that segregate power. Second, at the institutional level, gendered social norms are reenacted and reinforced through role expectations within families and relationships, and discrimination and unequal treatment in schools, communities and workplaces. These gendered structures are not stable over time, and although change tends to be slow at both levels, it often occurs faster at the institutional than societal level.[133] Similarly, as a multidimensional theory, changes within different structures do always occur simultaneously (e.g., movements toward economic and legal equality may occur in the absence of change within power relations or broader cultural norms), resulting in tension or turbulence within gendered orders.[133]

In public health and social epidemiological research, the Theory of Gender and Power is often used as a guiding framework to help examine how gendered power inequalities influence

women's health and autonomy.[133,134] Wingood and DiClemente's application of the Theory of Gender and Power to the study of women's vulnerability for HIV acquisition highlighted how gendered power inequalities generate exposures and risk factors within each of the three major theoretical structures.[134] First, due to the sexual division of labor, women are relegated to underpaid, undervalued, and risky occupations such as sex work, leading to socioeconomic risk factors for disease transmission including unprotected sex in exchange for material goods and limited access to health services.[134] Second, the sexual division of power, by reinforcing men's financial and decision-making control within heterosexual relationships, creates myriad behavioral risk factors for women's HIV acquisition including reduced ability to negotiate condom use and physical and sexual abuse.[33,135-137] Third, the structure of cathexis, representing social norms and affective attachments, reinforces women's relational orientation, resulting in reduced assertiveness and intention to negotiate safer sex in order to protect existing social and emotional resources (e.g., intimate relationships).[39,101,134,138]

The current research on sexual partner concurrency draws from the Theory of Gender and Power in several ways. First, the parent study undertook careful consideration of how issues of gender and power could relate to intimate partner violence (IPV) during the recruitment, screening, and enrollment of high risk couples (Chapter 2).[33,139,140] Next, in examining FSWs' types of commercial relationships (Aim 1), the first dissertation study assessed how women's relational orientation could challenge safe sex negotiation as intimacy within commercial relationships increases (Chapter 3).[138] In investigating concurrency prevalence and correlates among FSWs and their intimate male partners (Aim 2), the second dissertation study included hypotheses regarding men's financial power and adherence to traditional gender norms (e.g., machismo) potentially increasing their likelihood of concurrency (Chapter 4).[33,141] In assessing microbicide acceptability within high risk couples (Aim 3), the third dissertation study considered how gendered power dynamics could lead to conflict and IPV within intimate relationships (Chapter 5).[134] In drawing implications from these dissertation studies, the Discussion section considers recent criticisms of the "women's vulnerability paradigm" typical of HIV prevention

research as being inflexible and overly categorical.[133,142] Although men's relative sexual power within heterosexual relationships clearly contributes to women's risk of disease acquisition, too little attention has been paid toward involving men as active agents in promoting healthy relationships, families, and communities.[142-144] The Discussion then proposes ways in which future research and HIV/STI prevention interventions could conceptualize more positive, active roles for men within high risk, intimate relationships (Chapter 6).

Social Action Theories

To contribute to our conceptualization of intimate relationship development processes and notions of "risk," we drew from social action theories, which shift the focus of analysis from individual-level factors toward the interactions and social processes that occur within relationships.[130,131] Public health often views the individual as the focus of analysis and seeks to explain individuals' risk behaviors as products of their cognitions, decisions, and associated actions.[145] Social action theories, on the other hand, posit that risk results from the complex interplay between individuals, their communities, and broader social environments in which social norms dictate what "risk" means.[130,131] As described above, in intimate relationship contexts, individuals may perceive the social "benefits" of unprotected sex (e.g., implications of trust and closeness) as outweighing the potential "risks" of disease transmission. Over time, these relationships may develop increasing intimacy and emotional closeness,[40,43] rendering the habituated nature of certain risk behaviors (e.g., unprotected sex) increasingly difficult to challenge, particularly in the presence of interpersonal and gendered power dynamics.[131]

Although social action theories have been widely applied to research on drug-involved, HIV-positive and serodiscordant couples,[40,41,43,44] their application to FSWs' commercial and non-commercial relationships remains underdeveloped, despite the possibility that the nature of risk perception may also be "habitual" or part of a process within FSWs' relationships (e.g., behaviors such as unprotected sex that were once viewed as "risky" evolve into normative behaviors for closer, more "serious" relationships).[131] In seeking to explore the development of FSWs' commercial relationships and related behavioral norms (Aim 1), the first dissertation study drew

from social action theories to help view commercial relationships as the unit of analysis (Chapter 3).[44] Social action theories also guided the interpretation of results for couple-based research and prevention programs in the Discussion section (Chapter 6).

AIMS & HYPOTHESES

Based on the conceptual framework described above and a review of the relevant literature on high risk couples and sexual partner concurrency, this dissertation has the following aims and corresponding hypotheses:

Aim 1. To explore the relationship dynamics and behavioral norms within FSWs' different types of commercial relationships in the U.S.-Mexico border region, which may be concurrent (overlapping) with their intimate (non-commercial) relationships (Chapter 3).

Hypotheses: Although we did not have specific hypotheses for this qualitative aim, we anticipated that FSWs would have a range of commercial relationships involving distinct interpersonal interactions, professional strategies, power dynamics, and health behaviors with implications for HIV/STI transmission and prevention programs.

Aim 2. To determine the prevalence and correlates of concurrency among high risk dyads (couples) of FSWs and their intimate male partners in Tijuana and Ciudad Juárez, Mexico (Chapter 4).

Hypotheses: Among FSWs, those with greater sexual relationship power will be more likely to report recent concurrency than women with less power. Among men, lower financial dependence on FSW-partners and greater adherence to traditional male gender norms (e.g., machismo) will be associated with greater likelihood of concurrency. Couples in which partners have higher trust and relationship satisfaction will be less likely to have partners engaging in concurrency that couples with less trust or satisfaction.

Aim 3. To assess the acceptability of vaginal microbicides, a female-initiated form of pre-exposure prophylaxis (PrEP) with promise in reducing the disease transmission risks associated with concurrency, among these dyads (Chapter 5).

Hypotheses: Couples in which partners have higher trust and those in which there was recent conflict will be less likely to be interested in or accepting of microbicides as a form of HIV prevention.

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CHAPTER 2: RESEARCH METHODS

Title: Study protocol for the recruitment of female sex workers and their non-commercial partners into couple-based HIV research

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ABSTRACT

Background: Researchers are increasingly recognizing the importance of addressing sexual and drug-related HIV risk within the context of intimate relationships rather than solely focusing on individual behaviors. Practical and effective methods are needed to recruit, screen, and enroll the high risk and hard-to-reach couples who would most benefit from HIV interventions, such as drug-using female sex workers (FSWs) and their intimate, non-commercial partners. This paper outlines a bi-national, multidisciplinary effort to develop and implement a study protocol for research on the social context and epidemiology of HIV, sexually transmitted infections (STI), and high risk behaviors among FSWs and their non-commercial male partners in Tijuana and Ciudad Juarez, Mexico. We provide an overview of our study and specifically focus on the sampling,

recruitment, screening, and successful enrollment of high risk couples into a public health study in this context.

Methods/Design: We used targeted and snowball sampling to recruit couples through the female partner first and administered a primary screener to check her initial eligibility. Willing and eligible females then invited their primary male partners for couple-based screening using a couple verification screening (CVS) instrument adapted from previous studies. The CVS rechecked eligibility and separately asked each partner the same questions about their relationship to "test" if the couple was legitimate. We adapted the original protocol to consider issues of gender and power within the local cultural and socioeconomic context and expanded the question pool to create multiple versions of the CVS that were randomly administered to potential couples to determine eligibility and facilitate study enrollment.

Discussion: The protocol successfully enrolled 214 high risk couples into a multi-site public health study. This work suggests the importance of collaborating to construct a study protocol, understanding the local population and context, and drawing on multiple sources of input to determine eligibility and verify the legitimacy of relationships. We provide a practical set of tools that other researchers should find helpful in the study of high risk couples in international settings, with particular relevance to studies of FSWs and their intimate partners.

Keywords: methods, recruitment, eligibility screening, couple-based research, female sex workers, Mexico

BACKGROUND

Researchers are increasingly recognizing the importance of addressing HIV risk within the context of intimate relationships rather than solely focusing on individual behaviors.[1,2] A growing body of evidence suggests that couple-based interventions may be more efficacious than individual-based interventions in promoting safer sex behaviors[3,4] and reducing drug use.[5,6] However, a recent review of couple-based interventions cautioned that additional research is needed to build a stronger theoretical and methodological basis for couples-focused HIV interventions.[7] Practical and effective methods are needed to recruit, screen, and enroll high risk couples into studies in diverse social and cultural contexts. In particular, protocols are needed to recruit the socially marginalized and hard-to-reach couples who would most benefit from HIV interventions, such as drug-using female sex workers (FSWs) and their intimate, non-commercial partners.

This paper outlines a bi-national, multidisciplinary effort to develop and implement a study protocol for research on the context and epidemiology of HIV, sexually transmitted infections (STIs), and high risk behaviors among FSWs and their primary, non-commercial male partners in Tijuana and Ciudad Juarez, Mexico. This work includes an adaptation of a protocol developed by McMahon and colleagues (2003)[8] that recruits couples first through the female partner, and then screens both partners to verify couple status prior to enrollment. Through a detailed explanation of our methodological approach, we demonstrate the need for collaborative processes in constructing a protocol, maintaining sensitivity to the local population and socioeconomic context, and drawing on multiple sources of input to determine eligibility and verify the legitimacy of relationships in order to ensure the successful recruitment of high risk couples. We provide a practical set of tools that other researchers should find helpful in the study of high risk couples in international and resource-poor settings, with particular relevance to studies of FSWs and their intimate partners.

Couple-Based Studies: Sampling, Recruitment, and Screening

Health studies focusing on sexual relationships present a unique set of challenges for researchers, particularly when working with street-based, low income, and otherwise socially marginalized populations.[4,8-11] Diligent preparation is needed in the design and implementation of recruitment procedures for dyadic research, which is highly dependent on the local context and nature of the study,[12,13] as well as the broader cultural context. Researchers must first consider their approach to sampling and recruitment, particularly when potential participants may be considered a "hidden population" because of their exclusion from mainstream health and social services.

Recruitment strategies in heterosexual couple-based research have included a variety of clinic and community-based settings,[11,13] as well as targeted street outreach.[8] While some studies have recruited through both the male and female partners,[14] others have recruited initially though the female partner.[8,12] Witte and colleagues (2004)[12] described a process of recruiting predominantly African-American and Latina women through an outpatient clinic using a brief screener to determine initial eligibility. Eligible women were then offered different strategies to recruit their partner. A "brokering" strategy entailed women describing the project to her partner and encouraging his participation on her own, while a "co-recruitment" strategy meant that staff assisted the female in the recruiting process by sending a letter, calling, or inviting the male partner to the project office in person to describe the study.[15] Male staff members also offered to role play with the women to help them present the study in a positive light to their partner.[12]

Research with couples in which one or both partners are active drug users can add an additional layer of complexity to protocol design. El-Bassel and colleagues (2011) recently published one of the few randomized controlled trials to address both sexual and drug-related risk behaviors among low-income couples, who were recruited through street outreach, homeless shelters, soup kitchens, syringe exchange programs, and word of mouth.[16] Working with a mostly unstably housed cohort of street-based drug users, their study demonstrated reductions in risk behavior across groups and suggested the efficacy of the couple-based intervention design. Like the majority of couple-based studies, they relied on self reported drug use and relationship status,

where enrollment was based on the index participant's eligibility and willingness to recruit their partner into the study, who was also individually screened. Eligible couples received monetary compensation at baseline and at each follow-up visit. While monetary reimbursements are a standard and ethical practice in drug-related studies,[17] relying on unverified self-reported data for study qualification leaves researchers vulnerable to the possibility of enrolling ineligible individuals who may pose as qualified participants to obtain the compensation.

McMahon et al. (2003)[8] appear to be the first researchers to explicitly document a research protocol for recruiting and verifying the relationship status of street-based, drug-using couples into a HIV/STI prevention study. Like other couple-based studies, they used an adaptive sampling strategy to recruit through the female partner first to establish initial eligibility. As a next step, they introduced the use of a couple verification screening (CVS) instrument to prevent dyads who were not true couples from enrolling in the study. The CVS was designed to "test" the knowledge of each partner by asking the same personal questions of each partner separately and then comparing their answers as a strategy to verify relationship status. Rather than solely relying on individual self report of relationship status, screening tools like the CVS may prove invaluable in systematically excluding illegitimate couples from research studies. The authors suggested that their integrated approach to sampling, recruiting, and screening hard-to-reach couples can be adapted to other hidden populations, such as sex workers. To our knowledge, ours is the first couple-based study designed exclusively to reach FSWs and their intimate, non-commercial male partners for participation in an HIV/STI prevention project.

Rationale for Studying Female Sex Workers and their Intimate Partners

Internationally, FSWs are at risk for multiple health harms, including HIV/STI transmission.[18-21] While the national HIV prevalence in Mexico remains low, prevalence is much higher among risk groups along Mexico's Northern border with the United States. HIV prevalence among FSWs in Tijuana and Ciudad Juarez has risen over the last decade from less than 1% to 6% overall and 12% among FSWs who inject drugs (FSW-IDUs). A recent study of FSWs in the region also documented a high prevalence of STIs, which can facilitate HIV transmission,

including gonorrhea (6.4%), chlamydia (13%), and syphilis (14.2%).[22] Over two-thirds of FSWs in these cities have U.S. clients,[23] suggesting the potential for considerable cross-border HIV/STI transmission. High rates of internal migration within Mexico also suggest the potential for rapid transmission of disease throughout the country. As such, innovative program approaches are needed to curtail a bi-national public health crisis.

A growing body of empirical evidence suggests that couple-based research and HIV/STI interventions should be extended to focus on FSWs' intimate, non-commercial relationships. The international, interdisciplinary literature suggests that FSWs are less likely to report condom use with intimate partners than with clients.[24-33] FSWs' intimate partners may engage in high risk behaviors themselves, such as concurrent partnerships with other women and men and injection drug use.[34] Yet few studies have explored the complexity of FSWs' intimate relationships,[35-37] including issues relating to drug use.[38]

Previously, we showed that a brief behavioral intervention designed to increase FSWs' condom use with male clients reduced STI incidence among FSWs by 40%.[39] Unfortunately, this intervention had no impact on FSWs' condom use with their non-commercial partners, with whom they were twice as likely to have unprotected sex compared with clients.[40] Among 152 FSWs with an intimate partner who were enrolled in an intervention study in Northern Mexico, 50% believed that their partners had concurrent sexual partners, yet 74% reported unprotected vaginal sex with these partners in the past month.[41] In this same sample of women, those with a spouse or common-law partner were twice as likely to have injected drugs in the month prior to the interview. These data suggest that FSWs' non-commercial partners may be significant drivers of HIV/STI acquisition. The impact of such behavior is not trivial; when 50% of partnerships in a population are concurrent, the size of the HIV epidemic after 5 years is 10 times larger as under sequential monogamy.[42] Although dozens of studies have been conducted with FSWs in diverse settings, almost none have characterized FSWs' non-commercial partners, who represent a crucial missing link in HIV/STI prevention. This preliminary work highlights the importance of drug

and sexual risk behaviors in the context of FSWs' intimate relationships and served as a justification for *Proyecto Parejas*.

***Proyecto Parejas*: Study Design and Methods**

Study aims

Proyecto Parejas (the "Couples Project" in Spanish) appears to be the first prospective, mixed-methods study of the social context and epidemiology of HIV, STIs, and high risk behaviors among FSWs and their primary, non-commercial male partners in Mexico. The specific aims of the project are to: 1) examine the social context and patterns of high risk sexual and substance using behaviors among FSWs and their non-commercial male partners using a mixed-methods approach; 2) determine prevalence of HIV and specific STIs (syphilis, gonorrhea, and chlamydia) and associated correlates at the individual and partner levels among these couples; 3) prospectively identify predictors of HIV/STI incidence and their attributable risks at the individual and partner level among partners; and 4) use the data from our descriptive study to determine the feasibility of conducting a future behavioral intervention trial among high risk FSWs and their main, non-commercial male partners at the partner or individual level. To meet these aims, the study design requisites recruitment of 100 FSWs and their 100 intimate male partners in both Tijuana and Ciudad Juarez (total n = 400), two Mexico-U.S. border cities with high rates of drug abuse, sex work, and HIV/STIs.

Study design

Proyecto Parejas is a mixed methods observational study. All couples answer extensive questions in a quantitative survey and provide biological samples for HIV/STI testing. The study design also calls for an initial sub-set of couples at each site to participate in baseline qualitative interviews to provide information about the social context of their relationship. Individual and couple-based qualitative interviews can lend insight into the contextual elements that affect HIV risk behaviors, including the nature of the relationships (e.g., how the partners met, how long they have been together), finances, sex work, sexual practices, drug use, and drug treatment. Interviews are video recorded to assess non-verbal communication and behavior, and audio

recorded for transcription and text analysis. Couples receive U.S. $20 total for the joint interview and an additional $20 each for individual interviews.

The quantitative survey covers domains at the individual level, such as socio-demographic and family characteristics, sexual behaviors, substance use, and self-efficacy measures; intrapersonal factors such as depressed mood, self-esteem, and attitudes toward traditional gender roles; and relationship measures, such as relationship stability, perceived risk of sex partners, relationship power, intimate partner violence, communication skills, relationship satisfaction, and condom use norms. All measures are administered using computer-assisted personal interviewing with Questionnaire Development System (QDS) software.[43]

After the quantitative survey, nurses draw blood for rapid testing of HIV and syphilis antibodies, and collect urine samples to test for chlamydia and gonorrhea. Confirmatory testing of specimens found positive on rapid HIV and syphilis tests and all testing for chlamydia and gonorrhea are conducted at the San Diego Public Health Laboratory. Positive STI cases receive free treatment based on U.S. and Mexican guidelines and confirmed HIV cases are referred to municipal clinics for free treatment. Individuals are compensated U.S. $20 for the baseline quantitative survey and testing. The study design includes one round of follow-up qualitative interviews, and quantitative follow-up surveys and HIV/STI testing every six months for 24 months.

Our mixed methods prospective design will enable us to meet the study aims in the following ways. To meet Aim 1, we will draw on the semi-structured interview data to examine the social context and patterns of sexual and substance using behaviors within and outside the partnerships. To meet Aim 2, we will use the biologic testing data to determine the prevalence of HIV and specific STIs and associated correlates at the individual and partner level. The primary outcomes for Aim 3 are HIV/STI incident cases over the study period. Over the 24-month follow-up period, we will prospectively examine incidence of HIV, syphilis, gonorrhea, and chlamydia in both partners, and associated predictors and attributable risks at the individual and dyad-level. Importantly, our prospective study design allows us calculate both relative risks (i.e., magnitude of

risk in the exposed vs. unexposed) at the individual and couple-level as well as attributable risks (which in our study is the proportion of incident HIV/STI cases attributable to a specific exposure). Our calculation of attributable risks will help determine the extent to which the outcome (i.e. risk of HIV/STIs) may be attributed to potentially modifiable risk factors of interest, which is critical for informing the most appropriate directions for a future intervention study.

Finally, to meet Aim 4 we will assess the feasibility of conducting a future individual or couple-based intervention with this population. Since there is a paucity of information on the context and behavioral patterns of FSWs and their non-commercial male partners, our observational study is an appropriate prerequisite for a future intervention study. We will draw on both quantitative and qualitative descriptive data to examine potential barriers to interventions such as project attrition, partnership dissolution, and intimate partner violence (IPV). We will evaluate participants' experiences in the project and interest in participating in a subsequent intervention, as well as consider their feedback on key areas that such an intervention could address.

For the purpose of the current paper, we now direct our focus to the methods employed in the successful recruitment of study subjects into *Proyecto Parejas*. This methodological contribution provides a detailed description of the processes involved in the sampling, recruitment, screening, and enrollment of couples into public health research. The remainder of this paper outlines our bi-national efforts to develop and implement a study protocol and offers a practical set of tools that other researchers should find helpful in the study of high risk couples in international and resource-poor settings, with particular relevance to studies of FSWs and their intimate partners.

METHODS/DESIGN

Study Setting and Locations

Tijuana is the largest Mexico-U.S. border city with an estimated 1.4 million persons[44] and is adjacent to the U.S. city of San Diego, California. Like other large cities in Mexico, Tijuana has

a designated Zona Roja (red light district) where sex work is tolerated. Sex workers are required to register for a permit in order to work, but in reality, many women continue to exchange sex without such documentation.[45] The most widely cited estimate of the number of FSWs in Tijuana is 9,000.[46]

Ciudad Juarez, the largest city in the border state of Chihuahua, has a population of 1.3 million residents[44] and is adjacent to the U.S. city of El Paso, Texas. Like Tijuana, the main industry in Juarez is manufacturing, with a large workforce in maquiladora assembly plants. The historical sex work districts in Ciudad Juarez have undergone recent gentrification, and FSWs currently work in several regions of the city where permits are not required. There are an estimated 6,500 FSWs in Ciudad Juarez.[47]

Eligibility Criteria

The target population consisted of FSWs and their heterosexual, non-commercial male partners from Tijuana and Ciudad Juarez. Eligibility criteria for women included being at least 18 years old; reporting lifetime use of heroin, cocaine, crack, or methamphetamine; having a stable, non-commercial partner for at least 6 months; reporting any sex with that partner in the 30 days prior to the interview; and having traded sex in the past 30 days. Women were ineligible if they planned to break up with their non-commercial partner, move away, would refuse STI treatment, or if they feared extreme IPV as a result of their participation. Male partners had to be at least 18 years old, be in a non-commercial relationship with an eligible FSW, and report sex with that FSW-partner in the 30 days prior to the screening. Drug use was not an eligibility criterion for men. All screening instruments were programmed in QDS software[43] to automatically exclude participants if they violated these criteria. Participants were not informed why they were ineligible in order to protect the safety of women in cases of extreme IPV and to prevent individuals from informing other potential participants about the study criteria.

Methodological Framework

Couples enrolled in *Proyecto Parejas* were required to pass a two-step screening process: 1) a primary screener, which was first administered to the female partner to check her

eligibility as an active sex worker in a steady relationship; and 2) a couple verification screening (CVS), which occurred after eligible women brought their non-commercial male partners into the study offices for a couple-based screening process. During the second step, the CVS was administered to each member of the couple to assess their knowledge of each other and help determine the likelihood that the couple has not falsified information (e.g., in order to obtain compensation). This methodological approach to recruitment and the content of the screening instruments were based on a protocol developed by McMahon and colleagues (2003).[8] We adapted McMahon's CVS to ensure that it was appropriate for use with FSWs and their intimate partners in Mexico through a collaborative process that drew on input from U.S. study team members trained in epidemiology, psychology, anthropology, biostatics, and health behavior, as well Mexican collaborators trained in medicine, healthcare delivery, psychology, and social work, and field workers who had significant street-based experience working with the local population.

Gender and Power Considerations

We were sensitive to the unique ethical considerations that HIV/STI behavioral research with couples poses[8,12] including sensitive topics such as condom use within and outside of the partnership, infidelity, lack of trust, and relationship instability.[12] We also considered gender-based issues of power, control, and dominance in the relationship dynamics,[48,49] as ignoring these issues in the recruitment process could result in conflict and potential IPV as an unintended consequence of their participation.[12] For example, interviewers received training to be sensitive to issues of suspected IPV, and we created a safety protocol with input from our multidisciplinary research team, which outlined ways in which staff should respond (e.g., provide referrals for counseling, contact necessary authorities) when participants reported severe IPV. We also carefully designed questions to assess IPV throughout the screening process, as described in the screening sections below.

Like other HIV/STI-related studies with high risk heterosexual couples,[8,12] we initiated recruitment through the woman first in order to give her the initial decision-making control to participate in the study and minimize the possibility of coercion by male partners to participate in

the study.[8] Contacting the female partners first was also intended to protect their confidentiality as FSWs. During the screening process, women were informed that their partner could find out that they were a sex worker and they were able to decline participation at that time.

Protocol Design and Training

Based on the study design conceived by the PI of the project (SS), the U.S. team drafted lists of questions to be included in both screening tools, which were circulated to all team members for feedback and further suggestions. Bilingual team members translated the rough drafts of the instruments into Spanish. All translations were checked by field team members to assure accuracy and appropriateness prior to field testing. Attention was given to incorporating local drug terminology and other street slang (e.g., "What is your/your partner's main talon [i.e., local slang for job]?"). The Mexican field staff provided feedback to assess the content of the questions, add additional questions, and identify problematic words or phrases in the translations. All instruments were field tested in Tijuana by three co-authors (JS, AR, AV), who suggested further edits to the questions and overall screening process based on that experience. Field testing was an essential component to the protocol development.

The primary screener and CVS were programmed into multiple laptops at the field offices using QDS software.[43] After programming the initial versions of the instruments using QDS and drafting English and Spanish procedure manuals, the research team held training for field workers from both research sites in Tijuana. Interactive training activities such as role playing allowed fieldworkers to gain experience with the screening instruments and provide each other with feedback on their performance. While many of the field staff at both sites already had extensive experience working with FSWs, training specifically aimed at working with FSWs in relationships provided guidance to address couple-based issues of gender and relationship power. Moreover, conducting an interactive training jointly with fieldworkers from both study sites opened a space to elicit feedback from experienced service providers and research staff prior to launching the project. After the training process, the team further refined the protocol and instruments into the final versions described here.

Sampling and Recruitment Procedures

Our sample size was driven by our quantitative and qualitative study aims. To determine the size of the overall sample, statistical power calculations were based on a number of hypotheses associated with the quantitative aims. Estimates for the parameters needed in the power calculations (e.g. sample distributions, percentages, means, standard deviations) were obtained from our previous studies in the region and by consulting the published literature.[27] Based on the statistical methods proposed to test our hypotheses, the assumed estimates of 10% annual attrition, 24 months of follow-up, and 0.05 type 1 error, we determined that a baseline sample size of 400 subjects (200 FSWs and 200 non-commercial partners) would be sufficient to achieve at least 80% power in order to detect the smallest effect size of interest. For the qualitative aims, the total number of participants needed for the semi-structured interviews is based on the principle of saturation sampling[50] in that we will continue to recruit participants until it is determined that sufficient saturation of responses to the interview protocol is obtained through an iterative process of data collection and analysis. Saturation, or the ability to predict what informants will say about a particular topic based on that said by previous informants, provides empirical confidence that the sample size is adequate to examine the topics of interest.[51]

We employed sampling techniques that are commonly used in studies of hidden populations, including targeted[52] and snowball sampling.[53] Probability sampling techniques are not feasible when working with hidden populations.[54] Because the majority of FSWs working in Tijuana are not registered as sex workers with the municipal health department and Ciudad Juarez does not keep an official registry, the parameters of the FSW populations in both cities are unknown. Respondent driven sampling (RDS) has shown limited effectiveness in recruiting FSW samples,[55] and in previous studies of injection drug users in Tijuana and Ciudad Juarez, only 10% of women were successfully recruited using RDS,[56,57] despite modifications including providing extra incentives to seeds for recruiting women. Time-location sampling was originally considered for the present study, but was ruled out due to safety concerns in the midst of high levels of drug-related violence, and recruiters were not consistently able to select random venues

and times to conduct recruitment. Therefore, targeted[52] and snowball sampling[53] were appropriate in our research context.

Targeted sampling occurred when street-based outreach workers [promotore/as] worked in pairs to target areas where sex work and drug use visibly occur (e.g., bars, motels, street corners), and spent time informally observing the women before they unobtrusively approached them to explain the study and assess potential interest in participation. If women were with their partners at the time, female outreach workers explained the study in confidence while the male outreach worker talked to the male about general topics unrelated to the study. Snowball sampling occurred when enrolled FSWs referred other women involved in sex work who they knew from the street or with whom they worked in bars or other establishments. In all cases, outreach workers invited potential female candidates to the research offices to administer the primary screener (see below).

Step 1: Primary Screener

The primary screener assessed FSWs' eligibility for the study and also contained extraneous questions so that women would not be able to guess the eligibility requirements. As indicated in Table 2.1, examples of extra questions included the number of children they have, if they had children from other partners, and how many times they had crossed the U.S. border in the past year. The screener required about 10 min to complete and women were paid U.S. $5 for their time, regardless of their qualification.

Assessing intimate partner violence (IPV)

Importantly, we took great care to screen for experiences of severe physical or sexual violence or threats to the participant's life within the relationship. After consulting the literature, experts from our team (NE), and the field staff, a multiple-step process was developed to assess the nature and frequency of abuse and exclude those at high risk. A researcher safety protocol provided detailed instructions on how to handle issues of IPV that might arise during the study, and included an extensive list of resources for referrals.[9]

Questions about experiences with IPV were embedded in the primary screener to assess the female partner's risk and were repeated during the subsequent couples' screening phase (while the team's violence assessment was designed with female partners in mind, male partners were also screened for IPV in the CVS). As shown in Table 2.1, IPV was assessed by asking potential female participants whether they had ever experienced any physical, sexual, economic, or verbal abuse from their current partner. If a woman responded affirmatively to this question, she was then asked whether she had experienced any of this abuse in the past three months. Women reporting any abuse in the past three months were then asked the frequency of abuse (e.g., daily, every month, occasionally, and almost never), and if they felt that their life was currently in danger.

An assessment of the severity of IPV was made by asking women how serious they would describe the level of abuse in their relationship and to provide examples. The female partner's self-reported experiences were then compared to a list of examples of different forms of abuse which was constructed from the revised Conflict Tactics Scales[58-60] and suggestions by a staff social worker in Ciudad Juarez who had extensive experience working with survivors of domestic violence. Interviewers used the woman's self-reported information to rate her level of abuse according to three categories: "mild," "moderate," and "severe" (see question 40 in Table 2.1). Potential participants who reported severe levels of IPV were excluded if the field team determined that study participation would endanger the participant. Potential participants who stated that they were worried that their life was currently in danger because of IPV or who refused to answer that question were automatically excluded from the study. To avoid further endangering the abused partner or reveal study criteria, neither excluded individuals nor their partners were explicitly told why they were excluded from the study. Potential participants who were experiencing severe levels of abuse or worried that their life was in danger were given referrals to local community-based organizations that provide IPV counseling and services.

Step 2: Couple Verification Screening (CVS)

Eligible women who passed the primary screener were invited to bring their primary, non-commercial male partners to the study offices for the second step in the screening process, which also served as a means of excluding participants who were less likely to be retained in a prospective study. Step two of the screening process consisted of a 10–15 min CVS that helped confirm each individual's eligibility and verify relationship status by querying individuals about their intimate partner.[8] Interviewers administered questions to elicit personal information about each participant and their partner separately, as described below. The answers provided by each partner in the CVS were then compared by the Field Coordinator to test each partner's knowledge of each other and help confirm the veracity of the relationship. Each partner received U.S. $5 for completing the CVS, regardless of qualification.

The research team and field staff collaborated to adapt and field test a series of questions based on the CVS developed by McMahon et al. (2003) for a U.S.-based population of drug-using couples.[8] With input from all team members, a pool of questions were constructed for field testing in Tijuana in order to assess the acceptability and content of the questions and concordance of responses among known couples. In order to control for situations where one partner was more knowledgeable about the other, the same interviewer gathered data from each partner in succession to better gauge the likelihood that they were a bonafide couple. Interviews were programmed to be administered to one partner immediately after the other, at the end of which a QDS program generated each partner's answers in two printable documents to be compared side by side. This process also allowed field team members to observe the other partner's behavior in the waiting room and informally chat with them, helping to further assess their relationship status and to prevent partners from discussing answers in between interviews.

The *Proyecto Parejas* Couple Verification Screening (CVS) question list shows the final set of questions. We used the majority of questions from the original CVS[8] (indicated in the table with [d]), but adapted and expanded upon this work. Questions taken directly from the original CVS included "When did you and your partner last have sex?" and "When did you and your partner last do drugs together?" In a similar manner, we added the question "When was the last time you and

your partner got into an argument?" We included the original question "How many permanent tattoos, if any, does your partner have on his/her body?" but also created an additional question "What is the biggest tattoo on your/your partner's body?" to try to assess bodily familiarity with each other. We adapted original questions, such as "What is your father's/mother's first name?" to instead assess "How many times per week do you/does your partner talk with your/your partner's immediate family?" Many individuals in this population are migrants from other areas of Mexico and, due their involvement in sex work and drugs, may have limited contact or be estranged from their own families and partners' families. This question assessed the level of contact and involvement with family, even if contact is limited. We also adapted "What is your partner's favorite meal?" to instead assess "The last meal you shared together with your partner, what did you eat?" and asked additional sub-questions: "When was that meal?" "What was it?" and "Where did you eat?" These questions were changed because severely drug dependent participants have indicated to us that food is sometimes a relatively low priority and limited income may be reserved primarily for drugs, suggesting that favorite foods are a luxury commodity infrequently consumed or discussed. As such, the series of questions about food in our CVS was modified to be more proximate in nature.

***Proyecto Parejas* Couple Verification Screening (CVS) question list[c]**

QUESTIONS ASKED OF ALL INDIVIDUALS:

- Initial questions re-assess eligibility criteria and intimate partner violence (from the primary screener)
- What is your/your partner's date of birth? [d]
- How old are you/is your partner?
- Please tell me which drugs you/your partner are currently using.
- Where did you and your partner meet each other for the first time? (Probe for a specific location, not just a city or "on the street")
- What year and month was it when you met your partner?

POOL OF QUESTIONS FROM SIX DIFFERENT CVS VERSIONS:

- What is your/your partner's steady job?
- About how many hours do you/does your partner work each day?
- At what time do you/your partner usually start work?
- At what time do you/your partner usually finish work?
- Where (physical location) do you/your partner go most often to use drugs?
- How old did you tell your partner you are? How old did your partner tell you she/he is?
- How many permanent tattoos do you have on your body? How many permanent tattoos does your partner have on his/her body? [d]
- How many children live with you/your partner right now?
- On what part of the body do you/your partner have your largest scar?
- How many daughters do you/does your partner have?
- How many sons do you/does your partner have?
- To which connecta or picadero[a] do you/your partner usually go?
- Where were you/your partner born (city, state and country)? [d]
- What is the biggest tattoo on your/your partner's body?
- When you and your partner met for the first time, who made the first move?
- What is the name of one of your/your partner's friends (someone with whom you spend the most time)?
- What does your partner call you (a nickname)? What do you call your partner (a nickname)?
- Where do you/your partner live most of the time?
- What do you/your partner have tattooed on your back?
- The last meal you shared together with your partner, what did you eat?

  When was that meal? What was it? Where did you eat?
- How many times per week do you/your partner talk with your/your partner's immediate family?
- When was the last time you and your partner got into an argument?

- How old are you? How old is your partner? [d]
- What is your/your partner's main talon[b]?
- In what area or location do you/does your partner spend most of the time when trying to earn money? (probe for a specific bar, motel corner, street)
- The last time that you and your partner slept in the same bed together, who slept closer to the door? [d]
- How many brothers do you/does your partner have? [d]
- How many sisters do you/does your partner have? [d]
- If your partner needed to call you, what number would he/she call first? If you needed to call your partner, what number would you call first?
- Where do your parents/your partner's parents live?
- If you had the opportunity to travel, where would you like to go (probe for a specific location)? If your partner had the opportunity to travel, where would he/she like to go?
- Do you/does your partner inject drugs?
- In what part of the body do you/your partner usually inject?
- On what date did you last have sex with your partner? [d] On that day, at what time did you have sex with your partner?
- Where did you/your partner sleep last night?
- Where did you/your partner sleep the night before last?
- In case of an emergency or illness, where would you/your partner go?
- When was the last time you/your partner were picked up by the police and put in jail?
- Where do you/your partner sleep most of the time (probe for specific location)?
- If your partner wasn't at home and you needed to find him/her, what's the first place you would go look for him/her? If you weren't at home and your partner needed to find you, what's the first place he/she would go look for you? (Probe for specific name, especially if response is a bar or on the street)
- Who helps you/your partner when you are sick?

- Do you have someone you can call to get you out of jail/when you're picked up by the police? Who? Does your partner have someone he/she can call to get him/her of jail/when he/she is picked up by the police? Who?

  FINAL QUESTIONS FOR INTERVIEWER:

- On a scale of 1 to 10, with one being not at all confident to 10 being perfectly confident, how confident are you that this is an actual couple?
- Interviewer notes/comments

We also created new questions that drew from the team's familiarity and experience working with the population in the local cultural and socioeconomic context of the Mexico-U.S. border region. For example, because nicknames are very common in the study population, frequently used in the local street culture as well as terms of endearment in close relationships, we asked: "What does your partner call you (a nickname)? What do you call your partner (a nickname)?" The team also designed questions relevant to the daily hardships faced by the population. For example, because much of the population spends a significant amount of time on the streets and in public places to informally earn money, we assessed "In what area or location do you/does your partner spend most of the time when you are trying to earn money? (probe for a specific bar, motel corner, street)" and "If your partner wasn't at home and you needed to find him/her, what's the first place you would go look for him/her? If you weren't at home and your partner needed to find you, what's the first place he/she would go look for you? (Probe for specific name, especially if response is a bar or on the street)." Other questions acknowledged drug involvement, such as "To which connecta [place to purchase drugs] or picadero [shooting gallery] do you/your partner usually go?" These questions also provided the field teams with current information on the constantly changing local drug markets. Finally, because this population faces frequent harassment by the police, the question "When was the last time you/your partner were picked up by the police and put in jail?" was appropriate in the local context.

Ultimately, in order to render the eligibility criteria less evident and reduce the likelihood that individuals could rehearse their answers to a known set of questions, six versions of the CVS were programmed into QDS, which randomly generated one of the versions for each couple who underwent screening. Each CVS version contained eligibility questions, core relationship questions that were asked of all couples (e.g., "Where did you and your partner meet each other for the first time?"), and a random series of questions drawn from the list in *Proyecto Parejas* Couple Verification Screening (CVS) question list.

Like McMahon's protocol (2003),[8] we decided against having a hard rule that partners' answers had to match exactly. Instead, we took proximity of responses into account (e.g., partners providing birthdates for each other that were technically incorrect but matched closely). Whenever possible, the field team also drew on their observations and personal knowledge of the couples to make a decision about their eligibility.

Enrollment was an ongoing process that involved field staff at both sites in Mexico and checks by statisticians in San Diego. Decisions to enroll couples were made in the field on a case-by-case basis that considered the totality of evidence from the CVS responses and staff observations and knowledge. Interviewers documented the reasons why couples were disqualified and, if excluded, individuals were not informed why they were excluded or whose responses led to exclusion. Enrollment and disqualification were reviewed biweekly by Field Coordinators in both sites and statisticians in San Diego in a process of routine data collection and quality control. If eligible, staff reviewed study procedures and potential risks so that each partner could provide written informed consent. All study protocols were approved by the University of California, San Diego's Human Subjects Research Protections Program and the institutional review boards of the Hospital General and El Colegio de la Frontera Norte in Tijuana and the Universidad Autónoma de Ciudad Juárez.

RESULTS

Screening and Enrollment Results

In total, 335 women were screened, of whom 245 (73.1%) were eligible. Table 2.2 lists the reasons that women were disqualified based on the primary screener (n = 90 disqualified, 26.9% of those who completed screeners). The most common reason for ineligibility was failure to meet the criteria for "hard" drug use (10.4%), which we defined a priori as any lifetime use of heroin, methamphetamine, or cocaine or crack. No recent sex work (6.9%), having imminent plans to break up with the steady partner (6.0%), and reporting no recent sex with the steady partner (5.1%) were the next most common disqualifiers. The IPV questions excluded 14 women (4.2%) at the primary screener phase. Staff reported no incidents requiring enactment of the safety protocol.

DISCUSSION

Our study supports the approach to recruit, screen, and enroll high risk couples outlined by McMahon and colleagues (2003)[8] and extends these protocols to the study of FSWs and their intimate, non-commercial partners in a resource poor setting. Based on this experience, we offer several suggestions with applicability to other studies of high risk couples in diverse social and cultural contexts. Main points of reflection center on collaborative decision making and considering the local context in protocol development; strategies to mitigate participant risk, particularly regarding possible IPV; and suggestions for assessing the methodological rigor of the screening process of couple-based studies.

Our adaption of McMahon et al's protocol[8] is innovative in several ways. First, while self-reported relationship status is typically used in couple-based studies and may be sufficient in many settings, prior experience working with drug-involved FSWs who live and work along the Mexico-U.S. border suggested that they were street savvy and that verifying partner status would provide additional oversight to the screening process. Indeed, in Tijuana, a member of a "couple" excluded by the CVS angrily complained to the Field Coordinator that the questions differed from what another enrolled FSWs told them to expect. We generated a large enough pool of questions to create multiple versions of the CVS and thwart potential participants posing as a couple.

Moreover, our questions were developed with multiple perspectives from team members to assure cultural relevance and sensitivity to the social context of this border population, including issues related to family, informal economies, violence, local drug markets, and law enforcement activity.

Collaborative efforts are vital in protocol construction when working in resource poor and international settings. Drawing on formative work in the region, eliciting input from the entire research team and field staff, and field testing the individual measures and flow of the entire process proved vital to the final protocol development. Eliciting a wide range of input ensured the inclusion of multiple viewpoints and different academic perspectives, thus strengthening the final protocol. Fieldworkers, particularly those with extensive experience in other research projects with similar populations, know the local cultural and socioeconomic contexts and can make valuable contributions to protocol and instrument design, including assessing the appropriateness of questions. Local input is imperative in adapting measures for relevance within the linguistic, socio-cultural, and economic contexts of unique geographic regions and study populations.[61-63] The protocols and instruments for our study benefitted greatly from this collaborative process.

Field testing the screening instruments and overall enrollment process was also critical to the successful implementation of our study. Based on experience field testing the CVS with known couples, we modified the original protocol and decided to use the same interviewer to administer the questions to each partner sequentially to try to get a better sense of whether or not the couple was legitimate. We suggest that in certain contexts a single interviewer, regardless of gender matching with the interviewee, who can probe for consistency of responses may improve the more quantitative approach developed by McMahon et al. (2003).[8] If a single interviewer is well trained in a structured approach and gains some experience with the population, project purpose, and screening questions, then the validity and reliability of the screening instruments may be improved.

In addition, the CVS screening questions required both closed and open-ended answers. The majority of the questions were closed-ended with a list of options based on formative

fieldwork. Eliciting open-ended answers, however, meant that interviewers administering the CVS could probe each partner for specific details to try to better assess the veracity of the information provided. Open-ended questions can also generate emergent data for other analyses, such as assessing the locations where participants purchase drugs in a constantly changing local drug market. Open and close-ended questions are equally easy to assess for concordance in the field. Close-ended questions render ad hoc analyses much easier, but including a few open-ended questions can personalize the interview and add another layer of reflection to the screening process that later can be quantified for analyses.

Within a nexus of sex work, drug use, and HIV/STI risk in places like the Mexico-U.S. border region, everyday violence can become normalized and internalized.[64,65] As such, research protocols must be sensitive to screen for cases of potential violence. Among FSWs, it is important to develop specific screening questions that clearly define cases of IPV which should be excluded because participation in a study might place them at further risk. Based on the Revised Conflict Tactics Scales.[58-60] and input from the field teams, our screening tools clearly assessed the timeframe, frequency, type, and severity of violence experienced by participants within their intimate relationships, and generated automatic disqualification from the study based on key responses. Staff were also trained to screen out other cases of IPV on a case-by-case basis if need be, but this situation did not occur at either site.

We also followed McMahon et al's (2003)[8] suggestion to recruit through women first in order to provide her with greater decision making power, screen out cases of extreme IPV, and reduce female participants' risk. This approach, however, may bias the sample in favor of "less risky" couples. A recent study found that among FSWs enrolled in an HIV intervention who reported having steady partners, those who reported IPV were significantly more likely to report that their partners engaged in known HIV risk factors such as injection drug use and having had sex with another partner while in their current relationship than were FSWs who did not report IPV.[66] It is worth clarifying, however, that we did not screen out couples reporting any IPV, but only those reporting extreme violence that could be life threatening. Overall, 4.2% of women who

took the primary screener and 0.8% of couples who were administered the CVS were excluded due to extreme IPV. Thus, while our sample may underestimate risk in this population, the relatively small numbers of participants excluded based on this criteria suggest that the impact on our findings will be minimal.

Regardless, researchers have a responsibility to carefully assess the prevalence of IPV in the population to make an informed decision that protects the safety of the participants. Staff and participant safety protocols for emergent cases of violence and a list of local referrals for psychological counseling and other forms of assistance should also be developed. While our protocols were originally designed with the female participant's safety in mind, it is worth noting that during the CVS stage, two couples (one at each site) were screened out due to male partner concerns about IPV, but no additional couples were screened out due to female concerns about IPV. These results suggest the utility of individually screening the female partner for IPV prior to male partner involvement in the process, and serve as a reminder that males are not immune from experiencing partner violence within the context of an intimate relationship.

As advocated by Witte and colleagues (2004),[12] recruitment protocols should be carefully defined and codified in a manual of procedures. Although we created such a manual and conducted extensive training to standardize procedures across sites, we also recommend that the research team view recruitment and screening as a process of multiple components, which allows for a certain level of flexibility in the field. It was important to strictly adhere to the study inclusion and exclusion criteria, which were checked at each phase of screening. It was equally important, however, to enroll couples based on the totality of evidence, including the concordance of couples' answers about each other in the CVS and the local field staff's knowledge and observations of the couples whenever possible. Instead of opting for hard cut-offs in matching partners' answers with each other on the CVS, this process took into account proximity of answers. Overall, nine couples (3.8%) were disqualified based on the CVS. In seven instances, couples were not automatically disqualified by the computer programming of the CVS, but rather by field staff who determined that their answers were too discordant and their interpersonal

interactions too awkward or distant to indicate that they were a real couple. The astute judgments of well trained and culturally attuned staff who have insight into the local social context are an invaluable part of the recruitment process.

Finally, while this protocol appeared to have excluded those who did not qualify for the study, more sophisticated analyses are needed to determine the effectiveness of these screening tools.[12] Researchers could test the effectiveness of individual questions in the CVS by determining which ones show higher concordance of responses by partners. Another option would be to calculate similarity coefficients to assess how "close" couples measure in their responses.[67] Coefficients could be used to test for differences between couples who were included versus excluded from the study, and assess differences between couples whose score signaled high similarity versus those whose scores were not as close. Such analyses would lend methodological rigor to the recruitment processes of couple-based studies and help other researchers adapt their own protocols to include measures grounded in empirical evidence. Comparisons of couples' CVS scores to their responses to other quantitative and qualitative instruments used in the study could also help contribute evidence regarding the validity of screening instruments and procedures. Couples should also be observed prospectively to assess correlations between initial CVS scores, relationship stability, and dissolution.

CONCLUSION

Attention to the complex social dynamics of intimate relationships and their influence on sexual and drug-related risk behaviors promises to advance public health interventions beyond the individualistic approaches that have thus far failed to contain the HIV epidemic. This study illustrates the feasibility of conducting public health research with high risk couples in a resource poor setting. With multiple sources of input from researchers and field staff, attentiveness to the local context, field testing, and a design that incorporates multiple sources of data to verify couple eligibility, feasible and appropriate study protocols can successfully enroll FSWs and their intimate, non-commercial partners into HIV/STI prevention studies. Other researchers are

encouraged to adapt, refine, and improve such couple-based protocols as part of a continually expanding interest in relationship-based public health research and interventions.

ENDNOTES

[a]A connecta is local slang for a place to purchase drugs and a picadero is a shooting gallery

[b]A talon is local slang for a job, often jobs that are part of an informal economy such as washing cars that are waiting in line at traffic lights or at the border

[c]Questions worded with “you/your partner” indicate the same question was asked first about the participant and then about their partner

[d]Questions were taken from McMahon et al. (2003)

Competing interests

None

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FIGURES

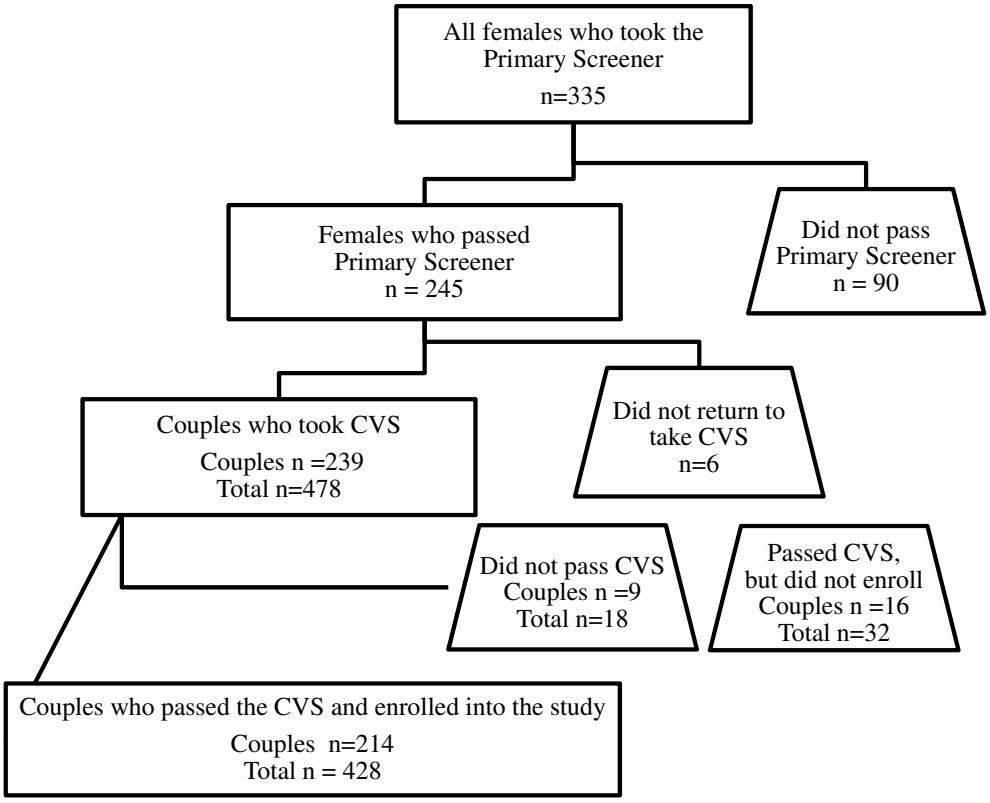

Figure 2.1. Flowchart of *Proyecto Parejas* recruitment in Tijuana and Ciudad Juarez, Mexico

TABLES

Table 2.1. *Proyecto Parejas* primary screener questions

1.	What is your first name?*
2.	What is your age, in years?
3.	What is your date of birth?
4.	Where do you live?
5.	How long have you lived there?*
6.	How much longer do you think you'll live in (name of the city)?
7.	Have you ever been to the United States?*
8.	When was the last time you were in the United States?*
9.	Do you have any family currently living in the United States?*
10.	If yes, what family members live in the United States? *
11.	Have you ever used an illegal drug?
12.	What drugs have you ever used?
13.	Have you used any drugs in the past three months?*
14.	What drugs have you used in the past three months?*
15.	Have you ever injected an illicit drug?*
16.	Have you ever had an HIV test?*
17.	When was the last time you had an HIV test?*
18.	Have you ever been tested for any sexually transmitted infection such as chlamydia, gonorrhea, or syphilis?*
19.	When was the last time you were tested for any sexually transmitted infection such as chlamydia, gonorrhea, or syphilis?*
20.	If you were to test positive for HIV or a sexually transmitted infection such as chlamydia, gonorrhea, or syphilis, would you agree to receive treatment from a doctor?
21.	Have you ever had sex in exchange for money, drugs, goods or shelter?
22.	When was the first time you had sex in exchange for money, drugs, goods or shelter?*
23.	When was the last time you had sex in exchange for money, drugs, goods or shelter?
24.	Are you currently registered with the Municipal Health Services as a Sex worker?*
25.	What is your marital status?*
26.	Do you currently have a spouse or steady partner?
27.	What is your partner's first name?*
28.	How old is your steady partner?*
29.	Is your spouse or steady partner male or female?
30.	How long have you been with your steady partner?
31.	When was the last time you had sex with your spouse or steady partner?
32.	How many children do you and your steady partner have together?*
33.	Who primarily takes care of the children?*
34.	Does your spouse or partner have any children with other women?*
35.	Do you have any plans to end your relationship with your spouse or steady partner in the near future?
36.	If yes, can you please tell me why you are thinking about ending your relationship?
37.	Have you ever experienced any physical, sexual, or verbal abuse from your partner? ++ Yes No (skip the rest of the section, to Q42) Refuse to Answer**
38.	In the past three months, have you experienced physical, sexual, economic, or verbal abuse from your partner? ++ Yes No (skip the rest of the section, to Q42) Refuse to Answer**

Table 2.1. continued

39.	In the past three months, how often have you experienced abuse from your partner? [++] Daily Every month Occasionally Almost never Refuse to Answer**
40.	In the past three months, how serious would you describe the level of abuse in your relationship with [your partner]? Can you give me some examples? [++, +++] NONE (has not suffered from any insults, mistreatment, yelling from partner) MILD (partner has insulted, swore, or yelled at least once) SEVERE (partner has punched me, kicked, or beat up to the point where I had serious injuries, or has pulled a weapon and threatened to kill me at least once) Refuse to Answer**
41.	Are you currently worried that your life is in danger because of abuse by your partner? [++] Yes No Refuse to Answer**
42.	Are you currently participating in a research study or program with our group?*
43.	Specify other research study or program in which respondent is currently participating*
44.	Would you be willing to come to our office with your spouse or steady partner to see if you are both eligible for a study?

* Questions do not count toward eligibility.
** If participant refuses to answer the IPV questions, the interviewer should probe for reasons why, and if they still refuse to answer, they should mark refuse to answer. If the participant refuses to answer any or all of the questions, consult with other field staff to assess potential risk.
[++] Questions 37-41 assess intimate partner violence (IPV); IPV questions are also asked of both partners in the CVS.
[+++] The interviewer should ask for examples of the types of abuse they have experienced and evaluate the level of severity that is most appropriate for their situation from the options listed.

Table 2.2. Reasons for disqualification from *Proyecto Parejas* in the primary screener,* n = 90

Disqualification Reasons	Total (n, %)
No lifetime use of cocaine, methamphetamine, or heroin	35 (10.4%)
No sex work in last month	23 (6.9%)
Plans to break up with partner	20 (6.0%)
No sex with partner in last month	17 (5.1%)
Worried about intimate partner violence (IPV)	14 (4.2%)
Never exchanged sex for money, drugs, or other items	11 (3.3%)
Unwilling to bring in partner for screening	10 (3.0%)
Relationship < 6 months	9 (2.7%)
Plans to move in next 18 months	3 (0.9%)
Would refuse treatment for STIs	2 (0.6%)
Does not have a steady partner	2 (0.6%)
Primary partner is female	2 (0.6%)
Age < 18	1 (0.3%)

* Numbers do not add to 100% because women could be excluded for more than one reason.

Table 2.3. *Proyecto Parejas* Couple Verification Screening (CVS), n = 239 couples

CVS Eligibility Status	Total (n, %)
Qualified for the study	230 (96.2%)
Excluded from the study	9 (3.8%)
Worried about IPV	2 (0.8%)
Determined not a real couple	7 (2.9%)

Table 2.3 depicts all couples who were screened with the CVS: of the 239 total couples, 230 (96.2%) passed and were eligible to enroll in the study. Of the nine couples (3.8%) who did not pass the CVS stage, two couples were excluded because of the male partner's concern over IPV and seven were determined not to be real couples based on the excessive discordance of partners' responses in the CVS and the staff's observations of the potential participants. Figure 2.1 depicts a flowchart of the overall screening processes in Tijuana and Ciudad Juarez. In addition to the couples excluded by the CVS, another 16 couples passed the CVS but did not enroll in the study. Of those couples, 14 did not return for a baseline interview and two male partners in Ciudad Juarez died after participating in baseline qualitative interviews but before the baseline quantitative survey and HIV/STI testing were administered to complete their enrollment; one died from a drug overdose and the other was a homicide victim. In total, 214 couples were successfully enrolled in *Proyecto Parejas*.

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CHAPTER 3: A TYPOLOGY OF FEMALE SEX WORKERS' COMMERCIAL RELATIONSHIPS

Title: Can't buy my love: a typology of female sex workers' commercial relationships in the Mexico-U.S. border region

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ABSTRACT

Female sex workers (FSWs) experience elevated risk for HIV and sexually transmitted infections (STIs) through unprotected sex with male clients, yet the complexity of their commercial relationships beyond dichotomizations of non-regular and regular clients remains understudied. Drawing from social action and gender theories, which highlight how HIV transmission occurs within heterosexual relationship contexts, we sought to elucidate FSWs' conceptualizations of various client types and related risk behavior patterns. We purposively selected participants from a cohort of high risk, drug using FSWs and their intimate, non-commercial male partners in Tijuana and Ciudad Juárez, two large cities in the Mexico-U.S. border region where FSWs' HIV/STI prevalence is rising. Women (n=46) completed semi-structured interviews from 2010-2011 focusing on relationship contexts. Analysis followed an iterative, team-based, grounded theory approach to identify salient themes. FSWs described four types of commercial

relationships involving distinct social and behavioral norms: (1) non-regular clients; (2) regular clients and friends; (3) clients who “fell in love” with FSWs despite women’s efforts to maintain professional boundaries; and (4) long-term financial providers who often originated from the United States. As commercial relationships developed, clients’ social and emotional connections to FSWs increased, leading women to devise professional strategies for negotiating prices, maintaining consistent condom use, and limiting intimacy. However, drug and financial need were important priorities that influenced behaviors, particularly in Ciudad Juárez, where women reported increasing scarcity of clients, especially lucrative U.S. clients. While struggling to cultivate lasting and dependable commercial relationships in a setting marked by historical sex tourism from a wealthier country, some FSWs ceased negotiating condom use. We discuss the need for HIV/STI research and prevention interventions to recognize the complexity within FSWs’ commercial relationships and how behaviors (e.g., condom use) evolve as relationships develop through processes that are influenced by local socio-political contexts and bi-national income inequality.

Keywords: Mexico; female sex workers; male clients; HIV; couple-based research; intimacy; emotions; economic inequality; sex work harm reduction

Research highlights:

- Female sex workers’ (FSWs’) commercial relationships are complex; some clients develop emotional connections to FSWs
- Condom negotiation becomes more difficult as clients’ emotional connectedness and financial dependability increase
- FSWs struggle to retain lucrative bi-national clients while maintaining professionalism and limiting emotional intimacy
- HIV/STI prevention interventions should help FSWs effectively respond to social and financial challenges to condom use

INTRODUCTION

Female sex workers (FSWs) face increased risk of acquiring HIV and other sexually transmitted infections (STIs) through unprotected sex with commercial and non-commercial partners. While FSWs are more likely to use condoms with male clients than non-commercial partners,[1] condom use with clients remains inconsistent due to clients' preferences for unprotected sex, FSWs' financial and drug need, limited access to condoms and health services, and other social and structural barriers.[2] Reasons for unprotected sex may also depend on characteristics of commercial relationships: research in international settings has documented reduced condom use with regular, repeat clients who may be perceived to have lower HIV/STI risk.[3]

A growing body of international evidence underscores the importance of male clients in fueling HIV/STI transmission from FSWs to clients' non-commercial partners.[4,5] A recent study in Tijuana, Mexico, found that clients' HIV prevalence of 4% was comparable to that of local FSWs. Half of these clients reported recent unprotected sex with FSWs,[6] which was independently associated with repeatedly visiting the same FSW (i.e., being a regular client).[7] Qualitative research revealed that key features of clients' experiences in Tijuana included social isolation, a desire for intimacy, and the formation of relationships with FSWs.[8] Similarly, in the Dominican Republic, condom use decreased as FSWs developed greater relationship intimacy with their regular clients.[9] Taken together, these findings suggest that social relationships between FSWs and their clients may influence HIV/STI-related risk.

Despite calls for HIV research that goes beyond individual risk behaviors to examine social and intimate relationship contexts,[10] few studies have systematically examined the development or complexity of FSWs' commercial relationships beyond dichotomizations of non-regular and regular clients.[11] Since the development of commercial relationships is likely context-specific,[12,13] the objectives of our study were to elucidate FSWs' conceptualizations of their commercial relationships and describe factors that shape HIV/STI risk behaviors with different types of clients.

To guide our study of FSWs' commercial relationships, we drew from social action theories, which conceptualize risk as a process occurring within social relationships and shift the focus of analysis from individuals to the interactions and social processes that occur between them.[14] Within intimate relationships, individuals may perceive the social benefits of unprotected sex (e.g., implications of trust and closeness) as outweighing the potential risks of disease transmission. Over time, relationships may develop increasing levels of emotional closeness,[15] rendering the habituated nature of certain risk behaviors (e.g., unprotected sex) increasingly difficult to challenge, particularly in the presence of interpersonal power dynamics.[14] To date, it remains unclear whether these social dynamics occur within relationships that are initially formed for financial purposes.

We also drew from the theory of gender and power, which helps examine how social norms create and reinforce power dynamics within heterosexual relationships, in which men typically have greater access to and authority over financial resources and decisions influencing women's health and autonomy.[16,17] Research on gender and sexual risk has found that women's relational orientation can also challenge safe sex negotiation, particularly as intimacy increases.[18] Based on these social action and gender theories, we sought to explore the development and diversity of FSWs' commercial relationships and identify discernible patterns of interpersonal interactions, professional strategies, power dynamics, and health behaviors with implications for HIV/STI transmission and prevention programs.

METHODS

Setting

The Mexico-U.S. border has maintained some of the largest wage gaps of all land borders in the world (i.e., identical U.S. workers earn three times more income than their Mexican counterparts for the same work).[19] In Mexico-U.S. border cities, sex work is socially and legally tolerated and driven by poverty and historically high demand including sex tourism from the United States.[20] Tijuana, Baja California, and Ciudad Juárez, Chihuahua, which are adjacent to

San Diego, California, and El Paso, Texas, respectively, are the two largest Mexico-U.S. border cities. Both have neighborhoods where sex work is known to occur, including a zona roja (red light district) in Tijuana where sex work is partially regulated by the Municipal Health Department; however, studies suggest that this registration system excludes some of the highest risk, street-based FSWs.[21] Sex work is not regulated in Ciudad Juárez. As found in other settings,[22] many street-based FSWs in these cities work independently, making it difficult to enumerate FSW populations. While estimates vary, the most cited figures include 6,000 FSWs in Tijuana and 4,000 in Ciudad Juárez.[23] Prevalence of HIV among FSWs in these cities has risen from less than 2% in 2004 to nearly 6% in 2006, and prevalence of gonorrhea, Chlamydia, and active syphilis (titers ≥1:8) was recently estimated at 6%, 13% and 14%, respectively.[24] Rates of HIV/STI transmission may be driven in part by drug abuse and injection drug use, which are increasingly common as northbound trafficking routes for heroin, cocaine and methamphetamine pass through the cities.[25]

Study Design and Population

We drew from *Proyecto Parejas* (Couples Project), a mixed methods study of the context and epidemiology of HIV/STIs among high risk FSWs and their intimate, non-commercial male partners in Tijuana and Ciudad Juárez. As previously described,[26] we used targeted and snowball sampling to recruit FSWs first. A primary screener checked women's eligibility, which included being ≥18 years of age, having an intimate, non-commercial male partner for ≥6 months, having sex with that intimate partner and exchanging sex in the past month, and reporting lifetime use of heroin, cocaine, crack, or methamphetamine. Women were excluded if they had immediate plans to break up with their non-commercial partner, move away, refuse STI treatment, or indicated the possibility of severe intimate partner violence due to participating. Eligible FSWs were invited to bring their primary, intimate male partners to study offices. Men's eligibility included being ≥18 years of age and in a carefully verified relationship with an eligible FSW.[26] Enrolled couples provided written informed consent for qualitative and quantitative interviews and HIV/STI testing. The University of California, San Diego's Human Subjects Research Protections Program and the

institutional review boards of the Hospital General and El Colegio de la Frontera Norte in Tijuana and the Universidad Autónoma de Ciudad Juárez approved all study protocols.

Data Collection

The entire cohort (n=428; 214 FSW-intimate partner couples) underwent quantitative surveys and HIV/STI testing at baseline and six-month follow-up visits. To explore relationship and social contexts surrounding HIV/STI risk, from February-March, 2010, we conducted semi-structured baseline interviews with couples who were purposively sampled from the cohort for maximum variation in age, relationship duration, and drug use.[27] Qualitative interviews explored relationship contexts, sexual behaviors, sex work, drug use and other topics. Trained interviewers conducted individual and joint (couple) baseline interviews lasting 30-90 minutes in private rooms at project offices. We terminated baseline interviewing after repeatedly hearing similar information about key topics (i.e., theoretical saturation)[28] with 41 couples (Tijuana: n=18 couples; Ciudad Juárez: n=23 couples). To assess relationship changes and verify preliminary conclusions regarding emergent baseline themes,[29] we conducted follow-up interviews from June-December, 2011, with 31 couples (17 couples in Tijuana; 14 couples in Ciudad Juárez), including a portion of baseline couples.

Items relevant to our study of FSWs' commercial relationships included, "Tell me about your current clients," and, "How do regular clients differ from non-regular clients?" Specific probes explored interpersonal interactions, services/payments, and drug and condom use within commercial relationships. To focus on FSWs' subjective experience with their clients, we restricted analysis to women's individual interviews (n=46 women; Tijuana: n=23; Ciudad Juárez: n=23).

Data Analysis

Interviews were digitally recorded and transcribed verbatim. To facilitate our team-based approach to text analysis, baseline transcripts were translated from Spanish into English by trained bilingual staff following a structured protocol.[30] The qualitative data manager (a native English speaker with Spanish fluency) reviewed English translations against original Spanish

transcripts. We did not translate follow-up data to allow for detailed analysis of women's unique, bilingual narratives.[31]

We used an iterative, grounded theory approach to data analysis throughout the study,[32] beginning with preliminary review of baseline transcripts while data collection was ongoing. We identified emergent themes regarding commercial relationships that informed the development of specific follow-up questions. To code transcript data, we used a collaborative codebook development process in which a seven-person research team read transcript excerpts and independently generated initial codes[33] based on interview guide topics and other, emergent themes.[34] The team discussed and refined a hierarchical structure of parent codes for major themes (e.g., sex work) and corresponding sub-codes under each theme (e.g., client relationships). Next, team members independently applied these codes to identical transcripts, which were checked for reliability (i.e., consistency) in code application. Analysts met to discuss and resolve any discrepancies in code application and refine the codebook as necessary. Finally, a core group of four bilingual analysts used MAXQDA software to organize transcripts, apply finalized codes, and record detailed memos about interesting and unique findings.

We met regularly throughout the coding process to discuss crosscutting themes and generate deeper understandings of the data,[35] which led to the identification of categories of commercial relationships. We then carefully examined women's narratives to assess the validity of our preliminary categories[29] and identify related interpersonal and behavioral patterns. After discussing and arriving at consensus on commercial relationship types and related findings, we selected illustrative quotes that were translated into English as necessary by our bilingual, bicultural team. To protect confidentiality, all names given are pseudonyms.

RESULTS

Among 46 FSWs (Tijuana: n=23; Ciudad Juárez: n=23), median age was 32 years (range 20-50 years), and median duration of sex work was 12.5 years (range 1-29 years). By definition, all FSWs had non-commercial male partners, with whom median relationship duration was 3

years (range 1-25 years). One-third (33%) lived with children under 18 years of age. Drug abuse was common: within the past six months, women used heroin (68%), methamphetamine (34%), cocaine (20%) and crack (18%), and two-thirds (66%) injected drugs. FSWs worked independently (i.e., free from managers or pimps), meeting clients in bars or on the street and often having sex with clients in hotel rooms and private homes. The majority (75%) had U.S. clients (86% in Tijuana; 65% in Ciudad Juárez).

Women described relationships with four fluid, overlapping types of clients: (1) one-time, non-regular clients, (2) regular clients and "friends," (3) clients who fell in love, and (4) long-term financial providers. Rather than mutually exclusive categories, these commercial relationship types may represent stages through which clients developed increasing social and emotional connections to FSWs. All client types were comprised of men from Mexico and the United States. As described below, FSWs' interpersonal interactions, behavioral norms and professional strategies varied with different client types.

1. *Los clientes de una sola vez*: one-time, non-regular clients

Most FSWs had one-time clients (*los clientes de una sola vez*) who they did not expect to see again. While some women had these non-regular clients as a convenient way to quickly earn money for drugs, others avoided non-regulars for health, safety and personal reasons. Women considered condom use to be extremely important with these clients because they did not know or trust them. The negotiation of condom use, prices and services was usually straightforward, and typically occurred before the transaction (e.g., prior to accepting payment or entering a hotel room). During negotiations, non-regulars either agreed to use condoms or left to find another FSW. A minority of non-regulars strongly opposed condoms, offered more money for unprotected sex, or tried to remove condoms during sex. Due to financial and/or drug need, a minority of FSWs agreed to have unprotected sex with non-regulars.

In Ciudad Juárez, women perceived an increasing scarcity of clients, particularly U.S. clients, which they attributed to recent drug violence in the region. As a result, Ciudad Juárez FSWs had greater proportions of non-regulars than Tijuana FSWs. To attract more non-regulars,

women in Ciudad Juárez reduced their prices, agreed to unprotected sex, or avoided condom negotiation entirely. At the same time, these women implemented specific professional strategies for working with non-regular clients. To protect their physical safety, women only accompanied non-regulars to familiar, populated locations they believed to be safe and/or told clients that they had a "lookout" nearby (e.g., spouse, hotel employee). To limit intimacy, women avoided removing clothing and prohibited touching (e.g., "my job consists of sex only"). Since "time is money," women also adhered to strict rules and charged higher prices for extra sexual services and time-consuming, non-sexual activities (e.g., sleeping, talking, using drugs).

2. *Los clientes de tiempecito y amigos*: regular clients and "friends"

All FSWs in our sample had regular, repeat clients and *amigos* (friends) they had known for some time (*los clientes de tiempecito*). Many women knew where to go to find regulars, particularly those who lived in the city. Since women knew regulars better than non-regulars, they had greater trust for their physical safety and developed *amistad* (friendship). Regulars were more likely to treat FSWs with kindness and respect (e.g., "they don't try to humiliate you") and would loan money in advance of sex to help drug dependent women address malilla (drug withdrawal symptoms).

FSWs described the relative ease of condom negotiation with regulars who knew and respected women's preferences regarding safe sex. Although most FSWs viewed using condoms with regulars as important, they perceived less risk and had greater confidence that these "clean" and "loyal" customers did not have HIV/STIs or other FSW-sex partners. When regulars used their "friend" status to argue for unprotected sex, some women agreed to forgo condoms, typically when they urgently needed money or drugs. Regulars sometimes called at unpredictable times to request that FSWs come to their homes. In these situations, women did not always have condoms available.

Given the financial and safety advantages of regulars, FSWs employed specific strategies to retain these clients, including remembering individual clients' schedules and sexual preferences, allowing extra time to talk and use drugs without charging higher prices, and having

drugs available if requested. For example, Pilar, a 40-year-old Tijuana FSW, explained that her U.S. regulars were attracted to Tijuana's *zona roja* for many reasons in addition to sex, including the availability of and private space to consume drugs that she was willing to provide:

> With regulars, you start to get to know them, what they want to be satisfied…*Los del otro lado* [U.S. clients] want to smoke and chill. With their wives, they can't do that, so they come over here to chat, drink a beer, and smoke a *globo* [methamphetamine].

Other qualities women adopted to be appealing to regulars included being honest and trustworthy (e.g., not stealing) and being a good listener.

Despite the advantages of regulars, women also tried to maintain personal boundaries and professionalism (e.g., preventing regulars from taking advantage of their "friend" status to pay less or postpone payment). Women also stressed the importance of preventing intimacy from developing with regulars. Cindy, a 29-year-old heroin injector from Tijuana, experienced tension with regulars who sought greater intimacy because she already had a non-commercial partner:

> We're supposed to be friends. I've known [the client] for years and I've told him before that I don't play cuddly; no personal affection or anything like that. Some of them ask me for a kiss. A kiss! Oh, heck no! That's sacred, something you give to someone you love!

Some women with greater financial resources than Cindy were able to end relationships with regulars who became too emotionally attached.

3. *Los que se enamoran*: clients who fall in love

Several women had relationships with clients whose romantic feelings for FSWs developed to the point that clients "fell in love." Relationships with these "clients who love me" (*los que me quieren*) were the most difficult for FSWs to manage because clients sought greater, unreasonable non-commercial commitments (e.g., marriage, moving in together). Negotiating condom use was considered to be particularly challenging because clients used *amor* (love) as an argument for unprotected sex. Some women eventually agreed to unprotected sex because they perceived these clients to be more "caring" and completely monogamous (i.e., single men who were even "safer" than other regulars who might be married). Clients who were in love often disregarded FSWs' rules against intimacy, and managing clients' emotional expectations was

difficult, stressful and tiring for women like Maria, a 46-year-old Tijuana FSW who injected drugs and was trying to quickly earn money to prevent drug withdrawal:

> There's this one guy who has fallen in love. I'm trying to make some money to get some dope, and I could have made other money, but he wants me to stay with him all night. But because he's fallen in love with me, I stay with him more like an hour, and that's privileges! Some [clients] are like, "Can't you be a little bit more romantic?" No, you want me to act like I love you? Cough up some more money! Some do pay me more to do it "more sexy." One commented to his friends that I'm real cold, that I don't have feelings or know how to love. Whatever, I do know how to love. Ask my syringe, I love my syringe.

Despite the difficulty of managing relationships with clients who were in love, mutual support and understanding could develop over time, leading some women to worry about mistreating clients. As explained by Carla, a 43-year-old FSW from Tijuana, she could have taken advantage of a client who wanted to marry her but would have been "embarrassed" because he was a "sincere" person. Some FSWs tried to protect clients' feelings by preventing clients from knowing or becoming jealous of women's intimate partners. FSWs like Maria who lacked effective strategies for managing clients' emotions sometimes experienced guilt or moral dilemmas from not being able to return or reciprocate clients' feelings:

> I feel sorry for him because he wasn't supposed to fall in love with me…I can't tell him off, poor guy. I think, "God's going to punish me," and all that conscience stuff…But I can't tell the connection [drug dealer], "Hey, my conscience felt bad, but I'll bring you the money tomorrow." So I tell him, "I need to go," and he starts talking about all this love crap, and I'm like, "I'm sorry that you've fallen in love with me, but I'm not in love with you!" But then I feel bad because a broken heart is so…it hurts, you know? And that was never really my intention.

Clients who fell in love were particularly problematic for women in our sample because they already had intimate, non-commercial partners and were not seeking romantic relationships with clients. Several women reported that that their current intimate partners had been clients before they developed non-commercial relationships, like Anna, a 42-year-old Ciudad Juárez FSW who injected drugs, whose relationship with her current partner transitioned from commercial to non-commercial because "he was an addict, too," so he "understood" her. No FSWs reported developing feelings or falling in love with any of their current clients. A minority of women, including Carlota, a 22-year-old FSW from Tijuana who injected heroin and

methamphetamine, viewed clients who fell in love as pathways out of sex work and into a better, more financially secure future, possibly in the United States:

> My family likes the *gabacho* [white U.S. client]. They want me to leave [steady partner] because he hasn't gotten me out of this life. They think I'd be secure with the *gabacho* and want me to marry him. He's going to rent a big house for me and marry me for the papers [U.S. residency].

However, women's drug addiction, relationship status, and other circumstances prevented those who wanted to completely "leave sex work" from pursuing romantic relationships with wealthier, non-drug using clients.

4. *Los proveedores*: long-term financial providers

Some FSWs had longer-term relationships with *proveedores financieros* (financial providers) who provided consistent, substantial financial support rather than paying for specific sex services or visits. *Proveedores* paid for many of women's major expenses (e.g., rent, childcare), gave women extra money when needed (e.g., to settle debts), and provided numerous smaller gifts (e.g., clothes, household products), which women perceived to stem from a desire to be helpful. Several women expressed appreciation for this financial support, which allowed them to save money, work less, and avoid working on the street:

> He calls me only on Fridays and gives me 2000 pesos [~$160 USD]. It's a good job. With that money, I send some to [family in] Guadalajara, pay my rent, and put some in the bank. What he gives me could equal five or six other clients. He also takes me out and buys me things. (Martina, Tijuana FSW, age 34 years)

> It is better to wait for him to call than stand out there [on the street], because sometimes you don't get anyone. Just waiting out there, walking up and down the street. The economy is terrible, and the police are tough. (Annie, Tijuana FSW, age 24 years)

Maintaining professionalism with *proveedores* was still important, but women like Celia, a 36-year-old FSW from Tijuana who injected heroin and methamphetamine, felt a high degree of mutual respect and support within these long-term relationships:

> He's been there for me, you know, mentally, when I needed it. I don't love him, but if something were to happen to him, I'd be upset…because I've talked to him about personal stuff and he's actually listened. He'll hear me out; cheer me up. That's why he's so cool.

In exchange for their financial dependability, *proveedores* often expected special privileges (e.g., spending the night together, traveling for the weekend) and held considerable power in negotiating services, schedules (e.g., longer time-commitments that could interfere with women's personal lives), and condom use. Although safe sex could become the norm with *proveedores* who preferred protected sex, insisting on condom use with clients who did not want to use them could be extremely difficult. In order to avoid jeopardizing one of their most important sources of income, unprotected sex often became an established habit, as explained by Gwen, a 32-year-old FSW from Tijuana, who was struggling to reduce her use of heroin and methamphetamine:

> [He] has a lot of money and always offers to pay my rent. On purpose, I see him every first of the month because of that, but probably once a week also. I've never asked him to use condoms before, so if all of a sudden I ask, it's going to be a big ordeal.

Women considered *proveedores*, many of whom were older men from the United States (*del otro lado*; from the other side), to be the most lucrative and financially dependable type of client. Retaining these clients involved similar strategies used with other regulars, but required women to gain additional experience and be more selective (e.g., only cultivating relationships with clients who paid highly for smaller time commitments). Women explained that their most lucrative U.S. *proveedores* appreciated FSWs who accommodated clients' schedules (e.g., working weekends) and provided additional, non-sexual services (e.g., companionship, errands, laundry). Women who were bilingual, had lived in the United States, and/or spoke some English may have had advantages in attracting and retaining these lucrative U.S. clients.

Proveedores in general and especially those from the United States were increasingly scarce in Ciudad Juárez, where women expressed concern about retaining their few "secure" clients (*los seguritos*) who could be counted on for financial support. As described by several women including Nancy, a 31-year-old Ciudad Juárez FSW, wealthy clients from El Paso, Texas, had been "disappearing," leading her to have unprotected sex with her remaining U.S. *proveedores* "to keep them happy," because, "at least you can have a little bit more trust in the

ones you know better." Nancy went on to explain that she only engaged in sex work out of necessity and constantly feared for her safety due to "the danger and violence that has come here to Juárez…sure, there's the risk of getting some disease, but also of getting hurt." In addition to financial and violence concerns taking priority over the prospect of disease transmission, women in Ciudad Juárez reported that the price of condoms in local establishments was prohibitive, especially for those who had already reduced their sex work prices to retain clients.

DISCUSSION

We found that FSWs in Tijuana and Ciudad Juárez had four broad, overlapping types of clients: non-regulars, regulars and "friends," clients who fell in love, and long-term financial providers. Rather than static, mutually exclusive categories, our findings may represent stages through which commercial relationships develop, involving social processes typical of other interpersonal and intimate relationships (e.g., strangers may become friends who may fall in love). We found that interpersonal interactions, professional strategies and behavioral norms evolved throughout this relationship development process, which has rarely been studied in commercial sex contexts.[12,13] As commercial relationships developed, clients' social and emotional connections to FSWs increased and interacted with their financial dependability to render condom negotiation more difficult. By highlighting the struggle between FSWs' desires to cultivate relationships with more lucrative, longer-term clients (e.g., financial providers) while maintaining professional boundaries and insisting on condom use, our findings carry important implications for HIV/STI research and prevention interventions in this region.

Our finding that FSWs' ability to negotiate and use condoms decreases as commercial relationships become closer extendes social action theories, which posit that decisions to engage in risk behaviors are influenced by interpersonal interactions within heterosexual relationships,[14] into the commercial sex context. Even though FSWs in our sample had non-commercial partners and were not seeking intimacy with clients, negotiating condom use became more difficult as clients' social and emotional connections (e.g., trust and friendship) developed. Our findings

parallel Tijuana male clients' descriptions of FSWs they repeatedly visited as "friends" with whom they developed rapport[8] and were more likely to have unprotected sex.[7] However, both FSWs and clients in close relationships may hold inaccurate perceptions regarding each other's risk profiles. In contrast to our finding that FSWs perceived their longer-term clients to be "clean" and "loyal" (i.e., monogamous) customers, a recent study in Tijuana found that among male clients with wives/steady partners, 52% were having unprotected sex with these partners and FSWs at the same time.[5] In addition to research on the accuracy of FSWs' and clients' risk perceptions within their sexual relationships, HIV/STI prevention interventions should help FSWs and clients recognize and challenge these patterns of increasing intimacy and trust and decreasing condom use by providing training in risk communication (e.g., disclosure of sexual risks), negotiation and problem solving skills wtihin different relationship contexts.[36]

We also found that clients' financial power generally increased as relationships became more established, supporting the theory that broader, gendered norms of male control over resources influence women's HIV/STI risk within heterosexual relationships.[16,17] FSWs struggled to cultivate personal relationships with lucrative regulars while simultaneously maintaining professional, transaction-oriented encounters. Nevertheless, as clients became more regular, their financial power within relationships increased, pressuring some FSWs to succumb to clients' requests for unprotected sex out of fear of losing clients to other FSWs. In addition to individual-focused training in condom negotiation skills to FSWs, interventions should work with networks of FSWs to build consensus and collective commitment for not providing this "commodity" of unprotected sex. If successful, a community-oriented approach could enhance a sense of solidarity among FSWs,[37,38] reduce their fear of losing clients to other FSWs, and ultimately boost their confidence and power in safe sex negotiations.

Further supporting social action and gender theories, we found that although clients' feelings for FSWs were often unreciprocated, some women were inclined to protect longer term clients' emotional wellbeing, highlighting the importance of women's relational orientation.[18] In addition to financial benefits of unprotected sex, some women perceived the immediate social

effect of condom nonuse (e.g., preserving a relationship) as outweighing the more distant risk of disease transmission. Research among marginalized women[39,40] and drug using couples[41,42] in other settings has identified condom nonuse as a strategy for protecting limited social, emotional, and financial resources. Our findings add to this literature by demonstrating the importance of interpersonal factors within commercial contexts, in which clients' financial power interacts with their emotional connections to FSWs to further limit women's intentions and ability to negotiate safer sex, particularly once condom nonuse becomes an established habit.[14] Taking women's relational orientation into consideration, interventions should help FSWs anticipate and effectively respond to clients' emotional appeals by reframing condom use as a way to protect their interpersonal (if not romantic) relationship instead of implying mistrust.[43,44]

We found that commercial relationship development processes were also influenced by several structural-level factors. First, FSWs' financial need had an important influence over commercial relationship dynamics. Although the majority of the world's FSWs reside in resource-constrained settings,[2] wage differentials across the Mexico-U.S. border may be some of the highest in the world.[19] Other settings where socioeconomic inequality and legal barriers to migration limit women's opportunities and constrain FSWs' ability to negotiate safe sex include the post-Soviet Czech-German border[45] and coastal Batam, Indonesia, where migrant and deported FSWs service wealthier Singaporean sex tourists while facing stigma, discrimination, and language barriers.[46] Some women in our sample referred to U.S. clients using the term "*gabacho*," which can carry pejorative connotations regarding white Americans. While these women generally did not express animosity toward their U.S. clients, they did not have a similar term for Mexican clients, suggesting significant meaning involved in differentiating clients by national origin. In this context, women described struggling to market sexual services to a diverse, bi-national client population while retaining lucrative U.S. financial providers. Ethnographic research has identified similar economic and power inequalities between Dominican FSWs and European male clients that required women to develop professional "advancement strategies" including invoking romantic feelings from clients.[22] Taken together,

these findings demonstrate the influence of extreme income inequality on commercial relationship formation and development, which may have implications for HIV/STI research in other binational and international settings.

The escalating drug-related violence and the related reluctance of U.S. clients to visit Ciudad Juárez highlights a second structural-level influence on FSWs' commercial relationship dynamics. As a strategy to retain clients, some Ciudad Juárez FSWs avoided condom negotiation entirely. Other women gained increasing proportions of non-regular clients despite safety concerns given the historically high rates of violence against women and the recent epidemic of *feminicidios* (female homicides) in Ciudad Juárez.[47] Programs to reduce sex work harms should recognize that some FSWs have already developed specific safety strategies (e.g., having a lookout nearby, only servicing clients in familiar locations) that could be shared with other women.[48] Programs could also work to create and enhance safer indoor sex work environments,[49] particularly for street-based FSWs. Since institutional support for condoms within sex work establishments has been associated with consistent use even with FSWs' regular clients,[50] efforts are needed to enhance condom availability and affordability,[51] especially in Ciudad Juárez, where condom availability has not increased as rapidly as it has in Tijuana.[52] Additional research should also investigate ways to create local "enabling environments" for condom use, particularly for FSWs working outside of traditional sex work venues (e.g., on the street, in private homes).[53]

Finally, drug abuse and related financial need also influenced women's commercial relationships and their ability to negotiate condom use across different client types. Widespread drug availability and abuse in the U.S.-Mexico border region has been associated with HIV/STI positivity among FSWs, FSWs who inject drugs, and male clients.[6,24,54] Research in other settings, such as post-Soviet Moscow, has identified how rapid migration and economic pressures create and reinforce intertwined drug and sex work economies in which FSWs struggling with drug addiction are unable to successfully negotiate condom use.[55] Interventions that seek to improve FSWs' risk communication and condom negotiation skills in Mexico-U.S.

border cities, where access to quality drug treatment is severely limited,[56] must recognize how drug abuse and related financial need adversely affect FSWs' ability to adopt protective behaviors. In the absence of improved access to social services and economic alternatives to sex work, harm reduction interventions tailored for FSWs should be cognizant of the relationship and structural dynamics identified here.[48,57]

Our study was limited by several factors. First, our unique sample was comprised of FSWs with intimate, non-commercial male partners and lifetime history of heavy drug use; the patterns we identified may differ from FSWs without non-commercial partners or those experiencing severe intimate partner violence. Quantitative and social network approaches could help confirm the types of relationships and corresponding behavioral patterns that we identified. Second, our findings are based on women's narratives; additional research among clients is needed to assess the validity of our findings from men's perspectives. However, we believe that HIV/STI research and prevention interventions will benefit from understanding FSWs' experiences and perspectives. Finally, although we identified several important structural influences on behaviors, our study was designed to focus on interpersonal relationships. Further inquiry is necessary to directly assess time- and context-specific social and structural factors that influence the development of commercial relationships and the HIV/STI risk behaviors that occur within them.[54]

CONCLUSION

In light of recent calls for HIV prevention research to go beyond individual risk behaviors to examine social and intimate relationship contexts,[10] our study provides an important and rare insight into the complexity of high risk FSWs' commercial relationships. We found that unprotected sex increased as commercial relationships became socially and emotionally closer, and that FSWs struggled to cultivate longer-term, more financially supportive relationships while managing intimacy and clients' financial power. Our findings highlight how interpersonal influences on behavioral norms evolve as relationships develop, and how different types of

commercial relationships are situated within socio-political contexts characterized by bi-national income inequality. Programs seeking to reduce sex work harms in such environments should carefully assess FSWs' and clients' experiences within commercial relationships in order to identify interpersonal and structural barriers to safe sex by expanding upon the skills and strategies that some FSWs already use to manage their relationships with different types of clients. HIV/STI prevention interventions should also provide FSWs with additional skills and resources to increase their negotiation power within commercial relationships while being sensitive to the ways in which interpersonal factors interact with structural inequality and shifting socio-political environments to shape their risk.

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CHAPTER 4: PREVALENCE AND CORRELATES OF SEXUAL PARTNER CONCURRENCY

Title: Concurrent sexual partnerships among female sex workers and their intimate male partners in Tijuana and Ciudad Juárez, Mexico

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ABSTRACT

Objectives: To investigate the prevalence and correlates of concurrent (overlapping) sexual partnerships among female sex workers (FSWs) and their intimate male partners in two Mexico-U.S. border cities.

Methods: A cross-sectional survey of FSWs and intimate male partners was conducted in Tijuana and Ciudad Juárez, Mexico (2010-2011). Eligible FSWs and their verified male partners were aged ≥18 years; FSWs reported lifetime hard drug use and recently exchanged sex (past month). Participants underwent baseline questionnaires obtaining dates of sex with ≤5 other recurring, steady partners (including FSWs' regular clients), which were compared to dates of sex with study partners to determine past-year cumulative prevalence of overlap. Bivariate probit regression controlling for location and couple-specific effects identified concurrency correlates.

Results: Among 214 couples (n=428 individuals), both partners reported past-year concurrency in 10 couples (5%), only women reported concurrency in 45 couples (21%) and only men

reported concurrency in 3 couples (1%) (p<.001). Overall steady concurrency prevalence was 16% (n=68 individuals). FSWs with higher income (≥$250 USD/month) were 26% more likely to report concurrency than FSWs earning less. Men with greater caballerismo, a positive form of masculinity associated with emotional connectedness, were more likely to report concurrency (4% per point increase in caballerismo score). Men who believed that their FSW-partners had STIs were 9% more likely to report concurrency.

Conclusions: Steady (recurring) sexual partner concurrency, which may increase the likelihood of STI transmission, is relatively common within FSWs' intimate relationships. Couple-based STI prevention interventions should recognize how FSWs' intimate relationship contexts influence STI vulnerability.

Keywords: Sexual behavior, concurrent sexual partners, sexually transmitted diseases/*transmission, epidemiology, cross-sectional study

Key messages:

- Concurrent (overlapping) sexual partnerships, which increase the likelihood of STI transmission, were relatively common within FSWs' intimate relationships.
- Steady (recurring) sexual partner concurrency was associated with different factors for women and men, possibly reflecting relationship and contextual factors that increase STI vulnerability.
- Additional research is needed to clarify concurrency measurement within FSWs' intimate relationships, as these couples comprise an understudied population vulnerable to STIs.

INTRODUCTION

Concurrent sexual partnerships, or multiple sexual relationships that overlap in time, potentiate HIV epidemics by increasing the risk that infected individuals will transmit disease to uninfected individuals.[1] Mathematical modeling suggests that when half of a population engages in concurrency, an HIV epidemic will be ten times larger after five years than it would be under sequential monogamy.[1] Concurrency increases transmission of other sexually transmitted infections (STIs) including Chlamydia, gonorrhea, and syphilis.[2] In the United States, ~11% of men and ~8% of women report concurrency, but prevalence varies widely according to demographics, drug use and sexual risk profiles (e.g., history of sex with men among men, exchanging sex for money or drugs among women).[3,4]

Research has identified cultural and structural explanations for concurrency, including economic need and social and interpersonal motivations (e.g., relationship dissatisfaction and perceived non-monogamy of individuals' intimate partners.[3,5,6] Since concurrency motivations are likely context-specific,[2] STI prevention efforts require an improved understanding of concurrency behaviors in a variety of intimate relationship contexts,[7,8] including female sex workers' (FSWs) intimate relationships in resource-poor settings, where the majority of FSWs reside.[9]

Globally, an estimated 12% of FSWs are living with HIV, placing them at 13 times higher risk of HIV acquisition than other women of reproductive age.[9] FSWs are significantly less likely to use condoms with intimate partners than clients,[10-12] which may be related to higher trust, lower perceived risk, and desire to demonstrate emotional connectedness within intimate relationships.[13] While concurrency among FSWs' male clients may result in STI transmission to the general population,[14,15] little research has assessed concurrency within the broader range of FSWs' sexual relationships, including among their intimate partners.[11]

Along Mexico's Northern border with the United States, dynamic STI epidemics have emerged among high risk populations including FSWs.[16] Social and legal tolerance for sex work, widespread illicit drug use and poverty characterize the region's STI risk environment.[16] Tijuana, Baja California and Ciudad Juárez, Chihuahua, which are adjacent to San Diego, California and

El Paso, Texas, respectively, have districts where sex work is known to occur, which attracts male clients from the United States, Mexico and elsewhere.[16] In 2006, the prevalence of HIV, gonorrhea, Chlamydia, and active syphilis (titers ≥1:8) among FSWs in these cities was estimated at 6%, 6%, 13% and 14%.[17] Nearly one-third of these FSWs reported having intimate male partners with whom they are unlikely to use condoms.[18] Since limited research has investigated STI risks including concurrency within FSWs' intimate relationships in this region, we sought to determine the prevalence and correlates of concurrency among FSWs and their intimate male partners in Tijuana and Ciudad Juárez.

To guide our study of concurrency, we drew from the Theory of Gender and Power, which helps conceptualize how social norms create and reinforce gendered power dynamics,[19] often allowing men to control financial resources and sexual health decisions (e.g., condom use) within heterosexual relationships.[20] Accordingly, we hypothesized that men's concurrency would be associated with lower financial dependence on FSW-partners and greater adherence to traditional male gender norms (e.g., machismo) that have been associated with sexual risk behaviors.[21] We also hypothesized that women with greater sexual relationship power[20] would be more likely to engage in concurrency. Finally, since trust and intimacy influence unprotected sex and other risk behaviors in FSWs' relationships,[12] we hypothesized that greater trust and relationship satisfaction (as a proxy for intimacy) within study relationships would be associated with reduced likelihood of concurrency.

METHODS

Study Design and Population

Our cross-sectional study drew from *Proyecto Parejas*, a study of the context and epidemiology of STIs within FSWs' intimate relationships in Tijuana and Ciudad Juárez. As previously described,[22] women were recruited first in areas where sex work and drug use are known to occur using targeted and snowball sampling. Eligible women were ≥18 years of age; in intimate, heterosexual relationships for ≥6 months; reported sex with their non-commercial

partner and exchanged sex (with commercial partners) in the past month; and ever used heroin, cocaine, crack, or methamphetamine. Women were excluded if they had immediate plans to break up with their partner or move away, would refuse STI treatment, or feared severe intimate partner violence as a result of participating. Eligible FSWs were then invited to bring their primary intimate partners to study offices in each city to check men's eligibility (≥18 years of age, in an intimate relationship with an eligible FSW) and verify relationship status using a couple verification screener.[22] Subjects provided written informed consent for all study protocols, which were approved by institutional review boards of the University of California, San Diego, Tijuana's Hospital General, El Colegio de la Frontera Norte, and the Universidad Autónoma de Ciudad Juárez.

Data Collection and Measures

From 2010-2011, participants were reimbursed U.S.$20 for completing interviewer-administered baseline questionnaires programmed into laptop computers. Individual-level socio-demographics and personal factors included age and educational attainment (in years), birthplace, and monthly income. Drug abuse behaviors included recent consumption of heroin, cocaine, crack, or methamphetamine, and injection of any drugs (past 6 months). Sexual behaviors included history of and current sex work (among women), trading sex for money or drugs and sex with men (among men). Relationship satisfaction was measured using a modified version of the Satisfaction with Married Life Scale [23]. Relationship stability and trust (ranked from 1-10) were measured using items previously validated with drug using couples.[24] Other relationship measures included sexual satisfaction within study relationships and belief that one's study partner has had STIs. For relationship characteristics that theoretically should not vary within couples (e.g., relationship duration, age difference between partners), we calculated dyad averages using both partners' responses within given couples.[25] Additional dyad-averaged measures included men's financial dependence on FSWs' income for at least half of their rent, food and other major expenses, past-year severe physical conflict using the assault, sexual coercion, and injury subscales of the revised Conflict Tactics Scale-Short Form (revised

CTS2S),[26] and total number of vaginal sex acts with study partner and percent unprotected (past month).

Adherence to traditional male gender norms was measured using the Traditional Machismo and Caballerismo Scale,[21] which contains a 10-item machismo subscale measuring aggression and antisocial behaviors (internal consistency alphas: 0.84 for men; 0.88 for women) and a 10-item caballerismo subscale measuring positive characteristics of masculinity including social and emotional affiliation (alphas: 0.98 for men; 0.99 for women). Subscales were summed (range: 10-40) and used separately. Relationship power was measured using the Sexual Relationship Power Scale modified to exclude condom-related variables (SRPS-M),[20] resulting in a 12-item relationship control subscale (alphas: 0.71 for men; 0.89 for women) and a 7-item decision-making dominance subscale (alphas: 0.74 for men; 0.90 for women). Items were recoded as necessary so that higher scores represented higher relationship power for men and women. Subscales were summed, normalized (range: 1-4), and used separately.

Our dependent variable, sexual partner concurrency, was measured by obtaining dates of first and most recent sex with up to five other recurring ("steady") sex partners other than participants' study partners during the past year.[8] Since FSWs often have large numbers of sex partners and are less likely to use condoms with regular (repeat) clients than non-regular clients,[10-12,27] and condom use generally decreases as relationships become closer,[13] we restricted our definition of concurrent partners to recurring (steady) commercial or non-commercial partners (i.e., partners with whom participants had sex repeatedly during the past year, including FSWs' regular clients but excluding non-regular clients).

Data Analysis

To determine the past-year cumulative prevalence of steady concurrency, we identified overlapping sexual partnerships by comparing dates of first and last sex with any reported steady partners to dates of sex with intimate (study) partners. Concurrency prevalence was defined as the fraction of participants with overlapping dates of sex with multiple partners.

To identify the correlates of concurrency, we created a binary variable for past-year

steady concurrency. Descriptive statistics compared characteristics of participants with and without concurrency. Since our dataset contains men and women nested within couples, assuming independence could lead to inconsistent estimates and incorrect inferences.[25] We therefore used bivariate probit regression with robust standard errors, a maximum-likelihood approach to modeling men's and women's concurrency separately but simultaneously (i.e., two separate probit equations allowed correlation across individuals within couples, as assessed by the rho statistic). We first examined associations between each independent variable and concurrency (i.e., bi-variable analyses). To build our final, multivariable model, we considered all variables attaining significance levels of 10% for women or men in bi-variable analyses. We used a manual stepwise approach, individually entering variables and comparing the fit of nested models using the Akaike Information Criterion. We assessed multicolinearity between predictor variables using variance inflation factors and confounding via substantial (≥10%) changes in other estimates. Marginal effects were calculated to help interpret regression coefficients as (1) joint probabilities of concurrency within dyads (e.g., both partners' concurrency or female or male only concurrency compared to the reference group of neither partner having concurrency), and (2) marginal probabilities of women's and men's concurrency, regardless of their study partners' concurrency.

RESULTS

Sample Characteristics

Among 428 participants (n=214 couples; Tijuana: n=106 couples; Ciudad Juárez: n=108 couples), median age was 35 years (interquartile range [IQR]: 29-42 years; Table 4.1). Participants completed a median of 7 years of education (IQR: 6-9 years) and 57% had monthly income of at least $250 (USD). Median relationship duration was 3 years (IQR: 2-6 years) and trust between study partners was high (median ranking 9 out of 10 points; IQR: 7-10). Couples nearly always had unprotected sex (median 100% of past-month vaginal sex acts in study relationships were unprotected; IQR: 80-100%). Most participants (90%) reported high sexual

satisfaction within study relationships. Recent drug abuse was common, with 62% of participants using heroin, 31% using methamphetamine, 20% using cocaine, 14% using crack, and 60% injecting any drugs in the past six months.

Prevalence of Concurrency

The overall cumulative prevalence of steady concurrency was 16% during the past year and was higher among women than men (26% vs. 6%, $p<0.001$). Among FSWs with steady concurrency, 73% of these outside partners were commercial (i.e., regular clients). Within intimate (study) relationships, both partners had concurrency in 10 couples (5%), only FSWs had concurrency in 45 couples (21%) and only men had concurrency in 3 couples (1%; Table 4.2). Concurrency status was not independent within couples ($p<.001$).

Correlates of Concurrency

In bi-variable analyses allowing for correlation within couples, past-year steady concurrency was more likely in Tijuana than Ciudad Juárez for both women and men ($p<.05$ for bivariate probit coefficients; Table 4.1). Concurrency was more likely among women earning income ≥$250/month, experiencing severe physical conflict (assault, sexual coercion, injury) within study relationships (past year), and using methamphetamine (past 6 months). Concurrency was less likely among women with higher trust of study partners, higher sexual satisfaction, and recent use of heroin or crack or injection of any drugs (past 6 months). Among men, concurrency was more likely among those who believed that their study partners had STIs. Concurrency was marginally associated with greater relationship duration and decision-making dominance among women and caballerismo among men ($p<.10$ for bivariate probit coefficients). Women's concurrency was also marginally associated with male (study) partners' financial dependence.

Our final multivariable model controlling for city and allowing for correlation within couples identified three independent correlates of concurrency: women's income, men's caballerismo, and men's belief that their study partners had STIs (Table 4.3). At the dyad-level, couples in which women had higher income (≥$250/month) were 2% more likely to have both partners with concurrency and 24% more likely to have women only with concurrency than couples in which

women earned less. A one-unit increase in men's caballerismo scores (out of 40 points total) implied a 3% increase in the probability of both partners having concurrency and 2% increase in the probability of men only with concurrency. Couples in which men believed that their study partners had STIs were 6% more likely to have both partners with concurrency and 3% more likely to have men only with concurrency than couples in which men did not have this concern.

At the individual level (i.e., regardless of study partner's concurrency), women with higher income (≥$250/month) were 26% more likely to have concurrency than women who earned less. Among men, a one-unit increase in men's caballerismo (out of 40 points) implied a 4% increase in men's concurrency. Men who believed that their study partners had STIs were 9% more likely to have concurrency than men without this concern.

DISCUSSION

Our assessment of the prevalence and correlates of sexual partner concurrency within FSWs' intimate relationships in two large Mexico-U.S. border cities carries important implications for STI research and prevention. We did not find any of our hypothesized associations between concurrency and sexual relationship power, trust, or relationships satisfaction; however, nearly one in six participants engaged in steady concurrency during the past year, which was independently and positively associated with several intriguing factors discussed below.

First, although we did not find men's financial dependence on FSWs' income to be associated with concurrency as we hypothesized, FSWs with higher income were more likely to engage in steady concurrency. This finding presents a challenge to our conceptual framework's emphasis on power structures within traditional heterosexual relationships in which men have greater access to economic opportunities and control over decision-making.[19] FSWs with higher earnings in our setting may gain relative economic and sexual independence from their primary intimate male partners. Alternatively, FSWs may gain greater financial rewards from having long-term clients, which were included in our "steady" concurrency definition. We previously found that regular (repeat) clients seek closer relationships with FSWs, visiting them more often,[28] and

providing consistent, dependable income (AM Robertson, National Hispanic Science Network Annual Conference, New Orleans, 2010). While additional research is needed to clarify this cross-sectional association, STI prevention programs should recognize that FSWs' concurrent relationships with regular clients may increase their risk of acquiring STIs because condom use generally decreases as clients become increasingly regular.[10-12,27]

Second, we hypothesized that machismo, which has been associated with sexual risk behaviors,[21] would be associated with concurrency but instead found that men with higher caballerismo scores were more likely to have ongoing relationships outside of their study relationships. Caballerismo has been conceptualized as a more positive and social aspect of traditional masculinity (e.g., as one item reads, "the family is more important than the individual").[21] While caballerismo has been studied in the context of men's interpersonal relationships and family involvement, much less is known about the construct's relationship with sexual risk behaviors.[29] In our sample, men with higher caballerismo scores may be more effective at creating and maintaining lasting relationships with multiple women. Alternatively, men who adhere to traditional beliefs in line with caballerismo may be more likely to develop outside partnerships when they perceive that their primary partner does not uphold the same values (e.g., as another item reads, "a woman is expected to be loyal to her husband"). Clearly, interpretations of this cross-sectional association are speculative. Future research should assess the validity of caballerismo as a relevant construct for this population that is distinct from machismo, and how these and other masculine characteristics and gender norms influence sexual risk behaviors.

Finally, we found that men who believed that their study partners had STIs were more likely to engage in concurrency. Previous research has shown that individuals who perceive that their primary partners are non-monogamous are more likely to engage in concurrency themselves,[3] perhaps as a form of retaliation.[5] In our sample, men who are frustrated by their study partners' engagement in sex work may seek outside partnerships. Research has begun to explore how motivations for concurrency relate to interpersonal and relationship factors, including trust, risk perceptions and communication.[5] Additional research is needed to explore perceptions

of sex work among FSWs' intimate male partners and determine if strategies to improve risk communication could be employed as an STI prevention strategy among these dyads. Nevertheless, our findings underscore the importance of studying concurrency and its motivations within relationship contexts, drawing from both partners' perspectives within high risk dyads.

Our study was limited by several factors. Our cross-sectional design prevents causal inferences. Our recruitment and screening strategies may have excluded higher risk dyads (e.g., less established couples, those experiencing severe violence). However, we believe that our approach was justified on ethical grounds and by previous couple-based research.[30] We depended on self-report and recall of sensitive, high risk behaviors but believe that our focus on steady concurrent relationships, which may be more memorable than briefer affairs, should have increased recall accuracy. Furthermore, our staff are extensively trained and known by the study population, which should decrease underreporting. Finally, our focus on "steady" concurrency differs from existing literature, preventing comparisons of prevalence. Our inclusion of regular clients as concurrent partners may have increased women's prevalence, while for men, our exclusion of one-time partners may have yielded a more conservative prevalence estimate. However, the type of concurrency captured by our definition may be more relevant to STI transmission because it represents sustained overlapping sexual contacts with greater transmission potential. Furthermore, FSWs tend to use condoms less frequently with intimate partners and regular clients,[10-12,27] suggesting that our focus on steady concurrency may have identified the riskiest overlapping partnerships.

CONCLUSION

Our study provides an important first assessment of concurrency within high risk FSWs' intimate relationships and clear directions for future research. We found that ongoing, steady concurrent sexual partnerships are relatively common among FSWs and their intimate male partners, suggesting a potential pathway for STI transmission into broader sexual networks in the U.S.-Mexico border region. Concurrency manifests differently for FSWs and their intimate male

partners, possibly resulting relationship and contextual factors that increase STI vulnerability. Qualitative and quantitative research is needed to explore different types of and motivations for concurrency in this population. Couple-based STI prevention interventions should recognize how factors within and outside of FSWs' intimate relationships influence concurrency and STI vulnerability.

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TABLES

Table 4.1. Characteristics of female sex workers and intimate male partners with and without past-year sexual partner concurrency [a] in Tijuana and Cd. Juárez, Mexico (N=428)

	With concurrency [a] (N=68, 16%)	Without concurrency [a] (N=360, 84%)	Overall (N=428, 100%)	Coefficient for Women [b] (N=214)	Coefficient for Men [b] (N=214)
Socio-Demographics & Personal Factors					
Female gender (vs. male)	55 (81%)	159 (44%)	214 (50%)	--	--
Age in years (median, IQR [c])	33 (28-41)	35 (29-42)	35 (29-42)	-0.01	-0.01
Educational attainment in years (median, IQR)	7 (6-9)	6 (6-9)	7 (6-9)	0.07**	0.07
Study site is Tijuana (vs. Ciudad Juárez)	53 (78%)	159 (44%)	212 (50%)	0.98***	0.62**
Income ≥$250 USD per month	52 (76%)	190 (53%)	242 (57%)	0.76***	-0.05
Relationship Factors					
Relationship duration in years (median, IQR) [d]	3 (2-7)	3 (2-5)	3 (2-6)	0.03*	0.02
Trust of partner (range 1-10; median, IQR)	9 (6-10)	9 (7-10)	9 (7-10)	-0.08**	0.08
Male partner is financially dependent on FSW's income [d]	27 (40%)	101 (28%)	128 (30%)	0.30*	0.35
Severe physical conflict, past year (assault, sexual coercion, or injury) [d, e]	42 (62%)	178 (49%)	220 (51%)	0.48**	0.31
Gender & Power Factors					
Machismo score (range 10-40; median, IQR) [f]	20 (18-22)	20 (17-23)	20 (17-23)	0.07	0.42
Caballerismo score (range 10-40; median, IQR) [f]	30 (20-30)	30 (28-37)	30 (28-36)	-0.14	0.13*
Sexual relationship control score (range 1-4; median, IQR) [g]	2.7 (2.4-3.0)	2.5 (2.2-2.9)	2.5 (2.2-3.0)	-0.23	-0.14

Table 4.1. continued

	With concurrency [a] (N=68, 16%)	Without concurrency [a] (N=360, 84%)	Overall (N=428, 100%)	Coefficient for Women [b] (N=214)	Coefficient for Men [b] (N=214)
Sexual relationship decision-making dominance score (range 1-4; median, IQR) [g]	2.5 (2.5-2.9)	2.5 (2.5-2.6)	2.5 (2.5-2.7)	0.31*	0.03
Sexual Behaviors & Characteristics					
Male partner has ever had sex with a man (among men)	4 (31%)	48 (24%)	52 (24%)	--	0.16
Unprotected vaginal sex acts w/ study partner, past month (median %, IQR) [d]	100% (65-100)	100% (83-100)	100% (80-100)	-0.11	-0.10
High sexual satisfaction w/ study partner (vs. low)	55 (81%)	332 (92%)	387 (90%)	-0.54**	-0.06
Believes study partner has had STIs	11 (16%)	22 (6%)	33 (8%)	0.60**	0.89***
Recent Drug Abuse (past 6 months)					
Heroin	34 (50%)	233 (65%)	267 (62%)	-0.61***	0.21
Cocaine	13 (19%)	72 (20%)	85 (20%)	-0.02	-0.12
Crack	4 (6%)	55 (15%)	59 (14%)	-0.72**	0.13
Methamphetamine	39 (57%)	95 (26%)	134 (31%)	0.90**	0.29
Injected any drugs	31 (46%)	225 (63%)	256 (60%)	-0.61***	0.11

[a] Past-year steady concurrency determined by overlapping dates of sexual encounters with other recurring non-commercial and commercial partners (i.e., including FSWs' regular clients).
[b] Coefficient from bivariate probit regression models in which ho statistic (ρ) indicates significant correlation of error terms within couples (p<.001).
[c] Interquartile range.
[d] Dyad average (uses information from both partners' responses within a given couple).
[e] Experienced any severe physical conflict using the assault, sexual coercion and injury subscales of the revised Conflict Tactics Scale-Short Form (revised CTS2S).
[f] Subscale of the Traditional Machismo and Caballerismo Scale.
[f] Subscale of the Sexual Relationship Power Scale modified to exclude condom-related variables.
*p<.10, **p<.05, ***p<.01, ****p<.001.

Table 4.2. Sexual partner concurrency [a] within female sex workers' intimate relationships in Tijuana and Cd. Juárez, Mexico (N=428; 214 couples)

		Female Partner's Past-Year Concurrency (including regular clients)	
		No Concurrency	**Has Concurrency**
Male Partner's Past-Year Concurrency	**No Concurrency**	156 (73%)	45 (21%)
	Has Concurrency	3 (1%)	10 (5%)

[a] Past-year steady concurrency determined by overlapping dates of sexual encounters with other recurring non-commercial and commercial partners (i.e., including FSWs' regular clients); chi-square test rejects null hypothesis that concurrency status is independent within couples; $p<.001$.

Table 4.3. Marginal effects [a] for factors independently associated with sexual partner concurrency [b] among female sex workers and intimate male partners in Tijuana and Cd. Juárez, Mexico, from bivariate probit regression [c] (N=428)

	Both Partners Have Concurrency: Marginal Effect (robust SE)		Woman Only Has Concurrency: Marginal Effect (robust SE)		Man Only Has Concurrency: Marginal Effect (robust SE)		Individual Concurrency (regardless of partner): Marginal Effect (robust SE)	
Variable	**Women**	**Men**	**Women**	**Men**	**Women**	**Men**	**Women**	**Men**
Income ≥$250 USD per month	0.02** (0.01)	-0.01 (0.02)	0.24**** (0.06)	0.01 (0.02)	-0.02** (0.01)	0.00 (0.01)	0.26**** (0.06)	-0.01 (0.03)
Caballerismo score (per point increase) [d]	0.00 (0.00)	0.03** (0.01)	-0.01 (0.04)	-0.03** (0.01)	0.00 (0.00)	0.02* (0.01)	-0.01 (0.04)	0.04** (0.02)
Believes study partner has had STIs	0.01 (0.01)	0.06** (0.02)	0.09 (0.09)	-0.06** (0.03)	-0.01 (0.01)	0.03* (0.02)	0.09 (0.09)	0.09** (0.04)

[a] Marginal effects represent the change in probability of concurrency outcome associated with a 1-unit change in each independent variable; reference group is neither partner having concurrency.
[b] Past-year steady concurrency determined by overlapping dates of sexual encounters with other recurring non-commercial and commercial partners (i.e., including FSWs' regular clients).
[c] Rho statistic (ρ) indicates significant correlation of error terms within couples (p<.001).
[d] Subscale of the Traditional Machismo and Caballerismo Scale.
*p<.10, **p<.05, ***p<.01, ****p<.001

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CHAPTER 5: ACCEPTABILITY OF MICROBICIDES

Title: Acceptability of vaginal microbicides among female sex workers and their intimate male partners in two Mexico-U.S. border cities: a mixed methods analysis

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ABSTRACT

Background: Female sex workers (FSWs) may benefit from pre-exposure prophylaxis (PrEP) including microbicides for HIV prevention. Since adherence is a key factor in PrEP efficacy, we studied microbicide acceptability within FSWs' intimate relationships in Tijuana and Ciudad Juárez, Mexico, where HIV prevalence is increasing.

Methods: FSWs and their intimate (non-commercial) male partners in verified relationships completed quantitative and qualitative interviews from 2010-2012. Our complementary mixed methods design followed an iterative process that assessed microbicide interest/acceptability, identified concern about male partners' anger regarding microbicide use, and explored associated relationship dynamics.

Results: Among 185 FSWs and their 185 intimate male partners (n=370 individuals), interest in vaginal microbicides was high but nearly one in six participants (16%) worried that male partners would become angry about microbicide use. Perceived anger about microbicides was associated with higher self-esteem among FSWs, and lower self-esteem and past year conflict causing injury within relationships among men. In qualitative interviews (n=28 couples), enthusiasm about microbicides within the context of sex work was high but some couples worried that microbicides would imply mistrust/infidelity within intimate relationships.

Conclusions: HIV prevention interventions promoting PrEP should consider intimate relationship dynamics posing potential barriers to adherence, involve male partners, and promote risk communication/negotiation skills.

Keywords: HIV, pre-exposure prophylaxis, microbicide, relationships, adherence

INTRODUCTION

Female-initiated pre-exposure prophylaxis (PrEP) including microbicides holds great promise in preventing HIV acquisition among women, who comprise half of all HIV infections globally.[1] Several clinical trials have demonstrated efficacy of oral tenofovir/emtricitabine combinations, including a 44% reduction in HIV incidence among men who have sex with men [MSM],[2] 62% reduction among HIV-negative men and women,[3] and 75% reduction among serodiscordant heterosexual couples.[4] A tenofovir vaginal gel inserted vaginally also reduced HIV incidence by 39% among high risk women.[5] Although several recent trials have been unable to demonstrate efficacy of tenofovir formulations,[6] clinical evaluation of multiple microbicide candidates continues.[7] Following recommendations to approve tenofovir for HIV prevention among MSM in the United States,[8] PrEP may become a promising HIV prevention modality for other high risk populations including women.[9]

Divergent results of recent PrEP trials likely depend in part on suboptimal product adherence.[10] While PrEP may benefit disempowered women who struggle to consistently use condoms, men often exercise considerable authority over microbicide adherence.[11] Qualitative research among couples has revealed that relationship dynamics including trust and stability can support or obstruct adherence.[12] Unfortunately, little research has investigated relationship dynamics influencing microbicide acceptability or barriers to adherence among high risk and marginalized couples,[13] particularly in resource-limited settings.

Globally, female sex workers (FSWs) experience 13 times higher risk of HIV acquisition than other women of reproductive age[14] through unprotected sex with commercial and non-commercial (intimate) male partners. Although condom use has improved in many commercial sex settings,[15] drug and related financial need often compromise FSWs' ability to negotiate safe sex with clients,[16] and FSWs are generally less likely to use condoms with their intimate male partners than with clients due to emotional connectedness and lower perceived risk.[17] FSWs would likely benefit from microbicides that effectively protect them within commercial and intimate

relationships, but research on social influences over microbicide acceptability within high risk FSWs' intimate relationships remains insufficient.[18]

In the Mexico-U.S. border cities of Tijuana, Baja California, and Ciudad Juárez, Chihuahua (adjacent to San Diego, California, and El Paso, Texas, respectively), sex work is tolerated. FSWs' HIV prevalence has risen from less than 2% in 2004 to nearly 6% in 2006, when prevalence of gonorrhea, Chlamydia, and active syphilis (titers ≥1:8) was estimated at 6%, 13% and 14%, respectively.[19] Among FSWs who inject drugs (FSW-IDUs), 72% having at least one STI including HIV.[20] A recent study found that FSW-IDUs' experience using female condoms was associated with ever having clients become angry regarding male condoms. These women's interest in using female condoms was associated with history of physical and sexual abuse, suggesting a need for female-initiated HIV prevention technologies.[21] Since nearly half of FSWs in these cities have intimate male partners with whom they are twice as likely to have unprotected sex compared to clients,[22] additional research is needed on microbicide acceptability within FSWs' intimate relationships in this region.

To guide our study, we drew from the Theory of Gender and Power,[23] which helps conceptualize how gendered social norms create and reinforce power dynamics within heterosexual relationships, promoting men's control over health-related behaviors including condom use.[24] Women's relational orientation may further limit their intentions to insist on safe sex as a strategy to protect limited social and emotional resources.[25,26] Accordingly, we hypothesized that relationship dynamics including high trust and recent conflict would limit acceptability of microbicides within FSWs' intimate relationships.

METHODS

Study Design and Population

We drew from *Proyecto Parejas* [Couples Project], a prospective, mixed methods study of the social epidemiology of HIV/STIs within FSWs' intimate relationships in Tijuana and Ciudad Juárez. As previously described,[27] from 2010-2011, we recruited women first and assessed their

eligibility: ≥18 years of age; in a non-commercial (intimate) relationship for ≥6 months; reporting recent sex with that intimate partner and exchanging sex with clients (past-month); ever using heroin, cocaine, crack, or methamphetamine; not planning to move away or break up with partners; and not fearing severe intimate partner violence (IPV) resulting from potential participation. Eligible FSWs then brought their partners to study offices to assess men's eligibility (≥18 years of age) and complete relationship verification screeners.[27] Enrolled couples provided written informed consent for qualitative and quantitative interviews and HIV/STI testing at baseline and every 6 months for 2 years. Institutional review boards of the University of California, San Diego, the Hospital General and El Colegio de la Frontera Norte in Tijuana, and the Universidad Autónoma de Ciudad Juárez approved all study protocols.

Our complimentary mixed methods design utilized the prospective nature of *Proyecto Parejas* and followed an iterative process throughout multiple, integrated phases of data collection and analysis.[28] First, while quantitative and qualitative interviews were ongoing during the first year of the study, preliminary quantitative descriptive statistics identified concern regarding male partners' anger about microbicides, which prompted qualitative inquiry to explore relationship dynamics possibly affecting acceptability. Emergent qualitative themes guided hypothesis development and variable selection for quantitative analyses identifying factors independently associated with this anger concern. Quotes from qualitative narratives helped illustrate our findings.

Data Collection

Quantitative data collection

From 2010-2011, in private rooms, partners completed interviewer-administered baseline questionnaires programmed into laptop computers. Individual socio-demographics and personal factors included age, educational attainment, income, depression,[29] and self-esteem.[30] Drug and sexual behaviors included lifetime and recent (past 6 months) consumption and injection of illicit drugs, sex work (among women), concurrent sexual partnerships,[31] and condom use with various partners. Intimate relationship factors included relationship duration, trust,[32] relationship

satisfaction,[33] sexual satisfaction, and four types of conflict: psychological aggression, physical assault, injury, and sexual assault.[34] Relationship factors that theoretically should not vary within couples (e.g., relationship duration, conflict) were averaged within dyads using both partners' responses.[35]

From 2011-2012, couples completed follow-up questionnaires at 6-month study visits that assessed time-varying factors, relationship changes, and interest in a hypothetical vaginal microbicide gel that interviewers explained using a detailed script. Our dependent variable was measured using the true/false items, "Your steady male partner would get angry if he found out that you were using a vaginal gel to prevent HIV," among FSWs, and "You would get angry if you found out that your steady female partner was using a vaginal gel to prevent HIV," among men.

Qualitative data collection

In 2010, we purposively selected couples from the cohort for maximum variation.[36] Trained interviewers administered semi-structured baseline individual and joint (couple) interviews exploring relationship contexts surrounding HIV/STI risk. To assess emergent baseline themes and relationship dynamics influencing microbicide acceptability, we conducted follow-up interviews at 12-month study visits in 2011 with a subsample of qualitative couples. Interviewers used a similar detailed script to introduce microbicide items, including, "Would you be interested in [your partner] using a vaginal gel to prevent HIV?" Probes explored reasons for interest, perceived comfort discussing and using microbicides, and appropriate contexts for microbicide use.

Data Analysis

Quantitative data analysis

To assess microbicide interest and acceptability, we conducted descriptive statistics (means, frequencies) stratified by study site and sex. To identify factors associated with the anger concern, we created binary variables representing FSWs' concern that their male partners would become angry and male partners' concern that they themselves would become angry. Additional descriptive statistics compared characteristics of women and men with and without this anger

concern. We used bivariate probit regression with robust standard errors[37] to model men's and women's anger concern simultaneously while allowing for correlation within couples. We then examined variable distributions and associations with the anger concern (i.e., bi-variable analyses). We individually entered variables attaining 10% significance levels from bi-variable analyses into multivariable models while comparing the fit of nested models and assessing multicollinearity and confounding. We calculated marginal effects to interpret coefficients as probabilities of anger concern.

Qualitative data analysis

All qualitative interviews were digitally recorded and transcribed. We kept all data in the source language (Spanish, English, bilingual) throughout analyses to maximize accuracy and evaluate connotations.[38] In contrast to our exploratory, grounded theory approach to baseline analysis,[39] we employed a primarily deductive coding strategy to follow-up data because themes were determined a priori.[40] We first reviewed all individual and couple transcripts for microbicide content. Next, we carefully reread microbicide content, recorded detailed memos about interesting, important, and unique findings, and identified broader, crosscutting themes (e.g., interest in and perceived appropriateness of microbicides within different relationship contexts). We systematically sorted data into these themes and selected illustrative examples and quotes that our bilingual team translated into English as necessary.

RESULTS

Quantitative Findings

Sample characteristics. Among 185 FSWs and their 185 intimate male partners (n=370 individuals; Tijuana: n=158; Juárez: n=212), median age was 36 years (interquartile range [IQR]: 30-42; Table 5.1). Participants completed a median of 6 years of education (IQR: 6-9) and 65% had monthly income under $200 USD. Most FSWs (83%) reported often or always using condoms with male clients. Recent drug abuse was common: participants used heroin (58%), methamphetamine (26%), crack (11%), cocaine (8%), and injected drugs (58%) in the past six

months. Median relationship duration was 3 years (IQR: 2-6), trust between study partners was high (median ranking 8 out of 10 points; IQR: 8-10), and most couples were satisfied with their relationships (median score 15 out of 20 points; IQR: 13-15). However, conflict was relatively common, with couples reporting past-year psychological aggression (75%), physical assault (45%), injury (23%), and sexual coercion (15%). Unprotected sex within steady relationships was routine (median 100% of past-month vaginal sex acts with study partners were unprotected; IQR: 80-100%).

Interest and concerns regarding microbicides*.* Individuals' microbicide interest was high (84% of women, 93% of men), and most participants (85%) felt that they could discuss microbicides with intimate partners. However, participants were concerned about microbicides' efficacy against HIV (42%) and other STIs (14%), and product safety and side effects (20%). A substantial proportion (16%) were concerned that male partners would become angry about microbicide use within their intimate relationship (21% of women thought their male partners would become angry if they used microbicides; 12% of men reported that they themselves would become angry).

Factors associated with concern regarding male partners' anger*.* Concordance between men's and women's anger concern within couples was limited (Table 5.2): among 185 couples, women only were concerned that male partners would become angry in 31 couples (17%), men only believed that they would become angry in 16 couples (9%), and both partners' anger concerns agreed in only 6 couples (3%). In bi-variable analyses, concern about male partners' anger was more common in Tijuana than Ciudad Juárez, among participants with higher depression and lower self-esteem scores, and among couples with past-year conflict causing physical injury (Table 5.1). Men who had any outside sex partners in the past 6 months, FSWs who had steady concurrent partners (including regular clients), and methamphetamine users were more likely to be concerned about men's anger.

In our final multivariable model controlling for study site, two factors were independently associated with the anger concern: self-esteem and past-year conflict causing physical injury

(Table 5.3). Women with higher self-esteem scores were less likely to be concerned about male partners' anger (3% decrease in the probability of concern per point increase in self-esteem), while men with higher self-esteem were more likely to report that they would become angry about microbicides (3% increase in the probability of anger per point increase in self-esteem). Men in relationships with any past-year conflict causing physical injury were 9% more likely to report that they would become angry about microbicides.

Qualitative Findings

Among 28 couples completing qualitative interviews (n=56 individuals; 14 Tijuana couples, 14 Juárez couples), demographics and risk behavior profiles mirrored those of the cohort: median age and relationship duration were 36 and 7 years, respectively, trust and relationship satisfaction were high, and past-year conflict was similarly prevalent (64% reported psychological aggression, 39% physical assault, 18% injury, and 7% sexual coercion; data not shown). Also resembling the cohort, 17% were concerned that male partners would become angry about microbicide use.

In FSWs' individual interviews, interest in and enthusiasm about microbicides was high, particularly for sex work contexts because condom negotiation was not always feasible: "When clients don't want to use condoms, I try to convince them, but, well, I can't force them" (Tijuana FSW-IDU, age 44). Advantages of microbicides for sex work included providing "back-up" protection to condoms because "accidents happen," especially "for a person who has sex as often" as FSWs. Several women hoped that microbicides would be lubricating, making condoms less likely to break while reducing their own discomfort. Several FSWs described discretion while using microbicides with clients as important, but no women thought microbicides would make clients angry. On the contrary, several women felt that microbicides would empower them to have more control over their health during sex work:

> It would be super perfect because it would be like extra protection that I'd be responsible for…I'd be in charge of myself, of my body, of my health. I wouldn't have to put my life in someone else's hands. (Tijuana FSW-IDU, age 29)

Intimate male partners also expressed great interest in and support for their FSW-partners' use of microbicides, explaining that it could help protect both partners from outside (sex work) risks while demonstrating affection and concern for their health: "Everything that is good for her health, I agree with, because we have a mutual support, trust, and that is how you can show the love that you have for someone" (Juárez male IDU, age 53). Other men viewed microbicides positively because they rarely used condoms within their intimate relationships: "It would be good for both of us. It would be an extra point of protection, right? If an accident happens, it would reinforce our protection and be easier and more convenient for everyone than condoms" (Tijuana male IDU, age 33) Support for microbicides was particularly strong among men who perceived heightened HIV risk in their lives due to their drug use, sex work, and the local risk environment more generally:

> I would support her decision [to use microbicides] because, these days, you never know who is sick or whatever, and with the syringes, you never know. (Juárez male IDU, age 36)

> I think that [Tijuana], and other cities [with] a lot of prostitution, [is] where there should be [microbicides]. If there was a gel for men, I would use it, too!" (Tijuana male IDU, age 29)

Most individuals reported that they would be able to discuss microbicides openly, citing the importance of health-related communication as well as trust, support, and love. Some women seemed less confident about explaining microbicides to their intimate partners but were willing to bring up the topic, and "depending on how the conversation goes," they could emphasize that microbicides were "just for work" (sex work) if their intimate partners were not receptive. However, partners' responses within couples did not always agree, as some of these less confident women's male partners were actually highly enthusiastic about their female partners' future microbicide use. One woman inquired about the duration of microbicide effectiveness, wondering if she could tell her intimate male partner that she was using microbicides "just for work" while actually having all-day protection.

Two couples in our qualitative sample were concerned that discussing or using microbicides would imply mistrust or infidelity within intimate relationships:

> Male partner (couple's interview): She trusts me, and I'm not sick. It's obvious that I don't have it [HIV], and she doesn't have it either, so where would we get it? It would be like she's saying she doesn't trust me and thinks I'm sick.
>
> Female partner (couple's interview): Yeah, or vice versa, that I'm the one who's sick. (Tijuana IDU couple, ages 30 and 31)

A minority of male partners also explained that because their steady female partners assured men that they used condoms at work, introducing microbicides would imply that women were not being honest:

> Well, I'd be a little bit uncomfortable because she tells me that she takes care of herself [*se cuida*; uses condoms] and that she always has. But I've heard that people sometimes offer more money for sex without condoms. So if she tells me, "Hey, let's use this gel," well, I'm going to trust her a little bit less and it will make me think something…because supposedly she's taking care of herself. So why should we use it when it is for people who don't use condoms? (Juárez male IDU, age 29)

Although no participants explicitly stated that microbicides would make male partners angry or violent, several men expressed reluctance to discuss microbicides in the interview, explaining that it would only be appropriate for sex work and not within their intimate relationships because, similar to condoms, microbicides would make them feel like "just another client."

DISCUSSION

In our study of FSWs and their intimate male partners in two Mexico-U.S. border cities, microbicide interest and acceptability were high, but couples raised concerns with important implications for PrEP interventions. Several concerns regarding product safety and efficacy have been identified across international settings and could be addressed through improved education and training on microbicides.[41] Other concerns were more directly related to interpersonal dynamics within couples: for example, in nearly one in six couples, at least one partner was concerned about male partners' anger regarding microbicide use. As the majority of microbicide acceptability research has focused on products' physical characteristics,[13] our study contributes to the existing literature by identifying important relationship dynamics that could affect adherence among high risk couples.

Our three primary quantitative findings are largely consistent with our theoretical framework and its emphasis on gendered social norms within heterosexual relationships.[23] First, we found that women with higher self-esteem were less likely to worry about male partners' anger, perhaps reflecting greater agency in health-related decisions. In support of this interpretation, several women qualitatively described how microbicides could be empowering. Although these women were largely referring to sex work contexts, their narratives revealed a confidence in adopting HIV prevention technologies that could be leveraged by PrEP interventions. At the same time, women with lower self-esteem may have been more likely to be concerned about men's anger if they have experienced IPV, while women with higher self-esteem were less likely to acknowledge existing conflict. Either way, caution will be required while promoting microbicides, particularly in programs seeking to increase women's agency, in order to avoid inciting increased conflict within their intimate relationships. One approach could involve separate, individual interventions followed by counseling tailored to specific couples' profiles.[42,43]

Second, we found that men with lower self-esteem were more likely to anticipate being angry if their female partners used microbicides. The Theory of Gender and Power posits that men traditionally enjoy greater control over economic and related resources within heterosexual relationships,[23] yet many men in our sample struggled with unemployment while their FSW partners earned higher incomes. This reversal of traditional gender roles may lead some men to perceive reduced control over financial and health decisions, making them frustrated, emasculated or angry. Complementary to this interpretation, men with higher self-esteem may be more confident in trusting their FSW-partners and less likely to become jealous or angry regarding microbicides. Our findings suggest that interventions to promote microbicides should involve men in PrEP interventions in positive ways. "Male involvement" in HIV prevention has been criticized for encouraging men to support women's health decisions without enhancing men's own agency in promoting healthy relationships.[44] Role-playing exercises within couple-based HIV prevention programs are one promising way to engage and empower male partners to become more positively and actively involved in their partners' health.[45]

Third, we found that past-year conflict that caused physical injury was positively associated with men's anger concern, consistent with our hypothesis that conflict would negatively affect microbicide acceptability. Men with a propensity for violent conflict may anticipate about microbicides given any past violent behaviors, especially if microbicides implied infidelity or mistrust, as found in condom research.[46] However, this association did not persist for women, suggesting that men, who are more likely to perpetrate severe, injury-causing IPV, may be more likely to acknowledge this violence and anticipate the factors that trigger it. Women, on the other hand, may not be able to or want to acknowledge their intimate partners' violent behaviors. Taken together with the high discordance between partners' anger concern within couples, these findings raise concern regarding couples in which men believed that they would become angry and female partners who did not share this concern. Although additional research is needed on the types and severity of IPV within these couples, interventions promoting microbicides must exercise great caution to avoid provoking men in relationships with a known history of conflict and/or poor communication between partners regarding anger and other emotions. Rather than directly promoting microbicides to such couples, anger management, conflict resolution, and other services may be needed for women first.

In qualitative interviews, participants had the opportunity to clarify that they were interested in microbicides for women's sex work rather than for their intimate relationships, in which most were not using condoms and did not perceive risk. Some couples expressed concern that microbicides would raise suspicion of infidelity if used within their intimate relationships, revealing a need for couple-based PrEP interventions to reframe microbicides to shift the focus away from "risk" while emphasizing other, relationship-oriented advantages of PrEP such as demonstrating care and concern for partners' wellbeing.[47] By validating positive relationship dynamics (e.g., commitment, trust, and love) HIV prevention interventions can empower couples to enact protective behaviors together.[48] Although anger and potential conflict resulting from microbicides are real concerns that urgently require additional research, positive relationship dynamics could be leveraged to support microbicide adherence,[12] particularly if microbicides are

introduced in a “safe space” involving counselors trained in conflict resolution.[49] In such programs, couples could discuss together the advantages, disadvantages, and appropriate contexts for microbicide use.

Our study had several limitations. First, our unique sample of FSWs and their intimate male partners is unlikely to represent other high risk couples globally. Second, the initial exclusion of shorter-term couples and those experiencing severe IPV and the later censoring of male partners in couples who broke up may have biased our sample toward more stable, lower risk couples. Nevertheless, we believe that our study design was justified on ethical grounds, previous couple-based research[50] and the paucity of data on FSW-intimate partner dyads. Finally, our quantitative items did not specify different relationship contexts for microbicide use, which may have contributed to the discordance between partners’ anger concerns (e.g., some partners may have conceptualized microbicides within their intimate relationships while others may have thought about higher risk commercial contexts). However, our qualitative data helped to clarify participants’ beliefs regarding appropriate and inappropriate relationship contexts for microbicide use, highlighting the contribution of qualitative and mixed methods in microbicide acceptability research.

CONCLUSIONS

Although interest in and acceptability of microbicides was generally high among FSWs and their intimate male partners, we identified an important concern regarding male partners’ anger at microbicide use. Interventions promoting female-initiated methods of PrEP must recognize the centrality of intimate relationship dynamics including IPV history. Interventions should also reframe and market PrEP in ways that shift the focus away from risk to emphasize more positive relationship qualities including care and support. Couple-based interventions should carefully but actively involve male partners through the provision of mutual education and training in risk communication within safe spaces. Some individuals may require enhanced counseling or additional IPV services. Ultimately, the efficacy of any female-initiated PrEP

modality must recognize how complex negative and positive relationship dynamics interact with broader, gendered social norms to influence adherence.

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Chapter 5 is a reprint of the material as it was submitted to *Global Public Health*: Robertson AM, Syvertsen JL, Martinez G, Rangel MG, Palinkas LA, Stockman JK, Ulibarri MD, Strathdee SA. Acceptability of vaginal microbicides among female sex workers and their intimate male partners in two Mexico-U.S. border cities: a mixed methods analysis. Angela Robertson was the primary investigator and author of this paper.

TABLES

Table 5.1. Characteristics associated with female sex workers' and intimate male partners' concerns of male partners' anger [a] regarding microbicide use in Tijuana and Cd. Juárez, Mexico (n=370)

	Concerned about male partners' anger [a] (n=59, 17%)	Not concerned about male partners' anger [a] (n=311, 83%)	Overall (n=370, 100%)	Coefficient for Women (n=185)	Coefficient for Men (n=185)
Socio-Demographics					
Female gender (vs. male)	37 (63%)	148 (48%)	815 (50%)	--	--
Study site is Tijuana (vs. Cd. Juárez)	54 (92%)	104 (33%)	158 (43%)	1.57***	1.72***
Median age in years (IQR [b])	37 (29-44)	35 (30-42)	36 (30-42)	0.01	0.02
Median educational attainment in years (IQR)	7 (6-9)	6 (6-9)	6 (6-9)	0.00	0.03
Income ≥2500 pesos per month (>$200 USD)	39 (66%)	201 (65%)	240 (65%)	0.05	0.02
Median CESD-10 depression score (IQR)	14 (6-18)	6 (3-10)	6 (4-12)	0.08***	0.08***
Median Rosenberg self-esteem score (IQR)	13 (12-14)	14 (12-14)	14 (12-14)	-0.22***	0.03
Relationship Factors					
Median relationship duration in years (IQR) [c]	3 (2-5)	3 (2-6)	3 (2-6)	-0.01	-0.02
Median trust of partner on 10-point scale (IQR)	8 (7-10)	8 (8-10)	8 (8-10)	-0.06	-0.02
Median relationship satisfaction on 20-point scale (IQR)	15 (10-15)	15 (14-15)	15 (13-15)	-010*	0.07
Male financial dependence on FSW's income [c]	24 (41%)	88 (28%)	112 (30%)	0.42	0.17
Any psychological aggression, past year [c]	46 (78%)	232 (75%)	278 (75%)	0.03	0.24
Any physical assault, past year [c]	30 (51%)	138 (44%)	168 (45%)	0.09	0.22
Any sexual coercion, past year [c]	13 (22%)	43 (14%)	56 (15%)	0.20	0.49
Any injury, past year [c]	22 (37%)	64 (22%)	86 (23%)	0.25	0.77**
Sexual Behaviors					
Sexually satisfied with steady partner (vs. not satisfied)	44 (75%)	284 (91%)	328 (89%)	-0.65*	-0.75*

Table 5.1. continued

	Concerned about male partners' anger [a] (n=59, 17%)	Not concerned about male partners' anger [a] (n=311, 83%)	Overall (n=370, 100%)	Coefficient for Women (n=185)	Coefficient for Men (n=185)
Male partner had any outside sex partners (past 6 months; men only)	14 (64%)	52 (32%)	66 (36%)	0.72**	0.70**
Had any "steady" concurrent sex partners (including regular clients; past year)	18 (31%)	42 (14%)	60 (16%)	0.55*	0.35
FSW often/always uses condoms with clients (vs. rarely/never; past month; FSWs only)	17 (77%)	99 (84%)	116 (83%)	-0.24	0.82
Drug Abuse (past 6 months)					
Heroin	30 (51%)	186 (60%)	216 (58%)	-0.19	-0.24
Cocaine	6 (10%)	24 (8%)	30 (8%)	-0.11	0.55
Crack	3 (5%)	37 (12%)	40 (11%)	-0.33	-0.49
Methamphetamine	33 (54%)	64 (21%)	97 (26%)	0.95***	0.86**
Injected any drugs	29 (49%)	184 (59%)	213 (58%)	-0.23	-0.28

[a] FSWs' concern that intimate male partners would become angry if she used microbicides; male partners' concern that they would become angry if FSW-partner used microbicides.
[b] Interquartile range.
[c] Dyad average (uses information from both partners' responses within a given couple).
*p<.05, **p<.01, ***p<.001.

Table 5.2. Concern about male partners' anger at microbicide use within FSW-intimate partner dyads in Tijuana and Cd. Juárez, Mexico (n=185 couples)

		FSWs' concern that male partners would become angry about microbicide use	
		No anger concern	**Has anger concern**
Male partners' concern that they would become angry if FSW-partner used microbicides	**No anger concern**	132 (71%)	31 (17%)
	Has anger concern	16 (9%)	6 (3%)

Table 5.3. Marginal effects [a] for factors independently associated with Concern about male partners' anger at microbicides use within FSW-intimate partner dyads in Tijuana and Cd. Juárez, Mexico (n=370 individuals; 185 couples)

	Concerned about male partner's anger: marginal effect [a] (robust standard error)	
Variable	**Women**	**Men**
Rosenberg self esteem score (per point increase)	-0.03*** (0.01)	0.03** (0.01)
Any injury, past year	-0.00 (0.06)	0.09** (0.04)

[a] Change in probability of anger concern associated with a 1-unit change in each independent variable.
*p<.05, **p<.01, ***p<.001.

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CHAPTER 6: DISCUSSION

This dissertation found that high risk sexual behaviors including concurrent (overlapping) sexual partnerships are common among female sex workers (FSWs) and their intimate male partners in Tijuana and Ciudad Juárez, Mexico. FSWs described complex relationship dynamics and behavioral norms including pressure to have unprotected sex within their commercial relationships (Aim 1), which are concurrent with their intimate relationships. FSWs' intimate male partners also had concurrent partnerships (Aim 2), yet condom use with within intimate (study) relationships remained low. Although couples were highly interested in vaginal microbicides as an alternative HIV prevention modality, some were concerned that male partners would become angry due to implications of mistrust or infidelity (Aim 3). All of these findings, which relate to relationship dynamics, perceptions of risk, and broader, gendered social norms, support the overall theoretical framework guiding this dissertation, which was based on gender and social action theories. The findings reported in the methods protocol (Chapter 2) and original dissertation studies (Chapters 3-5), as well as their interrelationships with gender and social action theories, are summarized below. The following sections of this Discussion chapter discuss strengths and limitations of the research and implications for future couple-based HIV/STI prevention interventions and research.

SUMMARY OF KEY FINDINGS

Research Protocol

Chapter 2, the protocol for *Proyecto Parejas* (Couples Project), described how the sampling, recruitment, screening, and enrollment of hard-to-reach couples required a thorough understanding of the local realities of drug abuse, poverty, and social marginalization.[1] The project used targeted and snowball sampling to recruit female partners first in areas where drug use and sex work were known to occur, which required an accurate understanding of local populations and geographies. The novel couple verification screening (CVS) instrument that was

used to assess the legitimacy of couples required adaptation of previous instruments[2] based on extensive pilot testing among the target population for linguistic, cultural, and socioeconomic relevance.[3-5] The enrollment of 214 high risk couples into this multi-site social epidemiological study required an interdisciplinary approach drawing from multiple sources of information to verify relationships. The resulting protocol description provides a practical set of tools that can inform couple-based research and interventions among high risk, marginalized dyads in other settings.

The success of the *Proyecto Parejas* protocol also involved careful consideration of gendered issues of power and control in heterosexual relationships,[6-8] as 35% of FSWs in this region have reported recent intimate partner violence (IPV) from steady partners.[9] We recruited women first, used special screening items to identify women fearing extreme IPV due to participation, and trained outreach workers to be sensitive to issues of suspected abuse and refer such women to local services (listed at the end of Appendix 2). This approach has been recommended for couple-based research[2] but was tailored to the Mexico-U.S. border context through collaborations between local staff and an internationally-recognized researcher with expertise in couple-based interventions and IPV.[10]

Although women fearing extreme IPV were excluded during the initial screening phase, additional protections were built into the study design to protect recruited and enrolled women, including inviting eligible women to bring their primary male partners in to study offices at a later date to verify couple status, allowing them time to further consider project participation and avoid coercion to participate by male partners. Staff were also trained to follow a detailed relationship safety protocol (Appendix 2), which was developed to address potential abuse at multiple points throughout the recruitment, screening, and data collection phases and included contact information for local services. Since couple-based research often involves sensitive topics such as relationship instability, mistrust and infidelity,[11] the safety aspects of the protocol were clearly imperative to the safety of participants and success of the project, underscoring the importance of considering gendered power dynamics in couple-based research.

Typology Of Female Sex Workers' Commercial Relationships

Chapter 3 of this dissertation used qualitative methods to explore FSWs' commercial relationships in the U.S.-Mexico border region (Aim 1). Women described relationships with four broad, overlapping categories of clients that involved distinct relationship dynamics and behavioral norms: (1) non-regular clients, (2) regular clients and "friends," (3) clients who "fell in love," and (4) long-term financial providers. As commercial relationships developed over time, women struggled to maintain professional boundaries and insist on consistent condom use, particularly as clients' financial power over FSWs increased. This finding is consistent with the first two structures of the Theory of Gender and Power, the sexual division of labor and the sexual division of power, which posit that women are relegated to undervalued and risky occupations (e.g., sex work) while men enjoy relative financial power and control within heterosexual relationships.[7,8]

Although women devised professional strategies for negotiating condom use, drug use compounded their financial need, particularly in Ciudad Juárez, where lucrative U.S. clients were perceived to be increasingly scarce. While struggling to cultivate and maintain relationships with bi-national clients in the context of sex tourism from a wealthier country, some FSWs ceased negotiating condom use altogether, reflecting how gendered power dynamics can also influence behaviors from a higher, structural level.[12] HIV/STI prevention programs for FSWs in other resource-poor settings should recognize how interpersonal dynamics interact with broader gender norms and income inequality to reinforce male clients' financial and decision-making power within commercial relationships.

Clients' social and emotional connectedness to FSWs also increased as commercial relationships developed over time, rendering condom negotiation even more difficult. In the context of this increased intimacy, some women reported "feeling sorry" for clients and not wanting to "hurt their feelings," demonstrating how women's relational orientation interfered with safer sex negotiation.[6] This finding is in line with the Theory of Gender and Power structure of cathexis (i.e., the social norms that reinforce women's affective attachments within relationships),[7] and provides evidence that social action theories, which shift the focus of risk

analysis from the individual to the relationship level,[13,14] may benefit the study of commercial relationship contexts. While some FSWs viewed their longer-term clients as more monogamous and therefore less "risky," social action theories help highlight how FSWs' risk perception decreased as their commercial relationships became closer.[14] A more immediate, problematic "risk" to these relationships[15,16] could result from insisting on condoms against clients' desires, causing women to fear losing these important, dependable sources of income. These findings imply a need for HIV/STI research and prevention interventions to recognize the complexity of interpersonal dynamics within FSWs' commercial relationships, which have rarely been studied,[17,18] and how perceptions of risk and related behavioral norms evolve as relationships develop.[16,19]

Prevalence and Correlates of Sexual Partner Concurrency

Chapter 4 determined the prevalence and correlates of concurrency among FSWs and their intimate male partners in Tijuana and Ciudad Juárez, Mexico (Aim 2). Concurrency has rarely been studied among FSWs and their clients,[20] and never, to our knowledge, among FSWs and their intimate male partners. This study defined concurrency as other "steady" or recurring sexual partnerships that overlapped in time with study relationships, which included other non-commercial and commercial "steady" partners including FSWs' regular clients, with whom consistent condom is less likely (Chapter 3). This definition likely captured riskier partnerships through which individuals are exposed to greater opportunities for disease transmission.[21] Among 214 dyads (n=428 individuals), steady concurrency was relatively common with nearly one in six participants (n=68; 16%) having recurring outside partnerships in the past year. Both partners reported steady concurrency in 10 couples (5%), only women reported concurrency in 45 couples (21%) and only men reported concurrency in 3 couples (1%) ($p<.001$). While additional research is needed to clarify concurrency measurement within FSWs' intimate relationships, these findings suggest that recurring or longer-term concurrent partnerships are common, possibly posing significant risk to steady (study) partners with whom unprotected sex was common.

The correlates of steady concurrency carry interesting implications for the application of

the Theory of Gender and Power to research among FSW-intimate partner dyads. FSWs with higher income were more likely to report steady concurrency than women earning less, possibly reflecting greater agency in retaining lucrative regular clients (Chapter 3). Although Connell's theory posits that men traditionally control economic resources and decision making within heterosexual relationships, FSWs with higher earnings may have some degree of control over their own economic decisions (e.g., by selecting and cultivating relationships with lucrative regular clients).[7] More recent work by Connell has highlighted how changes within different structures do not always occur simultaneously, which can result in tension or turbulence within gendered orders.[12] For example, increasing economic power of women may occur in the absence of change within broader cultural norms, resulting in conflict or infidelity. Research is needed to clarify whether and how FSWs' financial and work-related decision-making relates to interpersonal dynamics and issues of relationship power within FSW-intimate partner dyads.

Of interest, greater caballerismo, a more positive and social aspect of traditional masculinity characterized by social and emotional connectedness,[22] was associated with male partners' steady concurrency, while machismo, which has been associated with higher risk sexual behaviors,[22] was not associated with concurrency. One possible interpretation of this finding is that men with greater emotional connectedness who perceived that their primary FSW-partners were not sufficiently invested in their intimate relationship were more likely to seek connections outside of their primary relationships. However, the structure of cathexis posits that gender norms dictate stronger relational orientations and affective attachments for women than men. Additional research is clearly needed to assess the cultural relevance of traditional masculinity and gender constructs within this binational context and identify related implications for couple-based research and sexual risk reduction interventions.[12,23]

Acceptability of Microbicides

Chapter 5 used a complementary mixed methods design to assess FSWs' and their intimate male partners' interest in and acceptability of vaginal microbicides, a female-initiated form of pre-exposure prophylaxis (PrEP) that could help reduce HIV transmission risks

associated with concurrency (Aim 3). Among 185 couples (n=370 individuals), interest in vaginal microbicides was high and most participants felt that they could discuss microbicides within their intimate relationships. Some participants held concerns about product safety and efficacy that could be addressed through the provision of information and improved training on microbicide use.[24] Of greater concern was the finding that some participants worried that male partners would become angry about microbicide use within their intimate relationship. In qualitative interviews, some couples explained that, similar to condoms, microbicides would imply mistrust or infidelity within intimate relationships. However, concordance between men's and women's anger concern within couples was limited, suggesting a need for couple-based interventions that enhance communication while reframing the purpose of PrEP modalities away from "risk" and toward more positive aspects of protecting relationships.[25]

Findings from this microbicide acceptability study also highlighted gendered power dynamics within intimate relationships.[7] Women with higher self-esteem scores were less likely to be concerned about male partners' anger, suggesting greater agency or decision-making power within their intimate relationships.[8,26-29] In support of this interpretation, some women described microbicides as empowering in their qualitative interviews. At the same time, men in relationships with any past-year conflict causing physical injury were more likely to report that they would become angry about microbicides, likely reflecting issues of relationship control, dominance, and possibly abuse.[27,30,31] Since the efficacy of PrEP appears to depend highly on adherence,[32-34] these findings highlight the need for improved understanding conflict and other intimate relationship dynamics that could affect couples' willingness and ability to adhere to medication regimen.[35] These interventions should involve male partners in active but positive ways,[36,37] promoting risk communication and negotiation skills in "safe" environments involving counselors trained in conflict resolution.[10,38]

STRENGTHS & LIMITATIONS

Representativeness and Generalizability

Research with high risk dyads presents particular challenges during the sampling and recruitment phases. Probability sampling techniques may not be feasible with marginalized populations that are excluded from mainstream social services.[39] In Mexico-U.S. border cities, populations of FSWs are difficult to enumerate because some FSWs in Tijuana do not register and Ciudad Juarez does not have an official registry. Furthermore, sex work registries exclude some of the highest risk, street-based FSWs who are under-age, HIV-positive or inject drugs.[40,41] Respondent driven sampling (RDS), an increasingly common approach to sampling "hidden" populations, has shown limited effectiveness in recruiting FSWs[42] and women who inject drugs.[43,44] Time-location sampling, an approach used with high risk populations, was considered unsafe due to the drug-related violence in the border region. As a result, *Proyecto Parejas* depended on targeted sampling[45] (*promotore/as* targeted areas where sex work and drug use visibly occurred) and snowball sampling[46] (staff invited enrolled women to refer other FSWs). The resulting nonprobability-based sample of FSWs and their intimate male partners is unique and unlikely to represent other high risk couples globally, limiting the generalizability of these dissertation findings.

Several other factors also limited generalizability. The exclusion of shorter-term couples and those experiencing severe IPV and the later censoring of male partners in couples who broke up may have also biased our quantitative and qualitative samples toward more stable, lower risk couples.[35,47] Nevertheless, we believe that our study design was justified by safety concerns, previous couple-based studies,[2,48] and the paucity of research involving both members of FSW-intimate partner dyads. As a first in-depth study of FSWs' intimate relationships in the Mexico-U.S. border setting, our findings provide important new information on sexual partner concurrency and relationship dynamics that carry important implications for future couple-based research and prevention interventions.

Self-Report and Recall

Both the quantitative and qualitative components of this dissertation depended on self-report and recall of past and current behaviors that are highly sensitive, which could have led to

inaccurate data, underreporting, and social desirability bias. However, in Chapter 3, women were asked to qualitatively describe their current commercial relationships, particularly their closer relationships with regular clients, which should have limited recall problems. In Chapter 4, measures of concurrency focused on the past-year, as recommended by UNAIDS.[49] Although shorter timeframes (e.g., 3- and 6-months prior to the interview) may produce more reliable reports of sexual behaviors,[50] participants were asked to focus on steady, recurring concurrent partnerships, which are likely to be more memorable than briefer affairs. In addition to extensive pilot testing to improve the wording of concurrency items,[5,51] interviewers provided participants with calendars and memory cues (e.g., nicknames for concurrent partners that interviewers could reference while administering items, and requests to think of times and places involving opportunities for outside partnerships) that have been shown to improve descriptions of sexual networks.[52] Chapter 5 asked participants to describe their interest in using vaginal microbicides in the future, which should be relatively free of recall problems.

Social desirability bias could have resulted in each of these dissertation studies due to the sensitivity of the high risk behaviors being studied. It is possible that FSWs underreported unprotected sex with clients in Chapter 3; however, interviewers undertook extensive efforts to build rapport with FSWs and had multiple points of contact with participants throughout baseline and follow-up data collection activities. Training and refresher trainings conducted before baseline and one-year follow-up activities allowed interviewers to practice active listening and neutral probing techniques in mock interview settings. In Chapter 5, some participants may have tried to sound willing and eager to use HIV prevention technologies in order to please staff. However, the opportunity for participants to explain their motivations for or against interest in microbicides in qualitative interviews should have reduced socially desirability bias. Finally, staff are extensively trained outreach workers known by target population to have nonjudgmental attitudes, which should have increased participants' comfort in disclosing sensitive, high risk behaviors.

Measurement and Operationalization

Concurrency research over the past decade has been severely limited by measurement

challenges. Recognizing the lack of a single, standardized indicator for concurrency, the UNAIDS Reference Group on Estimates, Modeling and Projections convened an expert panel in 2009[49] and developed the following definition of concurrency: "Overlapping sexual partnerships where sexual intercourse with one partner occurs between two acts of intercourse with another partner."[53] To determine "overlap" in sexual partnerships, the group recommended asking participants to think about up to the last three individuals with whom they had sex during the past year and then administering the following items:

Q1: How long ago did you last have sexual intercourse with this person?

Q2: How long ago did you first have sexual intercourse with this person?

Q3: Are you still having sex with this person?

However, more recent modeling research has suggested that this list of items misses important information about the timing and frequency of sex within ongoing (recurring) relationships,[21,54] because each additional sex act increases transmission risk.[55]

Due to the large number of FSWs' sex partners, this dissertation research measured concurrency by asking participants to consider up to five of their most frequent partners during the past year, which included other non-commercial (intimate) partners and commercial partners (FSWs' regular clients). By operationalizing concurrency in this way and including regular clients in the definition, women's prevalence was higher than men's, differing from prevalence estimates globally. The exclusion of one-time partners may have also yielded more conservative prevalence estimates for men. However, the type of concurrency captured by this definition may be more relevant to HIV/STI transmission because it represents sustained overlapping sexual contacts with greater transmission potential,[21,54,55] particularly since FSWs may use condoms less frequently with regular clients (Chapter 3). While this focus on "steady" concurrency differs from existing literature and prevents comparisons to prevalence levels in other populations, these dissertation findings provide one of the first attempts to measure concurrency among FSWs and their intimate male partners. Additional research is needed to develop alternative ways to measure concurrency among FSWs and their intimate partners and other high risk dyads.

Public Health Significance

Despite these limitations, this dissertation provides one of the first in-depth studies of sexual partner concurrency among high risk couples residing along an international border where commercial sex, drug abuse, poverty and population mobility are prevalent. By integrating qualitative and quantitative items into a larger study involving couples rather than individuals, this study was able to assess the perspectives and behaviors of both high risk FSWs and their intimate male partners. Findings contribute an enhanced understanding of the social context of sexual partner concurrency, which is too often studied among individuals in the absence of their main partners and without consideration of intimate relationship dynamics.[21,56,57] The use of multiple research methods to assess relationship and gender dynamics surrounding concurrency behaviors and the acceptability of HIV prevention technologies can help inform the development of urgently needed, couple-based HIV/STI prevention interventions for drug-using FSWs and their intimate male partners in resource-limited settings, as described below.

RECOMMENDED INTERVENTIONS & RESEARCH

Overview of Couple-Based Interventions

Compared to individual-level approaches, couple-based interventions have been more successful in promoting HIV counseling and testing[58,59] as well as treatment adherence among sero-discordant couples[60] and HIV-positive pregnant women.[61,62] A recent review found that the small number of existing couple-based intervention studies demonstrated efficacy in reducing sexual risk behaviors over 3- and 6-month follow-up periods.[58] These interventions were implemented in a variety of ways, including providing risk reduction strategies to men and women separately but simultaneously, training individual dyads together in specific risk reduction strategies, and working with small groups of couples.[63-65] Most couple-based interventions have focused on identifying and reducing sexual risk behaviors within dyads; however, recent research indicates that working with dyads to improve relationship quality more generally (e.g., improving trust, intimacy, satisfaction, commitment, communication and power dynamics) can also help

influence couples' abilities to coordinate safer sex.[35,65-68] As successful interventions usually involve a combination of approaches based on the unique needs and contexts of their target populations,[63,65,69,70] research is continuing to explore the optimal mix of intervention approaches[35] in diverse populations and settings.[64]

Advantages of Couple-Based Approaches

Couple-based interventions offer important advantages over individual-focused prevention programs. First, due to gendered issues of power, control, and dominance in heterosexual relationships, many women cannot successfully negotiate consistent condom use or prevent their male partners from bringing HIV/STI risk into their relationships.[6,8] Some women may also experience abuse when attempting to introduce condoms or contraceptives unilaterally (i.e., without support or permission from male partners).[31] By bringing women and their male partners together in safe environments, couple-based approaches can acknowledge these gendered dynamics and place mutual responsibility for HIV/STI prevention and general health and wellbeing on the dyad rather than individual women or men,[35,47] involving both partners in active, positive ways.[36] Chapter 5 of this dissertation suggested a need for couples to learn about HIV prevention technologies (e.g., vaginal microbicides) together in contexts that allow the opportunity to discuss issues of responsibility and develop strategies to promote adherence.[60] In the safe environments that couple-based interventions can create, couples can discuss sensitive or taboo topics such as power imbalances and conflict, abuse in past relationships, drug use risky sexual behaviors, and even risks originating from outside of the dyad (e.g., concurrency).[10,35]

Couple-based approaches are uniquely suited to promote the positive aspects of relationships (e.g., love, trust, commitment) and cultural norms that are supportive of couples' health (e.g., spiritual beliefs that encourage caring for loved ones).[38,66,67,71] As a result, members of high risk populations are often eager to participate in couple-based interventions.[47] Such approaches also help to reframe safer sex discussions away from "risk"[13,14] and toward more positive, protective values,[10,72,73] as highlighted by Chapters 3 and 5 findings. Once a positive, protective environment has been established, trained facilitators can increase couples' knowledge

of prevention technologies and enhance risk communication, problem solving and mutual goal setting.[10,38,66,67] Chapter 4 highlighted the need for enhanced risk communication within FSW-intimate partner dyads, as men who perceived that their partners had HIV/STIs were more likely to have concurrency themselves. The discordance between partners' anger concerns in Chapter 5 also indicated a need for improved communication between partners. However, an intervention with these couples would likely require facilitators trained in conflict resolution and able to identify cases of abuse. For some couples, enhanced individual counseling and referrals to outside services may be required before couple-based interventions would be appropriate.

Although intervention components to date have been heterogeneous,[58] some successful approaches have involved helping couples recognize joint sexual and drug related risks for disease transmission,[10,74] participating in HIV/STI counseling and testing and disclosing results,[35,38] improving relationship quality and general wellbeing,[58,65] and working with small groups of couples to improve social cohesion and peer norms favoring safer sex behaviors.[66,67] Many of these approaches could benefit the FSW-intimate partner dyads in this study; however, additional research is needed to identify which intervention components and approaches are most urgently needed and appropriate (e.g., targeting drug and/or sexual risks, identifying which relationship qualities couples would like to improve). Research is also needed to assess how a couple-based intervention could be best delivered to marginalized populations in Mexico-U.S. border cities and other resource-poor settings.

Gaps in Couple-Based Intervention Science

Recent reviews of couple-based interventions have identified several important gaps in the intervention science that require additional research. [35,47] First, inconsistent definitions and eligibility requirements for "couples" limit the generalizability of research findings. Second, methodological problems and small sample sizes have thus far prevented the assessment of reductions in HIV/STI transmission. Third, inconsistent intervention delivery mechanisms (e.g., working with couples separately or small groups of couples) prevent valid comparisons between studies. Fourth, intervention designs have not adequately incorporated relationship theory,

resulting in intervention components that are too often based on individual-level social cognitive and health behavior theories[58] that may not apply to relationship contexts.[14] Fifth, studies have been limited by analytical problems; for example, some studies have inappropriately used standard statistical approaches to analyze dyadic data. Finally, interventions to date have neglected high risk behaviors occurring outside of dyads (e.g., concurrent sexual and drug use partnerships) as well as populations of FSWs and their intimate male partners.[35,47]

The findings from this dissertation suggest that it will be possible for future research to address several of these gaps. For example, the incorporation of gender and social action theories helped focus analyses beyond the individual level toward the gendered dynamics that occur between individuals in intimate relationships.[12,14] The statistical analysis approach, which simultaneously but separately modeled women's and men's outcomes, was appropriate for the hierarchical structure of individuals nested within couples. This dissertation also focused on types of risk and populations that have been neglected by couple-based interventions: sexual partner concurrency and FSWs' intimate relationships. Based on these innovations, additional research should be able to address the gaps in the existing couple-based intervention science.

Recommended Research

The findings of this dissertation suggest the need for future studies to assess the potential for couple-based interventions with populations of FSWs and their intimate male partners. Although couple-based interventions may be uniquely suited to address gendered relationship dynamics,[35,68,75] additional research is needed to clarify the application of gender theories to FSWs' commercial and non-commercial relationships and more thoroughly assess how gendered norms and role expectations within these relationships could be influenced by couple-based interventions. This dissertation also found that the integration of social action theories into couple-based research holds great promise in addressing complex relationship dynamics. However, additional theoretical work is needed to understand the intersections of these theoretical models and how they could guide the development of specific intervention components to address relationship dynamics and promote the adoption of safer sex behaviors

and technologies.

Additional research is also needed to assess how a couple-based intervention could address sexual partner concurrency, which was found to be relatively common among FSW-intimate partner dyads. Although some individual- and community-level interventions have been successful in increasing knowledge about the harms associated with concurrency, it is unclear if interventions can reduce concurrency prevalence,[76] particularly among FSWs who may be reluctant to lose their lucrative, regular clients. Thus, a harm reduction approach promoting risk disclosure and communication within couples may be needed, but additional research is required to identify appropriate approaches and assess the possibility of unintended consequences (e.g., conflict of IPV) resulting from addressing such "extra-dyadic" risks in a couple-based setting.[35,47]

Qualitative studies are also needed to assess the motivations for concurrency, including drug abuse and related financial need, within high risk dyads.[10,74] FSWs' longer-term commercial partners should not be neglected by concurrency or couple-based intervention research. Regular clients should be viewed as concurrent partners with whom condom use decreases as social and emotional connections increase. Larger mixed methods and social network studies are needed to fully understand the extent of overlapping partnerships in populations of FSWs who have intimate male partners as well as long-term clients. While studies have begun to explore how motivations for concurrency relate to interpersonal and relationship factors,[77] additional research is needed to explore how FSWs' intimate male partners perceive their partners' sex work and determine if strategies to improve risk communication regarding commercial concurrency could benefit couples. Nevertheless, our findings underscore the importance of studying concurrency and its motivations within relationship contexts, drawing from both partners' perspectives.

CONCLUSIONS

In light of recent calls for HIV/STI prevention research to go beyond individual risk behaviors to examine social and intimate relationship contexts,[78] this dissertation provides an important first examination of concurrent (overlapping) sexual partnerships among high risk FSW-

intimate partner dyads in Tijuana and Ciudad Juárez, Mexico. This dissertation found that commercial and non-commercial concurrency was common among female sex workers (FSWs) and their intimate male partners in this region and may relate to complex relationship dynamics and broader, gendered social norms. Couples were highly interested in new HIV prevention technologies such as PrEP, but findings indicated the need for couple-based interventions that address risk perceptions and communication within high risk couples. The ultimate effectiveness of interventions to reduce sexual- and drug-related HIV/STI risk among marginalized FSWs and their intimate male partners will depend on consideration of how relationship and gender dynamics interact with socioeconomic inequality to influence couples' risk.

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APPENDICES

Appendix 1: Protection of Human Subjects

Institutional review boards of the University of California, San Diego (UCSD), the Hospital General and El Colegio de la Frontera Norte in Tijuana, México, and the Universidad Autónoma de Ciudad Juárez, México, approved all study protocols for the parent study (*Proyecto Parejas*; UCSD Human Research Protections Program, Project #090570) and this dissertation study (amendment to Project #090570 approved 1/27/2011). Key protocol sections are included below.

Risk to Subjects

The risks associated with participation in this study were primarily psychological, although *Proyecto Parejas* investigators and staff carefully considered physical risks to female partners that could result from this study, as described in the following sections.

Psychological risks: Some female partners may have found it distressing to recall the circumstances surrounding sexual encounters with primary and concurrent commercial or non-commercial sex partners, experiences with intimate partner violence (IPV) or other instances of emotional, physical and sexual abuse, particularly in a couple-based study in which their primary partners may have been present in the same facility. Experienced investigators and consultants were involved in training staff to conduct confidential and sensitive interviews regarding this kind of highly personal data. All staff in Mexico were trained to approach questions with sensitivity and in a supportive manner and to provide appropriate referrals when needed. Staff were also trained in the Relationship Safety Protocol that was adapted from Dr. El-Bassel's couple-based studies, which have been used in many other NIH-funded projects, as described below and reproduced in Appendix 2.

During the HIV/STI pre- and post-test counseling, some project participants testing positive for HIV or an STI may have experienced distress when learning about their health condition. Staff were trained following the CDC and Mexican Official Guidelines and have vast

experience working with this vulnerable population. Our on-site nursing staff were trained to answer any questions or address any concerns about couples' reproductive health and make referrals to the local municipal health clinics, local hospitals, or the local CAPASITS HIV clinics. Since treatment for STI testing is unreliable in Mexico, *Proyecto Parejas* provided medications free of charge and in accordance with STI treatment guidelines and CDC recommendations. The informed consent form and process also explained testing and treatment protocols to participants, including the risks of treatments, as described below. HIV-positive cases were referred to the local CAPASITS HIV clinics or Municipal Health Clinics for free CD4 and viral load testing and free antiretroviral therapies if clinically indicated and in accordance with Mexico's national plan.

Physical risks: Although our screening and exclusion criteria should have eliminated enrollment of (and referred to other services) participants experiencing current, serious IPV (Chapter 2), the high risk and marginalized nature of this population made it likely that interviewers or counselors would receive reports of current, ongoing physical abuse and IPV perpetrated against FSWs by their male sex partners during the course of the study. To minimize potential issues related to partner violence, confidentiality and safety, study staff were trained in the Relationship Safety Protocol developed by Dr. El-Bassel that addresses counseling and referral for participants experiencing IPV (Appendix 2). This protocol is very detailed and considers violence perpetrated by either partner, the level of seriousness, and the possibility that the study may exacerbate tensions and IPV within the relationship. The protocol offers step-by-step instructions on how to de-escalate potentially violent situations, and how to avoid casting blame in anyone's direction.

In cases where IPV was severe, or when participation in the study was deemed to be causing serious IPV, the protocol outlines instructions for how to inform the participants that their participation was being discontinued in a non-judgmental and non-blaming manner. This protocol also contains an extensive listing of local services to which women can be referred, including the Sistema Nacional para el Desarrollo Integral de la Familia, the Mexican social assistance and welfare institution (also known as "DIF") that supports victims of violence and sexual abuse, as

well as many non-governmental organizations that provide assistance to abused women (these services are listed at the end of the Relationship Safety Protocol in Appendix 2).

Loss of confidentiality: *Proyecto Parejas* recruitment and screening processes should have eliminated enrollment of couples in which FSWs did not want their male partners to find out that they were sex workers; however, we did not exclude women whose partners were unaware because FSWs have referred partners to study sites for HIV/STI testing and treatment in the past. To ensure that women understood the purpose of *Proyecto Parejas*, during the screening process, our outreach workers counseled women that partners could become aware of sex work during the course of the study. Therefore, women were advised to only refer their partner to the study if they were comfortable with the possibility that their partner learned about their sex work. This approach ensured that women who referred partners who were unaware of their sex work status would do so as an informed choice, as described in Chapter 2. A related concern was that as a result of participating in *Proyecto Parejas*, it would be possible that women and their main non-commercial partners could be identified by others as sex worker or partner a sex work. We made every effort to safeguard against these scenarios by conducting interviews in private locations (e.g., our nondescript storefront offices in each city, where people enter for myriad reasons). All study advertising was developed to shield the exact focus of the study; for example, *Proyecto Parejas*, or Couples Project, does not infer any relationship to sex work.

We carefully considered the sensitive ethical issues surrounding disclosure of HIV/STI results to partners by reviewing the literature, consulting experts in the field in Mexico (including CENSIDA) and the United States to consider this issue. We were required to implement a study protocol that adheres to Mexican law, but we clearly needed a protocol to minimize risk of transmission between HIV/STI discordant couples. Mexican law upholds the right to privacy and confidentiality of study participants and states that in the case of HIV, any participant in a research study must clearly express in the informed consent form his/her wish to disclose their HIV and health status to their partners or other people. While this law differs from that in many U.S. states where partner disclosure is legally mandatory, it has been shown that restrictive laws

can actually undermine HIV prevention. While the Mexico law does not extend to STIs, we felt that we should extend the same protocol we developed for disclosure of HIV test results to other STI results. We considered excluding participants who refused to disclose their test results to their partner, but this would not prevent situations in which subjects changed their minds, and would introduce considerable selection bias. Thus, we carefully ensured that the informed consent procedure explained to participants that their test results would only be shared with their partner with their written consent, and that their partner's HIV/STI test results would only be provided to them with their partner's written consent.

Throughout the project, which is ongoing, we have encouraged partners to disclose their test results to one another. Study counselors have been on-hand to assist if both partners agree to this, either by being in the room to facilitate the discussion, or waiting outside the room while the partners disclose to one another. At each follow-up visit, staff revisited the disclosure decisions of each partner to encourage disclosure of results from any new infections to partners, or to determine if participants have changed their mind and are now ready to disclose results that they were initially reticent about. At each visit, counselors have recorded whether partners disclosed results to one another, and under what circumstances.

There has also been a slight risk of confidentiality being breached in the management of data, although multiple safeguards were implemented to avoid this risk. Participants were made aware of this risk during the consent procedure. To date, projects by this team have not had a single breach of confidentiality in over five years working in Mexico. Based on these considerations, we consider the risk of losing confidentiality about HIV/STI results to be minimal.

Protection Against Risks

Informed consent: All participants provided written informed consent prior to participating. The informed consent procedure was designed to maximize the potential participant's comprehension of the study procedures and to ensure voluntary participation. Before a participant was enrolled in the study, the purpose, procedures to be followed, and risks and benefits of

participation were explained by the clinic staff or interviewer and signed by the study participant. Interviewers were be trained to carefully go over and explain the consent form to participants, which was developed in accordance with institutional review board guidelines. Study procedures were thoroughly and clearly explained and participants had the opportunity to ask questions and demonstrate their comprehension of study procedures prior to participating. In cases where it was apparent that a participant did not understand study procedures, trained interviewers reviewed the information again in different ways to ensure comprehension prior to continuing. Participants were provided with a copy of the consent form, which included contact information for investigators.

The description of the study also included information on the content of the interview, intervention topics, reimbursements, and procedures at baseline and follow-up assessments. In all cases, fully informed consent was obtained before any data were collected. Based on our previous studies (UCSD Human Research Protections Program projects #040860 and #071721) and the recommendations of the UCSD Task Force on Decisional Capacity, we included a decisional capacity assessment in the consent process. Staff were trained to identify signs of intoxication, and when potential participants were suspected to be under the influence of drugs, they were administered this decisional capacity assessment after going through the consent form. This brief questionnaire consisted of questions regarding the voluntary nature of participation, possible risks and benefits, procedures involved for withdrawing from the study, and confidentiality. If no impairment was found, participants were asked to provide signed consent. If sufficient impairment was found, individuals were offered the opportunity to reschedule their consent and enrollment visit for a later time. In both cases, results of the decisional capacity assessment were retained in research records. In cases where, after further attempts to clarify any misunderstandings, we determined that participants did not fully comprehend the critical aspects of the study, they were not be enrolled. When potential participants decide they do not wish to participate, their decisions have been honored regardless of how well they comprehended the study information.

Risk management procedures: All data forms containing participants' identifier numbers were shipped to San Diego for permanent storage. The only data remaining in Mexico are the names and contact information of participants for location purposes, which do not contain their identifier numbers and is stored in locked file cabinets on-site in Mexico. A committee of U.S. and Mexican researchers review all requests for data analyses, and all data is analyzed in San Diego. The same committee also reviews manuscripts for quality control. Additional risk management procedures are detailed in the *Proyecto Parejas* protocol (UCSD Human Research Protections Program project #090570).

Potential Benefits

All participants have been offered HIV/STI testing at baseline and follow-up visits as well as on-site free treatment for these conditions according to Mexico's national guidelines (Ministry of Health), which are identical to those of the U.S. CDC. The treatment in all cases has been provided free of charge. HIV and STI treatment is also available for free at local clinics. To encourage participants to return for STI confirmation tests and any treatment at later dates, participants are offered non-cash incentives. Other benefits of this research are judged to be minimal to the subjects individually, although some may derive comfort from speaking with interviewers about their lives and intimate relationships, which are not always recognized as "real" or legitimate relationships by participants' family or broader society, as several of the qualitative participants reported after concluding their interviews. The importance of the knowledge resulting from this study and the potential for understanding the social epidemiology of HIV/STIs among FSW-intimate partner dyads may be quite significant; therefore, the risks associated with this study are minimal in relation to the possible benefits to the broader community.

Data Safety and Monitoring

Transcripts and field notes were double-checked against original notebooks and digital audio files at UCSD and were identified only by code numbers to safeguard confidentiality. All

unique identifiers (e.g., names of participants, their family or friends, any concurrent sex partners, or employers) were removed during transcription and participants' identities remained confidential. Electronic files containing the raw qualitative and quantitative data have been stripped of personal identifiers and are only made available to investigators working closely with the PI and qualitative coding team. Paper copies of consent forms, interview recordings and transcripts, and all related paper documents are stored in a locked cabinet in a private office at UCSD. Blood and urine specimens are stored at the San Diego County Health Department. Computer files are password protected, backed up, and stored in a locked office. No data that could identify participants has been stored on computer. The PI, Co-investigators, and Research Coordinator have data access stripped of identifying information. The only individuals with access to participants' identifying information are the research coordinator and PI. All of the investigators are experienced researchers who have received training in data collection and analysis, including privacy and confidentiality protocols in accordance with NIH policy, and have completed the UCSD human subjects' research tutorial. If a participant withdraws from the study, data from their interview will be destroyed immediately.

Appendix 2: Relationship Safety Protocol

Relationship Safety Protocol

This protocol covers what you should do as staff if you suspect that one partner is being abused or threatened by his or her partner. This protocol includes: (1) how to assess for intimate partner violence and level of danger that a partner may pose; (2) how to conduct safety planning and (3) how to handle termination in cases where you determine that it is not in the best interest of the couple to continue because of relationship safety concerns.

1.1. Detection of intimate partner violence (IPV)

You should assess for IPV in the following cases if:

1. A participant discloses to you that s/he is being physically or sexually hurt by his or her partner or s/he feels unsafe because of his or her partner's threatening behavior.
2. You notice bruises, cuts or lacerations on a participant.
3. During the course of the study, the partner makes threatening statements to participant or demonstrates excessive anger towards participant or in the rare case that the partner discloses that s/he is physically or sexually hurting or threatening the participant. (If partner is physically abusive towards participant in session, see facilitator training manual for procedures)

If the disclosure or threatening behavior occurs during the session, the interviewer should decide whether it is best to address the issue at the moment or at the end of the session. If the participant(s) are calm and composed during disclosure, you may ask the individual/couple at the end of the session to spend a few minutes talking with you individually (male staff person with male partner and female staff person with female partner). If participants are upset, distressed or angry, the issue should be addressed at the moment. In the case of a couple session, staff should then indicate that they would like to take a few moments to cool down and talk individually with the partners. The female staff person should invite the woman to leave the room with her

(this gives the woman the option of returning when she is ready); the male staff person should remain in the room with the male partner (if you suspect male partner is being abused, the male staff person should leave with male partner). Staff should find a private space to talk with the participant. Before beginning assessment and conducting brief safety planning and referrals, staff should first try to help the participant calm down and recompose herself or himself. If it is a couple session, the other staff person should remain with the partner and follow the protocol outlined in section 1.7.

1.2. Assessment of IPV

Begin assessment by reflecting back to the woman what signs of relationship conflict or distress you have observed. Keep it simple. If there are specific observations that are the source of your concern, you might say something like “I have noticed ‘x, y, and z’ and I am concerned about you and wonder if we can talk further about this”. Elicit from the participant any concerns she has about her partner’s behavior. In assessing the level of IPV in the relationship, you may specifically ask the following questions in a direct but non-judgmental fashion:

1. Has you partner ever hit you, shoved you or otherwise physically hurt you?

   PROBE:

   a. If yes, can you tell me a little more about what he does to you? (Assess for severity)
   b. How often has he physically hurt you in the past month? (Assess for frequency)
   c. How long has this been happening? How long ago was the last time he hurt you? (Assess for whether or not the abusive behavior has increased over time)
   d. Has this happened since you have attended the study? (Assess for impact of study on level of relationship conflict)

2. Has your partner ever used force to have vaginal, anal or oral sex against your will?

   PROBE:

   a. If yes, when was the last time this happened?

3. Do you feel afraid of your partner? PROBE:
    a. If yes, what does s/he do to make you feel afraid? Does your partner threaten you in way that makes you feel unsafe? PROBE: If yes, what does he do?
    b. Do you feel safe going home with your partner today?
4. Is your partner very jealous and controlling? Can you come and go as you please?
5. Does your partner keep you from family and friends?

1.3 Addressing situations where severe physical or sexual IPV is involved

- If participant indicates that the partner has perpetrated severe physical IPV (i.e. punching, kicking, slamming against the wall, beating up, burning or scalding, choking or using a gun on them), or rape in the past three months, you need to indicate in a calm, nonjudgmental way that you are very concerned about her safety because of "x, y, z" Summarize reasons. Proceed with brief safety planning.
- It is contraindicated for couples with severe IPV to continue with the study. At this point, you also need to let the participant know, that you are concerned that attending the study might create more conflict in their relationship and make her partner's hurtful or threatening behaviors worse. Tell the participant that you will talk with your supervisor about whether or not it is in their best interest to continue the study. Tell the participant that the study is not right for every couple and may not best in their best interest, but DO NOT tell the participant flat out that you have decided that they will not continue as it may make the participant more anxious as s/he may be concerned about how his or her partner may react to the termination. Reassure the participant that you and the staff will schedule another session before the next scheduled session where s/he and his or her partner will first meet individually with the staff to address any concerns they may have and than as a couple to review whether or not it is in their best interest to continue. Indicate that if they decide that it is not in the best interest to continue, that the staff will be available to meet again individually with the participant and the partner to discuss any

referrals to services that may be helpful. Indicate that the participant and her partner will be invited back for individual appointments to receive referrals if they wish and that they will also be invited back for follow-up assessment visits. It is important to convey to the participant that s/he did nothing wrong and that the study is not suited for every couple.

- If the participant indicates that s/he does not feel safe going home with her partner today or if you feel that his or her life is in imminent danger, you should express your concerns to the participant and explore alternatives for safe emergency housing and an escort plan with participant. You should work out a plan for escorting the participant to a domestic violence program with secure emergency housing or to safe place where the participant is confident her partner will not hurt her.
- You should have a list of DV programs with contact names to call for availability. It is important that the participant feels invested as an active partner in coming up with a plan – give her/him options, let her/him weigh the pros and cons of each option and choose the option that works best for her or him. You may give advice and recommendations, but emphasize that it is the participant's choice. You should develop an escort plan with participant. One possible plan is where you indicate to the partner that the participant needs to stay for an additional session or assessment that will take another two hours. Indicate to the partner that s/he can leave and that the participant will leave later. If partner is reluctant to leave, offer to pay for a car service for him or her to go home. After the partner leaves, you should wait for a while and check outside the entrance to make sure s/he is not waiting for the participant. Contact a car service to pick up the participant outside your office and take her to the safe location. You should stay with participant until s/he is in the car or has arrived at the safe location. You need to make a follow up phone call or a follow up visit with the partner to explain to him or her why you have decided that it is in his or best interest to stop attending the study (see 1.12 for more guidance on termination).

1.4 Addressing situations where minor physical IPV is involved

If participant indicates minor physical abuse (i.e. shoving, pushing grabbing, slapping, pinching, twisting arm or hair) in conjunction with any positive responses to feeling afraid of their partner or their partner being very jealous or controlling OR if the participant indicates the partner has made recent credible threats to hurt the participant or the partner is excessively jealous or controlling and the participant is afraid, you need to assess whether or not it is safe for the participant to continue the study, by asking:

- How has attending study affected your relationship?
- Has the level of conflict or your partners hurtful behavior worsened since you started attending the study? If yes, how?
- Are there any reasons you feel it may not be a good idea to continue with the study?

1.5 Other contraindicated situations to continue the study

- If you assess that the partner's hurtful and/or threatening behavior is a contraindication to continue. Some examples where a partner's behavior is a contraindication to continue may include, but are not limited to situations where: participant has experienced a recent increase in frequency of minor physical abuse (i.e. shoving, slapping, twisting arm or hair) or participant indicates that s/he is really afraid of the partner and doesn't feel safe around the partner because of the partner's threatening behavior; OR
- If you assess that the couple's attendance in the study has directly resulted in an increase in the participant's partner's hurtful or threatening behaviors (participant discloses that her partner slapped her for saying something about their private business in front of the counselor) the participant indicates that the partner is very jealous and has made threats the participant against saying or doing certain things in the session which make the participant feel afraid.
- If the participant expresses valid concerns or reasons for not continuing:

- Summarize concerns about the partner's hurtful behavior. Proceed with brief safety planning (Complete Step 1 and Step 2 of Safety Plan protocol – see Attached appendix) and make a follow-up appointment to complete safety planning and enhanced referrals.
- If you assess that it is safe for the participant to continue the remaining sessions of study, you should still summarize any concerns you may have based on what the participant has told you, but that you feel the participant and partner could benefit from continuing to attend the study. Tell participant that if the partner's hurtful behavior becomes worse or if the participant feels unsafe because of the partner's threatening behavior, the participant should contact you immediately. At this point, you may also want to consider completing Step 1 and Step 2 of Safety Plan, if you have any concerns about the participant's safety with his or her partner and provide referrals to the local domestic violence center.

1.6 General tips in assessing IPV and conducting safety planning (adapted from New York State's *Guide to Finding Safety and Support from Domestic Violence*)

- Educate yourself about intimate partner violence – Read attached guide and know what services are available in the community.
- Let go of any expectations you have that there is a "quick fix" to intimate partner violence or to the obstacles a victim faces. Understand that "inaction" may very well be the participant's best safety strategy at any given time.
- Believe the participant and let the participant know that you do.
- Listen to what the participant tells you. If you actively listen, ask clarifying questions, and avoid making judgments and giving advice, you will most likely learn directly from the participant what it is s/he needs.

- Validate the participant's feelings. It is common for abused individuals to have conflicting feelings – love and fear, guilt and anger, hope and sadness. Let the participant know that her feelings are normal.
- Avoid victim blaming. Tell the participant that the abuse is not his or her fault. Reinforce that the abuse is his or her partner's problem and his responsibility, but refrain from "bad-mouthing" him or her.
- Take participant's fears seriously -- If you are concerned about the participant's safety, express your concern without judgment by simply saying, "Your situation sounds dangerous and I'm concerned about your safety".
- Build on participant's strengths -- Based on the information the participant gives you and your own observations, actively identify the ways in which the participant has developed coping strategies, solved problems, and exhibited courage and determination, even the participant's efforts have not been completely successful.
- Be an active partner in participant's safety planning effort – The key to safety planning is taking a problem, considering the full range of available options, evaluating the risks and benefits of different options and identifying ways to reduce risks.

1.7 Conducting safety planning

The goal of safety planning is to reduce the participant's risk of being harmed by the partner. Safety planning involves the process of evaluating the risks and benefits of different options and identifying ways of reducing risks. Safety plans can be made for a variety of different situations: for dealing with an emergency, such as when the participant is threatened with a physical assault or an assault has occurred; for continuing to live with or to date a partner who has been abusive; or for protecting the participant if s/he decides to end the relationship.

- After briefly summarizing concerns about the participant's safety in the relationship, the facilitator should engage the participant in safety planning by introducing the process and

asking her to join you in going through the safety planning protocol, by saying something like:

- "We have talked about some of the ways your partner tends to lose his temper and hurt you and we have talked about some of your safety concerns – what I would like to do now is to work with you to explore different ways that you may be able to reduce your risk of being harmed by your partner. Your partner's hurtful behavior is not your fault, but there may be ways you can make yourself (and your child/ren) safer. How does this sound to you?"

- Complete Step 1 and Step 2 of the Safety Plan (see attached appendix entitled Safety Plan) -- As much as possible, elicit strategies and options from the participant for the different items and ask them to select the best way of responding to the item. If there is time (i.e. you are not in the middle of a session) and the participant is willing, you may continue with conducting the remaining Steps of the Safety Plan and conducting referrals.
- If there is not enough time, you need to make sure that that the participant has the number and/or location of a 24hr service for Domestic violence and schedule another appointment at the earliest convenience to complete the safety plan.
- After completing safety planning, you should ask the participant whether s/he feels safe keeping the safety plan with the or whether it would be better for you to keep the safety plan and for her to figure out a safe place where s/he can keep it on a longer term basis.

1.8 Making referrals

- All sites should have a comprehensive up-to-date referral manual with Domestic Violence Programs that have a range of services, including a 24 hour crisis hotline number, legal services, shelter, counseling for women, men and children affected by Domestic Violence, as well as housing and job placement services. The co-facilitator should assess what services the participant needs and prioritize referrals (if possible, its better to refer to one source that can meet multiple needs). When making referral, co-facilitator should

know what are eligibility restrictions on services (i.e. are there geographic catchment area, income or insurance issues that would prohibit participants from receiving services), and if possible, have a contact name and phone number of some one at the referral source, who will be responsive to following through with the referral.

- Staff should model to the participant what s/he should say when contacting the referral source (if possible, it would be good to role-play a scenario where the participant calls the referral source and have the participant call the referral source to make an appointment during the session. If participant requests that staff call the referral source or if the participant is too upset to call, staff should call the referral source while the participant is still there and make an appointment.
- Staff should record all referrals on "the participant referral form."

1.9 How to deal with a potentially abusive partner (If in a couple session)

While the co-facilitator is talking individually to the potentially abused participant in another room, the other co-facilitator should address any abusive or threatening behavior.

1. Ask the partner how s/he is feeling;
2. Attempt to engage the potentially abusive partner in a dialogue about his or her behavior, by reflecting back to participant what the facilitator observed. Example: "I noticed you seemed pretty angry when you/she said x, y, and z, can you tell how you are feeling about this now?" The co-facilitator should indicate an appropriate level of concern.
3. Explore any concerns about the partner's behavior in a calm, non-judgmental way. "What happens when you get angry with your partner -- are you able to control your temper?" "Do you have any concerns that you may hurt your partner when you get angry in these challenging situations?"
4. Assess whether or not if it is in the best interest to continue the study, by asking:
    a. How has attending the study affected your relationship?

   b. Has the level of conflict in your relationship worsened since you started attending the study? If yes, how?
   c. Are there any reasons you feel it may not be a good idea to continue with the study?

5. Explore and identify strategies to manage anger in challenging situations.
6. Assess whether the partner is interested in receiving any counseling or other services to help him or her manage his anger and deal with relationship conflict. The co-facilitator should have a range of referrals that would meet the partner's needs and follow similar referral steps as outlined in the previous section (1.8).
7. Explore with the partner anything s/he may want to say to his or her partner when s/he returns to the room.

1.10 How to deal with the couple after assessment of IPV and safety planning

At the earliest convenience (i.e., at the point when the issue arises in the individual couple session), the co-facilitators should reconvene the couple after their individual discussions where assessment of IPV and safety planning occurs. The co-facilitators should begin again by conveying, "It is normal for couples to experience conflict in addressing these challenging issues". Indicate that you would like to talk with your supervisor about their situation to determine whether it is in their best interest to continue. You may say something like: "Our goal is to help couples in their relationship. When couples are having a difficult time in the study we have to consult with our supervisor about what is best for the couple. What we'd like to do is to meet with our supervisor and to set up a time when we can get together to talk more about what is happening for you and to come up with a plan to give you the support you each need. When is a good time that we can call you or have you come in together to talk about this again before the next session?" Co-facilitators should thoroughly debrief the incident with the clinical supervisor, Project Director and Investigative team. In unclear cases, the clinical team should assess whether or not it is in the best interest of the couple to continue by weighing the risks and benefits and then

make a determination. The clinical team should also discuss different option for handling termination and give clear guidance to the co-facilitators as to how they may best address the issue.

1.11 If co-facilitators determine that it is in the best interest of the couple to continue then the co-facilitators should reconvene the couple and help them work through the conflict

- Conveying again that is normal for couples to experience conflict in working through these challenging situations.
- Acknowledge any progress or commitment the participant and partner have made as a couple in addressing tough issues.

1.12 Handling termination with couples because of relationship safety concerns

- Schedule another session for the couple before their next scheduled session. Tell the couple that you would like to first meet individually with each partner and then talk with him or her as a couple (male co-facilitator with male participant and female co-facilitator with female participant). This is only a recommended protocol; the clinical team should discuss different options for handling termination and determine how it may be best addressed.
- In your individual meeting with partners, first tell them that you met your supervisor and decided that it is in their best interest not to continue as a couple by saying:
    - “We don’t think this study is right for every couple. We are concerned that by raising these very difficult issues we may be making matters worse for you both as a couple and we certainly don’t want to do that. It is our opinion at this point, that it is in your best interest as a couple not to continue the study.”
- It is important to convey that their stopping the study is no way a reflection of any failure on their part, but that you value their relationship and you’re worried that the study is putting too much pressure on their relationship.

- Elicit reactions from participants about how they feel about the recommendation of stopping the study and how they anticipate their partners will react:
    - “How are you feeling about this recommendation?.How do you think you partner will react?”
    - Some participants may be relieved with the recommendation, others may be upset. Validate any reactions they may have, but reiterate your concern for them as a couple and your belief that the study is not right for them at this time.
- The co-facilitator working with the participant who is being threatened or physically hurt, needs to ask how s/he feels that his or her partner will react to the recommendation and whether or s/he feels safe going home his or her partner. Review and complete the safety plan. Tell the participant that s/he should call you immediately if s/he experiences a negative reaction from his or her partner. Also indicate to the participant that you would be happy to meet him or her again individually to talk about referrals to any services s/he might need.
- DO NOT suggest in any way to the potentially abusive partner that your recommendation for them to stop the study is related to your concern about his or her violent or hurtful behavior (such a statement may cause further abusive behavior as the partner may blame the participant for disclosing abuse).
- When you bring the individuals back as couple, convey again that you really believe that the decision not to continue is in their best interests as a couple and that the study is really not for every couple. Acknowledge progress or gains they have made as a couple or as individuals by participating in the study. You may indicate something like how their attendance at the study demonstrates their commitment as couple. If it seems appropriate, you might want to give them a certificate of attendance.
- Tell the couple that they will be invited back for the follow-up assessment visits in six months and in a year so we can see how they are doing. Give the couple their normal compensation at the end of the session.

- If the participant has been transferred to a safe location or a DV program and there are imminent safety concerns, do not bring the couple together for termination (follow steps and procedures in 1.3)

1.13 Adherence to negative incidents protocol

- Staff need to report IPV and relationship safety related issues that arise in the sessions as negative incidents. The Principal Investigators will determine if the incident needs to be reported to the DCC and reviewed by the Steering Committee.
- If it is determined that it is in the best interest of the couple not to continue the study because of relationship safety concerns, staff need to fill out a negative event form and submit it to the Project Director and PI within 48 hours. Staff should include on the form any follow-up actions or referrals that were made. The PI then will review the negative event form and determine if the case needs to be reported to the IRB and/or submitted to the IRBs as a potential adverse advent.
- All cases of termination due to relationship safety concerns need to presented and reviewed by the Steering Committee as soon after the termination occurs as possible.

2.0 Ensuring safety of staff and participants in field

- The Project Director and/or member of the investigative team need to assess safety of sites where sessions will be held.
    - Do they have adequate security? You should obtain crime stats on the block from police department.
    - Are there fire or other safety hazards?
    - Are there health/environmental hazards?
    - If child care is going to be provided, are rooms child care proof and up to local day care standards?

    - If there is no security guard in building, sites should consider hiring a part-time person to monitor security during times of groups, particularly if group is held in an unsafe neighborhood or after dark.
- Staff should travel in pairs to unsafe neighborhoods or after dark. Take cabs or car service after evening hours if you are not driving. Travel in pairs to parking space if driving.
- Staff should carry cell phones at all times or have immediate access to a phone in the room where the session is being held.
- Staff should plug phone numbers of their clinical supervisor/project director, investigators, local security service and police into their cell phones. A member of the investigative team and/or project director/clinical supervisor should always be on call during the times when sessions are being held to trouble-shoot any emergencies that may arise. Staff should make phone contact with their supervisor upon their departure from the site.
- Staff should try to arrange the room where sessions are held so that staff and participants have unobstructed access to the exit door.
- Staff should know the fire drill and evacuation procedures of building where sessions are held.
- Staff should be mindful of petty cash and other valuable equipment when traveling to and from the site.

Services Available For Victims Of Violence

Services in Tijuana:

Instituto de la Mujer para el Estado de Baja California (Zona Costa) (State Institution)
Tel. (664) 608 08 88 y (664) 608 40 44
Services provided: Legal advice and psychological counseling, referrals.

Unidad Operativa de Violencia Doméstica (Secretaría de Seguridad Pública Municipal) (Municipal Institution)
Tel. (664) 680 31 87
Services provided: Counseling for victims of domestic violence.

Coordinación de Atención a Víctimas del Delito (PGJE) (State Institution)
Tel. (664) 971 03 81 y 971 03 82
Services provided: Legal advice and psychological counseling.

Instituto Municipal de la Mujer (INMUJER) (Municipal Institution)
Tel. (664) 622 25 31 y 622 23 77
Services provided: Direct services and referrals base don a diversity of women's issues.

Grupo de Apoyo (Non-profit organization)
Tel. (664) 682 90 55
Services provided: Psychological counseling for victims of sexual violence

Centro para la Protección Social de la Mujer
Línea de crisis: 075 Tel. (664) 622 31 10 y 104 25 03
Services provided: Legal advice, psychological counseling and shelter for victims of domestic violence.

El lugar de la Tía Juana (Non-profit organization)
Tel./Fax. (664) 688 05 45
Services provided: Capacity building and prevention of domestic violence and sexual and gender abuse.

CECYSS, A.C. Centro de Capacitación y Servicios Psicológicos, A.C. (Non-profit organization)
Tel. (664) 621 61 64
Services provided: Psychological counseling.

Ministerio Público (AEDSVI) Agencia Especializada en Delitos Sexuales y Violencia Intrafamiliar (PGJE) (State Institution)
Tel. (664) 686 30 48 y (664) 686 29 24
Services provided: Legal advice and psychological counseling.
Mon-Fri: 8:00 - 11:00 p.m. Sat 8:00 - 1:00 p.m.

Policía Municipal (Municipal Police)
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Procuraduría de los Derechos Humanos y Protección Ciudadana (Institutionalized Human Rights)
Tel. /Fax. (664) 973 23 73 al 75
Email: pdhbctij@hotmail.net
Services provided: Legal advice.

Procuraduría de la Defensa del Menor y la Familia (DIF Estatal) (State Institution)

Tel. (664) 701 74 96 al 99
Services provided: Legal advice.
Tue, Weds, Thurs 7:45 a.m. - 11:00 a.m. Fee: 11 pesos.

Centro de Desarrollo Integral
Tel. (664) 686 24 30 y 681 81 20
Services provided: Psychological counseling about violence and Sexual abuse

Services in Ciudad Juárez:

Nuestras Hijas de Regreso a Casa, A.C. (Non-profit organization)
Prolongación Rancho El Retiro # 7240-3, sección 1 Frac. Villas de Pradera Dorada Ciudad Juárez, Chihuahua
Tel. 656-624-4457
Email: nuestras_hijas@yahoo.com.mx
Services provided: legal advice and advocacy

Salud y Desarrollo de Ciudad Juárez (Non-profit organization)
Malecon #788, Centro, Ciudad Juárez, Chihuahua
Tel. 656-616-4833, 616-1396, 616-65-35
Email: femapsadec@prodigy.net.mx
Services provided: Capacity building, training, research and education; direct medical services for youth and adult population as well as women

Sistema Nacional de Promoción y Capacitación en Salud Sexual, A. C. (Non-profit organization)
Av. De la Raza #2643-1 Fracc. Sylvias, Ciudad Juárez, Chihuahua
Tel. 656- 613-8343
Email: sisex@laneta.apc.org; coordinadora@sistemasisex.org
Services provided: Organize workshops on violence, sexual rights and sexuality for women

Procuraduría General de la República, (PGR) Ciudad Juárez, Chihuahua
Tel. 01 (656) 613 98 68 y 01 (656) 616 04 93
Services provided: The General department of services for victims of violence provides orientation and legal advice at the federal level. It also makes sure that victims of violence have access to medical, psychological and welfare assistance and services

Appendix 3: Qualitative Interview Guides

Qualitative Follow-up Interview Guide: English

INTRODUCTION

Facilitator: Make sure that participant understands the purpose of the interview and has signed a consent form. Next, start the recording devices and read the following text:

READ: Today is [date] at [time AM/PM], the participant ID is [##], and the interviewer's last name is [___].

Thank you very much for meeting with me. Today I'd like to talk about your relationship with your steady partner. You do not have to answer any question that makes you uncomfortable, and you can stop the interview at any time. If you agree to participate in the interview, you will be reimbursed for your time. The interview can last for about one hour.

Do you agree to participate in the study? Do you have any questions before we start?

1. I would like to start by asking about your experiences participating in this project. What was your original motivation for participating in *Proyecto Parejas*? There are no right or wrong answers.
    - ☐ Money?
    - ☐ Your partner urged you to come?
    - ☐ Interested in HIV/STI testing? Health issues?
    - ☐ Other?
    - ☐ As you've done more interviews and spent more time in the project, have your reasons for participating in the project changed?

2. Now I would like to ask some questions about your relationship since the last time you came here for the videotaped interviews. Tell me about what has happened in your relationship since that time.
    - ☐ Have any significant life changes occurred? (e.g. married, had a baby)
    - ☐ Have your feelings for your partner changed? If so, in what ways?
    - ☐ How would you describe your feelings for your partner right now? (Probe for positive and negative feelings such as love, trust, feeling "comfortable" or "used to" to their partner, jealousy, hostility, etc.)
        - ☐ Do you discuss your feelings with your partner?
    - ☐ Since your last visit, have you broken up and gotten back together with your partner?
        - ☐ Tell me about what happened. Why did you break up or want to break up? What made you decide to get back together?

3. During your last interviews with us, we talked about some very personal issues. Did you learn anything new at that time about your partner that you didn't know before?
    - ☐ If so, what did you learn? If nothing, skip to question 4.
    - ☐ Did you discuss what you learned with your partner after the interview? Why or why not?
    - ☐ Did you <u>do</u> anything differently after you found this out? Did your relationship change?
    - ☐ Did you <u>feel</u> differently or <u>think</u> about your partner in a different way after you found this out?

4. After your last interviews as a couple and individually, did you and your partner talk about the

interviews or your involvement in the project? (Interviewer: If YES, what did you talk about? If NO, skip to question 7.)

- ☐ Your relationship?
- ☐ Finances?
- ☐ Sex? Condom use with partner? (HIV/STI testing are separate questions below)
- ☐ Sex work?
- ☐ Drugs?
- ☐ Drug treatment (rehab centers, methadone, etc.)?

5. Tell me more about your discussion(s). (Interviewer: probe each of the above topics)

- ☐ Who brought up the topic(s)?
- ☐ Tell me more about your conversation. Did you argue? Did it bring you closer as a couple?
- ☐ Has participating in the project caused problems in your relationship? Tell me about that.
- ☐ Did you decide to make any changes in your behavior because of these discussions?
    - ☐ What kind of changes did you make? (condom use, sex work, drug treatment, etc)
    - ☐ Who decided to make changes? Can you tell me about that decision?
    - ☐ Did the changes have any effect on your relationship? If yes, what kinds of effects?

6. How did you feel after talking to your partner about these issues?

- ☐ Had you ever talked about any of these topics with your partner before?
- ☐ Do you think being in the project has helped you talk about your relationship?
- ☐ Did your partner ask you what you talked during your individual interview?
    - ☐ Was s/he worried about what you might have said about him/her or your relationship?
- ☐ Did you ask your partner what s/he talked about during their individual interview?
    - ☐ Were you worried about what your partner might have said about you/your relationship?

7. If they did NOT talk about the project or their interviews with their partner:

- ☐ Why didn't you talk about any topics from your interviews?
    - ☐ Did you want to avoid any particular topics? Why? What would happen if you brought up a particular issue?

8. Have you ever been concerned that your partner has had a sexually transmitted infection or HIV? Tell me about why you were concerned.

- ☐ Did you talk to your partner about your concerns? Why or why not?
- ☐ Did your partner tell you about his/her infection, or did you have to bring up the topic?

9. Now I want to ask you about your experience getting tested for HIV and other sexually transmitted infections here, as part of this project.

- ☐ Did you return for your test results as a part of this project?
    - ☐ Why or why not?
    - ☐ If yes, returned: Did you have a positive or negative result?
    - ☐ If had a positive result: what were you positive for?
        - ☐ HIV, Chlamydia, Gonorrhea, Syphilis?
    - ☐ If HIV +, did you already know before getting tested in this project?
        - ☐ If yes, already HIV+ → Does your partner know? Tell me about that discussion. What happened? How did s/he react?

- ☐ Did you tell your partner your results? Why or why not?
  - ☐ Tell me about these discussion(s).
  - ☐ How did you feel talking about this topic with your partner?
- ☐ Did you ask your partner about his/her results?
  - ☐ If so, were any tests positive?
  - ☐ Tell me about these discussion(s).
  - ☐ How did you feel talking about this topic with your partner?
- ☐ After getting tested, regardless if you had a positive or negative result or even if you did not get your results, did you change your behavior (e.g. start using condoms, not have sex, stop seeing other sex partners/clients, not share needles)?
- ☐ Would you be interested in getting help or advice about disclosing your test results to your partner?
- ☐ Would you be interested in getting help or advice about talking to your partner about sexually transmitted infections and safe sex more generally?

10. During the follow-up interviews on the computer, we asked for your opinions about a gel that scientists are developing for women to prevent HIV. The gel can be inserted into the vagina before and after sex to help women and their partners prevent HIV and other sexually transmitted infections. The gel is not designed to prevent pregnancy. I would like to ask you a few more questions about this gel.

- ☐ Females: Would you be interested in using the vaginal gel? Why or why not?
- ☐ Would you feel comfortable talking with your partner about the gel? Why or why not?
- ☐ What would your partner think if you suggested using this gel with him? Would he support you?
- ☐ Males: Would you be interested in your partner using the gel? Why or why not?
- ☐ Would you feel comfortable talking with your partner about the gel? Why or why not?
- ☐ What would you think if your partner suggested using this gel with you? Would you support her?

11. One of the goals of Parejas is to learn about relationships so that we can design better health programs for male and female partners in Mexico. Some of the components of a program might include:

- ⇒ providing health information, testing, and medical care;
- ⇒ discussing risks from drug use, sex work, and violence;
- ⇒ learning problem-solving skills to reduce risks;
- ⇒ helping partners develop better communication skills; and
- ⇒ taking other steps to try to improve your relationship and the quality of your life.

☐ In your opinion, what would your ideal program for couples look like?

- ☐ What kinds of services would you be interested in receiving?
- ☐ What kinds of issues do you feel would be the most important to address?
- ☐ What areas of your relationship would you be interested in improving?

☐ Do you think that you and your partner would be interested in participating in a couples-based health program after Parejas has ended?

☐ INTERESTED in a couples-based program:

- ☐ Why are you interested in a couples-based program?
- ☐ What do you think you might gain from participating in a couples program compared to an individual program?

☐ NOT INTERESTED in a couples-based program:

☐ Why not? What are your concerns?
☐ Are you planning to break up?
☐ Would it cause conflict in your relationship? Are the issues we've talked about too sensitive?
☐ Is your partner not interested?
☐ Are there other issues that you are worried about?

☐ Would you be interested in enrolling in an individual health program after this project has ended? Why or why not?
☐ What would your partner think of you participating in a health program without him/her?
☐ What areas of your life would you be interested in improving?
☐ Which type of program would you prefer – an individual or couples program? Why?

If this is a couples interview, this is the end of the interview. Ask "is there anything else you would like to tell us about your relationship or your life today? and end the interview. If this is an individual interview with a female or male, please continue with the following questions.

WOMEN AND MEN – ADDITIONAL QUESTIONS FOR THE INDIVIDUAL INTERVIEWS

12. Finally, we would like to follow up on some of the themes that we talked about during our conversations with couples as part of this project. The following questions are based off of our discussions with couples in Tijuana and Ciudad Juarez. We are trying to find out if some of our preliminary conclusions are correct or if we misunderstood anything. Please let us know your honest opinions about the following questions. There are no right or wrong answers.

OTHER SEXUAL PARTNERS: FEMALE AND MALES: First, I know this is very personal, but we would like to ask you some questions about sex partners other than your steady partner.

☐ People have sex with other people outside of their primary relationships for many different reasons. What do you think about this?
☐ What do you think are some of the reasons for people having other partners?
☐ Are there different reasons for men and women?
☐ Do you think your partner has had other sex partners during your relationship?
☐ Do you know for sure? If not, why are you suspicious?
☐ If yes, knows about other partners, how did you find out? Did you talk about it? Tell me about that discussion. What was the result?

☐ Can you tell me about any other sexual partners you've had during your relationship with your steady partner began? (Interviewer: Probe about most recent partner; if NO partners, skip to client questions. NOTE: for WOMEN, these refer to partners OTHER THAN CLIENTS.)

☐ How did you meet this person?
☐ What was your relationship with your steady partner like at that time?
☐ Why did you start this relationship?
☐ How long did this relationship last?
☐ How did it end? If ongoing: Do you think it will continue? Why or why not?
☐ Can you tell me about the sexual relationship you have/had with this person?
☐ How often do/did you have sex?
☐ Do you use condoms/other protection with this person? Why or why not?

- ☐ How is sex with this person different from sex with your partner?
- ☐ Can you tell me about any times you have used alcohol or drugs with this person?
  - ☐ Probes: which drugs, how often, injection, impact on relationship
- ☐ How is/was this relationship different from your relationship with your steady partner?

CLIENTS: WOMEN: The women in our study have told us that they have many different types of clients. We would like to ask you some more questions about these different client types.

- ☐ Some women have told us that they have one-time or non-regular clients. Since your last visit, how many non-regular clients have you had in an average month?
  - ☐ What kinds of things do they pay you to do?
  - ☐ How do you feel about these one-time clients?

- ☐ Some women have told us that they have steady or regular clients that they see, even if they don't necessarily have sex with them every time. Can you tell me about any steady clients you have right now?
  - ☐ How many steady clients do you have?
    - ☐ Can you tell me a little bit about each of them?
    - ☐ What kinds of things do they pay you to do?
    - ☐ How often do you spend time with them?
  - ☐ How do you feel about your steady clients?

- ☐ How are your steady clients different from your non-regular or one-time clients?

- ☐ How much do you think your partner knows about any of your clients?
  - ☐ Do you think your partner feels differently about your one-time and steady clients?
  - ☐ Are there aspects of your work that you don't share with your partner? Why?

CLIENTS: MEN: Some of the women in our study have told us that they have different types of clients, for example they have non-regular or one-time clients and they also have regular/stable clients. Can you tell me a little bit about the regular clients that your partner currently has?

- ☐ Do you know how many regular or stable clients your partner has?
- ☐ Do you know any of these stable clients? Can you tell me a little bit more about each one of them?
- ☐ How do you feel about these regular clients?
- ☐ What differences do you think there are between stable clients and non-regular or one-time clients?

CONDOM USE, SEX WORK, AND THE FURTURE: WOMEN AND MEN:

13. There are a few other themes from our conversations with couples in Tijuana and Ciudad Juarez that I would like to ask you about. Again, please let me know if some of our preliminary understandings of these relationships are correct.

- ☐ CONDOM USE: Now I would like to ask you about condom use within your primary relationship. It appears that many couples do not use condoms within their steady relationship.
  - ☐ Why is this? (e.g. Intimacy? Pleasure? Distinguish different types of relationships?)
  - ☐ Do you use condoms with your regular partner?

- ☐ Is it more acceptable to use condoms with outside partners and clients? Why?

☐ SEX WORK: We would also like to talk more about sex work. Based on the interviews we've conducted, it appears that many male partners accept their female's partner's sex work because of financial need or the need to purchase drugs, even if they don't like it. Do you think this is accurate? Why or why not?

- ☐ We have heard several partners use the saying eyes that don't see, heart that doesn't feel when talking about sex work and their relationship.
  - ☐ Do you identify with this situation?
  - ☐ What does this saying mean to you?
  - ☐ Do you think that this saying applies to your relationship at all?

- ☐ How, if at all, do you and your partner discuss sex work? Is there a "code language" or certain key words that you use to refer to sex work?

14. To end the interview, I want to ask you about your future.
    - ☐ What are your hopes and dreams for the future? Do you think they're the same as your partner? How so?
    - ☐ What role, if any, will your current partner play in your future?

Qualitative Follow-up Interview Guide: Spanish

INTRODUCCION

Entrevistador: Asegúrese que el/la participante entienda el propósito de la entrevista y haya firmado la forma de consentimiento. Después, empiece la grabación y lea el siguiente texto.

LEER: Hoy es [fecha] a las [hora AM/PM], el numero de Identificación (ID) del participante es [##], y el apellido de el/la entrevistador(a) es [____].

Muchas gracias por haberse reunido conmigo. Hoy me gustaría hablar de la relación con su pareja estable. Usted no tiene que contestar ninguna pregunta que le haga sentir incomodo, y puede parar la entrevista en cualquier momento. Si usted acepta participar en la entrevista completa, será reembolsado por su tiempo. La entrevista puede durar hasta una hora.

¿Acepta participar en este estudio? ¿Tiene alguna pregunta antes de empezar?

1. Me gustaría empezar preguntando acerca de su experiencia participando en este proyecto. ¿Cuál fue la motivación original para participar en Proyecto Parejas? No existen respuestas correctas o incorrectas.
   - ☐ ¿Dinero?
   - ☐ ¿Su pareja le insistió que viniera?
   - ☐ ¿Interesado en la prueba de VIH/ITS? ¿Cuestiones de salud?
   - ☐ ¿Otro?
   - ☐ ¿Al estar realizando más entrevistas y pasando más tiempo en el proyecto, sus razones de participar en el proyecto han cambiado?

2. Ahora me gustaría preguntarle acerca de su relación desde la última vez que vino aquí para las entrevistas grabadas en video. Cuénteme que ha pasado en su relación desde ese día.
   - ☐ ¿Algún cambio significativo ha ocurrido? (casado, tenido bebe)
   - ☐ ¿Han cambiado sus sentimientos hacia su pareja? Si es así, ¿de qué manera?
   - ☐ ¿Cómo describiría sus sentimientos hacia su pareja en este momento? (Sondear para sentimientos positivos o negativos como amor, sentirse “cómoda”, “acostumbrada” a su pareja, celos, hostilidad, etc.)
   - ☐ ¿Usted ha platicado sobre sus sentimientos con su pareja?
   - ☐ Desde su última visita, ¿han terminado (cortado) y regresado la relación con su pareja?
   - ☐ Dígame que paso. ¿Por qué termino o quiso terminar? ¿Que lo/la hizo decidir en volver a estar juntos?

3. Durante su última entrevista con nosotros, hablamos sobre algunas cuestiones muy personales. ¿Aprendió algo nuevo acerca de su pareja que no conocía antes?
   - ☐ Si es así, ¿qué aprendió? Si no – salta a la pregunta 4.
   - ☐ ¿Usted habló sobre lo que aprendió con su pareja después de la entrevista? ¿Por qué sí o no?
   - ☐ ¿Hizo algo diferente después de que descubrió esto? ¿Cambio su relación?
   - ☐ Después de descubrir esto, ¿llegó a sentirse o pensar diferente sobre su pareja?

4. Después de su última entrevista individual y de pareja, ¿usted y su pareja platicaron acerca de las entrevistas o sobre la participación en el proyecto? (Entrevistadora: Si sí, ¿de qué hablaron? Si NO, saltar a pregunta 7.)
   - ☐ ¿Su relación?
   - ☐ ¿Finanzas?
   - ☐ ¿Sexo? ¿Uso condón con su pareja? (Prueba VIH/ETS son preguntar

separadas)
- ☐ ¿Trabajo sexual?
- ☐ ¿Drogas?
- ☐ ¿Tratamiento (centros de rehabilitación, metadona, etc.)?

5. Dígame más acerca de su(s) discusión(es). (Entrevistador: pregunte acerca de cada tema citado anteriormente)
- ☐ ¿Quien empezó a hablar del tema?
- ☐ Dígame más acerca de su conversación. ¿Discutieron? ¿Cree usted que esto los unió mas como pareja? ¿Por qué?
- ☐ ¿Ha causado problemas en su relación porque su participación en este proyecto? Cuénteme más.
- ☐ ¿Decidió usted hacer algún cambio en su comportamiento después de platicar y/o discutirlo?
  - a. ¿Qué clase de cambio hizo usted? (uso condón, trabajo sexual, tratamiento, etc.)
  - b. ¿Quien decidió realizar este cambio(s)? Cuénteme más acerca de esta decisión.
  - c. ¿Alguno de los cambios tuvo algún efecto en su relación? ¿Qué tipo de efecto(s)?

6. ¿Cómo se sintió después de hablar con su pareja sobre estos temas?
- ☐ ¿Alguna vez había hablado con su pareja sobre alguno de estos temas?
- ☐ ¿Usted piensa que estando en el proyecto le ha ayudado a hablar sobre de su relación con su pareja?
- ☐ ¿Su pareja le preguntó acerca de lo que habló durante la entrevista individual?
  - ☐ ¿Su pareja se preocupó sobre lo que usted pudo haber dicho sobre él/ella en cuanto a su relación?
- ☐ ¿Usted le preguntó a su pareja sobre lo que él/ella dijo durante la entrevista individual de el/ella?
  - ☐ ¿A usted le preocupaba lo que pudo haber dicho su pareja sobre usted o su relación?

7. Si NO hablaron acerca del proyecto o de sus entrevistas con su pareja:
- ☐ ¿Por qué cree usted que no hablaron sobre ningún tema de sus entrevistas?
  - ☐ ¿Quiso evitar algún tema en particular? ¿Por qué? ¿Qué pasaría si usted hubiera hablado este tema en particular?

8. Alguna vez se ha preocupado de que su pareja ha tenido alguna enfermedad de transmisión sexual o VIH? Dígame porque le ha preocupado.
- ☐ ¿Habló con su pareja acerca de sus preocupaciones? ¿Por qué o por qué no?
- ☐ ¿Su pareja le contó sobre su infección, o usted tuvo que iniciar la plática sobre el tema?

9. Ahora quiero preguntarle acerca de su experiencia aquí haciéndose la prueba de VIH y otras infecciones de transmisión sexual aquí, como parte del proyecto.
- ☐ ¿Usted regresó por sus resultados como parte de este proyecto?
  - ☐ ¿Por qué?
  - ☐ Si sí regresó, ¿tuvo un resultado positivo o negativo?
  - ☐ Si tuvo algún resultado positivo, ¿en que fue positivo(a)?
    - ☐ ¿VIH, Clamidia, Gonorrea, Sífilis?
  - ☐ Si VIH +, ¿usted sabia de su estado antes de realizarse la prueba en este proyecto?
    - ☐ Si sí, ya VIH+ → ¿Su pareja sabe? Cuénteme acerca de esa

platica.

- ☐ ¿Usted le dijo a su pareja de sus resultados?
  - ☐ Cuénteme más sobre cómo inicio esta plática.
  - ☐ ¿Cómo se sintió hablando de este tema con su pareja?
- ☐ ¿Usted le preguntó a su pareja sobre el resultado de ella/él?
  - ☐ Si es así, ¿hubo alguna prueba positiva?
  - ☐ Cuénteme más sobre esto.
    - ☐ ¿Cómo se sintió hablando de este tema con su pareja?
- ☐ Después de realizarse la prueba, a pesar de un resultado positivo o negativo o inclusive si no regresó por sus resultados, ¿hizo algún cambio en su comportamiento (P.ej. empezó a usar condones, no tuvo sexo, paro de verse con otras parejas/clientes, no compartió jeringas)?
- ☐ ¿Estaría interesado(a) en conseguir ayuda u orientación profesional para revelarle sus resultados a su pareja?
- ☐ ¿Estaría interesado(a) en conseguir ayuda u orientación profesional para hablar con su pareja acerca de las infecciones de transmisión sexual o sexo más seguro mas en general?

11. Durante las entrevistas con la computadora, le preguntamos sobre sus opiniones sobre el gel que los científicos están desarrollando para mujeres para prevenir el VIH. La mujer lo puede poner dentro de su vagina antes y después del acto sexual para ayudarse a si misma y a su pareja a no contraer VIH y otras infecciones de transmisión sexual. El gel no está destinado para prevenir el embarazo. Me gustaría hacerle algunas preguntas más sobre el gel. No existen respuestas correctas o incorrectas.

- ☐ Mujeres: ¿Usted está interesada en el uso de un gel vaginal? ¿Por qué o por qué no?
- ☐ ¿Se sentiría cómoda platicando sobre el gel con su pareja? ¿Por qué o por qué no?
- ☐ ¿Qué pensaría su pareja si usted sugiere usar el gel con él? ¿La apoyaría en su decisión?
- ☐ Hombres: ¿Está interesado en que su pareja utilice el gel vaginal? ¿Por qué o por qué no?
- ☐ ¿Se sentiría cómodo platicando sobre el gel con su pareja? ¿Por qué o por qué no?
- ☐ ¿Qué pensaría usted si su pareja le sugiriera utilizar el gel con usted? ¿Apoyaría la decisión de ella?

12. Uno de los objetivos del Proyecto Parejas es aprender sobre la relación de pareja para mejorar el diseño de los programas de salud en México para mujeres y hombres. Algunos de los componentes del programa pueden incluir:

- ⇒ proporcionar información de salud, pruebas, y atención medica,
- ⇒ platicar sobre los riesgos del uso de drogas, el trabajo sexual, y la violencia,
- ⇒ técnicas de resolución de problemas para reducir riesgos,
- ⇒ ayudar a las parejas para mejorar sus habilidades de comunicación,
- ⇒ y tomar otros pasos para mejorar su relación y calidad de vida.

☐ En su opinión, ¿cuál sería el programa ideal para el Proyecto Parejas?

- ☐ ¿Qué tipo de servicios le interesaría recibir?
- ☐ ¿Qué tipo de temas cree usted serían los más importante en enfrentar?
- ☐ ¿Qué áreas de su relación estaría interesado(a) en mejorar?

☐ ¿Cree que usted y su pareja estarían interesados en participar en un programa de salud para parejas después de que este proyecto haya terminado?

☐ INTERESADOS: programa de salud para parejas:
- ☐ ¿Por qué está interesado en un programa de salud para parejas?
- ☐ ¿Qué espera obtener de un programa para parejas en comparación a un programa individual?

☐ NO INTERESADO en programa de salud para parejas:
- ☐ ¿Por qué no? ¿Cuáles son sus preocupaciones?
  - ☐ ¿Está planeando cortar o terminar la relación con su pareja?
  - ☐ ¿Ocasionaría conflictos en su relación?
  - ☐ ¿Los temas que hemos platicado han sido muy sensibles para usted y/o su pareja?
  - ☐ ¿Cree usted que su pareja no está interesado/a?
  - ☐ ¿Hay algunos otros temas que le preocupan?

- ☐ ¿Cree usted que estaría interesado en participar en un programa de salud individual después de que este proyecto haya terminado? ¿Por qué o porque no?
  - ☐ ¿Qué pensaría su pareja de que usted participar al programa sin él/ella?
  - ☐ ¿Qué áreas de su vida le interesaría mejorar?
  - ☐ ¿Qué tipo de programa prefería usted – individual o para parejas? ¿Por qué?

Si es una entrevista de Parejas, esta es el final de la entrevista. Pregunten: ¿Hay algo más que quieren decirnos el día de hoy sobre su relación o su vida? y pueden terminar la entrevista. Si es una entrevista individual de mujer u hombre, favor de continuar con las siguientes preguntas.

MUJER Y HOMBRE – PREGUNATAS EXTRAS PARA LAS ENTREVISTAS INDIVIDUALES

13. Finalmente, nos gustaría darle seguimiento a algunos temas que hemos hablado durante nuestras conversaciones con parejas como parte del proyecto. Las preguntas siguientes son basadas en discusiones con parejas de Tijuana y Ciudad Juárez. Estamos tratando de averiguar si algunas de nuestras conclusiones preliminares son correctas o si hemos malentendido algo. Por favor déjenos saber honestamente sus opiniones con las siguientes preguntas. No existen respuestas correctas o incorrectas.

OTRAS PAREJAS SEXUALES: MUJERES Y HOMBRES: Primero, sabemos que esto es muy personal, pero nos gustaría preguntarle acerca de otras parejas sexuales aparte de su pareja estable.

☐ Las personas tienen sexo con otras parejas fuera de su relación principal por muchas razones diferentes. ¿Qué piensa usted acerca de esto?
- ☐ ¿Qué cree usted que sean algunas razones para tener otras parejas?
- ☐ ¿Cree usted que hay diferentes razones para las mujeres que para los hombres? Si no, ¿por qué cree que son las mismas?
- ☐ ¿Cree usted que su pareja ha tenido otras parejas sexuales durante su relación?
  - ☐ ¿Está usted seguro/a? Si no, ¿por qué sospecha?
  - ☐ Si sí sabe de las otras parejas, ¿cómo se entero? Dígame más acerca de esa discusión.

☐ Me puede platicar sobre otras parejas sexuales que ha tenido desde que empezó su relación con su pareja actual. (Entrevistador: Sondee la pareja más reciente; si no ha tenido otras parejas salte a la sección de clientes para las mujeres o para los hombres. NOTA: MUJERES, estas preguntas se refieren a otras parejas con las que tiene sexo, NO A SUS CLIENTES- vea siguiente sección para clientes.)

- ☐ ¿Cómo conoció a esta persona?
  - ☐ ¿Cómo era la relación con su [pareja estable] en ese momento?
  - ☐ ¿Por qué empezó la relación con [su otra pareja sexual]?
  - ☐ ¿Cuánto tiempo duro esa relación?
    - ☐ ¿Cómo terminó?
    - ☐ Si continúa: ¿Piensa usted que continuará? ¿Porqué o porqué no?
- ☐ ¿Me puede platicar un poco más sobre la relación sexual que tiene/tuvo con [esta persona]?
  - ☐ ¿Qué tan seguido tiene/tenía sexo?
  - ☐ ¿Usa/usaba condón u otro tipo de protección con [esta persona]?
  - ☐ ¿Cómo es diferente el sexo con [esta persona] a comparación con [su pareja]?
- ☐ ¿Me puede platicar un poco más sobre ocasiones en las que ha usado alcohol o drogas con [esta persona]?
  - ☐ Sondee: qué tipo de drogas, que tan seguido, si se inyectan (comparten o no), el impacto que ha tenido en su relación estable.
- ☐ ¿Cómo era/es esta relación entre ustedes con [la otra pareja] diferente a la de su relación con [pareja estable]?

CLIENTES: MUJERES

Las mujeres en nuestro estudio nos han dicho que tienen diferentes tipos de clientes. Nos gustaría hacerle más preguntas acerca de estos diferentes tipos de clientes. No existen respuestas correctas o incorrectas.

- ☐ Algunas mujeres nos han dicho que tienen clientes de una-sola-vez o no-regulares. Desde su última visita, ¿cuántos clientes no-regulares ha tenido aproximadamente por mes?
  - ☐ ¿Qué tipo de cosas le pagan por hacer?
  - ☐ ¿Cómo se siente usted con estos clientes que no son regulares?

- ☐ Algunas mujeres nos han comentado que tienen clientes estables o regulares y que no necesariamente tienen sexo cada vez que los ven. ¿Me pudiera comentar algo sobre los clientes estables que usted tiene ahora?
  - ☐ ¿Cuántos clientes estables tiene?
    - ☐ ¿Me podría decir un poco más sobre cada uno de ellos?
    - ☐ ¿Qué tipo de cosas le pagan por hacer?
    - ☐ ¿Con que frecuencia pasa usted tiempo con ellos?
  - ☐ ¿Cómo se siente usted con estos clientes que son estables o regulares?

- ☐ ¿Qué diferencias cree usted que existen entre sus clientes estables y sus clientes no regulares o de una-sola-vez?

- ☐ ¿Cuánta información cree que su pareja sabe sobre sus clientes (sean regulares o de una-sola-vez)?
  - ☐ ¿Usted cree que su pareja se siente diferente con sus clientes estables a comparación de sus clientes no-regulares o de una-sola-vez?
    - ☐ ¿Existen aspectos de su trabajo que no comparte con su pareja? ¿Por qué?

CLIENTES: HOMBRES:

- ☐ Algunas mujeres nos han comentado que tienen diferentes tipos de clientes, por ejemplo los clientes de una-sola-vez o no-regulares, y también los clientes regulares. ¿Me puede

decir algo sobre los clientes estables que tal vez su pareja tenga ahora?

☐ Usted sabe ¿cuántos clientes estables tiene su pareja ahora?

☐ ¿Usted conoce algunos de los clientes estables? ¿Me podría decir un poco más sobre cada uno de ellos?

☐ ¿Cómo se siente usted de estos clientes que son estables o regulares?

☐ ¿Qué diferencias cree usted que existen entre sus clientes estables y sus clientes no regulares o de una-sola-vez?

USO DE CONDON, TRABAJO SEXUAL Y EL FUTURO: MUJERES Y HOMBRES:

14. Me gustaría preguntarle sobre algunos otros temas que surgieron durante las conversaciones con las parejas de Tijuana y Juárez. De nuevo, por favor dígame si nuestras conclusiones preliminares son correctas o si hemos malentendido algo.

☐ USO DE CONDÓN: Ahora me gustaría preguntarle acerca del uso de condones dentro de su relación con [nombre de pareja estable]. Hemos visto que muchas parejas no usan condón con su pareja estable.

- ☐ ¿Por qué cree usted que sucede esto? (P. ej. ¿La intimidad? ¿El placer? ¿Les ayuda a distinguir los diferentes tipos de relaciones?)
- ☐ ¿Usted usa condones con [su pareja estable]?
- ☐ ¿Cree usted que es más aceptable usar condones con otras parejas fuera de su relación estable o con clientes? ¿Por qué?

☐ EL TRABAJO SEXUAL: También nos gustaría platicar un poco más sobre el trabajo sexual. Basándonos en las entrevistas que hemos realizado, parece que muchos hombres aceptan el trabajo de sus parejas por su necesidad financiera o su necesidad de comprar drogas, aunque no les guste el tipo de trabajo. ¿Usted piensa que esta es una descripción correcta de la situación actual?

☐ Hemos escuchado que varias parejas utilizan el dicho ojos que no ven, corazón que no siente cuando hablan sobre el trabajo sexual y su relación estable.

- ☐ ¿Se identifica usted con esta situación?
- ☐ ¿Qué significa este dicho para usted?
- ☐ ¿Cree usted que este dicho se aplica dentro de su relación con su pareja?

☐ ¿Cómo platican ustedes sobre su trabajo? ¿Existe algún “código de lenguaje” o “palabras clave” que utilicen ustedes para referirse al trabajo sexual?

15. Para finalizar la entrevista, me gustaría preguntarle acerca de su futuro.

- ☐ ¿Cuáles son sus anhelos y sueños para su futuro? ¿Cree usted que son los mismos que su pareja? ¿Cómo?
- ☐ ¿Qué rol, si alguno, juega su pareja actual en su futuro?

¿Hay algo más que quiere decirnos el día de hoy sobre su relación o su vida?