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A. M. Parcesepe

Kelly L'Engle

University of San Francisco, klengle@usfca.edu

S. L. Martin

S. Green

C. Suchindran

*See next page for additional authors*

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**Authors**

A. M. Parcesepe, Kelly L'Engle, S. L. Martin, S. Green, C. Suchindran, and P. Mwarogo



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## Early sex work initiation and condom use among alcohol-using female sex workers in Mombasa, Kenya: a cross-sectional analysis

Angela M Parcesepe<sup>1,2</sup>, Kelly L L'Engle<sup>3,4</sup>, Sandra L Martin<sup>1</sup>, Sherri Green<sup>1</sup>, Chirayath Suchindran<sup>5</sup>, and Peter Mwarogo<sup>6</sup>

<sup>1</sup>Department of Maternal and Child Health, University of North Carolina at Chapel Hill, Gillings School of Global Public Health, Chapel Hill, North Carolina, USA

<sup>2</sup>HIV Center for Clinical and Behavioral Studies, Columbia University and New York State Psychiatric Institute, New York, New York, USA

<sup>3</sup>FHI 360, Durham, North Carolina, USA

<sup>4</sup>Population Health Sciences, School of Nursing and Health Professions, University of San Francisco, San Francisco, California, USA

<sup>5</sup>Department of Biostatistics, University of North Carolina at Chapel Hill, Gillings School of Global Public Health, Chapel Hill, North Carolina, USA

<sup>6</sup>FHI 360, Nairobi, Kenya

### Abstract

**Objectives**—Early initiation of sex work is prevalent among female sex workers (FSWs) worldwide. The objectives of this study were to investigate if early initiation of sex work was associated with: (1) consistent condom use, (2) condom negotiation self-efficacy or (3) condom use norms among alcohol-using FSWs in Mombasa, Kenya.

**Methods**—In-person interviews were conducted with 816 FSWs in Mombasa, Kenya. Sample participants were: recruited from HIV prevention drop-in centres, 18 years or older and moderate risk drinkers. Early initiation was defined as first engaging in sex work at 17 years or younger. Logistic regression modelled outcomes as a function of early initiation, adjusting for drop-in centre, years in sex work, supporting others and HIV status.

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Correspondence to: Dr Angela M Parcesepe, HIV Center for Clinical and Behavioral Studies, Columbia University and New York State Psychiatric Institute, 1501 Riverside Drive, New York, NY 10032, USA; ap3471@cumc.columbia.edu.

**Contributors** AMP developed the research question, designed and conducted the analyses and wrote the initial draft of the manuscript. KLL designed and directed the parent study and contributed to the development of the research question and manuscript writing. SLM contributed to the development of the research question, manuscript writing and critical revision. CS contributed to statistical analyses and manuscript writing. SG contributed to manuscript writing and critical revision. PM assisted with implementation and management of the parent study. All authors contributed to the writing and have approved the final manuscript.

**Competing interests** None declared.

**Ethics approval** University of North Carolina at Chapel Hill's Institutional Review Board.

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**Results**—FSWs who initiated sex work early were significantly less likely to report consistent condom use with paying sex partners compared with those who initiated sex work in adulthood. There was no significant difference between groups in consistent condom use with non-paying sex partners. FSWs who initiated sex work early endorsed less condom negotiation self-efficacy with paying sex partners compared with FSWs who did not initiate sex work early.

**Conclusions**—Findings highlight a need for early intervention for at-risk youth and adolescent FSWs, particularly in relation to HIV sexual risk behaviours. Evidence-based interventions for adolescent FSWs or adult FSWs who began sex work in adolescence should be developed, implemented and evaluated.

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## BACKGROUND

Early initiation of sex work (ie, sex work at age 17 years or younger) is prevalent among female sex workers (FSWs) worldwide. Approximately 20–40% of FSWs across countries report initiating sex work younger than 18 years with an average age of sex work initiation of 16 years or younger.<sup>1–3</sup> Between 19% and 50% of adult FSWs report being coerced or forced into sex work under the age of 18 years.<sup>45</sup> Among those not forced into sex work, economic vulnerability, gender-based violence and limited social support increase adolescents' vulnerability to engage in commercial sex.<sup>67</sup>

Early initiation of sex work has been associated with HIV sexual risk including unprotected transactional sex, alcohol use before transactional sex, and servicing clients in public places.<sup>389</sup> This relationship may be due to lower levels of risk reduction self-efficacy.<sup>10–12</sup> Age and power imbalances with sex partners and managers may contribute to less decision-making power and risk reduction self-efficacy among adolescent FSWs compared with adult FSWs, particularly in relation to risk reduction strategies requiring partner cooperation such as condom use.<sup>1213</sup> Among adult FSWs, greater self-efficacy has been associated with reduced HIV sexual risk.<sup>14</sup>

HIV sexual risk behaviours may also be influenced by behaviours and perceptions of one's peers.<sup>1516</sup> Little is known about whether peer norms related to condom use differ between FSWs who initiated sex work early and those who did not.

Research on the association between early initiation of sex work and HIV sexual risk among FSWs remains limited worldwide and is particularly absent in sub-Saharan Africa. Further understanding whether early initiation of sex work is associated with sexual risk in adulthood can inform effective interventions. Improved understanding of the influence of early initiation of sex work on HIV sexual risk behaviours among adult FSWs can influence the development of interventions and services to avert future HIV infections among FSWs and the general population and prevent early initiation of sex work.

The objectives of this study were to investigate if early initiation of sex work was associated with: (1) consistent condom use, (2) condom negotiation self-efficacy or (3) condom-related social norms among alcohol-using FSWs in Mombasa, Kenya.

## METHODS

### Sample

Study data are baseline data from a randomised controlled trial of an alcohol harm reduction intervention among moderate drinking FSWs in Mombasa, Kenya.<sup>17</sup> Participants were recruited from three drop-in centres that provide HIV prevention services in Kisauni, Chaani and Likoni divisions of Mombasa district, Kenya. Chaani is near the port and the international airport and is a transport hub connecting Mombasa with eastern and southern Africa. Likoni is near the Kenyan Navy and has a large military population. Kisauni is on the north coast of Mombasa, known for its entertainment industry. Women were eligible for study enrolment if they: were at least 18 years of age; visited one of three HIV drop-in centres; intended on living in Mombasa for 12 months or more; reported transactional sex (ie, self-report of exchange of any type of sex including oral, anal or vaginal sex for money or gifts) in the past 6 months; and screened positive for hazardous or harmful drinking (ie, scored between 7 and 19 on the alcohol use disorders identification test).<sup>18</sup> A total of 818 FSWs were enrolled in the study. The current study includes 816 individuals for whom age of sex work initiation was captured.

### Data collection

Data were collected between March and September 2011 as part of a randomised controlled alcohol harm reduction intervention study with FSWs in Mombasa, Kenya.<sup>17</sup> Further details regarding data collection procedures were previously reported.<sup>17</sup>

### Assessment

**Early sex work initiation**—Participants were asked how old they were when they first received money for sex. Early initiation was defined as first having received money for sex at age 17 years or younger. Under Kenya's Children's Act, a child is defined as anyone under age 18 years.<sup>19</sup>

**HIV testing**—All participants were tested for HIV using an HIV rapid test. Confirmation testing with a different rapid test and/or ELISA or western blot assay was conducted for positive results.

**Condom use**—Participants were asked the frequency with which they used condoms in the past 30 days. Questions were asked separately for condom use with paying and non-paying sex partners. Responses of 'all of the time' were coded positive for consistent condom use. All other responses (most of the time, sometimes, rarely, never) were coded negative for consistent condom use.

**Condom negotiation self-efficacy**—Participants were asked if they could ask a new boyfriend to use condoms and if they could refuse sex with a paying partner if no condom was available.

**Condom-related social norms**—Participants were asked if they agreed or disagreed with statements concerning their friends' perceptions of condom use (ie, 'My friends think

condoms should be used every time they have sex with a paying partner'; 'My friends think condoms should be used every time they have sex with a non-paying partner'). Responses were dichotomised into agree (strongly agree or agree) and disagree (disagree or strongly disagree).

**Sociodemographic and occupational characteristics**—Sociodemographic variables included age, education, marital status, currently supporting others and having a non-paying sex partner. Occupational characteristics included where study participants typically met paying clients and years in sex work.

## ANALYSIS

The relationship between sociodemographic characteristics and early initiation was assessed with bivariate analyses. Pearson's  $\chi^2$  tests were used for dichotomous variables (eg, marital status) and t tests for continuous variables (eg, current age).

Relationships between exposure (ie, early initiation of sex work) and outcome variables (ie, condom use, self-efficacy, condom use norms) were assessed with bivariate analyses using Pearson's  $\chi^2$  tests. Logistic regression analyses with logit link and binomial distribution were conducted to further assess the relationship between exposure and outcome variables. Multivariable analyses controlled for drop-in centre. Based on previous literature, adjusted analyses also controlled for years in sex work, supporting others and HIV prevalence.<sup>359</sup> Current age and years in sex work were collinear. Years in sex work, but not current age, was included in adjusted regression models. Analyses were conducted using SAS V.9.3. Missing data were minimal (ie, <5%) for all variables.

Sensitivity analyses were conducted to investigate if current age, years in sex work or HIV prevalence modified the relationship between early initiation and condom use with paying or non-paying partners. Bivariate analyses were conducted to assess the relationship between early initiation and condom use stratified by current age (ie, 18–24 years, 25–29 years, 30 years or older). Similarly, bivariate analyses were conducted to assess the relationship between early initiation and condom use stratified by years in sex work (ie, 0–2 years, >2–10 years, >10 years) and then by HIV status. Due to sample size limitations, multivariate sensitivity analyses were not conducted.

The parent study was approved by the ethics review committees at FHI 360 and the Kenyatta National Hospital. The University of North Carolina at Chapel Hill's Institutional Review Board determined that the current study did not constitute human subjects research as it was secondary analysis of deidentified data (Approval No. 14-2926). The parent trial was registered with ClinicalTrials.gov, NCT01756469.

## RESULTS

### Sociodemographic characteristics

One-fifth (19.9%) of FSWs surveyed reported early initiation of sex work.

The median current age of those who reported early initiation was 24 years while the median current age of those who did not report early initiation was 26 years (table 1). Those who reported early initiation reported significantly lower levels of education and were less likely to have ever been married or be financially supporting others compared with those who did not report early initiation. There was no difference between groups in the proportion that had a non-paying sex partner or in where participants typically met paying clients. HIV prevalence did not differ significantly between groups. Early initiation was more common in the Chaani neighbourhood of Mombasa.

### **Consistent condom use, condom negotiation self-efficacy and condom use norms**

Consistent condom use with paying partners was reported by 70.3% of the sample (see table 2). FSWs who initiated sex work early were significantly less likely to report consistent condom use with paying sex partners compared with those who did not. In crude analyses, FSWs who initiated sex work early were half as likely (OR 0.50 (95% CI 0.36 to 0.69)) to report consistent condom use with paying partners compared with FSWs who did not initiate sex work early. This association persisted in adjusted analyses (see table 3). Consistent condom use with non-paying partners was less prevalent across groups with 40.4% of those surveyed reporting consistent condom use with non-paying partners. There was no significant difference between groups in consistent condom use with non-paying partners.

FSWs who initiated sex work early endorsed less condom negotiation self-efficacy with paying partners compared with FSWs who did not initiate sex work early (see table 4). In crude analyses, early initiators reported significantly less self-efficacy (OR 0.42 (0.30 to 0.59)) to refuse sex with a paying partner if a condom was not available compared with those who did not initiate sex work early. This association persisted in adjusted analyses. Condom negotiation self-efficacy was significantly associated with consistent condom use. Consistent condom use with paying partners was significantly higher among those who could refuse sex with a paying partner if a condom was not available compared with those who could not (75.7% and 33.3%, respectively). Similarly, consistent condom use with non-paying partners was significantly higher among those who could refuse sex with a paying partner if a condom was not available compared with those who could not (43.5% and 20.0%, respectively).

Virtually all participants (98.7%) agreed they could ask a new boyfriend to use a condom. In bivariate analyses, early initiation was not significantly associated with self-efficacy related to asking a new boyfriend to use a condom (data not shown). Multivariate analyses were not performed given limited variability of responses.

Peer endorsement of consistent condom use with paying partners was prevalent across groups, with 92.9% agreeing that friends think condoms should be used every time they have sex with a paying client. There was no difference between groups in perceived approval of consistent condom use with paying partners in crude or adjusted analyses. However, early sex work initiation was associated with condom-related social norms with non-paying partners. Across groups, 33.3% agreed that their friends believed that condoms should be used every time they had sex with a non-paying partner. In crude analyses, early initiation was associated with reduced odds (OR 0.73 (95% 0.67 to 0.79)) of reporting that their

friends endorsed consistent condom use with non-paying partners. This association persisted in adjusted analyses.

There was no evidence of effect modification by variables examined. The relationship between early initiation and consistent condom use with paying partners persisted when stratified by current age and years in sex work. Among HIV-negative individuals, early initiators reported statistically significantly less consistent condom use with paying partners compared with those who did not initiate early (59.1% vs 74.4%, respectively). Similarly, among HIV-positive individuals, early initiators were less likely to report consistent condom use with paying partners compared with those who did not initiate sex work early (51.7% vs 69.7%, respectively). This relationship approached significance ( $p=0.06$ ). The relationship between early initiation and consistent condom use with non-paying partners remained statistically insignificant when stratified by current age, years in sex work and HIV status.

## DISCUSSION

Early initiation of sex work was common among this sample with one in five women reporting having started sex work at age 17 years or younger. Examination of sociodemographic characteristics by drop-in centre did not identify significant differences among drop-in centres that would explain the higher prevalence of early initiation in Chaani. Additional qualitative research is warranted to understand the context of early sex work throughout Mombasa.

FSWs who initiated sex work early were significantly less likely to report consistent condom use with paying partners. However, there was no significant association between early initiation and consistent condom use with non-paying partners. These findings are consistent with previous research that found that among HIV-positive FSWs in India, beginning sex work under the age of 18 years was associated with recent unprotected transactional sex.<sup>9</sup> Current findings may be influenced by the relatively low prevalence of consistent condom use with non-paying partners, regardless of age at sex work initiation. Findings suggest the relationship between early initiation and HIV sexual risk behaviour differs by partner type. Future research should inquire separately about condom use with paying and non-paying partners. In addition, condom negotiation interventions for adolescent FSWs and adult FSWs who initiated sex work early may require intervention components tailored to type of sex partner. Interventions for adolescent FSWs and adult FSWs who initiated sex work early should focus on HIV risk reduction strategies, in particular risk reduction with paying partners, and should incorporate strategies that do not require partner consent, such as pre-exposure prophylaxis (PrEP), where available.

Differences in circumstances related to sex work entry may mediate the relationship between early initiation and condom use. Research with FSWs in India found substantial co-occurrence of having been forced or coerced into sex work and having entered sex work under age 18 years.<sup>9</sup> Similarly, early initiation was significantly associated with having been coerced into sex work among adult sex workers in Canada.<sup>3</sup> Research into the context of adolescent sex work found that some girls reported being coerced or encouraged to engage in commercial sex by boyfriends or family members as an income-generating mechanism.<sup>6</sup>

Others reported engaging in commercial sex after leaving home to avoid violence.<sup>6</sup> FSWs who were forced or coerced into sex work report higher HIV risk than FSWs who were not forced or coerced.<sup>4</sup> Circumstances regarding entry into sex work, beyond age at entry, remain unknown for this sample. A fuller understanding of the context of early sex work initiation is needed.

Reduced condom negotiation self-efficacy may influence the pathway between early initiation and consistent condom use among paying partners. Early initiators endorsed less self-efficacy in refusing sex without a condom with paying partners. Condom negotiation self-efficacy was significantly positively associated with condom use with paying and non-paying partners. Given that early initiators endorsed less condom use and condom negotiation self-efficacy with paying sex partners and that self-efficacy was associated with condom use, interventions focusing on skill building and empowerment with FSWs who initiated sex work early are warranted. HIV risk reduction interventions that develop skills to effectively negotiate condom use with paying partners may be well suited to adolescent FSWs and adult FSWs who initiated sex work early. Peer support interventions to boost individual and collective HIV risk reduction self-efficacy may be particularly appropriate for adolescent FSWs and adult FSWs who initiated sex work early. Self-help groups among FSWs in India have shown a significant impact on collective self-efficacy and consistent condom use.<sup>15</sup> Community empowerment based approaches have been associated with reduced HIV sexual risk behaviours among FSWs and consistent condom use.<sup>20</sup> Self-efficacy and empowerment-related interventions should be implemented and evaluated with adolescent FSWs and adult FSWs who initiated sex work early.

Peer endorsement of consistent condom use with non-paying partners was significantly lower among FSWs who initiated sex work early. A similar relationship was not found with peer endorsement of consistent condom use with paying partners. Additional research is needed to further understand the relationship between condom use norms and early initiation, particularly with non-paying partners. Lack of peer support may be a barrier to consistent condom use among FSWs.<sup>21</sup> In addition, competition for paying partners has been associated with inconsistent condom use.<sup>22</sup> Interventions that incorporate peer network and support systems and encourage health-promoting behaviours such as consistent condom use and frequent HIV testing may be well suited to adolescent FSWs and adult FSWs who initiated sex work early.

Appropriate and accessible HIV prevention services for adolescent FSWs and adult FSWs who initiated sex work early are needed.<sup>10</sup> A lack of adolescent-friendly health services and services targeting adolescent FSWs may discourage adolescent FSWs from seeking health services. Patterns of disengagement from health services in adolescence may persist into adulthood. FSWs who initiated sex work early may be more disengaged from health services and less likely to receive HIV prevention services.

Multilevel interventions that address structural barriers to consistent condom use such as violence, substance use, stigma and economic vulnerability should be developed and implemented with this population, particularly as multilevel interventions have demonstrated effectiveness at improving the health and safety of FSWs.<sup>23</sup> HIV risk reduction interventions

that incorporate the partners of FSWs, bar and brothel owners and managers are also warranted.

This study has limitations worth noting. With the exception of HIV status, all data were self-reported and may be subject to social desirability bias. FSWs were sampled from three areas of Mombasa and are not representative of FSWs throughout Kenya. FSWs visited drop-in centres that provide HIV prevention services. Experiences of FSWs in this sample may be dissimilar to those of FSWs who have not visited drop-in centres. FSWs in this study were moderate risk drinkers. The relationship between early initiation and condom use may differ among FSWs who are not moderate risk drinkers. Data were not available on type of paying partners (eg, regular paying partners). It is unknown if the relationship between early initiation and condom use differed by type of paying partner. Data were not available on whether participants knew their HIV status prior to enrolment. Given this, it was not possible to examine the relationship between HIV status and condom use among those that previously knew their status. Only women aged 18 years or older were enrolled. Outcomes measured during adulthood may have been meaningfully different at earlier life stages, specifically when women engaged in sex work as children or adolescents. If HIV risk behaviours decreased or HIV risk related self-efficacy increased from adolescence to adulthood, differences in HIV risk behaviour and self-efficacy would likely be greater when comparing adolescent and adult FSWs. Additional research with adolescent FSWs and longitudinal research following adolescent FSWs into adulthood is needed to better understand the context of adolescent sex work and develop effective interventions to reduce HIV risk among this vulnerable population.

Despite limitations, findings highlight a need for early intervention for at-risk youth and adolescent FSWs, particularly in relation to HIV sexual risk. Evidence-based interventions for adolescent FSWs or adult FSWs who began sex work in adolescence should be developed, implemented and evaluated. Interventions to address structural risk factors associated with early initiation of sex work and reduce HIV sexual risk among adolescent FSWs are needed.

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**Key messages**

- Early sex work initiation was associated with less consistent condom use with paying, but not with non-paying sex partners.
- Female sex workers (FSWs) who initiated sex work early endorsed less condom negotiation self-efficacy with paying sex partners compared with FSWs who did not initiate sex work early.
- Peer endorsement of consistent condom use with non-paying partners was significantly lower among FSWs who initiated sex work early.

**Table 1**

Sociodemographic and occupational characteristics of sample by early initiation of sex work

Characteristic	Total (n=816) Median (IQR)	Began sex work <18 years (n=162) Median (IQR)	Began sex work 18 years (n=654) Median (IQR)	p Value
Age when first engaged in sex work (years)	20 (5)	16 (2)	21 (5)	<0.0001
Current age (years)	26 (7)	24 (7)	26 (9)	<0.0001
	<b>n (%)</b>	<b>n (%)</b>	<b>n (%)</b>	
Highest level of education				0.003
Primary school or less	449 (55.0)	106 (65.4)	343 (52.5)	
Secondary school or more	367 (45.0)	56 (34.6)	311 (47.6)	
Marital status *				0.003
Never married	376 (46.6)	94 (58.4)	282 (43.7)	
Currently married	28 (3.5)	3 (1.9)	25 (3.9)	
Divorced/separated/widowed	403 (49.9)	64 (39.8)	339 (52.5)	
Currently has non-paying partner				0.64
Yes	618 (75.7)	125 (77.2)	493 (75.4)	
No	198 (24.3)	37 (22.8)	161 (24.6)	
Currently supporting others *				0.02
No	85 (10.5)	25 (15.4)	60 (9.2)	
Yes	728 (89.5)	137 (84.6)	591 (90.8)	
HIV status				0.44
Positive	164 (20.1)	29 (17.9)	135 (20.6)	
Negative	652 (79.9)	133 (82.1)	519 (79.4)	
Where usually meet paying clients *				0.16
Bar/nightclub	656 (80.5)	124 (76.5)	532 (81.5)	
Street/home/hotel/beach	159 (19.5)	38 (23.5)	121 (18.5)	
Drop-in centre				<0.0001
Kisauni	304 (37.3)	41 (25.3)	263 (40.2)	
Chaani	285 (34.9)	88 (54.3)	197 (30.1)	
Likoni	227 (27.8)	33 (20.4)	194 (29.7)	

\* Missing data by variable: Marital status 9; Supporting others 3; Where meet clients 1.

**Table 2**

Early initiation of sex work and consistent condom use

	<b>Total (n=816) n (%)</b>	<b>Began sex work &lt;18 years (n=162) n (%)</b>	<b>Began sex work 18 years (n=654) n (%)</b>	<b>Crude OR (95% CI)</b>
Consistent condom use with paying sex partners <sup>*</sup>	568 (70.3)	93 (57.8)	475 (73.4)	0.50 (0.36 to 0.69) <sup>**</sup>
Consistent condom use with non-paying sex partners <sup>†</sup>	245 (40.4)	47 (38.5)	198 (40.9)	0.91 (0.68 to 1.20)

\* Among entire sample. Missing data: n=8.

† Among those with non-paying partner (n=618); Missing data: n=12.

\*\* p<0.0001.

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**Table 3**

Multivariable analyses of early initiation of sex work and condom use

	<b>Model 1. Consistent condom use with paying sex partners<sup>†</sup> OR (95% CI)</b>	<b>Model 2. Consistent condom use with non-paying sex partners<sup>‡</sup> OR (95% CI)</b>
Predictor variables		
Early initiation of sex work	0.50 (0.35 to 0.72)*	0.89 (0.68 to 1.17)
Years in sex work	0.99 (0.98 to 1.01)	1.03 (1.00 to 1.05)
Supporting others	1.12 (0.71 to 1.99)	1.18 (0.84 to 1.65)
HIV-positive	0.78 (0.31 to 2.02)	1.18 (0.63 to 2.23)

\*p&lt;0.01.

<sup>†</sup> Among entire sample.<sup>‡</sup> Among those with non-paying partner (n=618).

**Table 4**  
Early initiation of sex work and HIV condom negotiation self-efficacy and condom use norms

	Total (n=816) n (%)	Began sex work <18 years (n=162) n (%)	Began sex work 18 years (n=654) n (%)	Crude OR (95% CI)	Adjusted OR (95% CI)
<i>Self-efficacy related to condom use</i>					
Could refuse sex with paying partner when no condom available*					
No (referent)	99 (12.2)	34 (21.0)	65 (10.0)		
Yes	713 (87.8)	128 (79.0)	585 (90.0)	0.42 (0.30 to 0.59)**	0.41 (0.27 to 0.62)**
<i>Social norms related to condom use</i>					
My friends think condoms should be used every time they have sex with a paying client*					
Disagree/strongly disagree(referent)	58 (7.1)	14 (8.8)	44 (6.7)		
Agree/strongly agree	755 (92.9)	146 (91.3)	609 (93.3)	0.75 (0.42 to 1.34)	0.82 (0.49 to 1.36)
My friends think condoms should be used every time they have sex with a non-paying sex partner					
Disagree/strongly disagree(referent)	264 (33.3)	60 (39.2)	204 (31.9)		
Agree/strongly agree	529 (66.7)	93 (60.8)	436 (68.1)	0.73 (0.67 to 0.79)**	0.74 (0.66 to 0.83)**

\* Missing data by variable: Could refuse sex with paying partner when no condom available 2; My friends think condoms should be used every time they have sex with a paying client 3; My friends think condoms should be used every time they have sex with a non-paying sex partner 23.

\*\* p<0.0001.