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What role does transactional sex play in the HIV/STI and reproductive health risk behaviour among high-tier entertainment centre workers in China?

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Abstract

China's rapid economic growth over the last three decades has led to increased population wealth and the proliferation of entertainment centres where people can conduct business, relax and meet new people. Little is known about the sexual risk behaviours of employees at high-tier entertainment centres. This paper addresses this gap in knowledge by comparing HIV risk perception and sexual and reproductive health behaviours among female and male employees at three high-tier entertainment centres in two cities in China, comparing those who report a history of transactional sex to those who do not. In both cities, participants who reported a history of transactional sex were more likely than those without a history of transactional sex to report multiple sexual partnerships, more lifetime sexual partners, a history of STIs, having anal sex and/or recent abortions, and were more likely to perceive themselves to be at risk for STIs/HIV. However, risk behaviour was also high among those with no history of transactional sex. These findings highlight the need for targeted sexual and reproductive health initiatives for employees in these work settings.

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Conflicts of interest

None of the authors have a conflict of interest with regard to financial and personal relationships with organisations or people that could inappropriately influence the work or results of this study.

Keywords

entertainment centres; HIV risk; transactional sex; sexual risk behaviour; China

Introduction

Sexually transmitted infections (STIs), once considered ‘eradicated’ in China (Cohen et al., 1996), have re-emerged in the past several decades as a significant public health threat. Syphilis is currently one of the top five reported communicable diseases in many regions of China, and is considered to be of epidemic proportions (Tucker et al., 2010; 2011). Escalating STI rates in the general population have been attributed to social factors, including rapid economic growth, widespread market reform, increased demand for sex work, and changing sexual norms. Further, some research has demonstrated higher rates of STIs, particularly of HIV/AIDS and syphilis, among female sex workers (Huang et al., 2011; Tucker et al., 2011). The synergistic effects of growing population wealth and disposable income, a surge in internal work-related travel and migration, and shifts in sexual norms are believed to have led to increases in rates of multiple partnerships and pre- and extra-marital sex, and to have fuelled the demand for sex work (Weir et al., 2014a).

Entertainment centres are omnipresent in China and have become key sites for commercial and non-commercial sexual interactions, both among patrons and between patrons and employees (Choi et al., 2011; Zhang et al., 2014, Weir et al., 2014a; 2014b). There is considerable diversity in location and services in these centres, which range from low- or to mid-tier establishments offering massages, foot bath services or hair salon services to higher-class bars and hotels offering videos or karaoke, sauna and massages, bar and food services, and dance halls (Choi & Holroyd, 2007; Yi et al., 2010; Chen et al., 2012; Wang et al., 2012). For some patrons, visits to these centres are part of social rituals for conducting business, finding supportive networks, and socializing with friends (Uretsky, 2008, 2011; Choi, 2011). In some settings, especially in low- and mid-tier establishments, sex is overtly solicited, while in others, particularly in high-tier entertainment centres that are freestanding or located in five-star hotels, sexual services may be offered more covertly (Wei et al., 2004; Xia & Yang, 2005; Choi & Holroyd, 2007; Huang et al., 2014).

A number of studies in China and around the world suggest that entertainment venues are sites of increased sexual risk among employees and patrons independent of transactional sex, indicating that the workplace environment may structure vulnerability to sexual risk in unknown ways (Huang et al., 2004; Xia & Yang, 2005; Morisky et al., 2002; Chiao et al., 2007; Pirkle et al., 2007; Hong et al., 2008; Larios et al., 2009; Goldenberg et al., 2011; Huang et al., 2014). However, rarely is sexual health considered an occupational health issue.

There is an urgent need to better understand the situational context of sexual risk among employees of entertainment centres, especially those working in high-tier establishments. Currently there is little research on the sexual and reproductive health behaviours of male and female employees in this type of setting in China, making it difficult to ascertain whether there is an unmet need for services. To address this knowledge gap, in this paper we

describe the sexual and reproductive health behaviours of female and male employees of three high-tier entertainment centres in two cities in China, and compare those who engaged in transactional sex versus those who did not. By transactional sex, we are referring to the trade of material rewards, such as money, gifts, clothes, housing, or other goods, in exchange for sex.

Methods

Study cities

We selected Kunshan and Changsha as study cities because of their burgeoning economic development and growth of the entertainment industry (Jiangsu.NET, 2012; Larson, 2012). Kunshan, located in the southeastern part of Jiangsu Province, is a county-level city located in Eastern China near Shanghai, with a population of 2.05 million (Kunshan Municipal People's Government, June 2010). It is a nationally-recognized high-tech zone, is one of the most economically developed cities, is a centre for foreign investment, and has one of the highest average per capita incomes in China – 35,190 RMB among urban residents in 2011 (The Economic Times, 2012). Due to its recent rapid economic development and urban growth, spurred by the development of factories, Kunshan has had an influx of migrants who accounted for approximately 66% of the total population as of 2009 (Kunshan Municipal People's Government, June 2010). Many businessmen frequent the approximately 100 entertainment centres located in Kunshan (Jiangsu.NET, 2012).

Changsha, capital of Hunan Province and located in the interior of the Central-South of China, is one of central China's most economically advanced cities, also with substantial foreign investment (KPMG, 2012). Changsha had a total population of 7.09 million as of 2012 (KPMG, 2012), a number that includes many migrants (Zhu & Song, 2007). In 2011, average per capita income among urban residents was 26,451 RMB (KPMG, 2012). Changsha is known as a service-oriented city and entertainment hub with thousands of footbath/massage centres (Larson, 2012), and in Tianxin District where the study was conducted, about 80 entertainment centres exist (Larson, 2012).

Study sites and participants

We conducted two cross-sectional surveys among male and female employees of high-tier entertainment centres between 2007 and 2009. The first survey was conducted in 2007 with 689 employees in 1 large high-tier entertainment centre in Kunshan (Mantell et al., 2011); the second survey was conducted in 2009 among 293 employees of 2 high-tier entertainment centres in the Tianxin District of Changsha (Kelvin et al., 2013; Sun et al., 2011). The study design and questionnaire were similar in both studies.

Staff turnover rates at all three entertainment centres are high and the total number of employees varies, as workers tend to have short-term contracts and often seek better job opportunities. Both entertainment centres in Changsha are located within five-star hotels and together had an estimated 350 employees at the time of the study, whereas the entertainment centre in Kunshan is freestanding and employed about 724 workers at study onset. All three centres offer a variety of non-sexual services, including foot and body massages, karaoke

rooms, and nightclubs. Clients who frequent these centres typically are Chinese tourists and visiting and local businessmen.

Centre employees were eligible for this survey if they were 18 years of age, worked at one of the participating entertainment centres during the study period, and were able to read and write Chinese.

Study procedures

Group leaders, employees charged with keeping those in their group informed about the entertainment centre's policies, were recruited to serve as research assistants in both Changsha and Kunshan. They received training in research ethics by The Nanjing College for Population Program Management (NCPPM) investigators, including skills on how to present the study and the need to emphasize the voluntary nature of participation through refusal to participate or refusal to answer questions that might cause the participants discomfort. The support and collaboration of management and peer leaders were critical to collecting the data and ensuring ethical standards.

The questionnaire was piloted for comprehensibility and reading-level appropriateness with research assistants prior to administration. The first page of the survey described the study including the risks and benefits of participation. All eligible employees were approached by the peer research assistants to participate in the study and were informed of their rights. Interested participants then signed an informed consent statement. The survey was self-administered and completed in a private place according to the participant's preference. Literacy was not an issue as nearly all participants had at least an 8th grade education. Once completed, participants were asked to place questionnaires in an envelope, seal it, and drop into a locked box. Participants who chose not to participate were asked to check the appropriate box refusing participation, place the uncompleted questionnaire in the envelope, and insert it into the locked box. This strategy blinded centre workers from knowing whether colleagues participated. Questionnaires were collected weekly by NCPPM staff. All employees, regardless of study participation, were given a small gift (compact mirror).

The study protocols and instruments were approved by the Institutional Review Boards at the New York State Psychiatric Institute/Columbia University, Department of Psychiatry (Kunshan study) and/or the NCPPM (Kunshan and Changsha studies).

Measures

Key areas explored in the survey were socio-demographic factors (gender, age, education, marital status, monthly income, migration and work-related factors); sexual and reproductive health characteristics (age at sexual debut, number of lifetime sexual partners, past history of anal or vaginal intercourse, birth control and condom use, abortion history in the last year, STI history); and HIV/STI risk perception.

There were a few differences between surveys in the two cities; lessons learned from the Kunshan survey informed the addition of several variables and the modification of others for use in Changsha. Important to this paper, questions regarding problems with condom use with transactional sex clients were only asked of Changsha study participants. Further,

recent number of sexual partners within the past month was asked in Kunshan, and expanded to include the past three months in Changsha. The categories were collapsed into abstinence/monogamy (one or no sexual partners) in recent months or concurrency (more than one sexual partner), as none of the study participants in Changsha reported having no sex partners in their lifetime and only 2.8% in Kunshan reported this. Given the descriptive nature of this analysis, we consider these differences to be insignificant.

Statistical analysis

Descriptive statistics for socio-demographic, sexual, condom use, and reproductive health variables were compared for entertainment centre workers who reported transactional sex versus those who did not separately for each city. Chi-square tests were used to assess the statistical significance of the associations for dichotomous characteristics by transactional sex status. T-tests were used to assess the statistical significance for continuous variables, and the Mann-Whitney U test statistic was used for comparison of count variables by transactional sex status. We also tested whether the associations of transactional sex status with socio-demographic characteristics, sexual status, condom use, and reproductive health variables differed by city (effect modification by location). All significance tests were 2-tailed and tested at $\alpha = 0.05$ level. Statistical analyses were conducted using SPSS 18 (Chicago, IL).

Results

Socio-demographic characteristics of participants

Nine hundred and eighty-two entertainment centre employees completed the survey: 293 in Changsha and 689 in Kunshan. Table 1 describes the socio-demographic characteristics of participants overall and then by transactional sex history within each city. The majority of the participants were women (77.8% in Changsha and 74.4% in Kunshan), unmarried (84.3% in Changsha, 78.0% in Kunshan), and were migrants (61.8% in Changsha, 93.0% in Kunshan). In Changsha, 51.2% of participants had completed high school, while in Kunshan only 28.7% had achieved this level of education. In Changsha, 20.5% of participants reported ever having engaged in transactional sex, of whom 31.7% were male and 68.3% were female. In Kunshan, 10.5% of participants reported ever having engaged in transactional sex, of whom 26.8% were male and 73.2% were female.

There were no statistically significant differences in demographic characteristics by transactional sex status among participants in Kunshan. In Changsha, however, participants who reported a history of transactional sex compared to those with no reported history were more likely to be male (31.7% vs. 18.1%, $p = 0.02$), have less than a high school education (65.0% vs. 46.2%, $p = 0.01$), work as a massage technician or group leader (15% vs. 5.7%; 11.7% vs. 4.8%, respectively, $p = 0.03$), and to have worked at the entertainment centre for a longer period of time (median and IQR = 17.3 [7.5–28.0] vs. 5.9 [2.1–17.2], respectively, $p < 0.001$). The difference in the association between number of months working in the entertainment centre in Changsha and transactional sex status by location was significant (interaction $p < 0.001$).

Sexual behaviour and partnerships

As shown in Table 2, participants reported high levels of sexual risk behaviour, including having multiple recent sex partners (20.1% in Changsha, 12.2% in Kunshan) and practicing anal sex (10.5% in Changsha, 10.2% in Kunshan).

Participants with a history of transactional sex reported more risk behaviours than those not reporting transactional sex. They initiated sex at an earlier age than those with no history of transactional sex in both Changsha and Kunshan (median = 17.8 years vs. 18.9 years, respectively in Changsha, $p = 0.002$; 17.8 years vs. 19.2 years, respectively in Kunshan; $p = 0.020$); differences in this association by city were not significant.

Number of lifetime sexual partners was associated with history of transactional sex in both Changsha and Kunshan; participants with a history of transactional sex reported more sexual partners than those without (Changsha median: 7.8 vs. 1.61, respectively, $p < 0.001$; Kunshan median: 1.97 vs. 1.10, respectively, $p < 0.001$). Similarly, participants with a history of transactional sex were more likely to report a higher number of recent multiple sexual partnerships than those with no history of transactional sex (Changsha: 64.8% vs. 6.4%, respectively, $p < 0.001$; Kunshan, 40.3% vs. 9.4%, respectively, $p < 0.001$). Participants in Changsha who reported transactional sex were more likely to have had sex with a same-sex partner than those with no history of transactional sex (28.6% vs. 5.0%, respectively, $p < 0.001$). Among those with a history of transactional sex in both cities, 31.8% of men and 27.1% of women reported having had a same-sex partner ($p = 0.789$), while among those with no history of transactional sex only 8.7% of men and 14.6% of women reported having had a same-sex partner (not tabled). The difference in the association of number of lifetime and recent sexual partners and same-sex partners with transactional sex history by location was statistically significant (number of lifetime sexual partners: p -value for interaction = 0.022; number of recent sexual partners: p -value for interaction = 0.005; same-sex partners: p -value for interaction = 0.005).

Nearly four-fifths (77.6%) of participants with a history of transactional sex in Changsha reported having a main partner in the past month, compared to about three-fifths (57.6%) with no history of transactional sex ($p = 0.006$); however, in Kunshan, there were no significant differences in main partner status by transactional sex history. In both cities, the proportion of participants with a casual sex partner in the past month was significantly higher among those who had engaged in transactional sex compared to those who had not (Changsha: 76.3% vs. 25.7%, respectively, $p < 0.001$; Kunshan: 74.8% vs. 26.4%, respectively, $p < 0.001$).

There also were statistically significant differences in sexual practices. A greater proportion of participants with a transactional sex history in Kunshan (but not in Changsha) reported having had vaginal intercourse compared to those with no history (94.4% vs. 82.2%, respectively, $p = 0.010$), and in both cities, having engaged in anal intercourse (Changsha: 34.5% vs. 3.9%, respectively, $p < 0.001$; Kunshan: 31.4% vs. 7.2%, respectively, $p < 0.001$). This difference in anal intercourse by transactional sex history was found among both women and men in both cities.

Participants with a history of transactional sex were more likely to report having sex at least once a day than those with no transactional sex history (Changsha: 18.2% vs. 5.9%, respectively, $p < 0.001$; Kunshan: 16.0% vs. 3.8%, respectively, $p = 0.001$). The difference in this association was significant by location (p -value for interaction = 0.001).

HIV/STI risk perceptions

Perceptions of being at risk for both HIV and other STIs were 27.3% in Changsha and 5.1% in Kunshan. Risk perception was significantly higher among participants who had engaged in transactional sex than those who had not in both Changsha and Kunshan (Changsha: 65.0% vs. 17.1%, respectively, $p < 0.001$; Kunshan: 11.4% vs. 4.2%, respectively, $p < 0.001$). There was a statistically significant interaction effect of location on this association (p -value for interaction = 0.020).

STI history

Participants reported high rates of STIs (34.8% of those in Changsha and 22.7% of those in Kunshan have ever had an STI). In both Changsha and Kunshan, participants with a history of transactional sex were more likely to report they had ever had an STI, than those who reported no history of transactional sex (Changsha: 74.5% vs. 22.3%, respectively, $p < 0.001$; Kunshan: 48.1% vs. 19.8%, respectively, $p < 0.001$). The difference in this association by location was significant, with a greater likelihood in Changsha (p -value for interaction = 0.033).

Condom use

Participants reported low condom consistency with main partners (18.5% in Changsha and 35.0% in Kunshan always use condoms with main partners) and casual partners (18.0% in Changsha and 38.5% in Kunshan always use condoms with casual partners). In Kunshan, consistency of condom use with main partner in the past month was higher among those with a history of transactional sex compared to those with no history (55.1% vs. 30.0%, $p = 0.001$), but the difference in Changsha was not statistically significant. The difference in the association by location was significant (p -value for interaction = 0.015). Differences in consistency of condom use with a casual partner by transactional sex status were not statistically significant in either city.

Condom use at last sex was higher among participants with a history of transactional sex than those with no history in Changsha (80.9% vs. 62.4%, respectively, $p = 0.023$). There was not a statistically significant difference by transactional sex status among Kunshan participants.

The most common barriers to condom use reported by participants with any type of partner were: disliking the feel of condoms (10.1%), partner disliking the feel of condoms (9.1%), and partner refusing to use condoms (7.8%). Participants who had engaged in transactional sex were more likely than those with no history of transactional sex to report that their main and casual partners refused to use condoms (main partners: 33.7% vs. 6.5%, respectively, $p < 0.001$; casual partners: 40.2% vs. 57.6%, respectively, $p = 0.017$) (Table 3).

Reproductive health practices

Seventy-two per cent of participants in Changsha and 84.2% in Kunshan reported that they were using birth control. However, a large proportion of participants reported that they or their female partner (for male participants) had had an abortion in the past year (14.6% in Changsha; 23.5% in Kunshan). The proportion of participants currently using any method of birth control was higher among Changsha participants who reported transactional sex compared to those who had not (92.9% vs. 66.5%, respectively, $p < 0.001$); this association was not found in Kunshan participants. Similarly, in Changsha but not Kunshan, the proportion using dual contraceptive methods was higher among those with a history of transactional sex compared to those without a history (46.4% vs. 13.7%, respectively, $p < 0.001$). There was a significant interaction effect in these associations by city (p -value for interaction = 0.003 for current birth control use and $p = 0.008$ for dual contraception). In both cities, the proportion of participants who had an abortion in the past year was higher among those who reported transactional sex compared to those who had not (Changsha: 36.0% vs. 8.9%, respectively, $p < 0.001$; Kunshan: 52.9% vs. 19.8%, respectively, $p < 0.001$).

Discussion

Risk behaviour

Among participants with a history of transactional sex, we found a consistent pattern of increased sexual risk behaviours compared with those who did not report a history of transactional sex in both Changsha and Kunshan. This common trend included a higher median number of lifetime sex partners, initiating sex at a younger age, more than one recent sex partner, more casual sex partners in past month, having sex at least once a day, having had anal sex, having had an STI, and self-reporting HIV/STI risk. The proportion of participants with a history of transactional sex who reported having had anal sex (about one-third among both women and men) is higher than that reported in some studies with exclusively female sex worker samples, including a study in Guangxi where only 2% of female sex workers reported having had anal sex (Fang et al. 2008). However, more than one-quarter of participants in Changsha and nearly three-quarters in Kunshan who had engaged in transactional sex did not perceive themselves to be at risk for HIV/STI. This suggests potential inability to assess level of risk accurately, which may prevent individuals from taking risk-reduction steps.

Differences in levels of risk behaviour among those who reported transactional sex by location, with more risk behaviour among participants in Changsha than Kunshan, suggest that there is potential heterogeneity across high-tier entertainment centres. This may be due to diversity in the characteristics of the employees and clients they serve, management policies and/or work environment, or even region-specific structural or cultural factors, highlighting the importance of exploring contextual differences when comparing data from different venues and cities.

Even among those not reporting transactional sex, the level of risk behaviour is higher than in other general population samples, and in some cases is fairly similar to that of sex worker samples. About one-fifth of total participants who reported not engaging in transactional sex

in either Changsha and Kunshan reported they ever had an STI. This rate is higher than that found in other non-sex worker populations in China, including a sample of pregnant women in Fuzhou (Chen et al., 2006a) and a sample of long-distance male truck drivers in Tongling (Chen et al., 2006b). This rate is also higher than the lifetime syphilis infection rate among a sample of female sex workers in Liuzhou City (Li et al., 2012a). Thus, it may be that factors other than the economic incentives from transactional sex are driving the risk behaviours of study participants.

Contextualizing risk

The risk profile of study participants in this sample suggests that employees of high-end entertainment centres are a hidden at-risk population. Studies that map entertainment centres into tiers of HIV/STI risk generally view sex workers in high-tier entertainment centres to be at considerably lower risk than street-based sex workers or those working in lower-tier centres such as hair salons and massage parlours (Chen et al., 2012; Li et al., 2012a, b). A recent review of sex work venues found that these typologies were inconsistent predictors of HIV/STIs, and therefore were unreliable as indicators of risk (Pitpitan et al., 2013). Moreover, these typologies tend to overlook locations that are not overtly known as sex work venues, focusing instead on the most visible and identifiable populations, which are generally street-based or low-tier female sex workers. While this is useful for targeting prevention efforts to high-risk female sex workers, the categories within these tiers and criteria for inclusion within a tier have not been defined or operationalized with adequate precision. It is important to consider variables beyond sex worker status, setting, and income as criteria for sampling in order to develop more explicit understandings of HIV/STI risk, and also to enable credible comparisons of data across studies.

Our study attempts to shift the gaze from typical explorations of risk, by situating sexual and reproductive risk factors within an environmental and occupational context through the inclusion of both female and male employees of entertainment centre venues. In exploring the risk behaviours of all employees, even if they were not hired to do sex work, we sought to expand conventional understandings of sex work from an *identity* to a *behaviour*, acknowledging that engagement in sex work may include opportunistic or indirect transactions that are not a primary source of income (Harcourt & Donovan, 2005).

High-tier entertainment centres may structure sexual risk factors in unknown ways (Hong & Li, 2008; Pirkle et al., 2007; Xia & Yang, 2005). Our findings suggest that there is an urgent need to better understand the ecological context of sexual risk within these entertainment venues. Studies should explore how individual characteristics of employees (i.e. alcohol use and HIV/STI risk perception) interact with a setting's social environment (i.e. managers' involvement in HIV prevention, workplace policies, and norms regarding sexual conduct between employees and patrons) to contribute to increased HIV/STI risk, as reported in studies of female sex workers outside of China (Morisky et al., 2002; Kerrigan et al., 2003; Larios et al., 2009; Urada et al., 2012).

Limitations

This study has several limitations. First, we limited the number and complexity of the survey questions to facilitate self-administration, which may have caused us to miss important details that could explain some of the associations that we found. In addition, since the survey was self-administered and not completed in a setting supervised by a research assistant, it is possible that participants misunderstood certain questions and/or their answers were impacted by social desirability bias. Furthermore, the questionnaires used in each city were not identical; for a small number of variables, data were collected in only one location, or were combined to enable comparisons of employees with a history of transactional sex versus no transactional sex in each city to test for effect modification. Second, we cannot ascertain whether differences between those who engage in transactional sex versus those who do not are due to individual characteristics of employees (i.e. economic hardships, lack of power in relationships), structural factors in the venue (e.g. organization, management, work environment), social norms or community factors, or are possibly due to maturational effects occurring within the two-year period between the two studies. Third, self-selection and refusal to participate by some employees in these venues may have produced selection bias, and results cannot be generalised to employees of other entertainment centres in Kunshan, Changsha, or other regions in China who may differ from those in our sample.

Nevertheless, this descriptive study has several strengths and its findings have important public health implications. First, it explores sexual risk behaviours among employees with and without a history of transactional sex in high-tier entertainment centres that serve patrons of middle-to-high socioeconomic status. These venues are difficult to access for research and interventions, with entry dependent upon well-connected local gatekeepers who are trusted by entertainment centre management and usually not targeted for HIV prevention activities by the Chinese government. Second, our study provides information about a sample for which little is known: we focus on all entertainment centre workers, not only those involved in transactional sex and include both men and women. We found men to be equally likely to engage in transactional sex as women in high-tier entertainment centres. This may be a characteristic of high-tier centres and their clientele, or it could be that other studies have missed an important group by overlooking men. Third, we explore reproductive behaviours in this population, information that is rarely reported in studies of entertainment centre workers.

Conclusion

As social settings, entertainment centres provide a window of opportunity to deliver venue-based interventions targeting social norms and institutional barriers to reduce the dual risks of HIV/STIs and unintended pregnancy among high-risk women and men who both do and do not self-identify as sex workers. A comprehensive approach to sexual and reproductive health framed as part of an occupational health programme targeted to all employees including managers, and a referral service for HIV/STI testing and counselling may be a promising strategy for engaging employees in protecting their health, while bolstering managers' investment in keeping their employees healthy. Given that transactional sex also poses a potential HIV/STI risk for clients who solicit sex from entertainment centre

employees, venue-based HIV prevention interventions need to actively engage both employees and patrons and create an enabling environment for reducing HIV and reproductive health risks, while promoting sexual and reproductive health. Our findings challenge the assumption that sex workers in high-tier entertainment centres engage in less risky behaviour than those who work in low-tier establishments or are street-based. Rather than perpetuating this notion, further research is needed to document the prevalence of transactional sex and explore the nuances of HIV/STI risk among those who do and who do not engage in transactional sex in this type of setting to establish what kind of programming is needed and how it should be targeted.

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Socio-demographic characteristics of entertainment centre workers in Changsha and Kunshan by transactional sex status*

Table 1

	Changsha		Kunshan				Test for Effect Modification	
	Total (n=293)	History of Transactional Sex (n=60)	No History of Transactional Sex (n=210)	Total (n=689)	History of Transactional Sex (n=72)	No History of Transactional Sex (n=468)	p-value	
	N (%)	N (%)	N (%)	N (%)	N (%)	N (%)		
Age								
Mean (STD)	23.97 (0.305)	24.49 (0.679)	23.87 (0.367)	23.1 (0.171)	23.02 (0.542)	23.13 (0.204)	0.839 ^b	0.447
Median (IQR)	22.15 (20.38–24.69)	22.81 (20.78–24.88)	21.98 (20.25–24.79)	21.64 (19.55–24.6)	21.4 (19.44–24.29)	21.7 (19.6–24.6)		
Gender								
Male	65 (22.2%)	19 (31.7%)	38 (18.1%)	174 (25.6%)	19 (26.8%)	133 (28.6%)	0.749 ^a	0.057
Female	228 (77.8%)	41 (68.3%)	172 (81.9%)	506 (74.4%)	52 (73.2%)	332 (71.4%)		
Marital Status								
Unmarried	247 (84.3%)	54 (90%)	173 (82.4%)	529 (78%)	58 (82.9%)	355 (76.7%)	0.248 ^a	0.639
Married	46 (15.7%)	6 (10%)	37 (17.6%)	149 (22%)	12 (17.1%)	108 (23.3%)		
Highest level of Education								
Less than high school	143 (48.8%)	39 (65%)	97 (46.2%)	485 (71.3%)	55 (77.5%)	317 (68.2%)	0.114 ^a	0.485
High school or more	150 (51.2%)	21 (35%)	113 (53.8%)	195 (28.7%)	16 (22.5%)	148 (31.8%)		
Monthly Income								
<=1,000 Yuan/month	17 (5.8%)	4 (6.7%)	10 (4.8%)	129 (19.4%)	13 (18.6%)	84 (18.4%)	0.969 ^a	0.620
>1,000 yuan/month	276 (94.2%)	56 (93.3%)	200 (95.2%)	537 (80.6%)	57 (81.4%)	373 (81.6%)		
Migrant status								
Migrant	181 (61.8%)	32 (53.3%)	134 (63.8%)	641 (93%)	64 (88.9%)	434 (92.7%)	0.257 ^a	0.947
Not migrant	112 (38.2%)	28 (46.7%)	76 (36.2%)	48 (7%)	8 (11.1%)	34 (7.3%)		
Job Description								
Massage technician	21 (7.2%)	9 (15%)	12 (5.7%)	49 (7.2%)	8 (11.4%)	35 (7.6%)	0.138 ^a	0.817
Other service personnel	204 (69.6%)	38 (63.3%)	151 (71.9%)	377 (55.7%)	30 (42.9%)	258 (55.7%)		
Group Leader	18 (6.1%)	7 (11.7%)	10 (4.8%)	39 (5.8%)	4 (5.7%)	28 (6%)		
Logistics	10 (3.4%)	2 (3.3%)	6 (2.9%)	65 (9.6%)	9 (12.9%)	48 (10.4%)		

	Changsha		Kunshan				Test for Effect Modification	
	Total (n=293)	N (%)	History of Transactional Sex (n=60)	No History of Transactional Sex (n=210)	p-value	Total (n=689)	History of Transactional Sex (n=72)	No History of Transactional Sex (n=468)
Manager	35 (11.9%)	3 (5%)	29 (13.8%)	46 (6.8%)	3 (4.3%)	34 (7.3%)		
Other	5 (1.7%)	1 (1.7%)	2 (1%)	101 (14.9%)	16 (22.9%)	60 (13%)		
No. of Months Living in Area					0.970 ^c			0.346 ^c
Mean (STD)	101.96 (7.073)	102.93 (14.821)	103.61 (8.681)	20.51 (1.108)	17.62 (2.364)	20.48 (1.106)		
Median (IQR)	47.38 (17.62–123.5)	47 (21–157)	46 (17.42–123)	11.71 (5–24.4)	10.5 (2.21–23)	11.75 (5.24–24.57)		
No. of Months Working at Entertainment Centre					<0.001 ^c			0.800 ^c
Mean (STD)	14.02 (0.876)	20.28 (1.945)	12.1 (0.983)	9.88 (0.745)	9.41 (1.092)	10.1 (1.055)		
Median (IQR)	10.53 (2.45–17.84)	17.33 (7.5–28)	5.94 (2.14–17.23)	5.8 (2.13–11.63)	5.56 (2.13–12.5)	5.79 (2.26–11.47)		

^a p-values obtained from Pearson Chi-square Test^b p-values obtained from T-test^c p-values obtained from Mann Whitney U Test

* Total number of participants does not equal the sum due to missing data

** Transactional sex was defined in the question: "Did you ever receive material rewards, such as money, gifts, clothes, or housing, in exchange for having vaginal, oral, or anal sex with any of your sexual partners?"

Table 2
Sexual and reproductive health behaviour characteristics of entertainment centre workers in Changsha and Kunshan by transactional sex status

	Changsha			Kunshan			Test for Effect Modification	
	Total (<i>n</i> =293)	History of Transactional Sex (<i>n</i> =60)	No History of Transactional Sex (<i>n</i> =210)	Total (<i>n</i> =689)	History of Transactional Sex (<i>n</i> =72)	No History of Transactional Sex (<i>n</i> =468)	p-value	
	N (%)	N (%)	N (%)	N (%)	N (%)	N (%)		
Age at sexual debut							0.020	0.450
Mean (STD)	19.39 (0.156)	18.41 (0.384)	19.63 (0.173)	19.6 (0.102)	18.97 (0.334)	19.71 (0.12)		
Median (IQR)	18.73 (17.5–19.79)	17.81 (16.46–19.28)	18.91 (17.67–19.88)	19.12 (17.6–20.1)	17.84 (17.03–19.58)	19.21 (17.74–20.21)		
Number of lifetime sex partners							<0.001 ^e	0.022
Median (IQR)	2.05 (1–7.3)	7.76 (2.75–8.95)	1.61 (1–3)	1.25 (0.55–2.25)	1.97 (1.18–3.25)	1.10 (0.5–2.08)		
Number of recent sex partners							<0.001 ^a	0.005
One or none	195 (79.9%)	19 (35.2%)	162 (93.6%)	605 (87.8%)	43 (59.7%)	424 (90.6%)		
More than one	49 (20.1%)	35 (64.8%)	11 (6.4%)	84 (12.2%)	29 (40.3%)	44 (9.4%)		
Vaginal intercourse							0.010 ^a	0.268
Have had	236 (81.9%)	51 (87.9%)	168 (81.2%)	544 (83.4%)	67 (94.4%)	379 (82.2%)		
Have never had	52 (18.1%)	7 (12.1%)	39 (18.8%)	108 (16.6%)	4 (5.6%)	82 (17.8%)		
Anal Intercourse							<0.001 ^a	0.156
Have had	30 (10.5%)	20 (34.5%)	8 (3.9%)	60 (10.2%)	22 (31.4%)	33 (7.2%)		
Have never had	257 (89.5%)	38 (65.5%)	198 (96.1%)	528 (89.8%)	48 (68.6%)	428 (92.8%)		
Anal Intercourse (among men)							<0.001 ^d	0.962
Have had	5 (8.3%)	5 (29.4%)	0 (0%)	22 (14.1%)	9 (50.0%)	13 (9.9%)		
Have never had	55 (91.7%)	12 (70.6%)	35 (100.0%)	134 (85.9%)	9 (50.0%)	118 (90.1%)		
Anal Intercourse (among women)							<0.001 ^a	0.149
Have had	25 (11%)	15 (36.6%)	8 (4.7%)	37 (8.7%)	12 (23.5%)	20 (6.1%)		
Have never had	202 (89.0%)	26 (63.4%)	163 (95.3%)	388 (91.3%)	39 (76.5%)	307 (93.9%)		
Using birth control							<0.001 ^a	0.003
Yes	177 (72.2%)	52 (92.9%)	117 (66.5%)	353 (84.2%)	49 (83.1%)	250 (84.2%)		

	Changsha			Kunshan			Test for Effect Modification		
	Total (n=293)	History of Transactional Sex (n=60)	No History of Transactional Sex (n=210)	p-value	Total (n=689)	History of Transactional Sex (n=72)	No History of Transactional Sex (n=468)	p-value	
	N (%)	N (%)	N (%)		N (%)	N (%)	N (%)		
No	68 (27.8%)	4 (7.1%)	59 (33.5%)	<0.001 ^a	66 (15.8%)	10 (16.9%)	47 (15.8%)	0.422	0.008
Birth control type									
Non-Barrier Methods	33 (13.5%)	8 (14.3%)	25 (14.3%)		98 (23.4%)	10 (16.9%)	74 (25%)		
Condoms only	89 (36.5%)	18 (32.1%)	67 (38.3%)		183 (43.8%)	25 (42.4%)	126 (42.6%)		
Dual use	54 (22.1%)	26 (46.4%)	24 (13.7%)		71 (17.0%)	14 (23.7%)	49 (16.6%)		
No contraception	68 (27.9%)	4 (7.1%)	59 (33.7%)		66 (15.8%)	10 (16.9%)	47 (15.9%)		
Abortion in the past year				<0.001 ^a				<0.001 ^a	0.622
Yes	36 (14.6%)	18 (36.0%)	17 (8.9%)		136 (23.5%)	37 (52.9%)	87 (19.8%)		
No	211 (85.4%)	32 (64.0%)	173 (91.1%)		442 (76.5%)	33 (47.1%)	352 (80.2%)		
Main sex partner in the past month ⁺				0.006 ^a				0.142 ^a	0.292
Main sex partner	172 (61.9%)	45 (77.6%)	118 (57.6%)	0.479 ^a	344 (66.9%)	49 (75.4%)	248 (66.1%)		
No main sex partner	106 (38.1%)	13 (22.4%)	87 (42.4%)		170 (33.1%)	16 (24.6%)	127 (33.9%)		
Condom consistency with main sex partner in the past month								0.001 ^a	0.015
Always uses condoms	30 (18.5%)	7 (15.9%)	23 (20.9%)	<0.001 ^a	114 (35.0%)	27 (55.1%)	71 (30.0%)		
Does not always use condoms	132 (81.5%)	37 (84.1%)	87 (79.1%)		212 (65.0%)	22 (44.9%)	166 (70.0%)		
Casual sex partner in the past month ⁺⁺								<0.001 ^a	0.891
Casual sex partner	105 (36.1%)	45 (76.3%)	54 (25.7%)	0.706 ^a	182 (32.3%)	50 (75.8%)	114 (26.4%)		
No casual sex partner	186 (63.9%)	14 (23.7%)	156 (74.3%)		381 (67.7%)	16 (24.2%)	318 (73.6%)		
Condom consistency with casual sex partner in the past month								0.310 ^a	0.396
Always uses condoms	16 (18%)	8 (17.8%)	8 (21.1%)	0.023 ^a	70 (38.5%)	23 (44.2%)	41 (36.0%)		
Does not always use condoms	73 (82%)	37 (82.2%)	30 (78.9%)		112 (61.5%)	29 (55.8%)	73 (64.0%)		
Condom used at last sex								0.249 ^a	0.240
Yes	111 (67.7%)	38 (80.9%)	68 (62.4%)		209 (56.5%)	38 (62.3%)	149 (54.2%)		
No	53 (32.3%)	9 (19.1%)	41 (37.6%)		161 (43.5%)	23 (37.7%)	126 (45.8%)		

	Changsha		Kunshan				Test for Effect Modification		
	Total (n=293)		History of Transactional Sex (n=60)	No History of Transactional Sex (n=210)	p-value	Total (n=689)	History of Transactional Sex (n=72)	No History of Transactional Sex (n=468)	p-value
	N (%)	N (%)	N (%)	N (%)		N (%)	N (%)	N (%)	
Ever had an STI					<0.001 ^a				<0.001 ^a 0.033
Yes	86 (34.8%)	41 (74.5%)	41 (22.3%)			104 (22.7%)	25 (48.1%)	73 (19.8%)	
No	161 (65.2%)	14 (25.5%)	143 (77.7%)			354 (77.3%)	27 (51.9%)	295 (80.2%)	
Risk perception					<0.001 ^a				<0.001 ^a 0.020
No risk	169 (57.7%)	16 (26.7%)	137 (65.2%)			564 (87.9%)	50 (71.4%)	416 (91%)	
Risk for STIs	37 (12.6%)	3 (5.0%)	33 (15.7%)			38 (5.9%)	10 (14.3%)	20 (4.4%)	
Risk for HIV	7 (2.4%)	2 (3.3%)	4 (1.9%)			7 (1.1%)	2 (2.9%)	2 (0.4%)	
Risk for both	80 (27.3%)	39 (65.0%)	36 (17.1%)			33 (5.1%)	8 (11.4%)	19 (4.2%)	
Frequency of sex					<0.001 ^a				0.001 ^a 0.001
Less than once month	29 (14.5%)	4 (7.3%)	23 (17.0%)			89 (21.4%)	10 (17.9%)	66 (22.4%)	
1 to 3 times a month	61 (30.5%)	9 (16.4%)	49 (36.3%)			137 (32.9%)	19 (33.9%)	95 (32.2%)	
Once or twice a week	51 (25.5%)	7 (12.7%)	43 (31.9%)			114 (27.4%)	14 (25.0%)	81 (27.5%)	
3 to 6 times a week	40 (20%)	25 (45.5%)	12 (8.9%)			55 (13.2%)	4 (7.1%)	42 (14.2%)	
Every day	8 (4.0%)	3 (5.5%)	5 (3.7%)			14 (3.4%)	4 (7.1%)	9 (3.1%)	
More than once a day	11 (5.5%)	7 (12.7%)	3 (2.2%)			7 (1.7%)	5 (8.9%)	2 (0.7%)	
Ever had sex with someone of the same sex					<0.001 ^a				0.338 ^a 0.005
Yes	27 (9.7%)	16 (28.6%)	10 (5.0%)			75 (22.3%)	10 (27.0%)	51 (20.2%)	
No	251 (90.3%)	40 (71.4%)	192 (95.0%)			262 (77.7%)	27 (73.0%)	202 (79.8%)	

^a p-values obtained from Pearson Chi-square Test^b p-values obtained from T-test^c p-values obtained from Mann Whitney U Test^d p-values obtained from Fisher's Exact Test^e p-values obtained from Mood's Median Test

* Total number of participants does not equal the sum due to missing data

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Main partner was defined by the following question: “In the last 1 month, has there been a man or woman you consider to be your main sexual partner, like a stable lover, boyfriend/girlfriend, or spouse?”
+ Casual partners were defined by the following question: “During the past 1 month, how many sexual partners did you have who were not a main partner, nor a boyfriend/girlfriend or spouse (non-main partners)?”
++

Table 3

A comparison of perceived difficulties in using condoms with main sex partners and casual sex partners comparing those with a history of transactional sex to those with no history of transactional sex in Changsha and Kunshan

	Total N (%) Any Partner				N (%) Main Partner				N (%) Casual Partner				N (%) Sex Work Client [†]
	Total	History of Transactional Sex	No History of Transactional Sex	p-value	Total	History of Transactional Sex	No History of Transactional Sex	p-value	Total	History of Transactional Sex	No History of Transactional Sex	p-value	
N (%) with type of partner	487 (100%)	117 (24.0%)	370 (76.0%)		447 (100%)	92 (20.6%)	355 (79.4%)		249 (100%)	94 (37.8%)	155 (62.2%)		60 (100%)
I had no problem using condoms with partner	260 (32.1%)	50 (37.9%)	210 (31%)	0.127	222 (56.9%)	32 (38.6%)	190 (61.9%)	<0.001	107 (50.5%)	35 (40.2%)	72 (57.6%)	0.017	12 (20.0%)
My partner refuses to use condoms	63 (7.8%)	38 (28.8%)	25 (3.7%)	<0.001	48 (12.3%)	28 (33.7%)	20 (6.5%)	<0.001	34 (16%)	25 (28.7%)	9 (7.2%)	<0.001	35 (58.3%)
My partner does not like the feel of sex with condoms	74 (9.1%)	19 (14.4%)	55 (8.1%)	0.031	57 (14.6%)	11 (13.3%)	46 (15%)	0.861	37 (17.5%)	13 (14.9%)	24 (19.2%)	0.466	9 (15%)
I do not like the feel of sex with condoms	82 (10.1%)	27 (20.5%)	55 (8.1%)	<0.001	70 (17.9%)	19 (22.9%)	51 (16.6%)	0.198	34 (16%)	17 (19.5%)	17 (13.6%)	0.259	5 (8.3%)
I do not have enough confidence to ask my partner to use a condom	20 (2.5%)	9 (6.8%)	11 (1.6%)	0.002	15 (3.8%)	6 (7.2%)	9 (2.9%)	0.101	9 (4.2%)	5 (5.7%)	4 (3.2%)	0.492	2 (3.3%)
I did not know how	10 (1.2%)	3 (2.3%)	7 (1.0%)	0.214	8 (2.1%)	2 (2.4%)	6 (2.0%)	0.680	5 (2.4%)	2 (2.3%)	3 (2.4%)	1.000	2 (3.3%)

Participants from Kunshan were not asked this question