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Social and Economic Determinants of Sexual Violence and Related Health Outcomes

A dissertation submitted in partial satisfaction of the requirements for the degree Doctor of Philosophy

in

Public Health (Global Health)

by

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The Dissertation of Marissa M. Salazar is approved, and it is acceptable in quality and form for the publication on microfilm and electronically:

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Publications

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Publications Under Review

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3. **Salazar, M.,** McDougal, L., Jackson, E., McLendon, K., & Raj, A. (Under Review) "Educating a girl will bring a direct change in the society; teaching a girl is teaching the whole family:" Perceived Benefits and Disadvantages of Girls' Education in the Context of Early Marriage among Girls and Marital Decision Makers in India and Ethiopia." *BMC Public Health*.
4. Rocha-Jimenez, T., **Salazar, M.,** Boyce, S., Brouwer, K., & Silverman, J. (under review). Violence and Coercion to Keep Adolescent Girls from Leaving the Sex Trade in Two US-Mexico Border Cities. *Violence Against Women.*

Presentations

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3. **Salazar, M.,** Dasgupta, A., & Sileo, K. A Cross-Cultural Examination of Intimate Partner Violence: An Interactive Panel Discussion on Counter-Intuitive Findings from Uganda, Mexico, and India. Presented at UC Global Health Day Conference. Los Angeles, CA. April 2015.
4. Reed, E. Erausquin, J.T., Groves, A.K. **Salazar, M.,** Biradavolu, M., & Blankenship, K.M. Violence Experienced across Personal and Work related Contexts among Female Sex Workers in Andhra Pradesh, India: Relation to Sexual Risk for HIV. Presented at the National Conference on Health and Domestic Violence. Washington, DC. March 2015.
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ABSTRACT OF THE DISSERTATION

Social and Economic Determinants of Sexual Violence and Related Health Outcomes

by

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Doctor of Philosophy in Public Health (Global Health)

University of California San Diego, 2018

San Diego State University, 2018

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Background: Despite global efforts to reduce sexual violence and related health outcomes, including HIV/STI risk, rates of sexual violence remain high. A number of underlying mechanisms, including social and structural factors, may contribute to sexual violence and related health outcomes.

Objectives: Specific aims include: 1) assessing associations between substance use and STI diagnosis, and variations in this association based on reported economic hardship among female sex workers (FSW); 2) assessing the intersection between negative gender attitudes, sexual violence victimization, and sexual health outcomes among adolescent and young adult males 3) assessing the association between experiences of sexual harassment and sexual violence among adolescent girls.

Methods: Data from three studies were used to achieve these objectives. Aim 1 used longitudinal data collected among 469 FSW in Tijuana and Ciudad Juarez, Mexico. Aim 2 used data from a nationally representative sample of 869 adolescent and young adult males in Haiti. Aim 3 used cross-sectional data from 159 adolescent females in San Diego County.

Results: Aim 1 findings demonstrated that substance use and economic status significantly interacted to increase STI risk among FSW. Aim 2 findings revealed that sexual violence victimization and endorsement of negative gender attitudes were independently associated with sexual health outcomes among adolescent and young adult males. Aim 3 findings showed that sexual harassment that occurred both in-person or online was associated with partner and non-partner sexual violence among adolescent females.

Conclusions: Study findings highlight the urgent need to address the underlying mechanisms contributing to sexual violence and related health outcomes. Recommendations for programmatic and research efforts to reduce sexual violence are discussed. Ultimately, gender-transformative approaches at the individual, community, and policy level are needed in order to shift the social and cultural norms that perpetuate sexual violence

CHAPTER 1: INTRODUCTION

Sexual violence, defined as "any attempt to obtain a sexual act, unwanted sexual comments or advances, or acts to traffic," is a pervasive global public health issue[1]. Prevalent forms of sexual violence include sexual harassment, sexual coercion, and rape, within or outside of an intimate relationship, and research and programmatic efforts primarily focus on reducing sexual violence against women and girls[2-5]. Over one-third (35%-38%)[6] of women worldwide have experienced physical or sexual violence. Adolescent and young adult females experience the highest per-capita rates of sexual violence, and 1 in 4 adolescent females report experiencing sexual violence prior to age 18[7]. While a large body of work has explored certain scenarios of in-person sexual violence among females, (e.g. including child sexual abuse, rape, attempted rape, and sexual coercion), electronic communication technology may be another venue in which females experience sexual violence[8-10], especially given the increased use of technology in recent years[11]. Furthermore, it is unknown whether sexual violence in one context (e.g., in-person) is associated with risk for sexual violence in another context (e.g., via electronic communication), therefore more work is needed to explore this relationship.

Given the high prevalence of sexual violence against women and girls, it is no surprise that there has been a massive global public health effort to reduce sexual violence among females within the last 30 years. Currently, the United Nations aims to eliminate all forms of violence against females by 2030 as part of the Sustainable Development Goals[12], however, violence against males is understudied. Limited studies have found that rates of violence against adolescent and young adult males are only slightly lower than rates of sexual violence among adolescent and young adult females[7,13], thus there is an urgent need to further explore sexual violence victimization among males.

Experiencing sexual violence impacts multiple aspects of survivors' lives[14-18]. Of particular concern, sexual violence is associated with several negative health and behavioral outcomes among adolescent males and females. Compared to females who do not experience

sexual violence, those who experience sexual violence are at greater risk for HIV/STIs, unintended pregnancy, and impaired mental health[6,19,20 21]. Male and females who experience sexual violence are also more likely to engage in substance use and risky sexual behaviors, including inconsistent condom use[22,23], subsequently increasing HIV/STI risk and unintended pregnancy. Limited work has also found that the psychological impact of sexual violence may be greater among adolescent males compared to adolescent females, resulting in increased risk for depression and suicidal ideation[24,25]. Furthermore, adolescents who experience child sexual abuse are at greater risk for experiencing revictimization later in life[26-28], therefore there is an urgent need to reduce sexual violence among adolescents.

While prevalence and adverse health outcomes of sexual violence have been extensively studied, researchers have also examined the underlying mechanisms that contribute to sexual violence. Gender inequitable attitudes and norms are examples of social determinants that play a role in the acceptance and perpetuation of sexual violence[29-32]. Multiple studies across global contexts have also documented that gender inequitable attitudes not only perpetuate sexual violence, but also contribute to risky sexual behaviors, depression, and HIV/STIs[19,20,30,33,34]. Gender inequitable attitudes are rooted in social structures (e.g., the sexual division of labor, the sexual division of power, and the structure of social norms) that contribute to the imbalanced power relationships between men and women[35-38]. Therefore, gender inequitable attitudes and subsequent tolerance of sexual violence are ingrained in several individual, relationship, social, and community factors, and the interplay of these different factors can increase or decrease an individuals' risk for sexual violence[39-41]. Previous work has documented that individuals living in communities where gender-based violence is a social norm are more likely to justify violence against women, as well as more likely to report experiencing or perpetrating sexual violence[30,41-43]. However, the majority of these studies assess sexual violence victimization among females[20,30,44,45], and less is known regarding the effects of sexual victimization among males.

In order to address the specific social and economic factors that contribute to sexual violence and related health outcomes, several interventions have been implemented globally. Programmatic efforts are now focusing on altering gender inequitable attitudes among men and boys[46,47], as well as in communities with high levels of sexual violence[48]. Structural interventions have also been implemented in an attempt to decrease women's' economic reliance on male partners and subsequently decrease likelihood of experiencing sexual violence[49,50]. However, a number of gaps in knowledge remain regarding the intersection of social and structural contexts, sexual violence, and adverse health outcomes among vulnerable populations such as adolescents and FSW. The proposed dissertation work will employ the Theory of Gender and Power (TGP)[35,36] and the Socio-Ecological Model[39] to assess how factors within the larger social and structural context influence rates of sexual violence and in turn, adverse health outcomes among vulnerable populations. The TGP will be used to explain how gendered-power imbalances are present at each stage of the socio-ecological model, thus perpetuating poor health outcomes among vulnerable populations.

The dissertation includes three manuscripts. The specific aims of each paper are as follows:

Aim 1 is to examine the association between substance use and STI diagnosis, and variations in this association based on reported economic hardship among female sex workers (FSW) in Mexico. We assess this association using data from a longitudinal survey study aimed to assess the HIV/STI risk environment among 469 FSW in Tijuana and Ciudad Juarez, Mexico (Mapa de Salud Study, PI: Brouwer, R01-DA028692).

We hypothesize that a) substance use will increase STI risk, b) economic hardship will increase STI risk and c) substance use and economic hardship will interact, such that participants who report substance use and economic hardship will have greater STI risk compared to participants who report substance use but do not report economic hardship.

Aim 2 is to assess the intersection between sexual violence, negative gender attitudes (e.g., acceptability of violence against women, norms promoting male sexual power), and sexual health outcomes among a nationally representative sample of adolescent and young adult males. For this study, we will focus on the following sexual health outcomes: STI symptoms, STI diagnosis, inconsistent condom use, and HIV testing. We explore this association using data from the 2011 Haiti Violence Against Children Survey (N=869), a nationally representative survey conducted by the Centers for Disease Control (CDC) and implemented across multiple regions.

We hypothesize that a) sexual violence will be associated with poor sexual health outcomes (*STI symptoms, STI diagnosis, inconsistent condom use, and absence of HIV testing)*, b) endorsement of negative gender attitudes will be associated with poor sexual health outcomes and c) the association between sexual violence and sexual health outcomes will vary based on endorsement of gender inequitable attitudes.

Aim 3 is to examine the association between experiences of sexual harassment- both in-person and online- and sexual violence perpetrated by partners and non-partners among adolescent females. We explore this association using data from the STI Risk Among Adolescent Females: Activity Spaces and Spatial Mobility study (N=159), designed to understand whether specific spaces and places where adolescent females spend their time in San Diego County increase sexual violence and STI risk.

We hypothesize that a) in-person sexual harassment will be associated with partner and non-partner sexual violence, b) cyber sexual harassment will be associated with partner and non-partner sexual violence c) the association between sexual harassment and sexual violence will vary as a function of perpetrator (partner vs. non-partner).

Findings from the three studies will be used to design sexual violence prevention and intervention programs tailored to address the larger social and economic context that contributes to sexual violence among various populations.

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CHAPTER 2: Substance Use and STI Risk Among Female Sex Workers in Mexico: Does Economic Hardship Play a Role?

Abstract

Background: Economic hardship, which often underlies women's involvement in sex work, is associated with increased HIV/STI risk, and may be exacerbated by high levels of substance use. However, few studies have assessed the role of economic hardship in contributing to the well-documented association between substance use and STI risk among female sex workers (FSW).

Methods: Quantitative data was collected via self-report from 469 FSW residing in Tijuana and Ciudad Juarez, Mexico. Using crude and adjusted logistic regression models, we assessed substance use (past 30-day alcohol use with clients, past 30-day drug use with clients, past 30-day injection drugs use with clients, past 6-month drug use) in relation to testing positive for an STI. In adjusted models, relevant interaction terms were included to assess interaction effects of economic hardship on testing positive for an STI.

Results: Past 6-months drug use was significantly associated with testing positive for an STI (AOR= 1.8, CI: 1.1=2.9, p = .02). The interaction between past 30-day drug use with clients and economic hardship was also significantly associated with testing positive for an STI. Among participants who did not report economic hardship, past 30-day drug use with clients was associated with STI (AOR= 1.5, 95% CI: 1.1-1.9, p < .01). This association was not observed among FSW reporting economic hardship.

Conclusions: While economic factors are important to consider when examining the association between substance use and HIV/STI risk among FSW, more work is needed to examine other structural level factors that may exacerbate HIV/STI risk among women that do not experience economic hardship.

Keywords: Economic hardship, Female sex workers, Substance use, Sexually transmitted infections

Introduction

Tijuana and Ciudad Juarez, Mexico are cities located in the US-Mexico border region with particularly high rates of HIV and sexually transmitted infections (STIs). Female sex workers (FSW) are among one of the populations most affected by HIV and STIs in this region[1]. While the overall prevalence of HIV in Mexico is below 1% (0.2% as of 2016), prevalence among FSW range from 5%-8%, and is as high as 14% among FSW who inject drugs in Tijuana[1-4].

FSW in Mexico and globally are at increased HIV/STI risk, primarily through occupational risk exposures. FSW experience high levels of physical and sexual violence perpetrated by clients and police, increasing HIV/STI susceptibility (i.e., via forced unprotected sex)[2,5-9]. Venues may also limit access to condoms and condom negotiation with clients among FSW, either directly through prohibiting the use of condoms or indirectly by requiring women to drink alcohol or use drugs with clients[10,11].

Substance use is one occupational risk behavior common among FSW that has a well-documented association with several adverse outcomes, including reduced condom use and physical and sexual violence, together increasing HIV/STI risk[5,12,13]. FSW report exchanging sex for drugs (i.e., instead of money), or agreeing to use drugs with a client who offers to pay more, possibly due to economic hardship[14]. FSW also report using drugs in order to work longer hours and potentially make more money[11,15,16]. Additionally, FSW use drugs/alcohol to cope with the stress of their job, particularly from experiences of violence from clients and others[13]. Furthermore, substance use may also deplete financial resources, thereby increasing economic hardship among FSW, which may also impact HIV/STI-related health outcomes.

While FSW report using drugs and alcohol for a variety of reasons, substance use is also often a condition of employment. Certain organized venues, such as bars and clubs, require FSW to use drugs/alcohol while working or encourage FSW to drink with customers[11,17,18]. Thus, while many FSW view working in organized venues as safer than

working on the streets[10], women working in these venues may also be engaging in riskier behaviors such as substance use, further decreasing women's capacity to negotiate condom use with clients[11]. Organized venues such as bars and clubs also encourage client substance use, which increases the likelihood of experiencing client violence and impedes FSW ability to negotiate condom use[11,19].

Previous work among FSW has found that women who experience economic hardship (e.g., identify as being the sole provider, report being in debt, report food insecurity) are also at heightened risk for HIV/STI[20-23]. Economic hardship among FSW is associated with higher levels of physical and sexual violence, inconsistent condom use with clients, and agreeing to unprotected sex in exchange for more money[13,24,25]. One study conducted among FSW in India found women who reported debt were more likely to report experiencing at least one STI symptom and more likely to engage in unprotected sex with occasional clients[20]. However, studies have not been conducted to understand how economic hardship may influence the relation between substance use and risk for HIV/STI among FSW.

Given the well-documented literature on the association between substance use and HIV/STI risk, as well as recent work establishing how economic hardship also exacerbates HIV/STI risk, more work is needed to determine how substance use, economic hardship, and STI risk intersect. Therefore, the purpose of this study was to assess the association between substance use and STI risk, and variations in this association based on women's economic situation among 469 FSW in Tijuana and Ciudad Juarez, Mexico. Findings from the present study may aid in designing effective HIV/STI prevention programs among FSW in Mexico, especially with regard to the important overlap between drug use and the sex trade.

Hypothesis 1: Women who report higher levels of substance use will be more likely to test positive for an STI compared to women who do not report substance use.

Hypothesis 2: Women who report greater economic hardship (e.g., poor or very poor financial situation) will be more likely to test positive for an STI compared to women who do not report economic hardship.

Hypothesis 3: The association between substance use and testing positive for an STI may be greater among women who report economic hardship compared to women who do not report economic hardship.

Methods

Study Setting

The current study was conducted in Tijuana (Baja California) and Ciudad Juárez (Chihuahua), two US-Mexico border cities. Tijuana (population: 1.3 million) shares a border with San Diego, California, while Ciudad Juarez (population: 1.3 million) shares a border with El Paso, Texas[26]. In Tijuana, sex work is quasi-regulated in the Zona Norte, an area in the city where women are permitted to work in sex work if they undergo routine HIV/STI testing and carry a current work permit verifying recent testing[27,28]. Sex work is not legalized in Ciudad Juarez and most sex work occurs in a commercial zone of downtown known as the Zona Centro.

Data Collection

Quantitative data for the current study was collected between March 2013 and March 2014 as part of a longitudinal survey study aimed to assess the HIV/STI risk environment among FSWs in Tijuana and Ciudad Juarez, Mexico. The data for the current study is from the 6-month follow-up survey. Details on study design can be found elsewhere[29]. Local Mexican field staff with previous experience working with FSW trained study staff on recruitment procedures and data collection. Participants were recruited using modified time-location sampling in indoor and outdoor sex work venues (e.g., bars, clubs, brothels), with no more than 15 women recruited from one venue. Eligibility criteria for the baseline study included a) 18 years of age or older, b) biologically female, c) report having exchanged sex for money or other

goods at least 4 times in the past month with at least 4 different clients, d) agree to treatment if testing positive for STIs, and e) residing in Tijuana or Ciudad Juarez with no plans to move over the next 18 months (the duration of the study). Additional eligibility criteria for the current study included having exchanged sex for drugs, money, food, or other goods within the past 30 days (n=469). Participants completed an interviewer administered quantitative survey using computer-assisted personal interviewing (CAPI). Participants were also tested for HIV/STI and were compensated $20US for time and travel at each phase of the study (baseline, 6-months, 12-months, and 18-months). The study was approved by Institutional Review Boards (IRB) at the University of California, San Diego (UCSD), El Colegio de la Frontera Norte (El COLEF) in Tijuana, and Universidad Autónama de Ciudad Juárez in Ciudad Juarez.

Measures

Substance Use: Past 6-month drug use was measured by asking participants how often they used drugs (including cocaine, crack, heroin, methamphetamine, inhalants, and/or tranquilizers) in the past 6 months. Response items ranged from 0(*never*) to 7(*more than once a day*). Substance use items were dichotomized to assess whether participants ever used any drug in the past 6 months (yes/no). Past 30-day substance use with clients was measured with three items asking participants how often they used 1) alcohol 2) any drugs, or 3) injection drugs right before or during sex with clients in the past 30 days. All variables were measured using a 0(*never*) to 4(*always*) point scale.

Economic Hardship: While there are not any validated scales aimed to capture economic hardship, prior studies conducted among FSW have used proxy measures such as debt and level of economic pressure (e.g., doing thing you are reluctant to do in order to earn money, constantly thinking about how to earn money) to evaluate economic hardship[19,21,22,30]. Economic hardship was measured in the current study with one item asking participants to rate their current financial situation, using a 5-point scale ranging from 1(*extremely good*) to 5(*extremely bad*), with greater scores indicative of a worse economic situation.

STI: Laboratory testing was used to measure STI serostatus. A study nurse tested participants for gonorrhea and chlamydia using vaginal swabs (Aptima Combo 2, Gen-probe). Rapid tests (e.g., finger prick) were used to test for syphilis (SD BIOLINE Syphillis 3.0, Standard Diagnostics) and sent to the San Diego County laboratory for testing. Participants received counseling before STI testing and again after receiving results. Free on-site treatment was provided to participants who tested positive for chlamydia, An STI variable was constructed to represent participants who tested positive for any STI (chlamydia, gonorrhea, syphilis) vs. participants who did not test positive.

Demographics: Current marital status (single, married), whether participants had children living at home, sex work venue, study site, and current age were collected.

Data Analysis

Descriptive statistics (continuous variables) and frequencies (dichotomous variables) were generated for all variables. Chi-square analyses and independent samples t-tests were used to identify demographic characteristics associated with testing positive for an STI. Demographic variables that were significantly associated with testing positive for an STI at $p < 0.10$ were included in the final adjusted models. Chi square analyses and independent samples t-tests were also conducted to examine associations between each substance use variable and testing positive for an STI.

Separate crude and adjusted logistic regression models were used to analyze the association between a) each of the four substance use variables (past 30-day alcohol use with clients, past 30-day drug use with clients, past 30-day injection drug use with clients, and past 6-months drug use) and relation to testing positive for an STI and b) associations between economic hardship and testing positive for an STI. Procedures outlined by Baron and Kenny[31] were used to assess whether economic hardship moderated the association between substance use and testing positive for any STI. An interaction term was created between economic hardship and each of the four substance use variables. For each of the four models, control

variables were entered in block 1, main effects were entered in block 2, and the interaction term was entered in block 3. Posthoc simple slope analyses were conducted for all significant interaction models. All regression models were presented with 95% confidence intervals, using The Statistical Package for the Social Sciences (SPSS, version 21).

Results

Sample Characteristics: The mean age of participants was 34.9 (SD= 10.4) and over half of participants (57.8%) were single, followed by married (28.6%), separated (7.2%), divorced (4.4%) and widowed (1.9%). The majority of participants (64.1%) had children living with them. Half of participants (50.3%) reported working in a hotel, followed by a bar/dance hall (19.3%), street/car (14.2%), or some other location (15.8%). Half of participants (50.3%) worked in a hotel, while the other half worked in a bar/dance hall (19.2%), on the street or in a car (14.1%) or some other place (15.8%). [Table 2.1].

Almost one in five (19.4%) participants tested positive for an STI. Over one-third of participants (45.4%) reported drug use in the past 6 months and among participants who reported past 6 months drug use, 25% tested positive for an STI ($p < .01$). The average past 30-day alcohol use with clients, was 1.5 (SD: 1.6), past 30-day drug use with clients was 0.8 (SD: 1.3), and past 30-day injection drug use with clients was 0.3 (SD: 0.9), however substance use with clients did not significantly vary based on STI diagnosis. Among participants who reported past 6 months drug use, 71% also report drug use with clients. The average economic hardship score was 3.3 SD (0.7), and scores significantly varied based on STI (3.4 among participants who tested positive for an STI vs. 3.2 among participants who did not test positive for an STI).

Substance use and STI: Findings from bivariate and multivariate logistic regression models: In bivariate models examining associations between 1) past 30-day alcohol use with clients and testing positive for an STI, 2) past 30-day drug use with clients and testing positive for an STI 3) past 30-day drug use with clients and testing positive for an STI, and 4) past 6-months drug use with clients, only past 6-months drug use was significantly associated with

testing positive for an STI (AOR = 2.1, 95% CI: 1.3-3.2, p < .01). Similar results were found in multivariate models (adjusted for age, sex work venue, and study site); only past 6-months drug use was associated with testing positive for an STI (AOR = 1.8, 95% CI: 1.1-2.9, p = .02) [Table 2.2 and 2.3].

Economic Hardship and STI: Findings from bivariate and multivariate logistic regression models: A marginally significant association between economic hardship and testing positive for an STI was found in bivariate logistic regression models (OR= 1.4, 95% CI: 1.0-1.8, p = .05) [Table 2.2]. However, economic hardship was not significantly associated with testing positive for an STI in multivariate models.

Influence of economic hardship in the association between substance use and STI: The interaction of past 30-day drug use with clients and economic hardship was significantly associated with testing positive for an STI (B= -0.3, SE= 0.2, p = .01) [Table 2.4]. Posthoc analyses testing simple slopes revealed that, among participants who reported lower levels of economic hardship, past 30-day drug use with clients was associated with greater likelihood of testing positive for an STI (AOR= 1.5, 95% 95% CI: 1.1-1.9, p < .01). Among participants who reported higher levels of economic hardship, the association between past 30-day drug use with clients and testing positive for an STI was not significant (AOR= 1.0, 95% 95% CI: 0.8-1.2, p = .96) [Figure 2.1]. The interaction between past 6 months drug use and economic hardship was marginally associated with testing positive for an STI (B= -0.6, SE= 0.3, p = .08) [Table 2.5]. Posthoc simple slope analyses revealed that the association between drug use and STI was significant among participants who reported higher levels of economic hardship (OR= 1.7, 95% CI: 1.1-2.8, p=.03). Similar results were found among participants who reported higher levels of economic hardship (OR= 2.9, 95% CI: 1.4-5.9, p <.01), although the association was stronger compared to participants who reported higher levels of economic hardship [Figure 2.2].

Discussion

These data indicate drug use, but not economic hardship, increases STI risk among FSW. High levels of drug use were reported; past 6 months drug use was reported by almost half of participants. Most noteworthy, the association between drug use with clients and testing positive for an STI was only significant among women with lower levels of economic hardship. This is the first study to examine whether economic hardship plays a role in the association between substance use and STI among FSW in Mexico.

Findings from the current study are consistent with previous work documenting the association between substance use and increased HIV/STI risk among FSW,[32-35] but builds on prior work by exploring the role of economic hardship in this relationship. While past 6- month drug use was associated with testing positive for an STI in bivariate models, this association was no longer significant after adjusting for age, venue, study site, and economic hardship, suggesting that there are multiple underlying factors associated with STI risk among FSW. Recent work has shown economic hardship exacerbates HIV/STI risk[21,23], however posthoc analyses testing the marginal interaction effect of drug use and economic hardship found participants who reported drug use in the past 6 months were at risk for STI regardless of economic situation (though the odds for STI were slightly higher among women who reported low economic hardship compared to women who reported high economic hardship). While 71% of participants who reported drug use in the past 6 months also reported past 30-day drug use with clients, study findings suggest a need to address drug use that occurs both within and outside of the context of sex work.

The interaction effect of drug use with clients and economic hardship was only significant among participants who reported lower levels of economic hardship. The first, and simplest explanation, may be lack of variation of the economic hardship variable. Among participants who tested positive for an STI, the average economic hardship score was 3.4, versus 3.2 among participants who tested negative for an STI. Future studies may therefore

want to consider measuring economic hardship among FSW by also asking about specific behaviors women may engage in when attempting to improve their financial situation. Although we did not find an association between substance use with clients and STI risk among women who reported high levels of economic hardship, this finding suggests that women who report economic hardship may be constantly at higher risk for STI for a variety of reasons. Other factors such as inconsistent condom use, client volume, and venue-based risks may be contributing to elevated STI risk among women experiencing economic hardship. FSW who experience poverty, food insecurity, and debt are more likely to report inconsistent condom use with clients[20,21,23,36], therefore, women in dire economic situations may be engaging in HIV risk behaviors other than (or in conjunction with) substance use with clients that contribute to a greater extent to HIV/STI risk. Even if they are not paid more money, FSW may also be using drugs/alcohol with clients, in conjunction with engaging in other risky behaviors because they do not want to lose a paying customer. However, we were unable to explore these scenarios with the current data. More work is needed to determine whether economic hardship influences women's decision-making ability and likelihood of engaging in risky behaviors.

The finding that drug use with clients heightened STI risk only among FSW who did not report economic hardship is counterintuitive and calls for further exploration. While specific sex work venues are associated with STI risk, and specifically FSW who work on the street are often at higher risk for STI than women who work in organized venues[17,37,38], in multivariate models testing the intersection of drug use with clients and economic hardship, venue type was not significantly associated with STI. Prior work on STI risk demonstrates that one of the main drivers of inconsistent condom use is economic hardship, and a review found that FSW report using alcohol with clients if they are offered more money[13]. Therefore, it is possible that participants' self-reported economic well-being may actually result from increases in funds due to using drugs with clients and engaging in risky sexual behaviors. Although FSW may view engaging in risky behaviors as a means to improve economic situations, it may also increase

HIV/STI risk. Substance use with clients creates decreased capacity to negotiate condom use and is also associated with increased physical and sexual violence among FSW, subsequently increasing STI risk[38,39,5,13,29]. Qualitative work reveals FSW are also forced/coerced into using drugs/alcohol with clients[40]. Yet, results from the current study indicate that women may engage in risky behaviors with clients, including substance use, in an effort to improve their economic situation. Therefore, substance use with clients, in conjunction with unprotected sex and/or experiences of client violence, may have increased STI risk among women who did not report economic hardship. More work is needed to examine how women's' own perception of their economic situation is associated with propensity to engage in risky behaviors such as using drugs with clients, and inconsistent condom use, and how this contributes to HIV/STI risk.

Limitations

This study was based on cross-sectional data; thus, we are unable to establish the temporality of these associations. Moreover, findings are most applicable to FSW at the US-Mexico border and may not be generalizable to other populations of FSW. However, our findings build on previous work, including longitudinal studies and randomized controlled trials, which generally report that substance use increases HIV/STI risk[4,34,41,42]. Prior work has reported drug use, and specifically injection drug use, is highly stigmatized among FSW[43]. It is possible that social desirability bias occurred due to fear of stigmatization, resulting in underreporting of injection drug use with clients. However, we found a high prevalence of past 6 months drug use, allowing us to see significant associations between drug use and testing positive for an STI. It is possible that participants may have been using injection drugs in other contexts, or were more likely to underreport this specific type of drug use. More work among FSW who inject drugs is therefore needed to examine whether the association between injection drug use and heightened STI risk differs across economic situations. Finally, a one-item self-report measure was used as a proxy for economic hardship. Since women report engaging in a variety of risk behaviors in order to make more money (e.g., substance use with

clients, accepting more money for unprotected sex trades), measuring the types of behaviors women engage in to improve their economic situation may be a stronger measure of economic hardship.

Conclusions

These limitations notwithstanding, this study builds on previous work documenting the association between substance use and increased HIV/STI risk among FSW [35,43,44] by considering the influence of economic hardship. Findings demonstrates that the association between drug use with clients and heightened STI risk among FSW may be driven by a variety of factors. Although a large body of research has previously postulated drug use increases STI susceptibility by interfering with condom use and increases risk for violence[12,15,32,33], findings from the current study indicate that there may be other mechanisms at play, including economic situation. In an effort to decrease economic hardship, FSW may agree to use drugs with clients, or engage in other risky behaviors, yet these behaviors may interfere with the capacity to negotiate condom use or increase the likelihood of experiencing physical and sexual violence from clients. More work is needed to examine the underlying mechanisms contributing to the association between substance use with clients and elevated STI risk among FSW. Specifically, economic factors are important to consider when exploring how substance use and other risk behaviors increase HIV/STI risk among FSW.

Acknowledgements

Chapter 2, in part, is currently being prepared for submission for publication of the material. Salazar, M., West, B., Brouwer, K., Urada, L., Kiene, SM., and Reed, E The dissertation author was the primary author of this material.

Table 2.1: Participant characteristics and associations with STI				
Variable	**Total % (n)/ mean (SD)**	**STI (n=91) % (n)/ mean (SD)**	**No STI (n=378) % (n)/ mean (SD)**	**p-value**
Demographic Variables				
Mean age*	34.9 (10.4)	37.2 (11.4)	34.4 (10.1)	**.07**
Marital Status				.88
Single	57.8% (271)	18.8% (51)	81.2% (220)	
Married	28.6% (134)	19.4% (26)	80.6% (108)	
Divorced	4.4% (21)	19.0% (19)	81.0% (17)	
Separated	7.2% (34)	20.6% (7)	79.4% (27)	
Widowed	1.9% (9)	33.3% (3)	66.7% (6)	
Children at home				.16
Yes	64.1% (300)	17.0% (51)	83.0% (249)	
No	28.1% (132)	22.7% (30)	77.3% (102)	
*Sex work venue**				**.06**
Bar/dance hall	19.2% (90)	12.2% (11)	87.8% (79)	
Hotel	50.3% (236)	20.8% (49)	79.2% (187)	
Street/car	14.1% (66)	28.8% (19)	71.2% (47)	
Other	15.8% (74)	16.2% (12)	83.8% (62)	
*Interview site**				.**10**
Tijuana	41.1% (192)	22.9% (44)	77.1% (148)	
Ciudad Juarez	59.1% (277)	17% (47)	83.0% (230)	
Substance use variables				
Mean past 30-day alcohol use with clients[+]	1.5 (1.6)	1.6 (1.6)	1.5 (1.6)	.70
Mean past 30-day drug use with clients[+]	0.8 (1.3)	1.0 (1.4)	0.8 (1.3)	.08
Mean past 30-day injection drug use with clients[+]	0.3 (0.9)	0.3 (1.0)	0.3 (0.9)	.75
Past 6 months drug use				<.01
Yes	45.4% (213)	25.0% (57)	75.0% (171)	
No	54.6% (256)	14.1% (34)	85.9% (201)	
Mean economic hardship	3.3 (0.7)	3.4 (0.8)	3.2 (0.7)	.05

% (n) are presented as row percent
** indicates independent samples t-test. All other analyses are chi-squared*
Bolded p-values indicate demographic variables included in multivariate models
[+] indicates *range is 0-4*

Table 2.2: Bivariate associations between independent variables and testing positive for an STI		
Variable	**OR (95% CI)**	**p-value**
Past 30-day alcohol use with clients	1.0 (0.9-1.2)	.70
Past 30-day drug use with clients	1.2 (1.0-1.4)	.08
Past 30-day injection drug use with clients	1.1 (0.7-1.5)	.75
Past 6 months drug use		
Yes	2.0 (1.3-3.2)	<.01
No	Ref	
Economic Hardship	1.4 (1.0-1.8)	.05

Table 2.3: Multivariate models testing associations between alcohol use with clients and testing positive for an STI and the interaction between alcohol use with clients and economic hardship				
	Model 1		**Model 2****	
Variable	**AOR (95% CI)**	**p-value**	**AOR (95% CI)**	**p-value**
Age	1.0 (1.0-1.1)	.03	1.0 (1.0-1.1)	.06
Sex work venue				
Bar/dance hall	0.5 (0.3-1.1)	.07	0.5 (0.2-1.1)	.08
Street/car	1.4 (0.7-2.9)	.34	1.4 (0.7-2.9)	.33
Other	0.8 (0.4-1.7)	.55	0.8 (0.4-1.7)	.55
Hotel	Ref		Ref	
Interview site				
Tijuana	1.5 (0.9-2.9)	.16	1.5 (0.9-2.6)	.16
Ciudad Juarez	Ref		Ref	
Past 30-day alcohol use with clients	1.1 (1.0-1.3)	.12	1.1 (1.0-1.3)	.13
Economic hardship	1.2 (0.8-1.6)	.36	1.2 (0.8-1.6)	.35
Past 30-day alcohol use with clients X economic hardship	--	--	1.0 (0.8-1.2)	.79
**Model 2 is the multivariate model testing the interaction between alcohol use with clients and economic hardship on STI.				

Table 2.4: Multivariate models testing main effects of drug use with clients and economic hardship on testing positive for an STI and the interaction between drug use with clients and economic hardship				
	Model 1		**Model 2****	
Variable	**AOR (95% CI)**	**p-value**	**AOR (95% CI)**	**p-value**
Age	1.0 (1.0-1.1)	.06	1.0 (0.9-1.0)	.06
Sex work venue				
Bar/dance hall	0.6 (0.3-1.1)	.11	0.5 (0.3-1.1)	.10
Street/car	1.2 (0.6-2.5)	.55	1.2 (0.6-2.4)	.66
Other	0.8 (0.4-1.6)	.47	0.8 (0.4-1.6)	.49
Hotel	Ref		Ref	
Interview site				
Tijuana	1.3 (0.8-2.3)	.34	1.4 (0.8-2.4)	.25
Ciudad Juarez	Ref		Ref	
Past 30-day drug use with clients	1.1 (0.9-1.3)	.48	1.2 (1.0-1.4)	.10
Economic hardship	1.1 (0.8-1.6)	.48	1.2 (0.9-1.7)	.29
Past 30-day drug use with clients X economic hardship	--	--	0.8 (0.6-0.9)	.01
**Model 2 is the multivariate model testing the interaction between drug use with clients and economic hardship on STI.				

Table 2.5: Multivariate models testing main effects of injection drug use with clients and economic hardship on testing positive for an STI and the interaction between injection drug use with clients and economic hardship				
	Model 1		**Model 2****	
Variable	**AOR (95% CI)**	**p-value**	**AOR (95% CI)**	**p-value**
Age	1.0 (1.0-1.1)	.77	1.0 (0.9-1.1)	.57
Sex work venue				
Bar/dance hall	0.7 (0.2-2.4)	.58	0.7 (.19-2.2)	.52
Street/car	1.2 (0.4-3.5)	.74	1.1 (0.4-3.3)	.89
Other	0.8 (0.2-2.4)	.64	0.7 (0.4-1.3)	.76
Hotel	Ref		Ref	
Interview site				
Tijuana	1.0 (0.5-2.4)	.91	1.2 (0.5-2.8)	.69
Ciudad Juarez	Ref		Ref	
Past 30-day injection drug use with clients	1.0 (0.7-1.5)	.97	1.1 (0.7-1.7)	.74
Economic hardship	0.7 (0.4-1.3)	.28	0.8 (0.4-1.3)	.30
Past 30-day injection drug use with clients X economic hardship	--	--	0.9 (0.6-1.4)	.67
**Model 2 is the multivariate model testing the interaction between injection drug use with clients and economic hardship on STI.				

Table 2.6: Multivariate models testing main effects of drug use and economic hardship on testing positive for an STI and the interaction between drug use and economic hardship				
	Model 1		**Model 2****	
Variable	**AOR (95% CI)**	**p-value**	**AOR (95% CI)**	**p-value**
Age	1.0 (1.0-1.1)	.05	1.0 (0.9-1.0)	.06
Sex work venue				
Bar/dance hall	0.5 (0.3-1.2)	.14	0.6 (0.3-1.2)	.14
Street/car	1.2 (0.6-2.4)	.66	1.2 (0.6-2.4)	.62
Other	0.8 (0.4-1.6)	.52	0.8 (0.4-1.6)	.53
Hotel	Ref		Ref	
Interview site				
Tijuana	1.3 (0.8-2.2)	.35	1.3 (0.8-2.3)	.30
Ciudad Juarez	Ref		Ref	
Past 6 months drug use				
Yes	1.8 (1.1-2.9)	.02	1.8 (1.1-2.9)	.02
No			Ref	
Economic hardship	1.1 (0.8-1.5)	.64	1.5 (0.9-2.6)	.10
Past 6 months drug use X economic hardship	--	--	0.6 (0.3-1.1)	.08
**Model 2 is the multivariate model testing the interaction between past 6 months drug use and economic hardship on STI.				

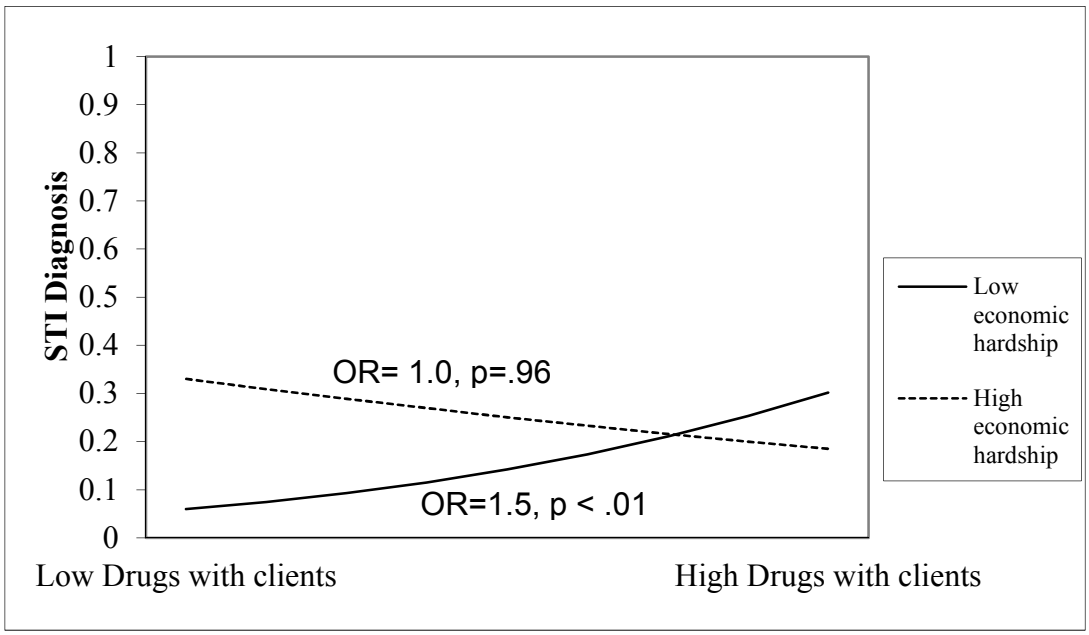

Figure 2.1: Interaction between drug use with clients and economic hardship on testing positive for an STI. Women who report low economic hardship are more likely to test positive for an STI as drugs use with clients increases.

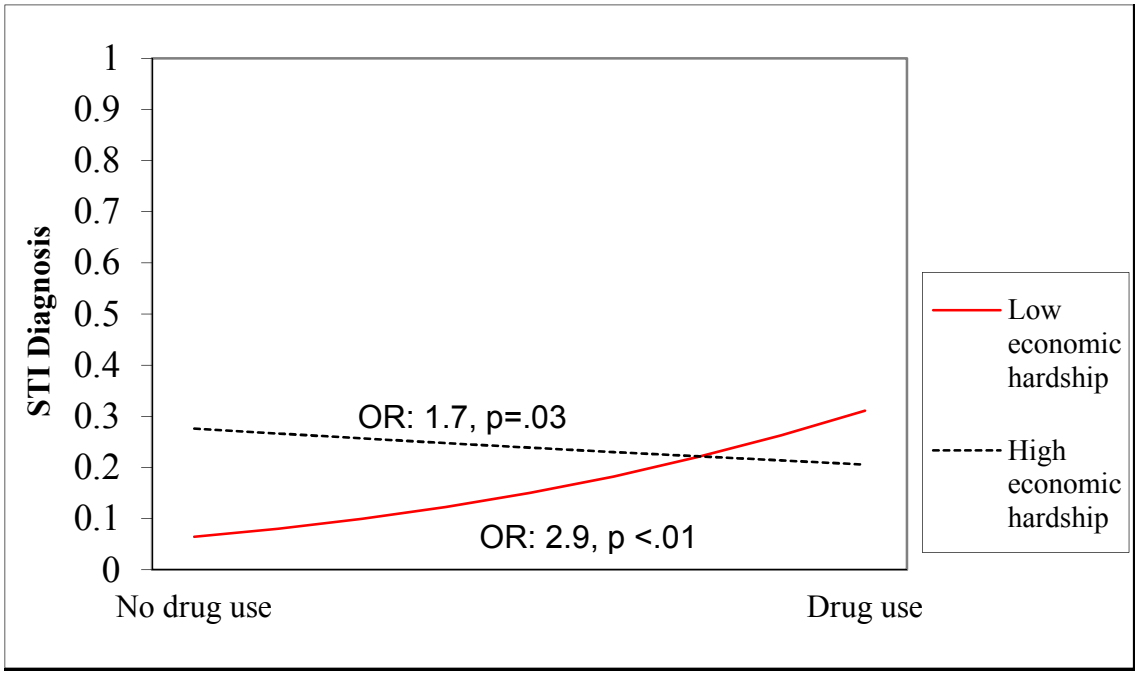

Figure 2.2: Interaction between drug use with clients and economic hardship on testing positive for an STI. Women who report low economic hardship are more likely to test positive for an STI as drugs use with clients increases.

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CHAPTER 3: Sexual Victimization and Endorsement of Gender Inequitable Attitudes: Associations with Sexual Health Outcomes among Haitian Adolescent Males

Abstract

Background: Sexual victimization, a pervasive public health issue associated with a variety of sexual health outcomes, has been extensively studied among females but is rarely examined among males. Gender inequitable attitudes, such as endorsement of masculine gender norms around sex, are one underlying mechanism associated with sexual victimization and adverse health outcomes among females that have yet to be studied among males. The current study examined the intersection of sexual victimization, gender inequitable attitudes, and sexual health outcomes among adolescent and young adult males.

Methods: Data from the 2012 Violence Against Children Survey, a nationally representative survey implemented among adolescents and young adults in Haiti, was used for the current study. Participants included in the current analyses were sexually active males (n=869) between the ages of 13 and 24. Experiences with various forms of sexual violence, endorsement of gender attitudes around sex and violence, and sexual health outcomes (e.g., inconsistent condom use, STI symptoms, STI diagnosis, HIV testing) were assessed.

Results: The majority of participants (68%) were between the ages of 18 and 24, 68% completed primary education, and 21% had ever lived in a camp settlement. Sexual violence was common, with 37% of participants experiencing at least one form of sexual victimization. Analyses examining each type of sexual violence separately in relation to sexual health outcomes revealed verbal pressure to have sex was significantly associated with STI symptoms (AOR = 2.0, 95% CI: 1.2-3.3) and STI diagnosis (AOR = 1.9, 95% CI: 1.0-3.4). Participants who experienced rape were significantly more likely to report an STI symptom (AOR = 3.1, 95% CI: 1.5-6.3) or an STI diagnosis (AOR = 4.1, 95% CI: 1.9-9.2). Greater endorsement of gender attitudes around sex and violence were significantly associated with inconsistent condom use

(AOR = 1.3, 95% CI: 1.1-1.6) and lower likelihood of HIV testing (AOR = 0.8, 95% CI: 0.7-0.9). No interaction effects between sexual violence and negative gender attitudes around sex were found.

Conclusions: Findings indicate an urgent need to continue to assess sexual victimization and related sexual health among adolescents and young adult males. While gender inequitable attitudes were associated with sexual health outcomes, they did not further contribute to the association between sexual violence and sexual health. Sexual health education programs may want to consider the unique role sexual victimization and inequitable gender inequitable attitudes may play in increasing risk for adverse sexual health outcomes among adolescent and young adult males.

Introduction

Sexual violence is a pervasive public health issue that is associated with a variety of adverse physical, psychological, and sexual health outcomes[1-5]. Historically, sexual violence has been studied among women and girls; an estimated 30% of women globally have experienced some form of intimate partner physical or sexual violence in their lifetime[6], and rates of sexual violence are highest among adolescent and young adult females[6,7]. While there are several programmatic and research efforts to reduce sexual violence among women and girls globally, there is a dearth of literature examining sexual violence among men and boys. Among studies that do assess victimization of males, prevalence rates are robust, ranging between 20%-65% depending on how sexual violence is defined, population age, and setting (e.g., conflict settings)[1,8-13]. Haiti is one setting in which sexual violence victimization has been explored among both genders, with particularly high rates of sexual violence among adolescents and young adults[14]. Data from a nationally representative study of Haitian adolescents and young adults (ages 13-24) revealed 26% of females and 21% of males had experienced at least one incident of sexual violence prior to age 18[15]. While prevalence rates

are similar for both genders, the majority of sexual violence prevention programs in Haiti are implemented to reduce victimization of adolescent girls[16].

Sexual violence among adolescents is of particular concern due to the association with several adverse health outcomes. Among adolescent girls, sexual violence is associated with increased HIV/STI risk, unintended pregnancy, decreased capacity to negotiate contraceptive use,[17-20] and risky sexual behaviors, as well as increased risk for obesity, disordered eating, depression, anxiety, and suicidality[21-25]. Less is known, however, regarding the health effects of sexual violence among adolescent boys. Current work assessing sexual violence in relation to health outcomes among adolescent boys has primarily focused on psychological outcomes[8,12,26,27]. Adolescent boys who experience sexual victimization are at increased risk for depression and suicidality, with several studies documenting that the risk for suicidal thoughts is greater among adolescent males compared to adolescent females[8,26,28]. Sexual victimization is also associated with risky sexual behaviors (e.g., inconsistent condom use, greater number of sexual partners) among young adult samples of college males[29]. It is unknown, however, whether sexual violence also increases risk for other sexual health outcomes, including HIV/STI, among adolescent and young adult males, a population at high risk for HIV/STI with 600,000 new HIV cases worldwide in 2016 among individuals between the ages of 15-24[30]. Moreover, current HIV/STI prevention efforts are concentrated in Sub-Saharan Africa (SSA), a region with the highest burden of HIV[31,32], however Haiti has the highest HIV prevalence outside of this region[30,33]. More work is therefore needed to assess whether sexual violence among adolescent and young adult males is associated with sexual health outcomes, especially in countries with a high HIV burden, in order to develop prevention efforts tailored to this age group.

Several social, cultural and structural factors have been explored to help explain the underlying mechanisms that perpetuate sexual violence. Endorsement of gender inequitable attitudes and norms that promote male dominance are one factor that may contribute to the justification of sexual violence, especially against women and girls[34,35]. Prior research has

found that men who report sexual violence perpetration are more likely to hold hostile attitudes towards women and endorse traditional gender roles[36,37]. However, gender inequitable attitudes have only been assessed in relation to sexual violence perpetration among males. In contexts such as Haiti, where gender inequitable attitudes are commonly supported[5,38], and sexual victimization occurs in high proportions among both genders[15], it is necessary to examine whether endorsement of gender inequitable attitudes may also increase risk for sexual victimization among adolescent and young adult males.

Inequitable gender attitudes have also been linked to the same adverse health outcomes of sexual violence among women and girls[22,39,40]. Gender-based power imbalances often constrain girls' decision-making power around sexual and reproductive health, making it difficult to negotiate safe sex, thereby increasing HIV/STI risk and unintended pregnancy[34,41,42]. Among adult males, research has found endorsement of gender inequitable attitudes that promote masculinity is associated with HIV risk behaviors, especially in cultures where masculinity is highly valued[43,44]. For example, one study among a nationally representative sample of Haitian males found endorsement of stereotypically gender attitudes justifying violence against women (e.g., it is acceptable for a man to beat his wife if she refuses to have sex with him) was associated with inconsistent condom use[38]. However, it is unknown whether endorsement of gender inequitable attitudes is associated with sexual health outcomes among adolescent and young adult males who have experienced sexual violence.

While sexual violence perpetration is associated with sexual health outcomes among adolescent and young adult males, there is a paucity of research examining whether sexual *victimization* is associated with similar sexual health among this population. Prior work has also shown that endorsement of gender inequitable attitudes is related to engaging in risky sexual behaviors and increased HIV/STI risk, however this work is also within the context of sexual violence perpetration among males. There has not been any work, to our knowledge, examining how both sexual *victimization* and gender inequitable attitudes are associated with sexual health

among adolescent and young adult males. Understanding these associations among an adolescent population, in a context where sexual victimization occurs in high proportions among both genders, will allow researchers to design intervention programs to better address gender inequity, sexual violence, and related sexual health outcomes among adolescent and young adult males, a population that is frequently understudied within the context of sexual victimization. The current study therefore seeks to assess the intersection of sexual victimization, endorsement of gender inequitable attitudes, and sexual health outcomes among a nationally representative sample of adolescent and young adult males in Haiti. For this study, we will focus on the following sexual health outcomes: inconsistent condom use, STI symptoms, STI diagnosis, and HIV testing.

Hypothesis 1: Compared to adolescent and young adult males who do not report sexual violence victimization, experiencing sexual violence (unwanted touching, verbal pressure to have sex, attempted physically forced sex, and/or rape) will be associated with sexual health outcomes (inconsistent condom use, STI symptoms, STI diagnosis, lower likelihood of HIV testing).

Hypothesis 2: Greater endorsement of gender inequitable attitudes will be associated with sexual health outcomes (inconsistent condom use, STI symptoms, STI diagnosis, lower likelihood of HIV testing) among adolescent and young adult males.

Hypothesis 3: The association between sexual violence victimization and sexual health outcomes (inconsistent condom use, STI symptoms, STI diagnosis, lower likelihood of HIV testing) will be moderated by greater endorsement of gender inequitable attitudes among adolescent and young adult males.

Methods

Study Setting

The current study was conducted in Haiti, the poorest country in the Western Hemisphere that is also plagued with political instability[45]. Haiti has a current population of

10,847,334, and over half of the Haitian population is under the age of 20[45]. Located in the Caribbean in the middle of the hurricane belt, Haiti has suffered two major natural disasters in recent years. In 2010, a 7.0 magnitude earthquake struck Haiti, affecting approximately 3.5 million people, with 220,000 estimated deaths, over 300,000 injuries, and displacing approximately 1.5 million people[45]. Furthermore, the earthquake just when Haiti's economy was starting to grow again. In 2016, Haiti was struck by Hurricane Matthew, the most devastating natural disaster since the 2010 earthquake. Today, approximately 59% of Haiti's residents live below the national US poverty line of $2.41/day[45].

Study Sample and Recruitment

Data for the current study is from the 2012 Violence Against Children Survey (VACS) conducted in Haiti. The VACS survey is a cross-sectional, nationally representative household survey administered to children and young adults between the ages of 13 and 24. Conducted in conjunction with the CDC, UNICEF, and local country organizations, the VACS study is implemented in multiple countries throughout the globe and aims to provide population-based estimates of violence against children. This is the first national survey on the topic of violence against children to be conducted in Haiti.

Procedures

The VACS study employed a complex, stratified multi-stage cluster sampling design in order to obtain a nationally representative sample of Haitian youth. Participants were males or females between the ages of 13-24 residing in Haiti at the time of data collection. Households were randomly selected based on population density of geographic regions throughout Haiti (e.g., a less dense region would have less participants). The primary sampling units were Enumeration Areas (EAs) based on geographical territories in Haiti, designated by the Haitian Institute of Science and Information (ISHI), and camps for persons internally displaced (IDP) by the 2010 earthquake. The sample was stratified into IDP camps and non-camp EAs, and EAs were also stratified by "Domaines," or government administrative departments. Probability

proportional to size (PPS) sampling was used to select 177 non-camp EAs and 11 camps, each of which was randomly assigned either male or female surveys via systematic sampling with a random start. For the second stage, a cluster of 35 households was systematically chosen from each EA. For the third stage, the Kish method was used to ensure random selection[46]. A roster was created of eligible members in each household and one respondent from each household was randomly selected to complete a questionnaire. Although males and females were included at initial data collection, the current study restricted the sample to male participants who: a) identified as biologically male and b) reported ever having sexual intercourse. There was a total of 1,459 males who completed the survey and 836 met eligibility criteria.

Host-country survey workers who received training from CDC field staff prior to data collection administered surveys via pen and paper in participants' homes. The survey was originally written in English, translated into Haitian Kreyol, back translated into English, and administered in Haitian Kreyol. The survey was pilot tested prior to implementation and revised based on participant and staff feedback. Participants completed a variety of survey questions aimed to measure experiences of violence, mental health, sexual and reproductive health, gender attitudes, social support, and socio-demographics. Informed verbal consent was obtained by survey administrators per World Health Organization requirements. Referral services were available for participants who desired care. Both the Institutional Review Board (IRB) at the CDC and the Haitian Ministry of Public Health provided ethics approval for this study.

Measures

Sexual violence: The current study used four dichotomous (yes/no) items to assess most recent sexual violence experiences. Unwanted touching was measured with the item "*Has a male or female touched you in a sexual way without your permission, but the person did not try and force you to have sex*?" Verbal pressure to have sex was measured with the item "*Have you had sex with anyone, male or female, after they pressured you by doing things like telling*

you lies, making promises about the future they knew were untrue, threatening to end your relationship, or threatening to spread rumors about you?" Use of physical force to attempt sex was measured with the item "*Has anyone, male or female, tried to make you have sex against your will, but sex did not happen. In other words, they did not succeed in making you have sex*." Rape was measured with the question: "*Have you been physically forced to have sex regardless of whether you did or did not fight back?"* In addition to the four individual items, a dichotomous variable was created to compare participants who ever experienced sexual violence vs. never.

Participants were also asked to self-report the age at which each sexual violence experience occurred. Therefore, in order to differentiate between sexual violence during childhood and sexual violence during adolescence or later, two variables for each type of sexual violence experience were created to represent a) sexual violence that occurred prior to age 13 and b) sexual violence that occurred between ages 13 and 24. Additionally, participants were asked to identify the relationship they had with the perpetrator (e.g., partner, friend/classmate, neighbor) of each type of sexual violence.

Gender Attitudes Around Sex and Violence: A modified version of the Gender Equitable Men (GEM) scale was used to measure gender attitudes around sex and violence[47,48]. Participants were asked whether they agreed or disagreed with five items, including: "*Men need sex more than women do*," "*It is the man who decides when to have sex*," "*A man needs other women, even if things with his wife are fine,*" and "*A woman should tolerate violence to keep her family together*." Higher scores were indicative of greater endorsement of gender attitudes around sex and violence. The alpha coefficient of internal consistency for these items was .76.

Inconsistent Condom Use: Participants were asked whether they had sex in the past year. Participants who responded *yes* were then asked to report frequency of condom use with their most recent partner on a scale of 3(*Always*) to 1(*Never*). The item was recoded into a

dichotomous variable to compare participants who reported always using condoms versus participants who reported sometimes or never using condoms.

STI Symptoms: Two items were used to indicate possible STI symptoms. Participants were asked "*Have you ever had a bad-smelling or unusual discharge from your penis*" and "*Have you ever had a sore or ulcer near your penis*." A dichotomous variable was created to compare participants who ever reported an STI symptom versus never.

STI Diagnosis: STI diagnosis was measured by asking participants if they had ever been told by a doctor that they had an STI.

HIV Testing: Participants were also asked if they had ever been tested for HIV. Although participants were asked about testing experiences, they were not asked about their HIV test results.

Demographics: A descriptive analysis of demographic variables was conducted in order to characterize the sample of the Violence Against Children study. Current age, education, food insecurity (as a proxy for economic vulnerability), and whether participants had ever lived in a camp settlement were measured. Current age was measured continuously while all other variables were dichotomous.

Analyses

Descriptive statistics (frequencies, proportions) were generated for all variables. Chi-square analyses were used to identify demographic characteristics associated with each outcome variable (inconsistent condom use, STI symptoms, STI diagnosis, HIV testing). Separate crude and adjusted logistic regression models were used to analyze 1) the association between *each* of the five sexual violence items (unwanted touching, pressure to have sex, use of physical force to attempt sex, rape, and experiencing any type of sexual violence) and each outcome variable, 2) the association between gender attitudes around sex and violence and each outcome variable, and 3) the interaction between gender attitudes around sex and violence and each of the five sexual violence items regressed on each outcome variable using

procedures outlined by Baron and Kenny[49]. An interaction term was created between each sexual violence variable and gender attitudes around sex and violence and added to all crude and adjusted models. For each of the five sexual health outcome variables, control variables were entered in block 1, main effects (each type of sexual violence and gender attitudes around sex and violence) were entered in block 2, and the interaction term was entered in block 3. Demographic variables significantly associated with any of the outcome variables at $p < .20$ were included in the final adjusted models. All regression models were presented with 95% confidence intervals. Due to the complex sample design, all analyses accounted for clustering, stratification, and sample weights using the Statistical Package for the Social Sciences (SPSS, version 24).

Results

Sample Characteristics

The majority of participants (70%) were between the ages of 18 and 24 at the time of data collection, and 30% were between the ages of 13 and 17. Over two-thirds (69%) of participants had a primary education, 21% reported ever living in a camp settlement, and 67% reported experiencing food insecurity. While the sample was restricted to participants who reported *ever* having sex, only 528 participants reported having sex in the last year. Among participants who had sex in the last year, the majority reported their most recent sexual partner was a girlfriend (62%), followed by a friend (17%, gender not specified). Almost half of participants (42%) reported inconsistent condom use, 19% reported ever having an STI symptom, and 13% reported ever being diagnosed with an STI. Only one-quarter of the sample (25%) reported ever being tested for HIV [Table 3.1].

Less than 2% of the entire sample reported experiencing any type of sexual violence prior to age 13, and chi-square analyses indicated that sexual violence prior to age 13 was not significantly associated with demographic or outcome variables. In terms of sexual violence between ages 13 and 24, 37% of the sample reported experiencing any sexual violence.

Unwanted touching was reported most frequently (24%), followed by attempted physically forced sex (19%), and verbal pressure to have sex (17%). A small proportion of participants (7%) reported rape [Table 3.2]. Chi-square analyses revealed that verbal pressure to have sex was only associated with STI symptoms *(*$p < .01$*),* rape was associated with STI diagnosis ($p < .01$*)* and STI symptoms *(*$p < .01$*),* and experiencing any sexual violence was associated with STI diagnosis ($p = .05$) and STI symptoms ($p < .01$). Perpetrators of sexual violence tended to be female across sexual violence type, and the majority of perpetrators were female friends, followed by female romantic partners [Table 3.3].

Regression Analyses

A) Regression analyses examining the associations between sexual violence and adverse sexual health outcomes

Given the small proportion of participants who reported sexual violence under age 13, only experiences of sexual violence victimization between the ages of 13-24 were included in the final logistic regression models. Separate adjusted logistic regression analyses (adjusted for demographic variables significantly associated with any of the outcome variables) revealed verbal pressure to have sex was significantly associated with ever having an STI symptom (AOR = 2.0, 95% CI: 1.2-3.2, $p < .02$) and STI diagnosis (AOR: 1.9, 95% CI: 1.0-3.4, $p = .04$), but was not significantly associated with inconsistent condom use or HIV testing. Rape was also only significantly associated with ever having an STI symptom and STI diagnosis, such that compared to participants who did not report rape, participants who reported rape were 3.1 times more likely to report ever having an STI symptom (95% CI: 1.5-6.3, $p < .01$) and 4.1 times more likely to report ever being diagnosed with an STI (95% CI: 1.9-9.2, $p < .01$). Experiencing any sexual violence was associated with ever having an STI symptom (AOR= 2.12, 95% CI: 1.3-3.5, $p < .01$) and STI diagnosis (AOR= 1.9, 95% CI: 1.0-3.8, $p = .05$), but was not significantly associated with inconsistent condom use or HIV testing. Unwanted touching and attempted

physically forced sex were not significantly associated with any sexual health outcomes [Table 3.4].

B) Regression analyses examining the associations between negative gender attitudes around sex and adverse sexual health outcomes

Adjusted logistic regression models revealed that endorsement of gender attitudes around sex and violence was significantly associated with inconsistent condom use and HIV testing. For every one unit increase in endorsement of gender attitudes around sex and violence, participants were 1.3 times more likely to report inconsistent condom use (95% CI: 1.1-1.6, $p < .01$), and 23% less likely to report ever being tested for HIV (AOR = 0.77, 95% CI: 0.7-0.9, $p < .01$). Negative gender attitudes were also marginally associated with STI diagnosis (AOR= 1.2, 95% CI: 1.0-1.3, $p = .06$).

C) Moderation analyses

For each of the five sexual violence variables, the interaction of sexual violence and negative gender attitudes around sex was not significantly associated with any of the sexual health outcome variables.

Discussion

The current study extends the sexual violence literature by highlighting the prevalence of sexual victimization and associations with sexual health outcomes among adolescent and young adult males. While males are a population often overlooked in the sexual victimization research, over one-third of the sample reported at least one form of sexual violence, a prevalence rate that closely mirrors the global prevalence of sexual violence against women and girls.[6,9,19] Additionally, study findings indicate that greater endorsement of gender attitudes around sex and violence is associated with inconsistent condom use, higher odds of STI diagnosis, and lower likelihood of ever being tested for HIV among adolescent and young adult males.

Consistent with recent research beginning to identify the multiple scenarios and prevalence of sexual violence among males[10,50,51], participants from the current study reported experiencing various forms of sexual violence, including unwanted touching, verbal pressure to have sex, use of physical force to attempt sex, and rape. Our findings indicate that participants who experienced specific forms of sexual violence, such as verbal pressure to force sex and rape were more likely to have ever had an STI symptom or ever be diagnosed with an STI compared to participants who did not experience these forms of sexual violence. In the current study, unwanted touching was reported most frequently, yet it was not associated with any sexual health outcomes. The finding that specific types of sexual violence were associated with sexual health outcomes while others were not may be partially explained by whether males perceived the scenarios measured as violence. Prior work among adolescent females has found unwanted touching occurs frequently among this age group, and is associated with poor health outcomes[50,52,53], however, adolescent and young adult males who experience this type of victimization may not consider it a form of sexual violence, especially in contexts where endorsement of gender inequitable attitudes are traditionally supported. Currently, measures used to assess sexual victimization are the same for both males and females[3,8,12,54-56]; however, these measures may need to be adapted to better capture the unique experiences of males. Future studies among males are therefore needed to tease apart the different types of sexual victimization experienced, whether these are perceived as violence, and relation to sexual health outcomes.

Current research examining sexual victimization among males has assessed STI risk behaviors, such as inconsistent condom use and number of sexual partners[29,55,57], but our study is among the few to measure STI diagnosis, STI symptomology and HIV testing. While the cross-sectional design of the study does not allow us to infer causality, findings are consistent with research on sexual violence and related HIV/STI risk and unintended pregnancy among adolescent and young adult females[25,34,58,59]. Furthermore, while previous research has

highlighted gender attitudes as an important factor in the association between sexual violence perpetration and poor sexual health outcomes among males[44,60,61], more work is needed to understand the mechanisms underlying the association between sexual *victimization* and poor sexual health among this population. Future studies may want to consider measuring both sexual victimization and perpetration, gender inequitable attitudes, and associations with sexual health outcomes among males.

While it is not surprising that endorsement of negative gender attitudes around sex was associated with inconsistent condom use and lower likelihood of ever being tested for HIV, there was no evidence to support our hypothesis that negative gender attitudes would act as a moderator between sexual violence and sexual health. Previous literature rooted in the sexual violence perpetration research has found males who endorse inequitable gender norms, and specifically justification of violence against women, are more likely to engage in risky sexual behaviors and perpetrate violence against women[35,44,62], yet this finding does not seem to hold when assessing sexual victimization among males. One possible explanation surrounds the issue of how gender attitudes were measured. The items that were adapted from the GEM scale only measured four constructs aimed to reflect patriarchal ideals of male dominance around sex but they do not capture constructs specific to male power within sexual relationships. Therefore, future research assessing the intersection of gender attitudes, sexual victimization, and sexual health may want to consider adding items measuring condom negotiation power, partner communication about sex, and perceptions of female sexuality and power. Given that adolescence is a critical time when gender norms are learned and internalized[63,64], more work is also needed to shift inequitable gender norms among adolescent and young adults in order to reduce sexual risk behaviors.

Also important to note, perpetrators of sexual violence were primarily female, and participants often reported having a relationship with perpetrators. Similar results are found among college-age samples of males, however the research on victimization of adolescent

males has primarily examined physical victimization within an intimate relationship and do not measure sexual victimization.[8,11,12,56,65,66] Future studies are therefore needed to qualitatively explore the various perpetrators of sexual violence and relationship contexts in which sexual victimization occurs among adolescent males.

Limitations

Although our research significantly adds to the dearth of studies examining sexual violence against males, it is not without limitations. First, the cross-sectional study design does not allow us to make inferences about causality. There were also several measurement limitations. All sexual health items, with the exception of condom use, were measured in terms of lifetime prevalence. Participants were also not asked about sexual violence perpetration; thus, it is unknown whether some of the sexual victimization participants reported was due to retaliation. Future work with dyadic data is therefore needed. The scale used to measure negative gender attitudes was adapted from the GEM scale, and response choices were dichotomous as opposed to the likert-type response scale normally used. As a result, the reduced range of responses may have limited the applicability of the scale, possibly explaining why there was no interaction between gender inequitable attitudes and sexual violence. While the current study was conducted among a nationally representative sample of adolescent and young adult males in Haiti, findings may not be generalizable to all males given the unique social, cultural, and economic context of Haiti. Nevertheless, findings shed light on the various ways adolescent and young adult males experience sexual violence, and related associations with sexual health.

Conclusions

Developmentally, adolescence is a critical time in which individuals are finding their own identity and often engaging in sexual experiences for the first time. Adolescents often look to the behavior of their peers to determine appropriate sexual behavior, which is often shaped by gender and cultural norms[67]. Adolescence is also a critical period when risk for sexual violence

is greatest[7,8]. Research efforts are needed to further explore the unique sexual violence experiences of adolescent and young adult males and associations with sexual health. Intervention and prevention efforts to screen and educate males about sexual violence victimization are urgently needed. While access to healthcare is often sparse in resource-limited settings such as Haiti, community-based sexual violence education programs may be a necessary first step in educating the larger community about violence against adolescent and young adult males and shift cultural norms that promote male dominance. Programmatic efforts may also be needed to screen for sexual violence among males, particularly among males testing positive for STI.

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Table 3.1: Sample characteristics and associations with sexual health outcomes

Variable	**Weighted %, (Unweighted n)**	**Inconsistent Condom Use Past 12 Months Weighted %, (Unweighted n)**	**STI Diagnosis Ever Weighted %, (Unweighted n)**	**STI Symptom Ever Weighted %, (Unweighted n)**	**Ever tested for HIV (yes) Weighted %, (Unweighted n)**
Total	100(836)	42.4 (250)	12.9 (112)	18.5 (174)	24.6 (207)
Current Age					
13-17	29.6 (297)	29.6 (87)	28.5 (36)	37.3 (74)	14.4 (38)
18-24	70.4 (539)	70.4 (163)	71.5 (75)	62.7 (100)	85.6 (169)
		p<.01	*p=.86*	*p=.05*	*p<.01*
Education					
Completed Primary	68.6(526)	58.9(136)	72.1(69)	60.5(92)	79.9(159)
Did not complete	31.4(290)	41.1(107)	27.9(38)	39.5(77)	20.1(44)
		p<.01	*p=.45*	*p=.08*	*p<.01*
Lived in Camp					
Yes	20.8(173)	25.7(62)	28.5(27)	17.7(36)	21.0 (50)
No	79.2(663)	74.3(188)	71.5(84)	82.3(136)	79.0 (157)
		p=.07	*p=.14*	*p=.39*	*p=.95*
Food Insecurity					
No	32.8(269)	32.7(74)	30.0(36)	21.0(44)	40.8(86)
Yes	67.2(552)	67.3(172)	70.0(74)	79.0(127)	58.5(119)
		p=.24	*p=.70*	*p<.01*	*p<.01*

Table 3.2: Experiences of sexual violence and chi-square associations with sexual health outcomes

Variable	Weighted %, (Unweighted n)	Inconsistent Condom Use n=250 Weighted %, (Unweighted n)	STI Diagnosis Ever n=112 Weighted %, (Unweighted n)	STI Symptom Ever n=174 Weighted %, (Unweighted n)	Ever tested for HIV (yes) n=207 Weighted %, (Unweighted N)
Unwanted Touching					
Yes	24.3(194)	28.6(64)	31.1(37)	30.4(47)	22.2(47)
No	75.7(642)	71.4(186)	68.9(74)	69.6(127)	77.8(160)
		p=.70	*p=.17*	*p=.15*	*p=.58*
Verbal Pressure to have sex					
Yes	17.2(156)	27.1(60)	25.4(31)	27.7(51)	19(30)
No	82.8(680)	72.9(190)	74.7(80)	74.2(123)	82(168)
		p=.09	*p=.07*	*p=<.01*	*p=.79*
Attempted physically forced sex					
Yes	19.0 (157)	18.8(47)	21.7(26)	23.6(41)	19.5(40)
No	81.0 (679)	81.2(203)	78.3(85)	76.4(133)	80.5(167)
		p=.38	*p=.58*	*p=.18*	p=.88
Rape					
Yes	7.4(62)	9.8(21)	20.9(19)	15.6(21)	10(24)
No	92.6(774)	90.2(229)	79.1(92)	84.4(153)	90(183)
		p=.41	*p<.01*	*p<.01*	*p=.18*
Any Sexual Violence					
Yes	37.3(322)	44(109)	51.3(62)	51.7(90)	35.2(77)
No	62.7(514)	56(141)	48.7(49)	48.3(84)	64.8(130)
		p=.74	*p=.05*	*p<.01*	*p=.60*
*Gender Attitudes Around Sex/Violence**	1.7 (.07)	2.1 (16)	1.9 (.16)	1.9 (.16)	1.2 (.10)
		p<.01	*p=.14*	*p<.01*	*p<.01*

*Presented as M (SD) and independent samples t-test.

Table 3.3: Perpetrators of sexual violence

Perpetrator Type	Unwanted Touching Weighted %, (n)	Verbal pressure to have sex Weighted %, (n)	Attempted physically forced sex Weighted %, (n)	Rape Weighted %, (n)
Female romantic partner	29.6(60)	38.3(62)	33.5(49)	38.8(25)
Female friend	53.4(113)	43.5(86)	47.1(90)	49.5(39)
Female relative	0(0)	0.4(1)	0(0)	0(0)
Female in my neighborhood	1.2(3)	6.3(7)	4.0(10)	2.5(2)
Female stranger	1.8(6)	4.7(6)	3.0(8)	3.7(2)
Other female	2.9(3)	0(0)	2.1(3)	0.5(1)
Male relative	0.2(1)	1.0(2)	0.2(1)	0(0)
Male romantic partner	1.2(3)	3.7(9)	2.9(1)	0.8(1)
Male friend	7.4(13)	0.7(2)	1.4(4)	2.5(3)
Male in my neighborhood	0(0)	0(0)	0(0)	1.9(2)
Male Stranger	1.5(3)	0.3(1)	0.3(1)	0(0)
Other Male	1.4(2)	0(0)	3.1(1)	0(0)

Table 3.4: Adjusted logistic regression models examining the associations between each form of sexual violence, gender attitudes around sex/violence, and sexual health outcomes

	Outcome Variables			
Independent Variables	**Inconsistent Condom Use AOR (95% CI)**	**STI Diagnosis Ever AOR (95% CI)**	**STI Symptom Ever AOR (95% CI)**	**Tested for HIV Ever (yes) AOR (95% CI)**
Model 1 Unwanted touching				
Yes	1.1 (0.6-2.0)	1.5 (0.8-2.6)	1.4 (0.8-2.6)	0.8 (0.5-1.5)
No	Ref	Ref	Ref	Ref
	p= .81	*p=.18*	*p=.20*	*p=.60*
Model 2 Verbal pressure to have sex				
Yes	1.4 (0.8-2.3)	1.9 (1.0-3.4)	2.0 (1.2-3.3)	1.0(0.6-1.7)
No	Ref	Ref	Ref	Ref
	p=.21	*p=.04*	*p<.01*	*p=.97*
Model 3 Attempted physically forced sex				
Yes	0.8(0.4-1.5)	1.2(0.6-2.3)	1.5(0.9=2.6)	1.0 (0.5-1.8)
No	Ref	Ref	Ref	Ref
	p=.48	*p=.70*	*p=.16*	*p=.95*
Model 4 Rape				
Yes	1.1(0.5-2.4)	4.1(1.9-9.2)	3.1(1.5-6.3)	1.8(0.9-3.7)
No	Ref	Ref	Ref	Ref
	p=.75	*p<.01*	*p<.01*	*p=.12*
Model 5 Any sexual violence				
Yes	1.0 (0.6-1.8)	1.9(1.0-3.8)	2.2 (1.3-3.5)	0.8 (0.5-1.3)
No	Ref	Ref	Ref	Ref
	p=.90	*p=.05*	*p<.01*	*p=.43*
Model 6 Gender attitudes around sex/violence	1.3 (1.1-1.6)	1.2 (1.0-1.3)	1.1 (1.0-1.3)	.77 (0.7-0.9)
	p<.01	*p=.06*	*p=.20*	*p<.01*

Models are adjusted for current age, education, ever living in a camp settlement, and food insecurity.

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CHAPTER 4: Experiences of Sexual Harassment Online and In-Person: Associations with Sexual Violence Victimization among Adolescent Females in San Diego County

Abstract

Background: In the United States, rates of in-person sexual harassment are highest among adolescent females, and electronic communication technology may be another context in which sexual harassment occurs. While prior work documents that experiencing sexual harassment, whether in person or online, is associated with other forms of victimization, including bullying and physical dating violence, there is relatively little work examining whether sexual harassment is associated with sexual victimization.

Methods: Sexually active adolescent females (n=159) aged 15-19 were recruited from an urban health clinic in San Diego County to complete a self-administered survey on experiences of sexual harassment and sexual violence. Crude and adjusted logistic regression analyses were used to assess 1) the association between in-person sexual harassment (IPSH) and sexual violence, 2) the association between cyber sexual harassment (CSH) and sexual violence, and 3) the role of perpetrator type (partner vs non-partner) in these associations.

Results: The majority of participants (68%) had ever experienced IPSH and 68% had also experienced CSH. In terms of sexual violence, 13% of participants reported lifetime non-partner sexual violence and 16% reported lifetime partner sexual violence. Adjusted logistic regressions revealed CSH was associated with ever experiencing non-partner sexual violence (AOR= 10.8, p = .02) and partner sexual violence (AOR= 6.1, p = .02). IPSH was also associated with ever experiencing non-partner sexual violence (AOR= 11.0, p = .02) and partner sexual violence (AOR= 5.8, p = .02).

Conclusions: Our findings indicate that sexual harassment is associated with increased partner and non-partner sexual violence among adolescent females. Sexual violence prevention

programs may therefore need to consider sexual harassment as a correlate of other forms of sexual victimization.

Introduction

Sexual harassment, commonly defined as unwanted or unwelcome conduct of a sexual nature, is a form of gender-based violence that disproportionately impacts females[1-3]. Sexual harassment can occur from multiple perpetrators, including peers, intimate partners, or strangers, across multiple contexts[1,4-6]. Rates of in-person sexual harassment (IPSH) are particularly high among adolescent females, with up to 96% of adolescent females experiencing at least one form of IPSH in their lifetime[6-14,15]. Increasingly, electronic communication may be another avenue in which sexual harassment occurs[16-19]. Cyber Sexual Harassment (CSH) involves any unwanted sexual conduct that occurs via electronic communication (e.g. being pressured to send sexual photos, unwanted sexual solicitation). Prevalence rates of CSH range from 12% to 70%[20-23], based on varying definitions used across studies, and females are more likely to experience CSH than males[20,24,25,26-29]. Sexual harassment victimization that occurs either in-person or online also places females at risk for a variety of poor health outcomes, including anxiety, depression, and substance use[2,8,11,30,31]. Across studies that assess sexual harassment and health effects among both males and females, adolescent females are more likely to experience these adverse outcomes compared to adolescent males[8,10,12,30].

Experiencing sexual harassment- whether in person or online- is also associated with other forms of in-person victimization among adolescents, including bullying and dating violence[4,5,16,32,33]. Results from a cross-sectional study revealed that adolescent females who experienced IPSH were more likely to report being bullied compared to participants who did not report IPSH[34]. Cyberbullying, which often includes measures of CSH, is associated with in-person victimization as well, with multiple studies documenting that adolescents who experience cyberbullying are at increased risk for in-person bullying[35,36]. Additionally, both types of sexual harassment are associated with experiences of in-person victimization by a dating partner.[4,5,33]

The limited body of work examining CSH and in-person victimization is primarily assessed within the context of digital dating abuse (e.g., use of technology to control, harass, pressure, or threaten a partner) and in-person physical dating violence[36-38]. Thus, the majority of research assessing the link between experiencing sexual harassment, whether in-person or online, and other forms of victimization has focused on physical victimization and dating violence. Little research has examined whether experiencing sexual harassment, either in person or online, is associated with increased risk for *sexual* victimization among adolescent females.

One important aspect to consider in assessing the association between various forms of sexual harassment and experiences of sexual victimization is the perpetrator of these assaults. As stated previously, much of the work on CSH has been in the context of dating digital abuse and relation to in-person dating violence victimization[39,40]. However, adolescent females often report that coercive sexting, one aspect of CSH, is also perpetrated by male friends and strangers (e.g. males who girls may meet online)[41,42]. Adolescent females also report experiencing online sexual solicitation (e.g., pressure to meet up and do something sexual in person, pressure to engage in online sex via webcam)[24,25,26-29] perpetrated by a stranger or another male outside of an intimate relationship. Additionally, multiple studies have found that males use electronic communication to search for and recruit adolescent girls for sexual grooming and/or sexual exploitation[26,28,29]. Yet, little is known regarding whether CSH perpetrated by strangers or other males outside of a dating relationship increases risk for in-person sexual victimization. In contrast to CSH, the literature on IPSH primarily focuses on perpetration by non-partners[13,43,44]. For example, studies often do not distinguish between differences in peer perpetrators (e.g., friend vs. acquaintance vs. stranger), or limit the perpetrators to within school contexts, possibly missing IPSH that occurs in other settings[2,9,14]. However, as evidenced by multiple studies on CSH, the perpetrators of IPSH may also be intimate partners. Therefore, more work is needed to assess IPSH and CSH in relation to sexual violence, with consideration of perpetrator type (e.g., partner vs. non-partner).

While some work has documented the association between CSH and in-person sexual violence perpetrated by intimate partners, there has not been any work examining how CSH is associated with in-person, non-partner sexual violence. Even less is known regarding the association between IPSH and in-person sexual violence, regardless of partner type. To address current gaps in the literature, the current study aims: 1) to assess in-person sexual harassment (IPSH) and cyber sexual harassment (CSH) in relation to sexual violence and 2) to assess the role of perpetrator type (partner versus non-partner) in these associations among adolescent females in San Diego County (N=159).

Hypothesis 1: Adolescent females who report experiencing cyber sexual harassment (CSH) will be more likely to report ever experiencing partner sexual violence compared to females who did not report CSH.

Hypothesis 2: Adolescent females who report experiencing CSH will be more likely to report ever experiencing non-partner sexual violence compared to females who did not report CSH.

Hypothesis 3: Adolescent females who report experiencing in-person sexual harassment (IPSH) will be more likely to report ever experiencing partner sexual violence compared to females who did not report sexual harassment.

Hypothesis 4: Adolescent females who report experiencing IPSH will be more likely to report ever experiencing non-partner sexual violence compared to females who did not report sexual harassment.

Methods

Study Setting and Recruitment

Data for the current study was collected as part of the Activity Spaces and Spatial Mobility Study. This study is a case-control study aimed to assess sexually transmitted infection (STI) risk, unintended pregnancy, and spatial mobility among adolescent females between the ages of 15 and 19 in National City, CA. Located in East San Diego County close to the US-

Mexico border, National City is ethnically diverse, with a large Hispanic/Latino population (63.4%). Youth who identify as Asian (19.7%) or White (10.3%) are the second and third most common race/ethnic identity[45]. This area also has a young population, and more than a quarter of the population lives below the national federal poverty line [45]. National City has high rates of intimate partner violence (IPV) and has the highest rate of violent crime in San Diego County [46].

Participants (n=159) were recruited from Operation Samahan, a health clinic in National City situated across the street from a high school. In order to be eligible for the study participants had to be: a) biologically female, b) between the ages of 15-19 years, c) had vaginal intercourse with a male partner in the past 6 months, d) speak English, e) willing to provide a urine for screening, and f) able to provide informed assent. Participants were recruited directly through the Operation Samahan clinic or through the adjoining Y2Y youth center in one of two ways: 1) direct referral by clinic and Y2Y staff or 2) they were approached by research assistants in the clinic and Y2Y youth center. When approaching potential participants directly, research assistants introduced themselves and asked whether they were between the ages of 15 and 19 before explaining the objective of the current study. Since potential participants were obtaining confidential services from the health clinic, the University of California Institutional Review Board waived parental consent out of concern that many adolescents visit the clinic to obtain sexual and reproductive health services without parental knowledge/permission. Therefore, only adolescent assent was required for participants under 18.

Procedure

Upon completing a brief screener to establish eligibility, participants completed a self-guided, tablet-based survey that took approximately 45-60 minutes to complete. The survey collected general information on participants' socio-demographic characteristics (e.g. age, ethnicity, country of birth), sexual and reproductive health (e.g. STI history), alcohol/substance use (e.g. lifetime use, use in past 6 months, frequency of use), mental health (i.e., depression, anxiety, suicide ideation), experiences of violence and harassment (e.g. sexual coercion/sexual

violence, sexual harassment), as well as questions on social media use (e.g. Facebook, Twitter, Instagram, Snapchat). Participants received a $20 gift card upon completion of the survey. All study protocols were approved by the Institutional Review Board at the University of California, San Diego.

Measures

Cyber Sexual Harassment (CSH): Four items were used to measure various scenarios of experiencing CSH by males. Since this was a study among girls who reported being sexually active with male partners and focused on risk for unintended pregnancy, we were specifically interested in male perpetration of these behaviors. Participants were asked whether a boy or man had ever: a) pressured them to send sexual photos/videos, b) shared sexual photos without permission, c) sent them unwanted sexual photos/messages, and/or d) pressured them online or via text to do something sexual in-person. A dichotomous indicator variable was created to compare participants who had experienced any CSH versus never.

Perpetrators of CSH: Participants were also asked to identify their relationship with the perpetrators of CSH for each of the 4 CSH items described above. The response options were the following: "*A boy/man who I…"* (1) was dating or in a relationship with, (2) hooked up with, (3) knew but had not dated or hooked up with, (4) met but didn't know that well, (5) liked/had a crush on, (6) did not know, (7) was friends with, or (8) other. Participants had the option of identifying multiple perpetrators for each CSH item. Due to the small sample size, categories were collapsed into partner CSH and non-partner CSH. Partner was defined as "*a boy/man who I was dating or in a relationship with*" and non-partner was defined as all other perpetrators listed above.

Partner In-Person Sexual Harassment: One item was used to measure lifetime in-person partner sexual harassment. The item was "*has a boy/man you were dating or going out with ever called you easy or a slut*," The item response was dichotomous (yes/no).

Non-Partner In-Person Sexual Harassment: Participants were asked about various elements of in-person non-partner sexual harassment that occurred in the past 6 months. Four items were used to measure various sexual harassment scenarios, including asking participants whether a man/boy or group of men/boys participants have never had a romantic relationship with have: a) made unwanted sexual comments, jokes, or gestures towards you in public, b) exposed themselves sexually in public, c) touched, grabbed or pinched you in a sexual way that you did not want, and/or d) touched you with any part of their body –including getting too close or rubbing up against you- when you did not want them to. A dichotomous indicator variable was created to compare participants who reported ever experiencing sexual harassment vs. never.

Partner Sexual Violence: Partner sexual violence was measured across multiple scenarios with six items, including using threats to coerce sex, pressure to have sex, use of force to have sex, use of force to have sex with someone else, and use of force to do something sexual other than vaginal oral, or anal sex. An example item is: *"In your lifetime, has a boy/man you were dating used force (holding down, hitting, using a weapon) to make you have sex when you didn't want to?"* All items were dichotomous. A dichotomous indicator variable was also constructed to compare participants who reported ever experiencing partner sexual violence vs. never.

Non-Partner Sexual Violence: Participants were also asked whether they had ever experienced sexual violence from a person they had never been in a relationship with or dated. Non-partners were defined and grouped into three categories including: 1) *a boy/man I was hooking up with/had a crush on but was not dating,"* 2)*" A boy/man I was friends with,"* and 3) *"A boy/man I didn't know."* The same six items used to measure partner sexual violence (e.g., use of threats to have sex, use of force to have sex) were used to measure non-partner sexual violence. Response options were dichotomous and an indicator variable was constructed to compare participants who reported ever experiencing non-partner violence vs. never.

Demographic characteristics: Demographic characteristics included: age, ethnicity, current relationship status, and education.

Statistical Analysis

Descriptive statistics were generated for all variables. Lifetime prevalence rates of CSH, IPSH, and sexual violence were each reported. Chi-square analyses were used to identify demographic characteristics associated with experiencing sexual violence and sexual harassment. Separate unadjusted and adjusted logistic regression models were used to analyze: 1) the association between CSH (any CSH, partner CSH, and non-partner CSH) and sexual violence (partner and non-partner); and 2) the association between IPSH (partner and non-partner) and sexual violence (partner and non-partner). Demographic variables significantly associated with sexual violence at the bi-variate level were included in the final, adjusted models. 95% confidence intervals are presented; a p-value of <0.05 was considered statistically significant. The Statistical Package for the Social Sciences (SPSS, version 21) was used to conduct all analyses.

Results

Sample Characteristics

The average age of participants was 17.2 years (SD=1.1). Over three-quarters (76.7%) identified as Hispanic/Latina. The majority of participants (77.2%) were born in the United States and over half (65.4%) were currently in a relationship (Table 4.1).

Reports of partner and non-partner sexual violence were quite similar: 15.7% of participants reported lifetime partner sexual violence and 13.2% reported lifetime non-partner sexual violence (Table 4.1). Among those who experienced non-partner sexual violence (n=21), the majority of participants (71%) identified *"A boy/man I was hooking up with/had a crush on but was not dating,"* as the perpetrator. Almost half of participants (43%) identified "A *boy/man I was friends with"* as the perpetrator, and 74% reported *"A boy/man I didn't know"* as the perpetrator.

The majority of participants (68.4%) reported experiencing any CSH. Among those experiencing CSH, 30.5% reported partner CSH and 88.9% reported non-partner CSH. Almost three-quarters (67.9%) of participants who experienced CSH also experienced IPSH. Non-partner IPSH was more common than partner IPSH (66% vs. 9.6% respectively; Table 2).

Associations between CSH and Sexual Violence

Logistic regression models, adjusted for ethnicity, estimate that, compared to adolescent girls who did not experience partner CSH, girls who reported partner CSH were 10.4 times more likely to report partner sexual violence (95% CI: 3.9-27.8, $p < .02$) and 31.6 times more likely to report non-partner sexual violence (95% CI: 8.5-117.2, $p < .01$). Non-partner CSH was marginally associated with partner sexual violence (AOR = 2.7, 95% CI: 0.1-7.9, $p = .06$*)* but was not associated with non-partner sexual violence (Table 4.2).

Associations between IPSH and Sexual Violence

Adjusted logistic regression models estimated that IPSH was associated with partner and non-partner sexual violence, such that compared to participants who did not report IPSH, participants who reported any IPSH were more likely to report partner sexual violence (AOR = 5.8, 95% CI: 1.3-26.1, $p = .02$) as well as non-partner sexual violence (AOR = 11.0, 95% CI: 1.4-85.0, $p = .02$). When examined by perpetrator type, partner IPSH was significantly associated with partner and non-partner sexual violence (AOR = 6.6, 95% CI: 2.1-21.5, $p < .01$ and AOR = 3.5, 95% CI: 1.0-12.1, $p < .01$ respectively). Compared to participants who did not report experiencing non-partner IPSH, those who experienced non-partner IPSH were significantly more likely to report experiencing partner sexual violence (AOR = 4.0, 95% CI: 1.1-14.3, $p < .01$) and non-partner sexual violence (AOR = 5.6, 95% CI: 1.2-25.0, $p < .01$*;* Table 2).

Exploratory analyses examining the overlap of different sexual harassment perpetrators (partner and non-partner) and associations with sexual violence

Exploratory analyses were also conducted to examine whether experiencing sexual harassment from one perpetrator overlapped with experiencing sexual harassment from another

perpetrator, and associations with sexual violence. When examining CSH, 5% of participants reported only CSH, 42.8% reported only non-partner CSH, 19.5% reported both partner and non-partner CSH, and 32.7% did not report any CSH. In adjusted logistic regression models, experiencing only partner CSH was significantly associated with partner sexual violence (AOR = 10.6, 95% CI: 1.3-83.8, p = .03), as was experiencing *both* partner and non-partner CSH (AOR = 20.1, 95% CI: 4.0-100.8, p < .01), while experiencing only non-partner CSH was not associated with partner sexual violence. Similar results were found when examining the associations between CSH and non-partner sexual violence, such that experiencing only partner CSH was significantly associated with non-partner sexual violence (AOR = 44.9, 95% CI: 3.9-517.3, p = .002), as was experiencing both partner and non-partner CSH (AOR = 39.9, 95% CI: 4.8-325.2, p = .001).

The majority of participants (58.3%) who reported IPSH only experienced this type of harassment from a non-partner, while 1.9% reported only partner IPSH, 7.7% reported both partner and non-partner IPSH, and 32.1% did not report any IPSH. Experiencing both partner and non-partner IPSH was significantly associated with partner sexual violence (AOR = 25.4, 95% CI: 3.9-163.7, p = .001) and non-partner sexual violence (AOR = 22.4, 95% CI: 2.1-237.6, p = .01). Experiencing only partner IPSH was significantly associated with non-partner sexual violence (AOR = 23.3, 95% CI: 1.0-527.1, p = .05), and experiencing only non-partner IPSH was associated with non-partner sexual violence (AOR = 9.4, 95% CI: 1.2-74.0, p = .03), but not partner sexual violence [Table 3.3]. Findings are exploratory given the wide confidence intervals, as well as the small proportion of participants who reported only partner harassment.

Discussion

Consistent with prior work[8-13,43], the current study found that sexual harassment is prevalent among adolescent females, with almost 4 out of 5 participants reporting IPSH and 68% reporting CSH. The current study extends previous work by examining sexual harassment in relation to sexual violence, as well as assessing whether this association varies by

perpetrator type (partner vs. non-partner). Findings indicate that IPSH and CSH are associated with partner and non-partner sexual violence. Differences arise, however, when teasing apart perpetrators of sexual harassment. While partner and non-partner IPSH was associated with sexual violence regardless of partner type, only partner CSH was significantly associated with sexual violence (partner and non-partner).

Study findings indicate that both types of IPSH (partner and non-partner) were associated with both partner and non-partner sexual violence, thus adolescent girls who experience IPSH, regardless of perpetrator, are at increased risk for experiencing other forms of sexual victimization. This is the first study, to our knowledge, to examine partner IPSH in relation to partner and non-partner sexual violence. Many studies either do not measure partner IPSH or do not differentiate between perpetrators of IPSH (e.g., only ask about peer sexual harassment)[1,2,5]. While only 10% of participants in our sample reported partner IPSH compared to 66% who reported non-partner IPSH, this may be due to a limitation in items used to measure partner IPSH. In light of findings related to digital dating abuse and partner-perpetrated CSH (e.g. pressured sexting)[39,40,47], more work may be needed to identify whether and how dating partners may be perpetrating in-person sexual harassment. While some measures assess sexual coercion by male partners (e.g. pressure or threats to engage in sex or other sexual activities)[48-50], there may be other sexual harassment behaviors perpetrated by male partners that are not adequately captured with current measures used to assess IPSH (e.g. sexually exploitative comments or gestures).

Consistent with prior research that has found cyber dating abuse increases risk for in-person physical and sexual partner violence[36-38], study findings indicate that partner CSH is associated with partner sexual violence. Extending previous work, we also found that partner CSH was significantly associated with non-partner sexual violence, whereas prior work has only assessed associations between certain types of partner CSH (e.g., coercive sexting) and other forms of victimization within an intimate relationship[51,52]. Thus, it is possible that participants

who experienced partner CSH may be at risk for experiencing multiple forms of victimization, as exploratory analyses revealed that 5% of participants reported only experiencing partner CSH, whereas 19% reported experiencing both partner and non-partner CSH. More work is therefore needed to explore the unique risk environment of adolescent girls who experience partner CSH, and associations with multiple forms of sexual victimization. Moreover, the current study combined the various CSH items due to the small sample size and we were unable to identify whether participants experienced CSH differently based on perpetrator (e.g., was experiencing pressure to do something sexual in-person more common from partners vs. non-partners) and whether different forms of CSH are uniquely associated with in-person victimization. More work with a larger sample is needed to determine whether CSH experiences vary by perpetrator, and associations with sexual violence.

Interestingly, non-partner CSH was not associated with sexual violence, which may be due to how participants perceived non-partner CSH. Prior studies have shown adolescent girls frequently experience non-partner CSH in the form of being asked for sexual photos, being sent unwanted sexual photos, or being asked to do something sexual online[20,21,47,53,54]. Thus, if participants perceived non-partner CSH to be a relatively normal occurrence, this may help explain the absence of an association between non-partner CSH and sexual violence. Qualitative work is therefore needed to explore whether adolescents perceive CSH perpetrated by non-partners differently than CSH perpetrated by partners. Programmatic efforts are also needed to incorporate CSH into the larger framework of sexual violence prevention in order to educate adolescents about the multiple ways in which CSH occurs from various perpetrators, and how these experiences may place females at risk for other forms of sexual victimization.

One issue that needs consideration when measuring sexual harassment is the under-reporting of such harassment. This underreporting may occur as a result of stigma, but may also be due to variations in identifying certain scenarios as harassment. Prior work has found that US adolescent females often consider sexual harassment to be a normal, daily experience[15,55].

A qualitative study found adolescent females often tolerated and therefore did not report sexual harassment experiences, including unwanted touching, as a result of deeply ingrained gender norms that promote male dominance and female subordination[55]. Adolescent females raised in a patriarchal culture such as the United States may therefore also justify certain forms of sexual victimization as normal, possibly resulting in underreporting of harassment experiences in our study. Future research may want to consider describing specific behaviors that are usually defined as a form of victimization without explicitly identifying these behaviors as sexual harassment in an attempt to increase reporting.

Limitations

While the current study addressed a gap in the field by exploring whether multiple types of sexual harassment (e.g., in person and via electronic communication, partner and non-partner) are associated with sexual violence among adolescent females, it is important to acknowledge study limitations. First, the cross-sectional study design did not allow us to infer causality. Future longitudinal studies are therefore needed to determine the directionality of the association between sexual harassment and sexual violence, especially given that prior longitudinal studies have found a causal relationship between sexual harassment and physical violence victimization[2,56,57]. Second, we dichotomized the sexual harassment and sexual violence variables due to the small sample size, however these variables fail to capture the severity and chronicity of such experiences. Future studies with larger samples are needed to tease apart the multiple scenarios and contexts of sexual harassment and sexual violence victimization in order to develop targeted sexual violence prevention programs among adolescent females. Third, the majority of participants experienced CSH and IPSH from non-partners, however our dichotomization of non-partner does not allow us to capture whether victimization from various types of non-partners (e.g., male friend, vs. male stranger, vs. male they had a crush on) is associated with different risks for experiencing sexual victimization. Fourth, sexual harassment and sexual violence variables were measured in terms of lifetime

experiences. Therefore, we were unable to determine whether participants who reported both harassment and violence experienced both types of victimization from the same perpetrator. Fifth, given that one of the goals of the larger study was to assess risk factors for unintended pregnancy, our study only assessed experiences of harassment/violence from male perpetrators. Future studies are therefore needed to assess perpetration of sexual violence by both males and females. Lastly, our study was conducted in a low-income region of San Diego, close to the US-Mexico border, therefore findings may not be generalizable to the larger population of adolescent females.

Conclusions

Our findings reveal that experiencing sexual harassment- whether it occurs online or in-person- increases risk for sexual victimization. While it is important to assess differences in perpetrator type, we found that experiencing any type of sexual harassment increases risk for both partner and non-partner sexual violence. Future work is therefore needed to assess whether the same partner is perpetrating sexual harassment and sexual violence in order to understand whether risks for multiple types of victimization are clustered, or experiencing one form of sexual victimization, regardless of perpetrator, increases risk for other forms of victimization. It is also particularly important to continue exploring how CSH increases risk for in-person sexual violence among adolescents, given that this population uses electronic communication more than any other age group[42]. Findings from the current study are timely; the renewed public interest in sexual violence, and specifically sexual harassment, calls for more research examining sexual harassment among a variety of populations in order to develop evidence-based programs to reduce the multiple forms of sexual victimization that occurs both in-person and online.

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Table 4.1: Sample demographics and associations with sexual violence					
Variable	**Total %(n)** 100(159)	**Reported Partner Sexual Violence %(n)** 16.0(25)	**Did Not Report Partner Sexual Violence %(n)** 82.3(131)	**Reported Non-Partner Sexual Violence %(n)** 13.2(21)	**Did Not Report Non-Partner Sexual Violence %(n)** 84.3(134)
Age M(SD)	17.2(1.1)	17.4	17.6	17.1	17.3
		p=.82	*p=.82*	*p=.35*	*p=.35*
Identified as Hispanic/Latina					
Yes	76.7(122)	56.0(14)	80.1 (105)	66.6(14)	77.6(104)
No	23.3(37)	44.0(11)	20.0 (26)	33.3(7)	22.4(30)
		p<.01	*p<.01*	*p=.28*	*p=.28*
Race					
White	14.6(23)	4.0(1)	16.8(22)	9.5(2)	23.9(21)
Asian	17.7(28)	32.0(8)	15.3(20)	33.3(7)	15.7(21)
American Indian/Native Hawaiian	2.5(4)	0(0)	3.0(4)	0(0)	2.9(4)
Black or African American	3.1(5)	12.0(3)	1.5(2)	4.8(1)	2.9(4)
Multiracial	8.2(13)	4.0(1)	9.2(12)	0(0)	9.7(13)
Other*	53.4(85)	0(12)	53.4(70)	0(11)	4.5(70)
		p=02	*p=.02*	*p=.28*	*p=.28*
Born in the US					
Yes	77.2(122)	80.0(20)	75.6(99)	95.0(20)	73.1(98)
No	22.8(36)	16.0(4)	24.4(32)	4.8(1)	26.1(35)
		p=.41	*p=.41*	*p=.03*	*p=.03*
Living with at least 1 parent					
Yes	83.5(132)	80.0(20)	83.2(109)	95.0(20)	81.0(108)
No	16.5(26)	20.0(5)	16.0(21)	4.8(1)	18.7(25)
		p=.64	*p=.64*	*p=.11*	*p=.11*
Relationship Status					
Single	17.6(28)	12.0(3)	17.6(23)	23.8(5)	15.7(21)
In a relationship	65.4(104)	68.0(17)	13.7(18)	52.4(11)	14.2(19)
Hooking up, friends with benefits	14.5(23)	20.0(5)	66.4(87)	19.0(4)	67.9(91)
		p=.63	*p=.63*	*p=.43*	*p=.43*
*79 out of 85 of the "other" category were participants who identified as Mexican/Hispanic when asked to write in their response					

Table 4.2: Cyber sexual harassment (CSH) and in-person sexual harassment (CSH) in relation to sexual violence among adolescent females: Findings from logistic regression models

		Crude Associations		**Adjusted Associations**	
Variable	**Total %(n)** 100(159)	**Partner Sexual Violence OR (95% CI)**	**Non-Partner Sexual Violence OR(95% CI)**	**Partner Sexual Violence AOR(95% CI)**	**Non-Partner Sexual Violence AOR(95% CI)**
Any CSH					
Yes	68.4(108)	6.4(1.5-28.5)	11.2(1.5-85.7)	6.1(1.4-27.4)	10.8(1.4-83.3)
No	31.6(50)	Ref	Ref	Ref	Ref
		p=.01	*p=.02*	*p=.02*	*p=.02*
Partner CSH					
Yes	24.5(39)	10.5(4.0-27.4)	32.3(8.7-119.4)	10.4(3.9-27.8)	31.6(8.5-117.2
No	75.5(120)	Ref	Ref	Ref	Ref
		p<.01	*p<.01*	*p<.01*	*p<.01*
Non-Partner CSH					
Yes	60.4(99)	2.7(0.9-7.7)	2.1(0.7-6.1)	2.7(0.1-7.9)	2.1(0.7-6.0)
No	39.6(63)	Ref	Ref	Ref	Ref
		p=.06	*p=.17*	*p=.06*	*p=.20*
Any IPSH					
Yes	67.9(108)	6.7(1.5-29.5)	11.5(1.5-88.6)	5.8(1.3-26.1)	11.0(1.4-85.0)
No	32.1(51)	Ref	Ref	Ref	Ref
		p=.01	*p=.02*	*p=.02*	*p=.02*
Partner IPSH					
Yes	9.6(15)	8.3(2.7-25.9)	3.8(1.2-12.7)	6.6(2.1-21.5)	3.5(1.0-12.1)
No	90.4(141)	Ref	Ref	Ref	Ref
		p<.01	*p=.03*	*p<.01*	*p=.05*
Non-Partner IPSH					
Yes	66.0(105)	4.5(1.3-15.9)	5.9(1.3-26.1)	4.0(1.1-14.3)	5.6(1.2-25.0)
No	34.0(54)	Ref	Ref	Ref	Ref
		p=.02	*p=.02*	*p=.03*	*p=.03*

Adjusted for race (do you consider yourself Hispanic/Latina)

Table 4.3: Exploratory analyses examining the overlap in sexual harassment by partners and non-partners and associations with partner and non-partner sexual violence

		Adjusted Associations			
	Total % (n)	**Partner sexual violence AOR (95% CI)**	**p-value**	**Non-partner sexual violence AOR (95% CI)**	**p-value**
Model 1					
Only partner CSH	5.0 (8)	10.6 (1.3-83.8)	.03	44.9 (3.9-517.3)	.002
Only non-partner CSH	42.8 (68)	2.2 (0.4-11.6)	.35	1.5 (.13-17.1)	.74
Partner and non-partner CSH	19.5 (31)	20.1 (4.0-100.8)	<.001	39.9 (4.8-325.2)	.001
No CSH	32.7 (52)	Ref		Ref	
Model 2					
Only partner IPSH	1.9 (3)	10.6 (.63-177.7)	.10	23.3 (1.0-527.1)	.05
Only non-partner IPSH	58.3 (91)	4.4 (.96-20.2)	.08	9.4 (1.2-74.0)	.03
Partner and non-partner IPSH	7.7 (12)	25.4 (3.9-163.7)	.001	22.4 (2.1-237.6)	.01
No IPSH	32.1 (50)	Ref		Ref	

Adjusted for race (do you consider yourself Hispanic/Latina).

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CHAPTER 5: DISCUSSION

Social and economic factors, such as gender inequitable attitudes and economic vulnerability, increase risk for sexual victimization.[1-5] Economic hardship, which often underlies women's involvement in sex work, is associated with high rates of sexual violence among female sex workers (FSW),[6] and may also contribute to related HIV/STI risk. Adolescents are another population at increased risk for sexual victimization; during this critical developmental period, gender inequitable attitudes are often formed and sexual exploration is common[7-10]. Therefore, this dissertation sought to examine how individual, social, and economic factors contribute to sexual victimization and related sexual health outcomes among FSW, adolescent and young adult males, and adolescent females. The Socio-Ecological framework, as well as the theory of gender and power, was used to examine drivers of sexual violence and related adverse sexual health outcomes.[11-13] While the current dissertation was only able to measure individual level factors, it is important to note that interpersonal and community level factors may have influenced individual level variables.

Aim 1 assessed whether the intersection of substance use and economic status increased STI risk among FSW in Mexico, a population that experiences particularly high levels of sexual violence.[14,15] Although drug use with clients increased STI risk, this was only among women who did not report economic hardship, a finding that is somewhat counterintuitive given that prior work has found substance use and economic vulnerability are independently associated with STI risk among FSW.[16-19] While several individual level factors were assessed to help explain this finding, future studies are needed to examine structural-level factors, such as venue-based factors, that may increase HIV/STI risk.

Aim 2 assessed the intersection of sexual victimization, gender inequitable attitudes, and sexual health outcomes among adolescent and young adult males, a population that is rarely studied in terms of victimization. The study was conducted in Haiti, a region plagued by natural disasters, political turmoil, economic instability, and high rates of violence.[20,21] We found that

high proportions of adolescent and young adult males experience various forms of sexual victimization. Sexual victimization was also associated with STI symptoms and STI diagnosis. Endorsement of gender attitudes around sex and violence were also associated with sexual health outcomes, however the association between sexual violence and sexual health outcomes did not vary by endorsement of gender attitudes around sex and violence. In Haiti, research has found that traditional gender norms (e.g. males should have multiple sexual partners, females should be submissive and nurturing) are commonly supported, making Haiti a unique context to study violence against males[22,23]. Contexts such as Haiti, where sexual violence occurs in high proportions among males and females[21], need to be further explored to measure perpetration and victimization among both genders. While not specifically assessed, it is possible that cultural norms that support male dominance may have played a role in the individual-level variables to influence endorsement of gender inequitable attitudes, subsequently influencing sexual health. More work is needed to shift gender norms at the community and policy level in order to also impact individual-level change. Ultimately, there is a need to raise awareness about the prevalence of sexual victimization among males, and a need to educate the larger community about violence against adolescent and young adult males and shift gender inequitable attitudes.

Aim 3 examined various experiences of sexual victimization among adolescent females across multiple contexts (e.g., in-person and online). Sexual harassment of adolescent females occurs in-person and via electronic communication, and both types of harassment were associated with in-person sexual violence. While perpetrators of each type of victimization were examined, findings indicate that experiencing any type of sexual harassment was associated with increased risk for partner and non-partner sexual violence. It is essential to continue examining the various type of sexual victimization adolescent females may experience, and particularly the role electronic communication plays in sexual victimization. More work is also needed to explore and address the underlying mechanisms, such as inequitable gender norms,

that may contribute to the high prevalence and acceptability of sexual victimization among adolescent females

Dissertation limitations

The dissertation has several overarching limitations that should be acknowledged and considered for future research and programmatic efforts. First, the cross-sectional nature of the data does not allow us to infer causality. Second, all data (with the exception of STI testing in paper 1) was self-report, therefore recall or social desirability bias may have occurred, possibly resulting in underreporting of sexual victimization experiences. Third, while paper 2 utilized data from a nationally representative sample, it is possible that study findings from papers 1 and 3 may be limited in terms of generalizability and may be most applicable in the specific geographic regions where the studies were conducted. Lastly, while the socio-ecological framework was used to frame this dissertation, variables were only measured at the individual level.

Implications for future research

The reduction of sexual violence among vulnerable populations can be achieved if the social and economic factors that perpetuate this type of victimization can be identified and addressed. This dissertation identified and filled several gaps in the violence literature by identifying the various ways in which adolescents may perceive and experience sexual victimization, and differences by gender and cultural context. Qualitative studies are recommended to further explore gender differences in perceptions of sexual victimization. Improved sexual violence measures that address gender differences in violence experiences are also needed. Additionally, this dissertation primarily assessed sexual victimization, however perpetration of sexual violence should also be measured in order to further explore the scenarios in which victimization occurs and whether this differs by gender. Use of dyadic data, in which both partners are asked about their experiences of sexual victimization and perpetration is a recommended next step.

Dissertation findings indicate that reducing sexual violence may also decrease adverse sexual health outcomes such as HIV/STI. However, given the cross-sectional nature of the data, longitudinal studies are needed in order to determine temporality and make causal inferences. It is also essential to further explore whether there are certain social and economic factors that contribute to both sexual victimization and sexual health outcomes. Future studies are needed using other methodologies to assess the role of higher-level factors (e.g., venue-level characteristics, community-level endorsement of gender inequitable attitudes, stigma towards certain populations) associated with sexual violence and related sexual health outcomes.

Public health implications

Although future research is needed to explore the multiple social, structural, and cultural factors that contribute to sexual victimization and related sexual health outcomes, results from the current dissertation can be used to strengthen sexual violence prevention efforts. First and foremost, interventions aimed to reduce sexual violence should be cognizant of variations in violence experiences across populations. A one-size-fits-all approach may not adequately address the unique needs of certain populations; therefore, sexual violence prevention and intervention programs should tailor their curriculum based on the population they are trying to serve. Education programs aimed to increase sexual health knowledge may also provide a unique opportunity to educate individuals about sexual victimization. Sexual violence screening should also be integrated into standard of care among patients who are being treated for an STI. Interventions that utilize a gender-transformative framework to address the social and economic drivers of sexual violence across multiple levels of the socio-ecological model are also needed.

Conclusions

Although one of the Sustainable Development Goals is to achieve gender equality and eliminate all forms of violence by 2030, the majority of programs implemented to help achieve this goal focus on women and girls. Adolescents and FSW face unique social and economic factors that may increase risk for sexual violence, yet their unique experiences are often overlooked when designing sexual violence prevention programs. Public health efforts are therefore needed to address norms and gender inequitable attitudes that may contribute to the perpetration of violence against vulnerable populations, especially in contexts with high proportions of sexual violence.

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