

# UCLA

## UCLA Previously Published Works

### Title

Exploring Contextual Differences for Sexual Role Strain Among Transgender Women and Men Who Have Sex with Men in Lima, Peru

### Permalink

<https://escholarship.org/uc/item/9k65g9z1>

### Journal

Archives of Sexual Behavior, 51(4)

### ISSN

0004-0002

### Authors

Satcher, Milan F  
Segura, Eddy R  
Silva-Santisteban, Alfonso  
[et al.](#)

### Publication Date

2022-05-01

### DOI

10.1007/s10508-021-02181-8

Peer reviewed



# HHS Public Access

Author manuscript

*Arch Sex Behav.* Author manuscript; available in PMC 2023 May 01.

Published in final edited form as:

*Arch Sex Behav.* 2022 May ; 51(4): 1977–1991. doi:10.1007/s10508-021-02181-8.

## Exploring Contextual Differences for Sexual Role Strain Among Transgender Women and Men Who Have Sex with Men in Lima, Peru

Milan F. Satcher<sup>1,2</sup>, Eddy R. Segura<sup>3,4</sup>, Alfonso Silva–Santisteban<sup>5</sup>, Sari L. Reisner<sup>6,7</sup>, Amaya Perez–Brumer<sup>8</sup>, Javier R. Lama<sup>9</sup>, Don Operario<sup>10</sup>, Jesse L. Clark<sup>3</sup>

<sup>1</sup>Department of Community and Family Medicine, Dartmouth-Hitchcock Medical Center, One Medical Center Dr., Lebanon, NH 03766, USA

<sup>2</sup>Geisel School of Medicine at Dartmouth College, Hanover, NH, USA

<sup>3</sup>Department of Medicine, Division of Infectious Diseases, David Geffen School of Medicine, University of California, Los Angeles, CA, USA

<sup>4</sup>Escuela de Medicina, Universidad Peruana de Ciencias Aplicadas, Lima, Peru

<sup>5</sup>Unit of Health, Sexuality and Human Development, Cayetano Heredia University School of Public Health, Lima, Peru

<sup>6</sup>Department of Epidemiology, Harvard T.H. Chan School of Public Health, Boston, MA, USA

<sup>7</sup>The Fenway Institute, Fenway Health, Boston, MA, USA

<sup>8</sup>Social and Behavioral Health Sciences Division, University of Toronto Dalla Lana School of Public Health, Toronto, ON, Canada

<sup>9</sup>Asociación Civil Impacta Salud Y Educación, Lima, Peru

<sup>10</sup>Brown University School of Public Health, Providence, RI, USA

### Abstract

Sexual and gender politics inform relational expectations surrounding sexual experiences of Peruvian transgender women (TW) and men who have sex with men (MSM). We used the framework of sexual role strain, or incongruence between preferred sexual role and actual sexual practices, to explore potential conflicts between personally articulated identities and externally defined norms of gender and sexuality and its potential to increase HIV/STI risk. Cross-sectional individual- and dyad-level data from 766 TW and MSM in Lima, Peru were used to assess the partnership contexts within which insertive anal intercourse was practiced despite receptive role preference (receptive role strain), and receptive anal intercourse practiced despite insertive role

---

Under exclusive licence to Springer Science+Business Media, LLC, part of Springer Nature 2022

✉ Milan F. Satcher, milan.f.satcher@dartmouth.edu.

**Conflict of interest** The authors declare that they have no conflict of interest.

**Ethical Approval** All study procedures were approved by the Institutional Review Boards of the University of California, Los Angeles and Asociación Civil Impacta Salud y Educación in Lima, Peru.

**Informed Consent** All participants provided written informed consent prior to their participation in any study procedures.

preference (insertive role strain). Sexual role strain for TW was more common with non-primary partners, while for MSM it occurred more frequently in the context of a primary partnership. Receptive role strain was more prevalent for TW with unknown HIV status (reference: without HIV) or pre-sex drug use (reference: no pre-sex drug use). For homosexual MSM, receptive role strain was more prevalent during condomless anal intercourse (reference: condom-protected) and with receptive or versatile partners (reference: insertive). Among heterosexual or bisexual MSM, insertive role strain was more prevalent with insertive or versatile partners (reference: receptive), and less prevalent with casual partners (reference: primary). Our findings suggest TW and MSM experience different vulnerabilities during sexual role negotiation with different partner-types. Future studies should explore the impact of sexual role strain on condom use agency, HIV/STI risk, and discordances between public and private presentations of gender and sexual orientation.

## Keywords

Transgender women; Men who have sex with men; Sexual role strain; Condom use; HIV; STI

---

## Introduction

Transgender women (TW) and men who have sex with men (MSM) are most affected by the HIV epidemic in Peru, with estimated HIV prevalence of 29.6% for TW and 12–22% for MSM, compared to 0.4% for the general population (Ministerio de Salud, 2012; Perez-Brumer et al., 2013; Sanchez et al., 2007; Silva-Santisteban et al., 2012; UNAIDS, 2013). Previous research identified individual-level sexual risk factors that contribute to this demographic distribution of HIV in Peru, including STI history (Lama et al., 2006; Moriarty et al., 2019), condomless anal intercourse (Goodreau et al., 2012), transactional sex (Nureña et al., 2011), sexual role-specific vulnerability to HIV acquisition (Clark et al., 2013; Goodreau et al., 2005), substance use (Deiss et al., 2013; Ludford et al., 2013; Passaro et al., 2020), having partners with unknown HIV serostatus (Nagaraj et al., 2013), and attendance at MSM/TW venues (Verre et al., 2014). More recently, studies have advanced beyond individual-level risks for HIV to describe the role of partnership contexts in shaping sexual risk among TW and MSM, including differences between partnerships in condom use, sexual role, and perceptions of HIV risk according to partnership type and partner-specific sexual practices (Blair et al., 2016; Cambou et al., 2014; Passaro et al., 2019; Satcher et al., 2016). However, in understanding the disproportionate burden of HIV experienced by TW and MSM it is also important to address the social and cultural politics that assign standards of sexual behavior to specific gender and sexual identities and may conflict with internal preferences for gender and sexual expression. This conflict between external and internal drivers of enacted social roles has been described as role strain.

Role strain theory posits that society is (1) comprised of roles that have been normalized by ideology and (2) structured by role relations (Goode, 1960). Role strain itself therefore occurs as “the felt difficulty in fulfilling role obligations,” as roles are bargained between dominant ideological prescriptions for behavior and one’s degree of personal commitment to uphold these societal ideologies in juxtaposition to one’s own value orientation (Goode, 1960; Pearlin, 1989). The theory of role strain has been most widely applied to binary,

cis-gender role norms and role bargaining on an individual level (e.g., parameters of binary gender expression; definitions of masculinity and femininity), within relationships (e.g., marriage; parent–child dynamics) and in social environments (e.g., workplace; home; school; community) (Marshall & Barnett, 1993; Milkie & Peltola, 1999; Moen & Dempster-McClain, 1987; Silverstein et al., 2002; Simpson, 2005; Smith & Leaper, 2006). However, it has not yet been adapted to study the sociocultural ideologies that construct and maintain behavioral norms according to biological sex and sexual orientation, nor to the strain that may arise from the valuation of one’s individual gender and sexual expressions against the distinct parameters set by overarching social norms. In our study, we seek to explore this gap in the literature by assessing the relational contexts within sexual role strain may or may not occur and identify the impact of sexual role strain on HIV/STI risk among TW and MSM in Lima, Peru.

In Peru, sexual and gender norms are derived from social standards of machismo, homophobia, and transphobia. In this context, the *activo* (insertive) sexual role is aligned with masculine heterosexuality, and maintained primarily by heterosexual-identifying MSM and bisexual MSM within the context of their sexual partnerships with other men or TW (Clark et al., 2013). Conversely, the *pasivo* (receptive) sexual role is perceived as the “female role” and associated with submission, femininity, feminine homosexuality, and transgender experiences (Clark et al., 2013). It is important to note, however, that the identification of TW as feminine and *pasivo* also works to sustain concepts of gender affirmation and to reduce gender dysphoria in this group, as described in the gender affirmation framework (Sevelius, 2013) and reported in qualitative studies with TW in the US and Peru (Bockting et al., 1998; Clark et al., 2013; Nuttbrock et al., 2009). Masculinity may also be assigned to the *moderno* (versatile) sexual role, commonly held by bisexual and homosexual MSM, who often maintain their masculinity while violating expected gendered sexual role binaries by engaging in both insertive and receptive practices during intercourse (Clark et al., 2013). Given this structure of social norms and personal preferences linking externally presented sexual roles with intimately experienced sexual practices, it is possible for TW and MSM to experience tensions, both between their personal role preference and social expectations, and also between their preferences and those of their sexual partner(s), especially if preferences are similar. In this sociocultural landscape, discordances between preferred sexual role and sexual behavior may have deeper implications for the unification of personally understood and externally presented standards of masculinity/femininity, for power dynamics within specific partnership interactions, and for sexual agency in maintaining protective health behavior.

We are only aware of two prior studies that have explored sexual role preferences and expectations among US MSM. The first was a qualitative study of Latino MSM’s likelihood of adopting insertive or receptive sexual roles depending on the characteristics of their sexual partner (i.e., race/ethnicity, gender expression) (Carballo-Diequez & Bauermeister, 2004). The second study described the sexual role expectations assigned to US constructions of race (e.g., Black men as tops; Asian men as bottoms) by assessing the maintenance of one’s preferred sexual role during sexual encounters and consequent risk for testing positive for HIV among a racially stratified group of MSM in San Francisco (Wei & Raymond, 2011). To our knowledge, no studies in Peru have yet examined how gender

(trans, cis), sexual orientation (homosexual, bisexual, heterosexual), and sexual role (*activo*, *pasivo*, *moderno*) interact with sexual practices (insertive/receptive anal intercourse) and risk behaviors (condom use, substance use) in specific partnership interactions. We address this constellation of identities, roles, and practices to understand (1) the contexts within which individuals do not maintain their preferred sexual role, while (2) accounting for local sociocultural politics, and (3) assessing their role in the skewed distribution of HIV infection in Peru. To accomplish these objectives, we explored the partnership contexts within which Peruvian TW, homosexual-identifying MSM, bisexual-identifying MSM, and heterosexual-identifying MSM experience sexual role strain, or a conflict between their reported sexual role and their actual sexual practices. In addition to individual and partner characteristics of role strain interactions, we also examined the association of role strain with partner-specific condom use during anal intercourse to understand the impact on HIV prevention behaviors.

## Method

### Participants

We conducted a secondary data analysis to examine experiences of (1) sexual role strain and (2) condomless anal intercourse among TW and MSM in Peru. Data were collected between August 2012 and June 2014 from TW and MSM screened for eligibility for a parent study on expedited partner therapy and/or partner notification (EPT/PN) in Lima and Callao, Peru. Participants were directly recruited from community and clinic venues by peer recruiters and eligible for inclusion if they were (1) assigned male at birth, (2) 18 years or older, and (3) reported sexual intercourse (anal or oral) with a male or transwoman partner in the previous 12 months. A total of 1607 men and TW were ultimately enrolled in this parent study.

For our analysis, we restricted the sample to participants who: (1) self-reported their sexual role as *pasivo* (receptive anal intercourse) or *activo* (insertive anal intercourse), and (2) reported anal intercourse with at least one male or transwoman partner during one or more of their last three sexual partnerships. Participants who reported their sexual role as *moderno* (preferring both insertive and receptive anal intercourse) were excluded from the sample. Previous literature has shown that within the Peruvian context, TW self-describe their sexual orientation in terms of gender (“trans”) and MSM self-describe in terms of sexual orientation (Clark et al., 2013; Pollock et al., 2016; Salazar et al., 2010). Therefore, participants in the parent study responded to a multiple-choice item addressing sexual orientation (“Which of the following words would you use to describe your sexual orientation or preference? (1) Heterosexual, (2) Bisexual, (3) Homosexual, (4) Transgender, (5) Other with fill-in, (6) Don’t Know) and an open-response item on sexual identity (“What word(s) would you use to describe your sexual identity?”). We used these responses to classify participants as (1) transgender women (TW), (2) heterosexual MSM, (3) bisexual MSM, or (4) homosexual MSM. Due to the small sample of heterosexual-identifying MSM, we combined this group with bisexual MSM to make one participant group.

## Procedure

All participants completed a computer-assisted self-interview behavioral survey, after which they participated in a physical examination, pre-test counseling, HIV/STI testing, post-test counseling, and syndromic treatment for symptomatic STIs (if present). Participants received 15 *Nuevos soles* (approximately \$5.00 USD) reimbursement per study visit for their transportation costs, as well as 5 condoms and 5 sachets of lubricant per study visit.

## Measures

**Participant–Level Characteristics**—As participant-level characteristics are specific to the participant, they remain the same across partnerships. These characteristics include the participant’s age, education level, sexual orientation/gender, preferred sexual role, history of HIV/STI diagnoses, presence of an alcohol use disorder (defined by WHO AUDIT score  $\geq 8$  indicating hazardous use, harmful use, or dependent use (Babor et al., 2001), and number of male or TW sexual partners in the last month.

**Partnership Characteristics of Last Three Sexual Partners**—As partnership-level characteristics describe either the partner or the interaction between a partner and the participant, they may vary between partnerships. Participants were asked to report characteristics for the last, second to last, and third to last person with whom they had sex, in chronological order. For each partner, the participants reported the nature of the partnership (e.g., stable/primary, casual, transactional), as well as their perception of the partner’s gender, sexual orientation, sexual role, and HIV status. Participants also reported the sexual practices engaged in during the last sexual encounter with each of these partners, including: insertive anal intercourse, receptive anal intercourse, insertive oral sex, receptive oral sex, and vaginal intercourse. For each sexual practice, the participants were then asked to specify whether or not a condom was used. Lastly, participants were asked to report their personal use of alcohol and/or drugs prior to intercourse with each partner.

## Data Analysis

**Sexual Role Strain**—The main outcomes were *pasivo* (receptive) role strain and *activo* (insertive) role strain. Experiences of *pasivo* role strain were noted when a *pasivo*-identifying participant reported insertive anal intercourse with one or more partners, while *activo* role strain was noted when an *activo*-identifying participant reported receptive anal intercourse. Cases of role strain were based on participants’ responses to the multiple-choice item on their preferred sexual role (i.e., “How would you describe your sexual role or choice during anal sex? (1) *Activo*, (2) *Pasivo*, (3) *Moderno*, (4) Other with fill-in, (5) Don’t Know”) and the type of anal intercourse reported with each of their last three partners (i.e., “The last time you had sexual relations with this person, which sexual practice did you do with him/her? (1) He penetrated you? [Yes/No], (2) You penetrated him/her? [Yes/No]). If an *activo*- or *pasivo*-identified participant reported both receptive and insertive anal intercourse with a partner, the encounter was also classified as role strain. Since it was possible for participants to report an experience of role strain with one partner, but role congruence with another, we assigned role strain outcomes to specific participant–partner

interactions. This approach allowed us to explore partner-specific differences in participants' experience of role strain.

In the absence of additional variables on sexual preference and sexual activity within the existing dataset, this constructed sexual role strain variable is limited to reflecting instances of sexual role strain experienced during individual sexual encounters with the most-recent sexual partners, and therefore may not reliably reflect the full extent to which sexual role strain may or may not occur.

**Insertive and Receptive Condomless Anal Intercourse**—Condomless insertive anal intercourse and condomless receptive anal intercourse were assessed as secondary outcomes. For each participant–partner relationship reported, the outcome was defined as the participants' practice of (1) condomless insertive anal intercourse and/or (2) condomless receptive anal intercourse. Therefore, for each participant, up to three reports of condomless insertive anal intercourse and up to three reports of condomless receptive anal intercourse could exist.

**Predictor Variables of Interest**—In addition to assessing sexual role strain as an outcome, we also used it as a predictor in our analysis of condomless receptive and insertive anal intercourse. Other variables of interest included participants' age, educational attainment, self-reported HIV status, self-reported history of STIs, presence of an alcohol use disorder, substance use prior to sex, and condom use. We also considered each partner's gender, sexual orientation, sexual role, and type of relationship with the participant (e.g., stable/primary, casual, transactional).

### Statistical Analysis

Univariate analyses (frequencies, medians) were conducted to describe the characteristics of participants and their three most-recent sexual partners. Bivariate tables were constructed to compare the frequencies of (1) *pasivo* and *activo* role strain and (2) condomless insertive anal intercourse and condomless receptive anal intercourse against participant and partner characteristics. Variables were selected a priori for inclusion in the multivariable models. We used Poisson regression with robust estimation of standard errors to calculate prevalence ratios (PR) and 95% confidence intervals (CI) for (1) *pasivo* role strain, (2) *activo* role strain, (3) condomless insertive anal intercourse, and (4) condomless receptive anal intercourse (Barros & Hirakata, 2003). The multivariable models were constructed under the generalized estimating equation (GEE) extension with an exchangeable working correlation structure to account for the correlation between the last three partners reported by the same participant (Hanley et al., 2003). Given the operationalization of *pasivo* and *activo* role strain, the multivariable model of *pasivo* role strain is restricted to participants who reported *pasivo* role preference and the multivariable model of *activo* role strain is restricted to participants who reported *activo* role preference. All analyses were conducted in Stata 12.0 (StataCorp, College Town, TX, USA).

All study procedures were approved by the Institutional Review Boards of the University of California, Los Angeles and Asociación Civil Impacta Salud y Educación in Lima, Peru.



All participants provided written informed consent prior to their participation in any study procedures.

## Results

### Sample Characteristics

Detailed demographic and behavioral characteristics of the TW and MSM participants are shown in Table 1.

**Transgender Women Participants**—Of the 150 TW surveyed in the parent study, 104 (69.3%) met the inclusion criteria for this analysis. The majority ( $n = 98$ , 94.2%) of TW reported a preference for the *pasivo* sexual role. Regardless of their stated preferred sexual role, 76 (73.1%) TW exclusively engaged in receptive anal intercourse in their last three sexual relationships. Among *pasivo*-identified TW, 25 (25.5%) reported *pasivo* role strain, whereas *activo* role strain was reported by 5 (83.3%) *activo*-identified TW.

**Homosexual MSM Participants**—Of the 924 homosexual MSM surveyed in the parent study, 388 (42.0%) met the inclusion criteria for this analysis. Most ( $n = 303$ , 78.1%) preferred the *pasivo* sexual role, and 238 (61.3%) reported exclusively engaging in receptive anal intercourse with their last three partners, regardless of sexual role preference. *Pasivo* role strain was experienced by 66 (21.8%) *pasivo*-identified homosexual MSM, while *activo* role strain was experienced by 23 (27.1%) of *activo*-identified homosexual MSM.

**Heterosexual and Bisexual MSM Participants**—Of the 476 total heterosexual and bisexual MSM surveyed in the parent study, 218 (45.8%) met our inclusion criteria. Consistent with previous research, the majority ( $n = 175$ , 80.3%) preferred the *activo* sexual role. Regardless of sexual role, the majority ( $n = 147$ , 67.4%) of heterosexual/bisexual MSM engaged exclusively in insertive anal intercourse in their last three partnerships. Twenty-eight (16.0%) *activo*-identified heterosexual/bisexual MSM experienced *activo* role strain with one or more of their last three partners, and 9 (20.9%) of *pasivo*-identified heterosexual/bisexual MSM experienced *pasivo* role strain.

**Partner and Sexual Behavior Characteristics Among the Last Three Sexual Partners**—Table 2 describes the partner characteristics as perceived and reported by the TW and MSM participants, and the sexual behaviors practiced during participants' last sexual encounter with these partners.

**Partners and Sexual Behavior Characteristics of Transgender Women**—TW participants ( $n = 104$ ) reported partner characteristics for 286 non-female sexual partners, with 83 (79.8%) TW reporting three partners, 16 (15.4%) reporting two partners, and 5 (4.8%) reporting one partner. TW reported a similar prevalence of primary partners as MSM groups, but a higher percentage of transactional sex partners ( $n = 66$ , 23.1%). The majority of TW partners were males ( $n = 264$ , 92.3%) who identified as heterosexual ( $n = 114$ , 39.9%) or bisexual ( $n = 123$ , 43.0%) and preferred the *activo* role ( $n = 228$ , 79.7%).



Alcohol use before sex was similar among all groups, though slightly higher for TW ( $n = 75$ , 26.2%). Drug use before sex was also more commonly reported by TW ( $n = 34$ , 11.9%) than heterosexual/bisexual MSM ( $n = 33$ , 6.2%) and homosexual MSM ( $n = 31$ , 2.9%). Of the 53 TW sexual encounters including insertive anal intercourse, 7 (13.2%) represented *pasivo* role strain. *Activo* role strain was observed among 12 (4.4%) of the 276 sexual encounters in which TW engaged in receptive anal intercourse.

#### **Partners and Sexual Behavior Characteristics of Homosexual MSM—**

Homosexual MSM ( $n = 388$ ) reported characteristics for 1058 of their last three non-female sexual partners, with 310 (79.9%) reporting three partners, 50 (12.9%) reporting two partners, and 28 (7.2%) reporting one partner. Homosexual MSM reported the highest prevalence of casual partners ( $n = 668$ , 63.1%) of all groups and preferentially partnered with other homosexual MSM ( $n = 563$ , 53.2%) or bisexual men ( $n = 331$ , 31.3%), whereas TW were the least represented ( $n = 2$ , 0.2%) among their sexual partners. Most of their partners were perceived as *activo* ( $n = 651$ , 61.5%). Homosexual MSM reported the highest prevalence of *pasivo* role strain ( $n = 110$ , 32.9% of encounters in which they engaged in insertive anal intercourse) and reported *activo* role strain in 39 (4.6%) sexual encounters in which they had receptive anal intercourse.

#### **Partners and Sexual Behavior Characteristics of Heterosexual and Bisexual MSM—**

Heterosexual/bisexual MSM ( $n = 218$ ) reported partner characteristics for 536 non-female sexual partners, with 133 (61.0%) of reporting three partners, 52 (23.9%) reporting two partners, and 33 (15.1%) reporting one partner. Similar to homosexual MSM, the majority ( $n = 301$ , 56.2%) of recent partnerships were casual in nature. Heterosexual/bisexual MSM reported the largest percentage of TW partners ( $n = 49$ , 9.0%), as well as the largest percentage of *pasivo* partners ( $n = 287$ , 53.5%). Exclusively insertive anal intercourse was practiced with the majority ( $n = 380$ , 70.9%) of their partners, with only 13 (3.0%) insertive sexual encounters representing *pasivo* role strain. Conversely, the majority ( $n = 117$ , 75.0%) of encounters in which heterosexual/bisexual MSM engaged in receptive anal intercourse represented *activo* role strain.

### **Multivariable Analysis of Sexual Role Strain**

Given the numerical distribution of sexual role preferences among stratified TW and MSM subgroups, statistical models were only constructed to assess *pasivo* role strain among TW and homosexual MSM, and *activo* role strain was assessed only for heterosexual/bisexual MSM. The results of these stratified analyses appear in Table 3.

Among TW, *pasivo* role strain was 3.64 times more common among participants with an unknown HIV status (95% CI 1.33–9.99,  $p = .012$ ) and 3.48 times more common among TW who had used drugs before sex (95% CI 1.32–9.15,  $p = 0.011$ ).

Among homosexual MSM, *pasivo* role strain was 5.40 times more prevalent with *pasivo*-identified partners (95% CI 2.66–10.96,  $p < .001$ ) and 3.51 times more prevalent with *moderno*-identified partners (95% CI 2.25–5.47,  $p < .001$ ) when compared with *activo*-identified partners. *Pasivo* role strain among homosexual MSM was also 1.95 times more prevalent during condomless anal intercourse (95% CI 1.28–2.97,  $p = .002$ ). The model

was adjusted for participant HIV status, participant alcohol and/or drug use before sex, and partner type.

Among heterosexual/bisexual MSM, *activo* role strain was 5.32 times more prevalent with *activo*-identified partners (95% CI 1.25–22.65,  $p = .024$ ) and 7.92 times more prevalent with *moderno*-identified partners (95% CI 3.22–19.51,  $p < .001$ ) compared to their sexual encounters with *pasivo* partners.

### Multivariable Analysis of Condomless Insertive Anal Intercourse

Detailed results of the separate analyses for homosexual MSM and heterosexual/bisexual MSM are shown in Table 4. The analysis of condomless insertive anal intercourse was not performed for TW due to the low prevalence of insertive anal intercourse reported by this group.

Among homosexual MSM, condomless insertive anal intercourse was significantly more prevalent during encounters involving *pasivo* role strain ( $PR_{adj} = 2.36$ , 95% CI 1.58–3.51,  $p < .001$ ), alcohol use before sex ( $PR_{adj} = 1.62$ , 95% CI 1.09–2.42,  $p = .017$ ), and with a *pasivo* sexual partner ( $PR_{adj} = 1.57$ , 95% CI 1.05–2.37;  $p = .030$ ). In the same model, condomless insertive anal intercourse was 50% less prevalent with casual compared to primary partners (95% CI 0.38–0.68,  $p < .001$ ). Among heterosexual/bisexual MSM, condomless insertive anal intercourse was 34% less prevalent with casual partners (95% CI 0.50–0.88,  $p = .004$ ) and 73% less prevalent with transactional sex partners (95% CI 0.09–0.82,  $p = .022$ ), compared to primary partners. *Pasivo* role strain was not significantly associated with condomless insertive anal intercourse in this subgroup.

### Multivariable Analysis of Condomless Receptive Anal Intercourse

Multivariable analyses of condomless receptive anal intercourse were performed as separate models for TW, homosexual MSM, and heterosexual/bisexual MSM (Table 5). Among TW, condomless receptive anal intercourse was 39% less prevalent with casual than primary partners (95% CI 0.40–0.94,  $p = .024$ ). Among homosexual MSM, condomless receptive anal intercourse was 1.33 times more prevalent for those who had consumed alcohol before sex (95% CI 1.06–1.66,  $p = .015$ ). In the same model, condomless receptive anal intercourse was 21% less prevalent for participants with known HIV infection (95% CI 0.62–0.99,  $p = .042$ ), 36% less prevalent with casual partners (95% CI 0.53–0.78,  $p < .001$ ) and 61% less prevalent with transactional sex partners (95% CI 0.16–0.94,  $p = .037$ ) compared with primary partners. Among heterosexual/bisexual MSM, condomless receptive anal intercourse was 1.93 times more prevalent for participants with an unknown HIV status (95% CI 1.14–3.26,  $p = .014$ ) compared to those with known HIV infection. In all three analyses, role strain was not significantly associated with condom use during receptive anal intercourse.

## Discussion

Our study proposes a new construct—sexual role strain—to examine the sexual practices of TW and MSM in Latin America in relation to their gender and sexual identities, sociocultural norms, and partnership contexts where gender/sexual identities and sexual

preferences may conflict with social expectations of behavior. We investigated the sociodemographic and behavioral characteristics associated with *activo* and *pasivo* role strain experienced with recent sexual partners of TW, homosexual MSM, and heterosexual/bisexual MSM in Peru and explored associations with risk behaviors for HIV transmission. Due to significant variations in social norms of behavior between distinct TW and MSM subgroups and resulting differences in the experience of sexual role strain, we discuss the implications of our findings by participant group and complete our discussion with a brief overarching summary across groups.

## Transwomen

The sexual partnership patterns among the TW in our study were largely congruent with the overarching gender and sexual role norms of Peru. Previous research has found that TW in Peru describe their sexuality and sexual preferences through the lens of their gender experience and binary gender roles, rather than in terms of a sexual orientation (Clark et al., 2013; Nureña et al., 2011; Pollock et al., 2016; Salazar et al., 2010). The majority of TW in our study preferred the *pasivo* role and most often had sex with heterosexual or bisexual male partners who maintained the complementary *activo* role. The partnership characteristics of our TW subgroup are consistent with the reported gender expression and affirmation goals of Peruvian TW. Through this social paradigm, partnering with *activo* men supports the gender-affirming “feminine” sexual behavior of *pasivo* TW while maintaining a position of subjugation that limits TW’s control over HIV prevention practices and increases their vulnerability to HIV and STI acquisition.

When *pasivo* role strain did occur among TW, it was significantly more common among participants who had used drugs before sex or who reported an unknown HIV status. As such, TW engagement in insertive anal intercourse may result from the social marginalization faced by many TW in Peru (Poteat et al., 2015; Salazar et al., 2010); transactional sex by TW is common due to social exclusion from other types of employment (Nureña et al., 2011) and many TW experience an economic pressure to engage in insertive anal intercourse, which yields higher compensation than receptive anal intercourse (Clark et al., 2013; Nureña et al., 2011; Pollock et al., 2016). As such, TW sex workers engage in insertive anal intercourse more commonly with clients than with stable partners (Degtyar et al., 2018). This finding is concerning considering the importance of the *pasivo* role in gender affirmation for Peruvian TW and the potential for gender-based psychological distress, or gender dysphoria, during insertive anal intercourse.

In this context, our finding linking *pasivo* role strain with pre-sex substance use among TW may represent an attempt to cope with the potential psychosexual distress of engaging in insertive anal intercourse. In Peru and the USA, substance use has been found to be associated with both transactional sex work (Ludford et al., 2013; Reback et al., 2005) and condomless anal intercourse (Deiss et al., 2013; Ludford et al., 2013; Operario & Yang, 2014), and qualitatively described as a maladaptive coping resource for managing transactional sex-related stressors (Sausa et al., 2007). Our findings suggest that the experience of gender dysphoria during sexual role strain may increase the use of alcohol or drugs as a coping mechanism among transgender sex workers, increasing vulnerability to

HIV/STI exposure. Future studies should explore the intersection of economic vulnerability and transactional sex demands for insertive anal intercourse in triggering gender dysphoria among TW, substance use as a coping resource for gender-disaffirming experiences, and the implications for condom use, agency, and HIV/STI risk.

Our finding of *pasivo* role strain among TW with unknown HIV status may also be an effect of social and economic marginalization. Given the daily survival demands faced by many TW in Peru, HIV testing and other healthcare engagement may be triaged below more immediate needs (Clark et al., 2021). Lack of knowledge of one's HIV serostatus may reduce TW's power to negotiate for their preferred sexual role or other aspects of the sexual encounter (i.e., condom use).

TW in our study reported more condom use with casual partners relative to primary partners, which is consistent with previous US and Peru-based studies (Bowers et al., 2012; Cambou et al., 2014; Nemoto et al., 2004, 2014; Satcher et al., 2016; Wilson et al., 2010). Both condomlessness and receptive anal intercourse with primary partners have both been described as gender-affirming, intimacy-building experiences that are perceived as posing lower risk of HIV/STIs (Bockting et al., 1998; Clark et al., 2013). On the contrary, it is possible that TW feel less sense of trust and intimacy with casual partners or perceive them as having a higher risk of HIV/STIs (Blair et al., 2016). Likewise, given the intersection of HIV stigma with transphobia in Peruvian society (Nureña et al., 2011; Salazar et al., 2010), it is also possible that casual partners are more likely to demand condom use when partnering with TW. Future research should assess the prevalence of transphobia among the partners of TW and its role, if any, in sexual behaviors engaged with TW.

### Homosexual MSM

Most of the homosexual MSM in our study identified as *pasivo* and predominantly selected *activo* partners. When *pasivo* role strain was experienced, it was significantly more prevalent with *pasivo* and *moderno* partners, likely due to shared role preferences that necessitated re-negotiation and compromise of a participant's preferred sexual role. Of all groups studied, only homosexual MSM reported significantly more condomless anal intercourse during *pasivo* role strain. Considering the social perception of *pasivo* homosexual MSM as feminine and submissive, it is possible that they may be susceptible to decreased agency for negotiating sexual behavior with their partners, whether that be sexual role or condom use. It is also possible that homosexual MSM who experience *pasivo* role strain engage in riskier behaviors that compromise HIV prevention than those who do not. This is supported by our finding of a significantly higher prevalence of condomless anal intercourse among homosexual MSM who consumed alcohol before sex. However, it is also possible that homosexual MSM who experience *pasivo* role strain may discount the risk of acquiring HIV during insertive sex and deem condoms use to be unnecessary during insertive roles. Future research should assess the extent to which homosexual MSM select their partners based on sexual role preferences (i.e., sorting) and the possibility that sexual role strain may occur during seropositioning based upon perceptions of partner HIV status.

Alcohol use may be of distinct importance within the homosexual MSM community in Peru. In our study, alcohol use before sex was significantly associated with both condomless

insertive and receptive anal intercourse. Alcohol may represent a well-established social lubricant for sexual interactions among Peruvian homosexual MSM, as described in qualitative research (Brown et al., 2015) and suggested by our finding of a significant association between condomless insertive anal intercourse and hazardous alcohol use disorder. Our findings correlate well with previous research showing problem drinking as more prevalent among Peruvian MSM and significantly associated with high-risk behaviors, including condomless sex, pre-sex substance use, history of sex work, history of STIs, anal sex within a high-risk venue, and experience of sexual coercion (Deiss et al., 2013; Delgado et al., 2017; Herrera et al., 2016; Ludford et al., 2013). In light of these findings, it is possible that *pasivo* role strain experienced by homosexual MSM represents a form of sexual coercion and decreased agency in the setting of inebriation.

Regardless of type of anal intercourse engaged, homosexual MSM used condoms significantly less with their primary partners, which is consistent with research highlighting condomless sex as an expression of intimacy and trust between stable partners (Davidovich et al., 2004; Golub et al., 2012; Theodore et al., 2004). Our finding of significantly higher condom use among those who self-reported HIV infection is also consistent with previous research demonstrating decreased sexual risk behaviors among MSM who perceive themselves as not having HIV compared to those who perceive themselves as having HIV (Fox et al., 2009; Marks et al., 2005).

### Heterosexual and Bisexual MSM

Consistent with social norms and previous research findings (Clark et al., 2013), most of heterosexual/bisexual MSM identified as *activo* and selected *pasivo* partners. When *activo* role strain did occur, it was significantly more prevalent with *activo* or *moderno*, relative to *pasivo*, partners. In these relationship contexts, strain may be representative of an increased need for role negotiation due to similar role preferences between the heterosexual/bisexual MSM and an *activo* partner, which is more likely to result in compromise than with *pasivo* partners. However, it is also possible that these events of *activo* role strain represent unique experiences of role deviation, such as occurs during heterosexual/bisexual MSM experiences of receptive anal intercourse with TW. As has been described in US research, heterosexual/bisexual MSM may be more likely to deviate from sexual norms to embrace sexual experimentation and engage in receptive anal intercourse with TW, who they perceive as more willing to engage in traditionally masculine or aggressive sexual activities that are deemed inappropriate or displeasing to cis-women (Clark et al., 2013; Mauk et al., 2013; Weinberg & Williams, 2010). Most of what is known about heterosexual/bisexual MSM sexual partners of TW in Peru has been sociodemographic information collected from the perspective of TW (Cambou et al., 2014; Satcher et al., 2016), rather than direct characterization of the sexual preferences, sexual risk behaviors, and associated HIV/STI risk measured from the heterosexual/bisexual MSM partners themselves. Such primary data collection is needed in Peru in order to better characterize the sexual identities and role preferences of heterosexual/bisexual MSM, the nature of their relationships with TW and MSM partners, the extent to sexual role preference impacts partner selection (i.e., sorting) and role negotiation, and the relational contexts within which HIV/STI transmission occurs among these populations.

Among heterosexual/bisexual MSM, we found significantly more condom-protected sex during insertive anal intercourse with casual partners and transactional sex partners, compared to primary partners. Similar to our discussion of TW and homosexual MSM condom use, this is likely due to condomless sex as an expression of intimacy between stable partners (Davidovich et al., 2004; Theodore et al., 2004). However, given that heterosexual/bisexual MSM may have concurrent, primary partnerships with females, they also may be motivated to use condoms with casual and transactional sex partners in order to reduce the risk of transmitting HIV/STIs to their stable partner (Blair et al., 2016). This hypothesis is supported by previous research in Peru and Africa showing similar patterns of condom use among MSM with concurrent female partners (Beyrer et al., 2010; Tabet et al., 2002). Conversely, more condomless receptive anal intercourse was observed for heterosexual/bisexual MSM with unknown HIV status compared to those who reported not having HIV. The few studies that have considered the contexts for heterosexual/bisexual MSM engagement in receptive anal intercourse have described greater occurrence in high-risk, high-experimentation environments (e.g., bars, street, brothels) with TW partners (Mauk et al., 2013; Nureña et al., 2011; Weinberg & Williams, 2010). Therefore, being unaware of one's HIV status may suggest a lower health consciousness and increased likelihood to engage in risky behaviors, including risks to one's health (condomless intercourse) and social reputation (receptive anal intercourse).

## Summary

Our research found that sexual role strain occurs infrequently among Peruvian TW and MSM. When it does occur, it is usually within specific partnership contexts that differ by subgroup. Among TW, sexual role strain was more likely within the context of drug use and among TW with an unknown HIV status. Among homosexual MSM, sexual role strain was more common among partners with the same role preference but also more likely during condomless anal intercourse, which was more common in the context of alcohol use. However, for heterosexual and bisexual MSM, sexual role strain was only more common among partners who preferred the same sexual role and not associated with any factors that increase the risk of HIV/STIs. The pattern of factors associated with sexual role strain by subgroup suggests that TW and homosexual MSM may experience less power and agency to negotiate their sexual roles; although not assessed in this analysis, it is possible that the substance use behaviors engaged during sexual role strain indicate a level of psychosocial stress during sexual role strain that heterosexual/bisexual MSM may not experience. Our findings suggest that sexual role strain among TW and homosexual MSM may have different social and psychosexual implications than sexual role strain experienced among heterosexual/bisexual MSM, and therefore may have different relationships with HIV/STI risk. Does sexual role strain represent a type of psychosexual vulnerability among subgroups with less social power and more social precarity, versus sexual freedom and experimentation among subgroups with more social power? Further examination of sexual role strain within these subgroups may provide insight on how sexual behaviors and HIV/STI risk unfold at the intersection of social/economic power and sexual desire.



## Limitations

Our study was susceptible to several limitations. First, the parent data for this secondary data analysis were collected in 2012–2014. It is possible that social and cultural perspectives on sexual orientation and gender in Peru may have changed in the interval between the original data collection and this publication, which may limit the generalizability of our findings to today's Peruvian population of TW and MSM. Second, our data were likely susceptible to recall bias because our questions relied on retrospective self-reports of behaviors. Third, data on partners were likely also affected by reporter bias, as participants were asked to report the characteristics and preferences of their partners. Fourth, we combined heterosexual and bisexual MSM due to sample size constraints. This was done in favor of excluding heterosexual MSM because both groups at a minimum have similar sexual partners (men and women). However, it is important to note that our joint categorization is slightly problematic due to documented differences in self-perceptions of sexual orientation and the implications for distinct sexual behavioral preferences between these groups (Clark et al., 2013; Mauk et al., 2013; Weinberg & Williams, 2010). Fifth, the cross-sectional nature of our data limited our ability to explore sexual role strain within the larger relationship context. It is possible that we captured isolated instances of role strain that were not reflective of the typical sexual encounters between participants and certain partners. A prospective study design and/or more comprehensive retrospective items may have allowed us to measure the dose of sexual role strain by partnership type. We also treated role preferences as fixed when in reality such preferences may be more fluid and circumstantial. It is also possible that individuals who identify as *moderno* have role predilections that are susceptible to strain that we missed by excluding them from the sexual role strain concept and analysis at this time. Sixth, we were not able to assess role strain among participants with role identities contrary to Peruvian sociocultural expectations (e.g., TW who experienced *activo* role strain) due to the small sample size of such participants. As it is possible that their risk profiles were different, the results cannot be generalized to this population.

## Conclusion

Our study has several strengths in its contribution to the literature. We provide further distinction between TW and MSM, two groups that have traditionally been combined, despite differences in their identities, sexual behavior, and HIV risk. Our study also advances research on MSM sub-identities, whose differences are often masked by analysis of “MSM” in aggregate (Young & Meyer, 2005). Finally, to the extent of our knowledge, we have proposed a new construct—*sexual role strain*—for studying sexual experiences and, possibly, gender dysphoria among TW and MSM and their sexual partners. It is possible that sexual role strain represents a new sexual risk factor for HIV; however, the reasons why an individual deviates from their preferred sexual role may be many and not necessarily maladaptive. Within primary partnership contexts, sexual role strain may represent secureness in one's sexual expression, healthy sexual connection, and willingness to negotiate sexual pleasure with one's partner. However, within other contexts such as transactional or casual sex, it may represent a desire for sexual adventure and flexibility, or a distressing experience during which one compromises their own desires, comforts, and self-perceptions due to unsafe power differentials, financial need, and social stigma. In these



situations, the experience of sexual role strain may increase the risk for adverse effects, such as psychological distress, gender dysphoria, substance use, and/or decreased agency for condom negotiation. More research is needed to explore the drivers of sexual role strain within sexual minority subgroups, both how and why MSM and TW may differ their role-defined practices within specific sexual partnerships, and the associated biopsychosocial sequelae of sexual role strain as experienced by TW and MSM.

## Availability of Data and Material

Access to data is subject to review and approval by the UCLA Institutional Review Board, as well as the discretion and permission of the principal investigator (Jesse L. Clark, M.D., M.Sc.) of the parent study, from which the data for this manuscript were sourced.

## Acknowledgements

We are deeply grateful to the study participants, peer recruiters, and staff of the Asociación Civil Impacta Salud y Educación for their contribution to this study. This study would not have been possible without their collaboration and support.

## Funding

Milan F. Satcher received funding from the UCLA South American Program in HIV Prevention Research (SAPHIR; NIH R25 MH087222) and is supported by the Health Resources Services Administration postdoctoral fellowship grant (T32HP32520). The primary research for this secondary data analysis was funded by the NIH/NIMH (NIH R21 MH092232 and K23 MH084611).

## References

- Babor T, Higgins-Biddle JC, Saunders JB, & Monteiro MG (2001). The alcohol use disorders identification test (AUDIT): Guidelines for use in primary care (2nd ed.). Retrieved from World Health Organization website: <http://apps.who.int/iris/handle/10665/67205>.
- Barros AJD, & Hirakata VN (2003). Alternatives for logistic regression in cross-sectional studies: An empirical comparison of models that directly estimate the prevalence ratio. *BMC Medical Research Methodology*, 3, 21. 10.1186/1471-2288-3-21 [PubMed: 14567763]
- Beyrer C, Trapence G, Motimedi F, Umar E, Ipinge S, Dausab F, & Baral S (2010). Bisexual concurrency, bisexual partnerships, and HIV among Southern African men who have sex with men. *Sexually Transmitted Infections*, 86(4), 323–327. 10.1136/sti.2009.040162 [PubMed: 20410078]
- Blair CS, Segura ER, Perez-Brumer AG, Sanchez J, Lama JR, & Clark JL (2016). Sexual orientation, gender identity and perceived source of infection among men who have sex with men (MSM) and transgender women (TW) recently diagnosed with HIV and/or STI in Lima, Peru. *AIDS and Behavior*, 20(10), 2178–2185. 10.1007/s10461-015-1276-7 [PubMed: 26767533]
- Bockting WO, Robinson BE, & Rosser BR (1998). Transgender HIV prevention: A qualitative needs assessment. *AIDS Care*, 10(4), 505–525. 10.1080/09540129850124028 [PubMed: 9828969]
- Bowers JR, Branson CM, Fletcher JB, & Reback CJ (2012). Predictors of HIV sexual risk behavior among men who have sex with men, men who have sex with men and women, and transgender women. *International Journal of Sexual Health*, 24(4), 290–302. 10.1080/19317611.2012.715120 [PubMed: 24660042]
- Brown SE, Vagenas P, Konda KA, Clark JL, Lama JR, Gonzales P, Sanchez J, Duerr AC, & Altice FL (2015). Men who have sex with men in Peru acceptability of medication-assisted therapy for treating alcohol use disorders. *American Journal of Men's Health*, 11(4), 1269–1278. 10.1177/1557988315576775
- Cambou M,C, Perez-Brumer AG, Segura ER, Salvatierra J, Lama JR, Sanchez J, & Clark JL (2014). The risk of stable partnerships: associations between partnership characteristics and unprotected

- anal intercourse among men who have sex with men and transgender women recently diagnosed with HIV and/or STI in Lima, Peru. *PLoS One*, 9(7). 10.1371/journal.pone.0102894.
- Carballo-Diéguez A, & Bauermeister J (2004). "Barebacking": Intentional condomless anal sex in HIV-risk contexts. Reasons for and against it. *Journal of Homosexuality*, 47(1), 1–16. 10.1300/J082v47n01\_01.
- Clark J, Reisner S, Perez-Brumer A, Huerta L, Sanchez H, Moriarty K, Mamani Luque M, Okochi H, Salazar X, Mimiaga M, Sanchez J, Gandhi M, Mayer KH, & Lama J (2021). *TransPrEP: Results from the pilot study of a social network-based intervention to support PrEP adherence among transgender women in Lima, Peru*. *AIDS and Behavior*, 25(6), 1873–1883. 10.1007/s10461-020-03117-4 [PubMed: 33385279]
- Clark J, Salvatierra J, Segura E, Salazar X, Konda K, Perez-Brumer A, Hall E, Klausner J, Caceres C, & Coates T (2013). Modern love: Sexual role-based identities and HIV/STI prevention among men who have sex with men in Lima, Peru. *AIDS and Behavior*, 17(4), 1313–1328. 10.1007/s10461-012-0210-5 [PubMed: 22614747]
- Davidovich U, de Wit JBF, & Stroebe W (2004). Behavioral and Cognitive barriers to safer sex between men in steady relationships: Implications for prevention strategies. *AIDS Education and Prevention*, 16(4), 304–314. 10.1521/aeap.16.4.304.40398 [PubMed: 15342333]
- Degtyar A, George PE, Mallma P, Diaz DA, Carcamo C, Garcia PJ, Gorbach PM, & Bayer AM (2018). Sexual risk, behavior, and HIV testing and status among male and transgender women sex workers and their clients in Lima, Peru. *International Journal of Sexual Health*, 30(1), 81–91. 10.1080/19317611.2018.1429514 [PubMed: 30224942]
- Deiss RG, Clark JL, Konda KA, Leon SR, Klausner JD, Caceres CF, & Coates TJ (2013). Problem drinking is associated with increased prevalence of sexual risk behaviors among men who have sex with men (MSM) in Lima, Peru. *Drug and Alcohol Dependence*, 132(1–2), 134–139. 10.1016/j.drugalcdep.2013.01.011 [PubMed: 23434130]
- Delgado JR, Segura ER, Lake JE, Sanchez J, Lama JR, & Clark JL (2017). Event-level analysis of alcohol consumption and condom use in partnership contexts among men who have sex with men and transgender women in Lima, Peru. *Drug and Alcohol Dependence*, 170(1), 17–24. 10.1016/j.drugalcdep.2016.10.033 [PubMed: 27865150]
- Fox J, White PJ, Macdonald N, Weber J, McClure M, Fidler S, & Ward H (2009). Reductions in HIV transmission risk behavior following diagnosis of primary HIV infection: A cohort of high-risk men who have sex with men. *HIV Medicine*, 10(7), 432–438. 10.1111/j.1468-1293.2009.00708.x [PubMed: 19459996]
- Golub SA, Starks TJ, Payton G, & Parsons JT (2012). The critical role of intimacy in the sexual risk behaviors of gay and bisexual men. *AIDS and Behavior*, 16(3), 626–632. 10.1007/s10461-011-9972-4 [PubMed: 21630012]
- Goode WJ (1960). A Theory of role strain. *American Sociological Review*, 25(4), 483–496. 10.2307/2092933
- Goodreau SM, Carnegie NB, Vittinghoff E, Lama JR, Sanchez J, Grinsztejn B, Koblin BA, Mayer KH, & Buchbinder SP (2012). What drives the US and Peruvian HIV epidemics in men who have sex with men (MSM)? *PLoS ONE*, 7(11), e50522. 10.1371/journal.pone.0050522 [PubMed: 23209768]
- Goodreau SM, Goicochea LP, & Sanchez J (2005). Sexual role and transmission of HIV Type 1 among men who have sex with men in Peru. *Journal of Infectious Diseases*, 191(Suppl 1), S147–158. 10.1086/425268 [PubMed: 15627225]
- Hanley JA, Negassa A, Edwardes MDB, & Forrester JE (2003). Statistical analysis of correlated data using generalized estimating equations: An orientation. *American Journal of Epidemiology*, 157(4), 364–375. 10.1093/aje/kwf215 [PubMed: 12578807]
- Herrera MC, Konda KA, Leon SR, Deiss R, Brown B, Calvo GM, Salvatierra HJ, Caceres CF, & Klausner JD (2016). Impact of alcohol use on sexual behavior among men who have sex with men and transgender women in Lima, Peru. *Drug and Alcohol Dependence*, 161, 147–154. 10.1016/j.drugalcdep.2016.01.030 [PubMed: 26896169]
- Lama JR, Lucchetti A, Suarez L, Laguna-Torres VA, Guanira JV, Pun M, Montano S.M, Celum CL, Carr JK, Sanchez J, Bautista CT, Sanchez JL, & Peruvian HIV Sentinel Surveillance Working Group. (2006). Association of herpes simplex virus type 2 infection and syphilis with human

- immunodeficiency virus infection among men who have sex with men in Peru. *Journal of Infectious Diseases*, 194(10), 1459–1466. 10.1086/508548. [PubMed: 17054077]
- Ludford KT, Vagenas P, Lama JR, Peinado J, Gonzales P, Leiva R, Pun M, Sanchez J, Altice FL, & Peruvian HIV Sentinel Surveillance Working Group. (2013). Screening for drug and alcohol use disorders and their association with HIV-related sexual risk behaviors among men who have sex with men in Peru. *PLoS ONE*, 8(8), e69966. 10.1371/journal.pone.0069966. [PubMed: 23936364]
- Marks G, Crepaz N, Senterfitt JW, & Janssen RS (2005). Meta-analysis of high-risk sexual behavior in persons aware and unaware they are infected with HIV in the United States: Implications for HIV prevention programs. *Journal of Acquired Immune Deficiency Syndromes*, 39(4), 446–453. [PubMed: 16010168]
- Marshall N, & Barnett R (1993). Work–family strains and gains among two-earner couples. *Journal of Community Psychology*, 21, 64–78.
- Mauk D, Perry A, & Muñoz-Laboy M (2013). Exploring the desires and sexual culture of men who have sex with male-to-female transgender women. *Archives of Sexual Behavior*, 42(5), 793–803. 10.1007/s10508-013-0079-z [PubMed: 23572267]
- Milkie MA, & Peltola P (1999). Playing All the roles: Gender and the work-family balancing act. *Journal of Marriage and Family*, 61(2), 476–490. 10.2307/353763
- Ministerio de Salud del Peru. (2012). Informe nacional sobre los progresos realizados en el país Peru, period enero 2010—diciembre 2011. Retrieved from Issuu website: [https://issuu.com/comite\\_vigilancia-coremusa-ll/docs/informe\\_de\\_progresos\\_peru\\_2012](https://issuu.com/comite_vigilancia-coremusa-ll/docs/informe_de_progresos_peru_2012)
- Moen P, & Dempster-McClain DI (1987). Employed parents: Role strain, work time, and preferences for working less. *Journal of Marriage and Family*, 49(3), 579–590. 10.2307/352203
- Moriarty KE, Segura ER, Gonzales W, Lake JE, Cabello R, & Clark JL (2019). Assessing sexually transmitted infections and HIV risk among transgender women in Lima, Peru: Beyond Behavior. *LGBT Health*, 6(7), 370–376. [PubMed: 31618167]
- Nagaraj S, Segura ER, Peinado J, Konda KA, Segura P, Casapia M, Ortiz A, Montano SM, Clark JL, Sanchez J, Lama JR, & Peruvian HIV Sentinel Surveillance Working Group. (2013). A cross-sectional study of knowledge of sex partner serostatus among high-risk Peruvian men who have sex with men and transgender women: Implications for HIV prevention. *BMC Public Health*, 13, 181. 10.1186/1471-2458-13-181. [PubMed: 23448153]
- Nemoto T, Bödeker B, Iwamoto M, & Sakata M (2014). Practices of receptive and insertive anal sex among transgender women in relation to partner types, sociocultural factors, and background variables. *AIDS Care*, 26(4), 434–440. 10.1080/09540121.2013.841832 [PubMed: 24160715]
- Nemoto T, Operario D, Keatley J, & Villegas D (2004). Social context of HIV risk behaviors among male-to-female transgenders of colour. *AIDS Care*, 16(6), 724–735. 10.1080/09540120413331269567 [PubMed: 15370060]
- Nureña CR, Zúñiga M, Zunt J, Mejía C, Montano SM, & Sánchez JL (2011). Diversity of commercial sex among men and male-born trans people in three Peruvian cities. *Culture, Health & Sexuality*, 13(10), 1207–1221. 10.1080/13691058.2011.609908
- Nuttbrock L, Hwahng S, Bockting W, Rosenblum A, Mason M, Macri M, & Becker J (2009). Lifetime risk factors for HIV/STI infections among male-to-female transgender persons. *Journal of Acquired Immune Deficiency Syndromes*, 52(3), 417–421. 10.1097/QAI.0b013e3181ab6ed8 [PubMed: 19550351]
- Operario D, & Yang MF (2014). Stigma and the syndemic of HIV-related health risk behaviors in a diverse sample of transgender women. *Journal of Community Psychology*, 42(5), 554–557.
- Passaro RC, Castañeda-Huaripata A, Gonzales-Saavedra W, Chavez-Gomez S, Segura ER, Lake JE, Cabello R, & Clark JL (2019). Contextualizing condoms: A Cross-sectional study mapping intersections of locations of sexual contact, partner type, and substance use as contexts for sexual risk behavior among MSM in Peru. *BMC Infectious Disease*, 19(1), 958. 10.1186/s12879-019-4517-y
- Passaro RC, Segura ER, Lama JR, Sanchez J, Lake JE, & Clark JL (2020). High-risk, but hidden: binge drinking among men who have sex with men and transgender women in Lima, Peru, 2012–2014. *Substance Use & Misuse*, 55(3), 399–404. [PubMed: 31682179]

- Pearlin LI (1989). The sociological study of stress. *Journal of Health and Social Behavior*, 30(3), 241–256. 10.2307/2136956 [PubMed: 2674272]
- Perez-Brumer AG, Konda KA, Salvatierra HJ, Segura ER, Hall ER, Montano SM, Coates TJ, Klausner JD, Caceres CF, & Clark JL (2013). Prevalence of HIV, STIs, and risk behaviors in a cross-sectional community- and clinic-based sample of men who have sex with men (MSM) in Lima, Peru. *PLoS ONE*, 8(4). 10.1371/journal.pone.0059072.
- Pollock L, Silva-Santisteban A, Sevelius J, & Salazar X (2016). ‘You should build yourself up as a whole product’: Transgender female identity in Lima, Peru. *Global Public Health*, 11(7–8), 981–993. 10.1080/17441692.2016.1167932 [PubMed: 27080150]
- Poteat T, Wirtz AL, Radix A, Borquez A, Silva-Santisteban A, Deutsch MB, Khan SI, Winter S, & Operario D (2015). HIV risk and preventive interventions in transgender women sex workers. *The Lancet*, 385(9964), 274–286. 10.1016/S0140-6736(14)60833-3
- Reback CJ, Lombardi EL, Simon PA, & Frye DM (2005). HIV seroprevalence and risk behaviors among transgendered women who exchange sex in comparison with those who do not. *Journal of Psychology & Human Sexuality*, 17(1–2), 5–22. 10.1300/J056v17n01\_02
- Salazar X, Villayán J, Silva-Santisteban A, & Caceres C (2010). Las personas trans y la epidemia del VIH/SIDA en el Peru. Lima: IESSDEH, UPCH, ONUSIDA, amfAR.
- Sanchez J, Lama JR, Kusunoki L, Manrique H, Goicochea P, Lucchetti A, Rouillon M, Pun M, Suarez L, Montano S, Sanchez JL, Tabet S, Hughes JP, & Celum C (2007). HIV-1, Sexually transmitted infections, and sexual behavior trends among men who have sex with men in Lima, Peru. *Journal of Acquired Immune Deficiency Syndromes*, 44(5), 578–585. 10.1097/QAI.0b013e318033ff82 [PubMed: 17279049]
- Satcher M, Segura ER, Silva-Santisteban A, Sanchez J, Lama JR, & Clark JL (2016). Partner-level factors associated with insertive and receptive condomless anal intercourse among transgender women in Lima, Peru. *AIDS and Behavior*, 21(8), 2439–2451. 10.1007/s10461-016-1503-x
- Sausa LA, Keatley J, & Operario D (2007). Perceived risks and benefits of sex work among transgender women of color in San Francisco. *Archives of Sexual Behavior*, 36(6), 768–777. 10.1007/s10508-007-9210-3 [PubMed: 17674180]
- Sevelius JM (2013). Gender affirmation: A framework for conceptualizing risk behavior among transgender women of color. *Sex Roles*, 68(11–12), 675–689. 10.1007/s11199-012-0216-5 [PubMed: 23729971]
- Silva-Santisteban A, Raymond H, & Salazar X (2012). Understanding the HIV/AIDS epidemic in transgender women of Lima, Peru: Results from a sero-epidemiologic study using respondent driven sampling. *AIDS and Behavior*, 16, 872–881. [PubMed: 21983694]
- Silverstein LB, Auerbach CF, & Levant RF (2002). Contemporary fathers reconstructing masculinity: Clinical implications of gender role strain. *Professional Psychology: Research and Practice*, 33(4), 361–369. 10.1037/0735-7028.33.4.361
- Simpson R (2005). Men in non-traditional occupations: Career entry, career orientation and experience of role strain. *Gender, Work & Organization*, 12(4), 363–380. 10.1111/j.1468-0432.2005.00278.x
- Smith TE, & Leaper C (2006). Self-perceived gender typicality and the peer context during adolescence. *Journal of Research on Adolescence*, 16(1), 91–104. 10.1111/j.1532-7795.2006.00123.x
- Tablet S, Sanchez J, Lama J, Goicochea P, Campos P, Rouillon M, Cairo JL, Ueda L, Watts D, Celum C, & Holmes KK (2002). HIV, syphilis and heterosexual bridging among Peruvian men who have sex with men. *AIDS*, 16(9), 1271–1277. [PubMed: 12045493]
- Theodore PS, Durán REF, Antoni MH, & Fernandez MI (2004). Intimacy and sexual behavior among HIV-positive men-who-have-sex-with-men in primary relationships. *AIDS and Behavior*, 8(3), 321–331. 10.1023/B:AIBE.0000044079.37158.a9 [PubMed: 15475679]
- UNAIDS. (2013). *Global Report: UNAIDS Report on the Global AIDS Epidemic*. Retrieved from UNAIDS website: <http://unaids.org/en/resources/campaigns/globalreport2013/globalreport>.
- Verre M, Peinado J, Segura ER, Clark JC, Gonzales P, Benites C, Cabello R, Sanchez J, & Lama JR (2014). Socialization patterns and their associations with unprotected anal intercourse, HIV, and syphilis among high-risk men who have sex with men and transgender women in Peru. *AIDS and Behavior*, 18(10), 2030–2039. [PubMed: 24788782]

- Wei C, & Raymond HF (2011). Preference for and maintenance of anal sex roles among men who have sex with men: sociodemographic and behavioral correlates. *Archives of Sexual Behavior*, 40(4), 829–834. 10.1007/s10508-010-9623-2 [PubMed: 20464471]
- Weinberg MS, & Williams CJ (2010). Men sexually interested in transwomen (MSTW): Gendered embodiment and the construction of sexual desire. *Journal of Sex Research*, 47(4), 374–383. 10.1080/00224490903050568 [PubMed: 19544216]
- Wilson EC, Garofalo R, Harris DR, & Belzer M (2010). Sexual risk taking among transgender male-to-female youths with different partner types. *American Journal of Public Health*, 100(8), 1500–1505. 10.2105/AJPH.2009.160051 [PubMed: 20622176]
- Young RM, & Meyer IH (2005). The trouble with “MSM” and “WSW”: Erasure of the sexual-minority person in public health discourse. *American Journal of Public Health*, 95(7), 1144–1149. 10.2105/AJPH.2004.046714 [PubMed: 15961753]

Table 1

Characteristics of Transgender Women and Men Who Have Sex with Men participants in Lima, Peru;  $N = 710$

Characteristics	Total sample $n$ (%)	Transwomen $n = 104$ (14.6%)	Homosexual MSM $n = 388$ (54.7%)	Heterosexual/bisexual MSM $n = 218$ (30.7%)
Age median (IQR) education	27 (23–33)	27 (22–32)	27 (22–34)	27 (22–32)
Less than secondary	99 (14.0)	34 (33.0)	34 (8.8)	31 (14.2)
Secondary complete	190 (26.8)	39 (37.9)	87 (22.5)	64 (29.4)
University/technical	419 (59.2)	30 (29.1)	266 (68.7)	123 (56.4)
Self-reported HIV status				
Yes HIV	325 (45.8)	43 (41.3)	202 (52.1)	80 (36.7)
No HIV	337 (47.5)	54 (51.9)	168 (43.3)	115 (52.8)
Unknown	48 (6.8)	7 (6.7)	18 (4.6)	23 (10.5)
Sex partners in last month, median (IQR)	2 (1–5)	10 (2–28)	2 (1–4)	2 (1–4)
Type of anal intercourse				
Insertive only	213 (30.0)	2 (1.9)	64 (16.5)	147 (67.4)
Receptive only	348 (49.0)	76 (73.1)	238 (61.3)	34 (15.6)
Insertive & receptive	149 (21.0)	26 (25.0)	86 (22.2)	37 (17.0)
Preferred sexual role				
Activo (insertive)	266 (37.5)	6 (5.8)	85 (21.9)	175 (80.3)
Pasivo (receptive)	444 (62.5)	98 (94.2)	303 (78.1)	43 (19.7)
Pasivo role strain <sup>a</sup>				
Yes	106 (23.4)	25 (25.5)	66 (21.8)	9 (20.9)
No	348 (76.6)	73 (74.5)	237 (78.2)	34 (79.1)
Activo role strain <sup>b</sup>				
Yes	56 (21.0)	5 (83.3)	23 (27.1)	28 (16.0)
No	210 (79.0)	1 (16.7)	62 (72.9)	147 (84.0)
Condomless anal intercourse				
Condomless insertive <sup>c</sup>	156 (43.1)	12 (42.9)	81 (54.7)	106 (42.4)
Condomless receptive <sup>d</sup>	279 (56.1)	57 (55.9)	184 (56.8)	41 (57.7)
Any condomless anal intercourse <sup>e</sup>	417 (58.7)	61 (58.7)	220 (56.7)	136 (62.4)

<sup>a</sup> As occurs among *Pasivo* participants: total sample = 444; TW = 98; homosexual MSM = 303; heterosexual/bisexual MSM = 43

Author Manuscript

Author Manuscript

Author Manuscript

Author Manuscript

<sup>b</sup>As occurs among *Activo* participants: total sample = 266; TW = 6; homosexual MSM = 85; heterosexual/bisexual MSM = 175

<sup>c</sup>Total insertive participants: total sample = 362; TW = 28; homosexual MSM = 148; heterosexual/bisexual MSM = 184

<sup>d</sup>Total receptive participants: total sample = 497; TW = 102; homosexual MSM = 324; heterosexual/bisexual MSM = 71

<sup>e</sup>Total participants for any condomless anal intercourse was the same as the total participants in each participant group



**Table 2**

Perceived characteristics<sup>a</sup> of the last 3 non-female sexual partners of Transgender Women and Men Who Have Sex with Men in Lima, Peru; *N* = 1937

Characteristics	Total sample <i>n</i> (%)	Transwomen <i>n</i> = 286 (15.2%)	Homosexual MSM <i>n</i> = 1058 (56.3%)	Heterosexual/bisexual MSM <i>n</i> = 536 (28.5%)
Partner type				
Primary	681 (35.2)	109 (38.1)	354 (33.5)	193 (36.0)
Casual	1104 (57.0)	111 (38.8)	668 (63.1)	301 (56.2)
Transactional	152 (7.8)	66 (23.1)	36 (3.4)	42 (7.8)
Partner gender				
Male	1827 (94.3)	264 (92.3)	1048 (99.1)	468 (87.3)
Transgender	110 (5.7)	22 (7.7)	10 (0.9)	68 (12.7)
Partner HIV status				
Yes HIV	151 (7.8)	16 (5.6)	90 (8.5)	39 (7.3)
No HIV	227 (11.7)	47 (16.4)	119 (11.3)	55 (10.3)
Unknown	1559 (80.5)	223 (78.0)	849 (80.2)	442 (82.5)
Partner sexual orientation/gender				
Heterosexual	291 (15.0)	114 (39.9)	113 (10.7)	52 (9.7)
Bisexual	630 (32.5)	123 (43.0)	331 (31.3)	169 (31.5)
Homosexual	850 (43.9)	22 (7.7)	563 (53.2)	248 (46.3)
Transgender	64 (3.3)	7 (2.4)	2 (0.2)	48 (9.0)
Other	31 (1.6)	9 (3.1)	7 (0.7)	13 (2.4)
Don't know	71 (3.7)	11 (3.8)	42 (4.0)	6 (1.1)
Participant pre-sex alcohol use				
Yes	396 (20.4)	75 (26.2)	192 (18.2)	115 (21.5)
No	1513 (78.1)	206 (72.0)	856 (80.9)	414 (77.2)
Unsure	28 (1.5)	5 (1.8)	10 (0.9)	7 (1.3)
Participant pre-sex drug use				
Yes	108 (5.6)	34 (11.9)	31 (2.9)	33 (6.2)
No	1813 (93.6)	247 (86.4)	1022 (96.6)	501 (93.5)
Unsure	16 (0.8)	5 (1.7)	5 (0.5)	2 (0.4)
Partner sexual role				
<i>Activo</i>	1034 (53.4)	228 (79.7)	651 (61.5)	133 (24.8)
<i>Pasivo</i>	497 (25.7)	22 (7.7)	169 (16.0)	287 (53.5)
<i>Moderno</i>	350 (18.1)	28 (9.8)	211 (19.9)	105 (19.6)
Other	23 (1.2)	2 (0.7)	10 (0.9)	10 (1.9)
Don't know	33 (1.7)	6 (2.1)	17 (1.6)	1 (0.2)
Type of anal intercourse				
Insertive only	629 (32.2)	10 (3.5)	211 (19.9)	380 (70.9)
Receptive only	1084 (55.5)	233 (81.5)	724 (68.4)	109 (20.3)
Insertive & receptive	242 (12.3)	43 (15.0)	123 (11.6)	47 (8.8)
Insertive anal intercourse				

Characteristics	Total sample <i>n</i> (%)	Transwomen <i>n</i> = 286 (15.2%)	Homosexual MSM <i>n</i> = 1058 (56.3%)	Heterosexual/bisexual MSM <i>n</i> = 536 (28.5%)
<i>Activo</i> (concordant)	676 (79.2)	46 (86.8)	224 (67.1)	414 (97.0)
<i>Pasivo</i> (strain)	177 (20.8)	7 (13.2)	110 (32.9)	13 (3.0)
Receptive anal intercourse				
<i>Activo</i> (strain)	96 (7.3)	12 (4.4)	39 (4.6)	117 (75.0)
<i>Pasivo</i> (Concordant)	1212 (92.7)	264 (95.6)	808 (95.4)	39 (25.0)

<sup>a</sup>As perceived and reported by the participant

Author Manuscript

Author Manuscript

Author Manuscript

Author Manuscript

**Table 3**

Prevalence ratios (PR) of *Pasivo* and *Activo* role strain experienced by Transgender Women and Men Who Have Sex with Men in the last sexual encounter with their last three sexual partners; Lima, Peru

Characteristics	Transwomen <i>Pasivo</i> role strain PR (95% CI)	Homosexual MSM <i>Pasivo</i> role strain PR (95% CI)	Heterosexual/bisexual MSM <i>Activo</i> role strain PR (95% CI)
Participant self-reported HIV status			
Yes HIV	1.19 (0.53–2.70)	1.15 (0.72–1.85)	1.12 (0.50–2.48)
Unknown status	3.64 (1.33–9.99) <sup>‡</sup>	0.38 (0.07–2.05)	1.51 (0.42–5.42)
No HIV	(Reference)	(Reference)	(Reference)
Participant alcohol use before sex			
Yes	0.69 (0.31–1.55)	0.81 (0.45–1.45)	0.49 (0.13–1.84)
No	(Reference)	(Reference)	(Reference)
Participant drug use before sex			
Yes	3.48 (1.32–9.15) <sup>‡</sup>	1.85 (0.87–3.93)	1.54 (0.16–14.76)
No	(Reference)	(Reference)	(Reference)
Partner type			
Casual partner	0.97 (0.51–1.84)	0.69 (0.45–1.06)	0.55 (0.25–1.23)
Transaccional sex partner	1.35 (0.61–3.01)	0.63 (0.16–2.45)	0.49 (0.12–2.05)
Primary partner	(Reference)	(Reference)	(Reference)
Partner preferred sexual role <sup>a</sup>			
<i>Pasivo</i>	2.49 (0.81–7.70)	5.40 (2.66–10.96) <sup>‡</sup>	(Reference) <sup>c</sup>
<i>Activo</i>	(Reference) <sup>b</sup>	(Reference) <sup>b</sup>	5.32 (1.25–22.65) <sup>‡</sup>
<i>Moderno</i>	2.76 (0.92–8.27)	3.51 (2.25–5.47) <sup>‡</sup>	7.92 (3.21–19.51) <sup>‡</sup>
Condomless sexual encounter <sup>a</sup>			
Yes	1.50 (0.80–2.79)	1.95 (1.28–2.97) <sup>‡</sup>	1.13 (0.61–2.07)
No	(Reference)	(Reference)	(Reference)

<sup>a</sup>As perceived and reported by the participant

<sup>b</sup>*Activo* is referent because it is the complement of the predominantly preferred role—*pasivo*—of TW and homosexual MSM and therefore *pasivo* role strain is less likely

<sup>c</sup>*Pasivo* is referent because it is the complement of the predominantly preferred role—*activo*—of heterosexual and bisexual MSM and therefore *activo* role strain is less likely

$50 < d_i$

Author Manuscript

Author Manuscript

Author Manuscript

Author Manuscript

**Table 4**

Prevalence ratios (PR) of condomless insertive anal intercourse by Men Who Have Sex with Men in the last sexual encounter with their last three sexual partners; Lima, Peru

Characteristics	Condomless insertive anal intercourse	
	Homosexual MSM PR (95% CI)	Heterosexual/bisexual MSM PR (95% CI)
Participant preferred sexual role		
<i>Pasivo</i> (strain)	2.36 (1.58–3.51) <sup>†</sup>	1.58 (0.89–2.79)
<i>Activo</i> (no strain)	(Reference)	(Reference)
Participant self-reported HIV status		
Yes HIV	0.86 (0.62–1.21)	0.78 (0.55–1.10)
Unknown status	1.79 (0.82–3.93)	1.30 (0.89–1.89)
No HIV	(Reference)	(Reference)
Participant alcohol use before sex		
Yes	1.62 (1.09–2.42) <sup>†</sup>	1.19 (0.83–1.72)
No	(Reference)	(Reference)
Participant drug use before sex		
Yes	0.66 (0.25–1.76)	1.07 (0.62–1.84)
No	(Reference)	(Reference)
Partner type		
Casual Partner	0.50 (0.38–0.68) <sup>†</sup>	0.66 (0.50–0.88) <sup>†</sup>
Transactional sex partner	1.26 (0.20–7.73)	0.27 (0.09–0.82) <sup>†</sup>
Primary partner	(Reference)	(Reference)
Partner preferred sexual role <sup>a</sup>		
<i>Pasivo</i>	1.57 (1.05–2.37) <sup>†</sup>	1.13 (0.72–1.76)
<i>Activo</i>	(Reference)	(Reference)
<i>Moderno</i>	0.96 (0.67–1.37)	1.06 (0.65–1.74)

<sup>a</sup> As perceived and reported by the participant

<sup>†</sup>  $p < .05$

**Table 5**

Prevalence ratios (PR) of condomless receptive anal intercourse by Transgender Women and Men Who Have Sex with Men in the last sexual encounter with their last three sexual partners; Lima, Peru

Characteristics	Condomless receptive anal intercourse		
	Transwomen PR (95% CI)	Homosexual MSM PR (95% CI)	Heterosexual/bisexual MSM PR (95% CI)
Participant preferred sexual role			
<i>Activo</i> (strain)	4.90 (0.71–33.82)	1.14 (0.69–1.89)	1.01 (0.57–1.77)
<i>Pasivo</i> (no strain)	(Reference)	(Reference)	(Reference)
Participant self-reported HIV status			
Yes HIV	1.12 (0.75–1.67)	0.79 (0.62–0.99) <sup>†</sup>	1.16 (0.67–2.01)
Unknown status	0.66 (0.25–1.78)	0.85 (0.54–1.36)	1.93 (1.14–3.26) <sup>†</sup>
No HIV	(Reference)	(Reference)	(Reference)
Participant alcohol use before sex			
Yes	1.01 (0.59–1.73)	1.33 (1.06–1.66) <sup>†</sup>	1.25 (0.75–2.10)
No	(Reference)	(Reference)	(Reference)
Participant drug use before sex			
Yes	1.34 (0.64–2.79)	0.35 (0.10–1.23)	1.34 (0.54–3.33)
No	(Reference)	(Reference)	(Reference)
Partner type			
Casual partner	0.61 (0.40–0.94) <sup>†</sup>	0.64 (0.53–0.78) <sup>†</sup>	0.70 (0.46–1.07)
Transactional sex partner	0.62 (0.36–1.05)	0.39 (0.16–0.94) <sup>†</sup>	0.59 (0.26–1.32)
Primary partner	(Reference)	(Reference)	(Reference)
Partner preferred sexual role <sup>a</sup>			
<i>Pasivo</i>	0.79 (0.45–1.39)	1.38 (0.77–2.47)	0.96 (0.45–2.05)
<i>Activo</i>	(Reference)	(Reference)	(Reference)
<i>Moderno</i>	0.72 (0.34–1.51)	0.97 (0.74–1.28)	1.03 (0.54–1.97)

<sup>a</sup>As perceived and reported by the participant

<sup>†</sup> $p < .05$