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Pornography, Sexual Enhancement Products, and Sexual Risk of Female Sex Workers and their Clients in Southern India

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Abstract Despite their large numbers, and important role in the HIV epidemic in India, male clients of female sex workers (FSWs) are a difficult to reach population and little is known about their sexual behaviors. Using data from an integrated behavioral and biological assessment of 684 clients in Bangalore in 2012, we examined factors associated with their reports of having sex with three or more different female sex workers in the last month, and anal sex with sex workers. We included sociodemographic and sexual behavior factors and, for the first time in client studies in India, included data on the use of pornography and sexual enhancement products (SEPs) such as pills, oils, and sprays, in our multivariable analyses of client risk. Seventy-eight percent of clients had seen pornographic material and 8 % reported ever having used SEPs. The profiles of men practicing the two risk behaviors examined were quite different. Travel in the past year, drunkenness in the past month, young age at first commercial sex, non-use of condoms at last sex, and finding sex workers in public places (but not use of pornography and SEPs) were independently associated with multiple partnering. Sex with a man or transsexual, being a white collar worker, seeking out FSWs at home, pornography and SEP use, and condom use at last FSW sex, were all independently associated with anal sex with an FSW. More research is needed to better understand the links between pornography and SEPs, and HIV risk behaviors, and HIV prevention programs need to be cognizant of the importance of ensuring that condom use is adequately promoted and supported in the context of anal sex in female sex worker–client interactions.

Keywords Pornography · Sexual enhancement products · HIV risk behaviors · Anal sex · India · Female sex workers · Clients of female sex workers

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Introduction

Commercial sex is an important driver of the Indian HIV epidemic and female sex workers (FSWs) and their clients are at the centre of India's HIV prevention efforts (Mainkar et al., 2011). FSW clients form a bridge to the general population (Alary & Lowndes, 2004; Gomes do Espirito Santo & Etheredge, 2005) and in India it is estimated that between 1 % (Decker et al., 2010) and 4 % of all men (up to 8.5 million men) (Gaffey et al., 2011) are clients of FSWs. Studies from southern India have found that between 2 and 10 % of clients have HIV infection (Shaw et al., 2011; Subramanian et al., 2008), but few studies have ascertained the key client characteristics or behaviors associated with infection, other than long duration of buying sex (Shaw et al., 2011). Studies among female sex workers in India show that having a

large number of clients is associated with HIV infection (Garnett, White, & Ward, 2008; Ghani & Aral, 2005; Ramesh et al., 2008); on the contrary, men who have multiple FSW partners have not been found to be at greater risk (Shaw et al., 2011).

Unprotected heterosexual anal sex can increase the risk of HIV and other sexually transmitted infections (Baldwin & Baldwin, 2000; Buzdugan et al., 2010; Veldhuijzen et al., 2011). General population studies in India suggest that anal sex is not widely practiced in the general community (Lowndes et al., 2012; Munro et al., 2008). Among sex worker clients, varying rates of anal sex have been reported; in client studies in 12 districts of southern India, anal sex with FSWs ranged from 4.5 to 23.3 % (Subramanian et al., 2008). In another study in Andhra Pradesh (AP), 15 % of FSWs reported anal sex with clients in the last 30 days, higher in those who were experiencing financial hardship (Reed, Gupta, Biradavolu, Devireddy, & Blankenship, 2010). In qualitative studies in AP, where social desirability bias might be lessened, between 60 and 80 % of FSWs reported having had anal sex with clients (Beattie, Bradley, Vanta, Lowndes, & Alary, 2013; Matheou, 2010), and study participants reported that requests for anal sex were on the increase. This was felt by them to be a result of increased access by their clients to pornographic materials, where unprotected anal sex was often featured (Beattie et al., 2013; Tucker, Krishna, Prabhakar, Panyam, & Anand, 2012).

Although pornography is widely available in India, there have been few studies of it in the context of commercial sex, multiple partnering, and practices such as anal sex. It was estimated that in 2012, 960 million people in India had mobile phones (Telecom India, 2012) and 150 million were internet subscribers (Internet and Mobile Association of India, 2012), enabling widespread access to pornographic material. A study by Shankar (2012) among male college students in India showed that 78 % had watched pornography; another study among Mumbai male college students found that their main source of information about sex (including anal and oral sex) was erotic sources, and that this influenced their purchasing of sex (Abraham, 2001). Furthermore, men who watch pornography are more likely to see their regular partners as not "good" sex partners, and thus are more motivated to seek new partners, and more varied sexual activities (Zillman & Bryant, 1988). Studies in India have shown that pornography use by young men negatively shapes their views of what it is to be a man and of how women should be treated (Verma & Mahendra, 2004).

There is also evidence now of widespread recreational use of sexual enhancement products (SEPs) such as pills, oils, and sprays among young heterosexual as well as gay men in the west (Crosby & DiClementi, 2004; Peters, Johnson, Keider, Meshack, & Jefferson, 2007; Sherr, Bolding, Maguire, & Elford, 2000; Swearingen & Klausner, 2005), even where the men report no problems with erectile dysfunction (Korkes, Costa-Matos, Gasperini, Reginato, & Perez, 2008). The use of traditional or ayurvedic SEPs is not new in India, and the pre-occupation with sexual performance is centuries old (Alter, 1997). Sex and vitality clinics abound in urban areas, offering cures for sexually transmitted infections, impotence and premature ejaculation, and offering ways of enhancing sexual performance and the promise of male progeny. Female sex workers in Bangalore have reported that their use by clients makes them overly excited and causes their clients to be forceful, aggressive, and careless about condom use, as well as to prolong sex acts and delay ejaculation (Gurav, Bradley, Chandrashekhar Gowda, & Alary, 2014).

Other factors have been shown to be associated with a variety of client risk behaviors: increased age of clients, young age at first sex, commercial sex during travel, and illiteracy (Subramanian et al., 2008). Furthermore, those with multiple FSW contacts in the past month are also more likely to engage in anal sex, have a greater partner mix (commercial, casual, and main partner) and to use condoms inconsistently (Subramanian et al., 2008). Place of solicitation was examined in a study of three south Indian states by Suryawanshi et al. (2013), who found that clients of FSWs who solicited from home, by phone or using agents, had more extensive sexual networks and anal intercourse with both male and female partners. Clients of brothel-based FSWs were the least educated, reported the fewest number and categories of partners, the least anal sex, and the lowest condom use. FSW studies have shown that alcohol use by FSWs and their clients may provide the impetus for more risk-taking, including multiple partnering and unprotected anal sex (Dandona et al., 2008; Davis, Norris, George, Martell, & Heiman, 2006; Fisher, Cook, & Kapiga, 2010; Madhivanan et al., 2005; World Health Organization, 2005). In India, alcohol use is embedded in cultural norms of masculinity and is often a precursor to sexual risk taking (Singh et al., 2010; Verma, Saggurti, Singh, & Swain, 2010).

For the first time in FSW client studies in India, we included data on pornography and SEP use in our analyses of client risk, prompted by our earlier study of female sex workers' reports of their use in Bangalore (Gurav et al., 2014) and concern that our programmatic health messages might be missing crucial harm reduction components. First, we quantified the use of SEPs and pornography by sex worker clients, and identified user characteristics. Second, we examined factors that might be associated with two client risk behaviors (multiple partnering with FSWs and unprotected anal sex with FSWs).

Method

In the first part of the study, data were obtained from a cross-sectional behavioral and biological assessment of clients in Bangalore in Karnataka state, southern India. Clients were recruited in January 2012 through a multistage time-location cluster (TLC) sampling technique. Briefly, since FSWs solicit in public-place and non-public-place domains with varying risk, we expect that the clients soliciting in those domains also have varying risk. Further, as the clients of FSWs are a mobile group, a TLC approach was adopted in the selection of clusters, with 85 chosen from each domain. For each site that operated every day of the week, TLCs

were generated based on operational times (peak time, lean time, etc.). For those sites not operational on all the days, only those functional days were considered in the TLCs.

In the next stage, and depending on the place of solicitation, clients were identified by the study supervisors with the support of FSWs, brothel "madams," brothel owners, or through visible clues suggestive of men seeking sex workers. Field supervisors then approached and recruited clients. The TLCs were further divided into smaller time slots to facilitate selection of respondents. If there were more than 5 eligible clients in a cluster, 5 were selected at random; if there were less than 5, then all were selected, and then recruitment continued in the next smaller time slot until the required sample size was achieved. Men were eligible if they were between 18 and 60 years of age, and if they reported exchanging money for sex with FSWs in the past month. Of the men approached, the response rate was 79.3 %. Further, a count of eligible clients was also recorded for the entire TLC to derive the sampling fraction, which was later used to compute the sample weights.

Men were interviewed individually through a structured questionnaire administered by trained workers in *Kannada*, the local language. The questions focused on sociodemographic data, sexual behavior, condom use, use of pornography, and use of SEPs to enhance sexual pleasure. Data were double-entered into CSPro 4.0 (US census Bureau, USA) and analyzed using SAS (SAS Institute Inc., Cary, NC, USA). Sample probabilities and weights were computed and used to account for domain and cluster level variations in the selection probabilities of respondents. We first examined the frequency of use of pornography and SEPs and described the men who used them. Then we examined factors associated with two dependent variables that reflect risky behavior: having sex with three or more different FSWs in the past month and the practice of anal sex with sex workers. Multivariable analysis was undertaken using a multiple logistic regression model. Variables with a univariate p value of <0.10 were included in the multiple regression model because of the exploratory nature of the analysis.

Verbal witnessed informed consent was obtained from participants, and the institutional review boards at the University of Manitoba in Winnipeg, Manitoba and St. John's Medical College and Hospital in Bangalore, India approved the study.

Results

In all, 684 FSW clients were interviewed. More than two-thirds were married and three-quarters were literate (Table 1). Their mean age was 31.4, with one quarter younger than 25 years. They had a mix of occupations, although the majority were manual (non-trucking/transport) workers. Most had their sexual debut before the age of 25, and three-quarters had paid for sex before this age. The usual way they found FSWs was by telephone or by visiting sex worker homes, with fewer going to brothels/lodges/bars or public places (parks, bus/train stations, streets, open areas). More than half had traveled outside the city in the previous year. Fifty-three percent reported a history of being drunk in the previous month. Twenty-nine percent reported having had sex with more than three FSWs in the previous month, and condom use at last sex with a non-regular FSW was reportedly high, at 90 %. Twelve percent reported that they had ever had anal sex with an FSW (94 % of whom said they used a condom during the last episode), and 4 % with a man or a *hijra* (transsexual) in the previous 6 months (96 % of whom said they used a condom during the last episode). Seventy-eight percent of clients had seen pornographic material (77 % in the past month), and 8 % reported having ever used SEPs (almost all those mentioned were Ayurvedic pills).

Pornography Users

Younger men, those engaged in the transport business (as truck or bus drivers or helpers), and men who had started sex at a younger age, were more likely to be pornography watchers than other clients (Table 1), as were men who found female sex workers in public places and by telephone, and who had traveled outside Bangalore in the previous year. Those who had visited more than three sex worker partners in the past month, and had either not used a condom, or had a condom break in the previous month, and those who had had anal sex with an FSW, were also more likely to be pornography watchers; 91 % of those reporting anal sex with an FSW had seen pornography in the previous month, compared to 75 % of those who did not report anal sex with an FSW. Furthermore, almost all those clients who reported anal sex with a man or transsexual in the previous six months (95 %) had watched pornography in the past month, compared to 76 % of those who did not report this practice. Eighty-nine percent of recent SEP users reported pornography use compared to 74 % of non-SEP users.

Sexual Enhancement Product Users

As with pornography, transport workers, those who had first sex at a younger age, had recent anal sex with a man or transsexual, and those who had traveled outside the city were more likely to be SEP users than others, although these differences were not statistically significant (Table 1). Statistically significant associations included being more likely to find female sex workers by telephone than other ways, visiting three or more FSWs in the previous month, having had anal sex with FSWs, and having watched pornography.

High Number of FSW Contacts

Table 2 shows the factors in univariate analysis associated with having had sex with three or more FSWs in the previous month.

Table 1 Sociodemographic and sexual behavior characteristics of FSW clients

Characteristic	Categories	Total (%) $N = 684$	% seen porn in past month (p value)* $N = 523$ (76.7%)	% ever used sexual enhancement products (p value)* $N = 54$ (7.8%)
Age	<25 years	24.3	84.0	6.3
	25–34	40.4	82.9	8.7
	35+	35.3	64.8 (<0.001)	7.9
	Mean age	31.4	30.4 (<0.001)	30.5
Marital status	Married	68.9	74.6	8.4
	Not married	31.1	80.8	6.6
Education	Illiterate	23.7	75.3	8.7
	Literate	76.3	77.0	7.6
Occupation	Manual	51.3	76.5	5.8
	Bus/truck business	21.3	84.3	12.7
	White collar	26.3	70.5 (0.05)	8.3
Age: first sex	<20 years	32.7	76.4	9.3
	20–24 years	58.6	79.0	8.0
	25+ years	8.7	62.0 (0.05)	1.3
Age: first paid sex	<20 years	26.8	79.4	9.4
	20–24 years	50.0	76.7	8.1
	25+ years	23.1	73.3	5.3
Usual place to find FSWs	Brothel/lodge/bar	14.9	57.5	2.9
	Public place	23.2	83.1	6.4
	Home	25.2	73.4	6.1
	By phone	36.7	84.4 (<0.001)	12.4 (0.02)
Travel in past year	No	56.4	73.3	6.3
	Yes	43.6	81.0 (0.05)	9.8
Been drunk in last month	No	47.2	76.1	6.3
	Yes	52.8	77.3	9.3
Number of different FSW workers in past month	<3	71.3	72.6	6.5
	3+	28.7	87.3 (0.005)	11.3 (0.04)
Used a condom in last sex with an occasional FSW	No	10.5	79.4	5.7
	Yes	89.5	75.8	8.0
Condom broke in past month	No	86.8	74.4	7.7
	Yes	4.1	92.3	7.8
	Did not use one	9.0	94.3 (<0.001)	9.1
Ever had anal sex with an FSW	No	88.3	74.9	6.4
	Yes	11.6	90.8 (0.003)	19.2 (<0.001)
Used condom in last anal sex with an FSW ($n = 17$)	No	6.3	100.0	40.0
	Yes	93.7	90.5	20.3
Had anal sex with a man/transsexual in past 6 months	No	96.3	75.9	7.7
	Yes	3.7	95.1 (0.04)	12.0
Used condom in last anal sex with a man ($n = 25$)	No	4.0	100.0	16.7
	Yes	96.0	94.7	10.5
Ever used sexual enhancement products	No	92.1	75.6	
	Yes	7.9	88.9 (0.03)	
Ever watched pornography	No	21.5		1.2
	Yes	78.4		8.8 (0.01)
Watched pornography in past month	No	23.3		3.7
	Yes	76.7		9.1 (0.03)

Chi-squared test used for comparing groups in univariate analysis, adjusted for sample design

Means compared using t test

* Significant p values ($p < 0.05$) only shown

Table 2 Sociodemographic and sexual behavior characteristics of FSW clients who had sex with three or more different FSWs in the past month

		Total $N = 684$	3+ FSWs ($n = 196$) (27.7 %) univariate analysis	p value* (chi sq)	Multivariable analysis AOR (95 % CIs)	p value (Wald Chi square)
Age	<25 years	167	27.5			
	25–34 years	276	28.7			
	35+ years	241	26.6	0.88		
Marital status	Married	471	27.6	0.93		
	Not married	213	27.7			
Occupation	Manual	354	22.3		Ref	
	Bus/truck	138	33.6		1.20 (0.66–2.17)	ns
	White collar	182	33.8	0.06	0.99 (0.54–1.80)	ns
Literate	No	163	23.4	0.36		
	Yes	521	29.1			
Age: first paid sex	<20 years	184	37.2	0.02	Ref	
	20–24 years	342	29.5		0.76 (0.42–1.37)	ns
	25+ years	158	11.6		0.27 (0.11–0.66)	0.005
Usual place to find FSWs	Brothel/lodge/bar	102	10.6		Ref	
	Public place	158	69.0		10.9 (4.32–27.7)	<0.001
	Home	173	17.0		1.72 (0.62–4.77)	ns
	By phone	251	19.5	<0.001	1.75 (0.62–4.93)	ns
Ever had anal sex with an FSW	No	602	27.4			
	Yes	82	29.9	0.22		
Had anal sex with a man/ transsexual in past 6 months	No	659	27.4			
	Yes	25	29.9	0.67		
Been drunk in last month	No	330	23.2	0.03	Ref	
	Yes	354	31.8		1.67 (0.99–2.81)	0.05
Travel in past year	No	393	14.4		Ref	
	Yes	291	44.8	<0.001	3.3 (1.97–5.63)	<0.001
Seen porn in past month	No	148	15.1		Ref	
	Yes	536	31.6	0.005	1.95 (0.82–4.62)	ns
Ever used sexual enhancement products	No	630	26.6		Ref	
	Yes	54	40.0	0.05	1.49 (0.62–3.54)	ns
Used a condom in last sex with an occasional FSW	No	67	72.4		Ref	
	Yes	570	24.7	0.000	0.28 (0.12–0.69)	0.006

Chi-squared test used for comparing groups in univariate analysis, adjusted for sample design

* Included in regression where $p < 0.10$

Those clients engaged in the transport business, white collar workers, and those who traveled in the past year were much more likely than others to have had sex with three or more FSWs, as were men who had first paid for sex before the age of 20. Those who solicited women in public places, those with a history of intoxication, those who used SEPs and those who had viewed pornography were also more likely to have had sex with three or more FSWs. Men who did not use a condom at last sex with an FSW were significantly more likely to report a higher volume of commercial partners than those who used a condom. In multivariable analysis, occupation and experience with pornography and SEPs were *not* associated with having had sex with a higher number of FSWs. Of more importance was travel away from home, recent drunkenness and having had first commercial sex before the age of 20. Men who did not use a condom at last sex were also four times more likely to report multiple FSW partners. The most important variable associated with high FSW volume was place of solicitation, with 69 % of men who identified FSWs in public places having contacted three or more FSWs in the previous month, eleven times more likely than men who usually looked for sex in brothels/bars/lodges.

Anal Sex with FSWs

Twelve percent of clients reported that they had had anal sex with an FSW. In univariate analysis (Table 3), transport and

Table 3 Sociodemographic and sexual behavior characteristics of FSW clients with a history of having ever had anal sex with FSWs

		Total $N=684$	Anal sex $N=82$ (11.7 %) univariate analysis	p value * (chi sq)	Multivariable analysis AOR (95 % CIs)	p value (Wald Chi square)
Age	<25 years	167	8.7			
	25–34 years	276	12.4			
	35 + years	241	12.1	0.5		
Marital status	Married	471	12.7			
	Not married	213	10.4	0.64		
Occupation	Manual	354	9.1		Ref	
	Bus/truck	138	13.2		1.3 (0.61–2.6)	ns
	White collar	182	16.3	0.1	1.91 (0.99–3.91)	0.05
Literate	No	163	13.8			
	Yes	521	11.1	0.6		
Age: first paid sex	<20 years	184	12.6			
	20–24 years	342	9.9			
	25+ years	158	14.7	0.3		
Usual place to find FSWs	Brothel/lodge/bar	102	4.8		Ref	
	Public place	158	14.1		2.47 (0.79–7.66)	ns
	Home	173	16.3	0.02	3.80 (1.26–11.4)	0.018
	By phone	251	9.2		1.50 (0.49–4.56)	ns
Number of different FSW workers in past month	<3	602	11.4	0.67		
	3+	82	12.7			
Anal sex with man/transsexual in past 6 months	No	659	10.7		Ref	
	Yes	25	38.6	<0.001	3.30 (1.27–8.59)	0.006
Been drunk in last month	No	330	8.2		Ref	
	Yes	354	14.7	0.02	1.56 (0.84–2.90)	ns
Travel in past year	No	393	9.7		Ref	
	Yes	291	14.4	0.09	1.3 (0.80–2.88)	ns
Seen porn in past month	No	148	4.7		Ref	
	Yes	536	13.9	0.009	4.49 (1.66–12.1)	0.003
Ever used sexual enhancement products	No	630	10.3		Ref	
	Yes	54	28.6	<0.001	3.54 (1.50–8.34)	0.004
Used a condom in last sex with an occasional FSW	No	67	5.2		Ref	
	Yes	570	13.4	0.071	2.91 (0.95–8.90)	0.06

Chi-squared test used for comparing groups in univariate analysis, adjusted for sample design

* Included in regression where $p<0.10$

white collar workers were more likely to engage in anal sex than others. Men who found sex workers in public places or at sex worker homes were more likely to report anal sex, as were men who reported that they had ever been drunk, men who had traveled in the past year, and men who had contact with more than three FSWs in the past month. Men who reported ever having had sex with a man/transsexual were also more likely to have reported anal sex with an FSW. Having seen pornography in the past month and having ever used SEPs were both strongly associated with anal sex. Men who used a condom at last sex with an FSW were more likely to have had anal sex with an FSW than those men who did not use a condom. Eight variables were included in the logistic regression model, of which six were significant predictors of anal sex with an FSW: men who found sex workers at home were 3.8 times more likely to have had anal sex than men who found FSWs in brothels/bars/lodges; men who worked in white collar jobs were almost twice as likely as manual workers to have had anal sex; men who had sex with a man or transsexual in the past 6 months were over three times more likely to have anal sex with FSWs as men who had not; men who had used a condom at last FSW sex were almost three times as likely to have had anal sex than those who did not. Men who had seen pornography recently were four and a half times more likely to have had anal sex that those who had not seen pornography recently and those who had a history of SEP use were three and a half times more likely to have had anal sex with FSWs.

Discussion

To our knowledge, this is the first attempt to examine sexual behaviors among male clients of female sex workers that includes data on pornography and SEPs. Consistent with other studies of pornography in India (Abraham, 2001; Shankar 2012), our client population was very familiar with pornographic material, with 77 % having watched it in the previous month. Use of SEPs was reported by about 8 % of men, even among quite young men. Those who watched pornography tended to be younger and engaged in the transport business, traveling away from home for work. They were found to have a higher number of FSW partners, to use SEPs and to practice anal sex, as well as to have suffered a recent condom breakage, confirming what sex workers have reported in qualitative studies in the same geographical area (Gurav et al., 2014). About 8 % of clients reported using SEPs, mostly during sex with FSWs. SEP use was higher among men who solicited women by telephone, men who started purchasing sex at a young age and among men who watched pornography, possibly to try to emulate what they see (Aubé-Maurice et al., 2012). SEPs were strongly associated with a higher number of FSWs and with anal sex with FSWs.

Interestingly, the profiles of men practicing the two risk behaviors examined (multiple partnering and anal sex with FSWs) were quite different. Those having sex with three or more different FSWs in the previous month tended to be men who had first paid for sex at a young age, men who traveled away from home, drinkers, and those who found FSWs in public places. They were also more than three times more likely to have practiced unprotected sex on the last occasion. Some studies have found that street-based FSWs have more partners (Buzdugan et al., 2010), although others have found the opposite (Mahapatra et al., 2013; Ramesh et al., 2008; Suryawanshi et al., 2013), and this possibly reflects the particular environment, and perhaps local costs of commercial sex. For example, rural areas of Karnataka have many home-based FSWs and some large cities such as Mumbai have many brothels. Eighty percent of sex workers in Bangalore practice public place-based sex and they tend to be marginalized women who generally rely on sex work for survival (Deering et al., 2010). Men with multiple FSW partners likely find these women in public places because it is easier to do so, especially when they are young and inexperienced, when they are traveling to a new place, and when they have been drinking. It has been reported in one study (Madhivanan et al., 2005) that in south India, 50 % of male alcohol users drink to intoxication. Indeed, the clients interviewed in Aubé Maurice's study noted that they were often intoxicated and got swept along in the moment by peers to find sex workers (Aubé-Maurice et al., 2012). Men who have multiple FSW partners were not more likely than others to be pornography or SEP users; rather the picture is one of men away from home who, possibly because of decreased inhibition facilitated by alcohol, have casual unprotected sex with FSWs in public places (Fisher et al., 2010; Madhivanan et al., 2005; Verma et al., 2010).

In contrast, the characteristics associated with anal sex were quite different. Men who reported anal sex were likely to be white collar workers, although it is not clear why, unless perhaps they are more able to afford anal sex, which tends to be more expensive than vaginal sex. They were also likely to have anal sex with women they found in their homes, rather than elsewhere, a finding also reported in a study of clients in three southern Indian states (Suryawanshi et al., 2013). Interestingly, those men who engaged in anal sex with women, also reporting doing so with men or hijras, a practice found by others (Dandona et al., 2005a), potentially increasing the risk of HIV transmission if unprotected. Unlike the men who had multiple partners, those who reported anal sex with FSWs were three times more likely to have used a condom at last sex with an FSW than men who did not have anal sex with FSWs. It might be that men who practice anal sex (with both sexes) are more aware of the importance of safe sex practice. This seems to contradict reports by sex workers in some studies who report that neither they nor their clients think there is a need to use condoms during anal sex (Beattie et al., 2013). However, this attitude might vary depending on the study location and populations and the reach of HIV prevention programs; in our study, anal sex seemed to be practiced more by white collar workers who might have been better reached by HIV prevention messages. Although the men in our study were more likely to report using a condom at last sex (of any type), we do not know how much social desirability bias plays into their responses, nor do we know how consistently they practice safe sex. Given the increased rate of HIV transmission during unprotected anal sex (Boily et al., 2009; Dandona et al., 2005b; Decker et al., 2010), and the challenges to correct condom use in some situations (particularly in public places, where sex is often hurried and furtive), HIV prevention programs must place particular emphasis on safe sex in such contexts. As clients are usually difficult for programs to identify and reach with prevention messages, they are generally best reached with risk reduction advice through the FSWs themselves. Many studies, including ours, have shown that female sex workers can be empowered to successfully negotiate condom use with clients. Some studies have found that intoxication by female sex workers is associated with anal sex (Kalichman, Simbaya, Jooste, Cain, & Cherry, 2006; Patra, Mahapatra, Kovvali, Proddutoor, & Saggurti, 2012); however we did not find this association among clients, when controlling for other factors.

Viewing pornography and SEP use were both strongly associated with the practice of anal sex. Those who had recently viewed pornography were more than four times more likely to have experienced anal sex and those who had used SEPs were three and a half times more likely. In a cross-sectional study such as this, it is not possible to ascertain whether men who already engage in anal sex are more predisposed to view pornography, or whether viewing anal sex through pornography expands their

sexual repertoire. Recent Indian studies support the latter (Tucker et al., 2012), and anal sex among FSWs, once a taboo practice, is becoming more common (Beattie et al., 2013). In two studies in India, FSWs reported that requests for anal sex were on the increase, a result, they claimed, of access to pornographic materials. FSWs reported that men often appeared with pornographic images involving anal sex on their cell phones to show women what they wanted (Beattie et al., 2013; Tucker et al., 2012). In one female sex worker study, women highlighted their concerns about the increasing use of SEPs and the problems these cause, such as forceful or aggressive sex, carelessness about condom use, prolonged sex acts, delayed ejaculation, and condom breakage (Gurav et al., 2014). However, it may also be the case that men interested in "taboo" practices in general may be interested in a variety of such practices, so the associations observed among pornography, anal sex and SEP use may not be causal, but related to a broader interest in sexual practices that challenge the traditional norms of Indian society. More detailed longitudinal studies, or more carefully designed qualitative studies, would be required to tease out these relationships.

Our study has some limitations. The cross-sectional nature of the study means that it is not possible to demonstrate causal relationships, and indeed, the interplay of the various factors is complex. Some of the variables have limitations. For example, the study questionnaire only asked men where they mostly go to find sex workers, and this does not allow for different places at different times, with their varying risk potential. Furthermore, anal sex and use of pornography and SEPs are likely underreported, as they may be socially undesirable or embarrassing practices. Qualitative studies of FSW clients and other purchasers would be useful to better understand usage patterns and motivations.

In conclusion, we found that not all sexual risk behaviors are practiced by the same types of men and as such, programs that promote safer sex among sex workers and clients need to adjust targeting and messaging appropriately. For example, women who solicit at home are almost four times more likely to have a client who wants anal sex than women who solicit in brothels, bars, and lodges; programmatic messages can focus on these differences to ensure that women in different settings are aware of them, and have strategies for negotiating correct condom use. A new finding of our study is the association between anal sex, and pornography and SEP use. The finding that condom use was relatively high in the context of commercial anal sex was encouraging, but unprotected anal sex carries a much higher risk of HIV transmission than vaginal sex, so correct condom use is particularly important, and potential condom breakage is very concerning. Anal sex has also been shown to be associated with violence and coercion against FSWs, especially for the most vulnerable women (Beattie et al., 2013; Decker, Pearson, Illangasekare, Clark, & Sherman, 2013). HIV prevention programs should be cognizant of this, and could, for example, strengthen telephone hotline services or provide other support measures for female sex workers. Finally, more research is needed to better understand the links between pornography and SEPs, and HIV risk behaviors, and HIV prevention programs need to be aware of the importance of protected anal sex in female sex worker-client interactions, and ensure that condom use is adequately promoted and supported.

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