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Understanding out-migration among female sex workers in South India

Pradeep Banandur^{1,2}, Satyanarayana Ramnaik¹, Lisa E. Manhart³, Raluca Buzdugan⁴, Bidhubhushan Mahapatra⁵, Shajy Isac¹, Shiva S Halli⁶, Reynold G Washington^{1,7}, Stephen Moses⁶, and James F Blanchard⁶

¹Karnataka Health Promotion Trust, Bangalore, India

²Department of Community Medicine, Rajarajeswari Medical College and Hospital, Bangalore, India

³University of Washington, Seattle, USA

⁴Department of Infection and Population Health, University College London, UK

⁵Population Council, New Delhi, India

⁶University of Manitoba, Winnipeg, Canada

⁷St John's Research Institute, Bangalore, India

Abstract

BACKGROUND—Migrant sex workers are known to be vulnerable to HIV. There is substantial female sex worker (FSW) mobility between the borders of Maharashtra and Karnataka, but little programming emphasis on migrant FSWs in India. We sought to understand the individual/cultural, structural and contextual determinants of migration among FSWs from Karnataka.

METHODS—A cross sectional face-to-face interview of 1567 FSWs from 142 villages in 3 districts of northern Karnataka, India was conducted from January–June 2008. Villages having 10+ FSWs, a large number of whom were migrant, were selected following mapping of FSWs. Multinomial logistic regression was conducted to identify characteristics associated with migrant (travelled for ≥2 weeks outside the district past year) and mobile (travelled for <2 weeks outside the district past year) FSWs; adjusting for age and district.

RESULTS—Compared to non-migrants, *migrant FSWs* were more likely to be brothel than street-based (AOR 5.7; 95% CI 1.6–20.0), have higher income from sex work (AOR 42.2; 12.6–142.1), speak >2 languages (AOR 5.6%; 2.6–12.0), have more clients (AOR_{per client} 2.9; 1.2–7.2) and have more sex acts/day (AOR_{per sex act} 3.5; 1.3–9.3). *Mobile FSWs* had higher income from sex work (AOR=13.2; 3.9–44.6) relative to non-migrants, but not as strongly as for migrant FSWs.

CONCLUSION—Out-migration of FSWs in Karnataka was strongly tied to sex work characteristics; thus, the structure inherent in sex work should be capitalized on when developing HIV preventive interventions. The important role of FSWs in HIV epidemics, coupled with the

Corresponding author: Dr Pradeep Banandur, Associate Professor, Department of Community Medicine, Rajarajeswari Medical College and Hospital, Bangalore-560074, India, Ph: 91-9845452250, Fax: 91-80-40400300, doctorpradeeps@gmail.com.

CONFLICT OF INTEREST:

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potential for rapid spread of HIV with migration, requires the most effective interventions possible for mobile and migrant FSWs.

Keywords

Migration; HIV; India; Female sex worker

INTRODUCTION

Approximately 2.5 million people live with HIV/AIDS in India (1). Heterosexual contact is the most common mode of transmission (2). Prevalence is highest in four southern Indian states (3, 4), one of which is Karnataka. Unlike other places in India, the HIV prevalence in rural north Karnataka (3.6%) is higher than in urban areas (2.4%) (5) due to a largely home-based rural sex work environment and the presence of traditional sex workers called Devadasis (popularly known as “Temple dancers” (6, 7)) in the northern districts of Bagalkot, Belgaum and Bijapur (7). This may also sustain and amplify the HIV epidemic independent of urban sexual networks. A substantial proportion of FSWs in Karnataka are mobile, both within and between states (8).

Migration is an important risk factor in HIV transmission (9, 10). Mobile populations have higher HIV rates than residents, independent of the HIV prevalence at their site of origin or destination (10–17). Extensive migration can expand HIV epidemics geographically by bridging high-risk sexual networks in multiple locations (8). Furthermore, mobile FSWs are more vulnerable to HIV due to inconsistent access to preventive program services (10, 18), and less able to adapt and negotiate safer sex practices given their lack of influence with those controlling the sex work environment. They may have clients who are less familiar to them and therefore might be unable to negotiate condom use, all of which are compounded by language barriers (10).

Given the high HIV prevalences and the role of sex work in the local transmission dynamics in the four southern states of India, the India AIDS initiative (Avahan) of the Bill & Melinda Gates Foundation (BMGF) began a focused HIV prevention programme among FSWs in 2003. In Karnataka, the Karnataka State AIDS Prevention Society and the University of Manitoba partnered through the Karnataka Health Promotion Trust (KHPT) to implement these activities. Programs in Karnataka generally focus on resident FSWs with little programming emphasis on mobile FSWs (8, 18). The exception is the KHPT intervention (“Corridors” programme) which also focuses on FSWs who migrate from the districts of Belgaum, Bagalkot and Bijapur to the neighboring state of Maharashtra.

In this context, understanding the mobility and migration of FSWs in high prevalence areas is crucial for a comprehensive understanding of HIV transmission dynamics and designing effective interventions. A large community based cohort study titled “*PAYANA*” (meaning “travel” or “migration” in Sanskrit), is being funded by the BMGF and conducted by KHPT and the University of Manitoba. *PAYANA*’s goal is to increase knowledge about migration patterns of rural FSWs and the impact of this migration on HIV risk, vulnerability and transmission dynamics in the northern Karnataka districts of Bagalkot, Bijapur and Belgaum. The conceptual underpinning of the *PAYANA* cohort study relates to the interaction between individual, social and environmental factors that determine HIV risk, which relates to specific high risk sexual behaviours, and vulnerability, which is comprised of those factors that either facilitate or inhibit the ability to adopt safer sexual behaviours. A broad conceptual framework under which the *PAYANA* study was conducted is depicted in Figure 1. This construct recognizes that FSWs are frequently not the decision makers with respect to risk reduction behaviours such as partner reduction, condom usage or utilization

of health services. Instead those who control the environment such as pimps, brokers, madams, etc. as well as sex clients, exert direct and indirect influence on the latitude for decision-making by FSWs. The situation is more complicated for mobile FSWs, since they move between different environments with varying levels of control and support. Furthermore, their mobility renders them less reachable by outreach and education programs designed to support individual knowledge and skills in behavior change strategies. Using baseline data from the “*PAYANA*” cohort study, we sought to explore the associations between different mobility patterns and the individual, socio-demographic, and sex work characteristics that affect out-migration among FSWs in northern Karnataka.

METHODS

We analyzed baseline data, collected between January and July 2008, from the *PAYANA* cohort

Sampling

The three districts were selected based on their historically high HIV prevalences (>3.0% in antenatal women) and the history of FSW migration from their rural areas to districts in nearby Maharashtra state (19). Initially, comprehensive rural mapping of sex work locations was performed, generating the sampling frame for a two-stage sampling process which first selected villages and then migrant and non-migrant FSWs in the selected villages. A migrant FSW was defined as having been outside the district or state for sex work in the past year for at least one period of >2 weeks. Non-migrant FSWs were defined as not having been outside the district or state for sex work in the past year. The main *PAYANA* study collected information on migration, mobility and HIV vulnerability in sampled migrant and non-migrant FSWs at baseline, and at 3, 9, 15 and 21 months following.

Mapping—Teams of community consultants, field researchers, program outreach workers and peer educators visited each village in the three districts and gathered information on commercial sex work primarily through key informant interviews. Information collected included total number of FSWs (currently living in the village, usually in the village and out of the village), client volume, sources of clients, and general mobility patterns.

Based on this, the *talukas* (sub-districts) with the highest proportion of migrant FSWs were selected ($n \geq 15$ *talukas*). From these, 142 villages with the largest number of migrant FSWs were selected. After selecting the villages, mapping was repeated to validate the sampling frame. Upon validation, villages that had no identified FSWs were replaced with nearby villages with more than 10 FSWs. All migrant FSWs in each village were selected. For non-migrant FSWs, a target proportionate to the size estimate of non-migrant FSW population was set in each *taluka*. Peer community researchers (former or current FSWs working in an ongoing community sex work intervention known to the FSWs in a particular village) identified all FSWs.

After obtaining written informed consent, qualified field investigators administered a pen and paper questionnaire. Ethical approval was obtained from the institutional review boards of St John’s Medical College and Hospital, Bangalore, India, and the University of Manitoba, Winnipeg, Canada for the cohort study, and from the University of Washington, USA for the current analyses.

Analytic methods

Our primary dependent variable was migration status in the past year, categorized as migrant, mobile and non-migrant. During protocol development, we had planned to compare

only migrant and non-migrant FSWs. However, after data collection we identified two separate groups of FSW who moved for sex work (migrant and mobile) and they differed substantially from each other and from non-migrant FSWs. Along with migrants and non-migrants, this third group of mobile FSWs is potentially important in the dynamics of HIV transmission. We assessed the relationship between migration status and individual, socio-demographic and sex work characteristics. Individual factors included age, residence, literacy, languages, and reason for entering sex work. Socio-demographic factors included marital status, schooling, household size, number of living children, children supported financially, and monthly household income. A sex worker's household was considered as the place where her family lived in her native village (eg: husband/lover, children, parents, and/or siblings living under one roof), not the place where she engaged in sex work. Sex work characteristics included age at sex work debut, duration in sex work, main place of solicitation, client demand, source of clients, type of clients/partners, number of sexual acts/day, income from sex work, condom use with different clients and history of arrest for sex work. The main place of solicitation and main place for entertaining clients were categorized into home (any house or rented room), brothel (brothel, lodge and dhaba which are small restaurants and rest stops along highways), street, and other. A non-paying partner was defined as a regular or primary partner who did not pay for sex. A new client was a paying client for the first time. An occasional client was a paying client who came irregularly or was not known to the FSW.

Statistical analyses were undertaken using STATA IC 10.1 (Stata Corporation, College Station, Texas). Descriptive analysis tested the association of individual, socio-demographic and sex work characteristics mentioned above with migration status using Pearson's chi-square test for categorical variables and Wilcoxon rank sum test for continuous variables. Multivariate analyses used multinomial logistic regression to identify characteristics independently associated with migration status. Age, languages spoken, marital status and district of origin were considered primary exposure variables. All factors associated with migration status and at least one primary exposure variable were assessed as potential confounders. Only those characteristics that changed the risk estimates of one or more primary exposure variable(s) by >10% were retained in the final model. In the case of multiple variables representing similar concepts (e.g., number of living children and number of dependent children; monthly household income and monthly income from sex work), we selected only the characteristic thought to best represent the overall concept. History of police arrest was excluded from the multivariate analysis given the high proportion of non-responses.

RESULTS

Sample distribution

During the data collection period (January–July 2008), 1567 FSWs were interviewed. The majority were from Bagalkot (55.8%); followed by Belgaum (28.1%) and Bijapur (16.1%) (Table 1). Among these, 730 (46.5%) were non-migrant, 645 (41.2%) were migrant, and 192 (12.3%) were mobile FSWs. Nearly half of the FSWs from Bagalkot (49.3%) and Bijapur (41.3%), and only a quarter from Belgaum were migrant. Approximately 50% of FSWs from Belgaum were non-migrants. Among all FSWs approached, only 13 (0.8%) refused participation.

Individual and socio-demographic Factors—Overall, FSWs differed significantly on most individual and socio-demographic characteristics (Table 1). The vast majority of FSWs were illiterate (80.7%) and *Devadasi* (73.8%), and most had practiced sex work for at least 5 years (52.3%). However, *mobile FSWs* were less often illiterate (65.1%) and *Devadasi*

(43.8%), than either non-migrant or migrant FSWs (80.7% and 85.4% illiterate and 72.8% and 83.9% *Devadasi*, respectively). *Migrant FSWs* were younger and generally spoke two or more languages. In contrast, *mobile FSWs* were older, more often from Belgaum and mostly spoke only one language.

Most FSWs reported at least 4 members in their household (81.9% overall), although *migrant FSWs* had larger families (24% had 9 members). Most entered sex work to meet their family's financial needs (46.4% overall) or through the *Devadasi* tradition (45.4% overall), with the exception of *mobile FSWs* who most often cited their family's financial needs. *Migrant FSWs* reported more often having no children (41.1%) and had a higher monthly household income (median Rs.6000) than non-migrant (median Rs.2700) and mobile (median Rs.3000) FSWs.

Sex work characteristics—FSWs differed significantly on all assessed sex work characteristics (Table 2). *Migrant FSWs* were younger at sex work debut, earned more money from sex work (median Rs.5000/month), and were less likely to have any other source of income compared to non-migrant and mobile FSWs. They mostly solicited and entertained clients in brothels and a vast majority reported having 3 clients and 3 sexual acts/day. In contrast, *mobile FSWs* were older when they started sex work than either non-migrant or migrant FSWs, reported no primary place of solicitation and clients mostly came on their own (61.5%); most entertained clients at brothels (56.3%) or at home (38%). Half of mobile FSWs reported 2 clients/day, and 60.4% reported 3 sexual acts/day. *Non-migrant FSWs* earned less from sex work (44.0% earned <Rs.1000/month), had other sources of income (71.8%), mostly entertained clients at home (>80%), and had fewer clients and fewer sexual acts/day compared to migrant and mobile FSWs. The majority of *non-migrants* (79.0%) and *mobile FSWs* (60.4%) contributed all their income to their households.

All migrant FSWs practiced sex work outside their district/state but usually did not do so in their native village (87.6%). Only one third of non-migrant FSWs (31.5%) and only half of mobile FSWs (47.9%) had practised sex work outside the district or state. *Mobile FSWs* practiced sex work both within and outside their district, and nearly all had plans to travel within their native district (96.4%). More migrant FSWs reported using condoms every time they had sex with paying clients (99.2%) than did mobile (91.2%) and non-migrant (84.8%) FSWs. More *non-migrant FSWs* reported having sex with non-paying partners (65.5%) than either migrant (18.6%) or mobile FSWs (13.0%).

Multivariate analyses

Adjusting for age, and district compared to *non-migrant FSWs*, *migrant FSWs* were significantly more likely to be brothel than street-based (AOR 5.7; 95% CI 1.6–20.0), have higher income from sex work (AOR 42.2; 95% CI 12.6–142.1), speak >2 languages (AOR 5.6; 95% CI 2.6–12.0), and have more clients (AOR_{per client} 2.9; 95% CI 1.2–7.2) and sex acts/day (AOR_{per sex act} 3.5; 95% CI 1.3–9.3). They were significantly less likely to have a source of income other than sex work [AOR=0.3, 95% CI 0.2–0.6] (Table 3). *Mobile FSWs* were characterized by higher monthly income from sex work (AOR=13.2; 95% CI 3.9–44.6) relative to *non-migrants*, but not as strongly as for *migrant FSWs*. Mobile FSWs also reported more sex acts/day (AOR_{per sex act} 5.3; 95% CI 2.9–9.5) and were less likely to be *Devadasi* (AOR 0.2; 95% CI 0.1–0.4).

DISCUSSION

Most *migrant FSWs* in the three districts of northern Karnataka were *Devadasi*, illiterate and had been in sex work for >5 years, similar to other FSWs in the region (4,5,8,20). Brothel-based sex work, higher income from sex work, speaking >2 languages, and having more

clients and more sex acts/day were characteristics of a *migrant FSW*, whereas *mobile FSWs* were characterized by having moderate income from sex work but a relatively large number of sexual acts/day.

Our original hypothesis that migrant FSWs are more vulnerable to HIV and other social vulnerabilities at their place of destination, due to being less embedded in the social structure, is true for mobile FSWs. However, we found that migrant FSWs were involved in very structured sex work. They primarily solicited and entertained clients in brothels and practiced sex work in the same place without intentions to practice in other places within the district. In contrast, mobile FSWs reported no preference for a place of solicitation and practiced sex work both within and outside the district. Thus mobile FSWs may “bridge” local and non-local networks; This corresponds with results from another study suggesting high mobility and short duration of stay are risk markers for HIV among FSWs (21).

Of the seven FSW characteristics independently associated with migration, five were related to sex work (place of solicitation, sex work income, client demand, sexual acts/day and source of income other than sex work); one was socio-demographic (marital/devadasi status) and one was individual (number of languages spoken). The sex work characteristics may actually be consequences of FSW migration. Migrant FSWs are mainly organized around brothels which provide a favorable environment for soliciting clients and sex work in destinations. Brothels also ensure client flow since the clients are aware of the constant availability of FSWs in brothels. We hypothesize that women migrate to access a greater number of clients where there is a greater demand for sex work. Clients attending brothels may have more money to spend, and the brothel setup may make it easier to have many clients.. Alternatively, FSWs might migrate to places where sex work is more efficient and more lucrative. Although migrant FSWs contributed a lower proportion of their earnings to their household income than mobile and non-migrant FSWs, the actual amount contributed was greater than that contributed by non-migrant and mobile FSWs, suggesting greater economic success among migrant FSWs and contributing to the large confidence interval observed in the study. Migrant FSWs speaking more languages compared to non-migrants and mobile FSWs might also be an adaptation to the local situation rather than being a factor leading to migration.

one-third of non-migrant FSWs reported having migrated outside the district early in their sex work career. Over time, migrant FSWs might come back to settle in their native villages, contributing to the local HIV transmission dynamics If they acquired HIV while they were outside. These returned sex workers may influence young *Devadasis*, through their networks, to migrate to places outside which are safe and lucrative. It is likely that young FSWs migrate in order to make money and as the client demand reduces overtime, they either return to their native villages or stay on in their destinations to become brothel madams. These migrant *devadasi* FSWs might influence others from their place of origin to migrate and join them. Devadasis were mainly non-migrants or migrants but less likely to be mobile FSWs, suggesting that the structure of residential and migrant sex work is more suited to the *Devadasi* system.

Although not considered a factor influencing migration, condom use is an important aspect of an FSW’s risk for HIV infection. Interestingly, condom usage across partner type was highest among migrant FSWs compared to non-migrant and mobile FSWs. This may be because HIV intervention programs at sex work destinations focus on condom promotion and condom social marketing. Additionally, there may be some social desirability bias in reporting condom use, with those working in structured settings like brothels feeling pressure to report high condom use. The high prevalence of HIV among young FSWs (4), suggests that they typically acquire HIV infection during the early years of sex work. Young

FSWs early in their sex work careers may be more likely to forego condom usage to earn more money, making them more vulnerable to HIV/STIs. Furthermore, when FSWs initially migrate, their clients might be less familiar to them, either individually or from a socio-cultural perspective, and therefore FSWs might be less empowered to negotiate condom use early in their sex work careers. Unfortunately, due to sampling at villages rather than at destinations, we were unable to explore condom use patterns among younger, newer FSWs (only 3% had been involved in sex work for <2 years).

We believe that the high response rate in our study was due to the involvement of peer community researchers who identified and established rapport with potential participants. The ongoing Corridors program also likely provided a conducive environment for study participation. Previous studies evaluating factors influencing migration among established sex workers (22, 23) have either used convenience sampling, with small sample sizes or were qualitative in nature (7, 12). The rigorous community-based sampling, the high response rates and the quantitative analyses employed are strengths of our study. However, there are some limitations. Characteristics of urban FSWs may differ from those we identified here among FSWs in a rural setting, studies among urban FSWs are required. Given the small numbers of new FSWs in our study population, these results cannot be generalized to FSWs who have had <2 years experience in sex work. Furthermore, the cross-sectional nature of this study cannot assess temporal sequence, and thus we cannot conclude that factors identified as being independently associated with migration are causes or results of migration.

Out-migration of FSWs in south India was strongly tied to sex work characteristics. The important role that FSWs play in heterosexual HIV epidemics, coupled with the potential for the rapid spread of HIV with migration, call for developing the most effective interventions for mobile and migrant FSWs capitalizing on the structures inherent in sex work. Additionally, interventions focusing on current migrant FSWs may reduce HIV vulnerability among future migrant FSWs. Information on common destinations and patterns of movement among migrant and mobile FSWs would help position service delivery. These data, in combination with additional longitudinal studies designed to understand the determinants of migration and mobility, and factors influencing timing and destination for migration, are essential to appropriately design, implement and refine HIV interventions focusing for migrant and mobile FSWs.

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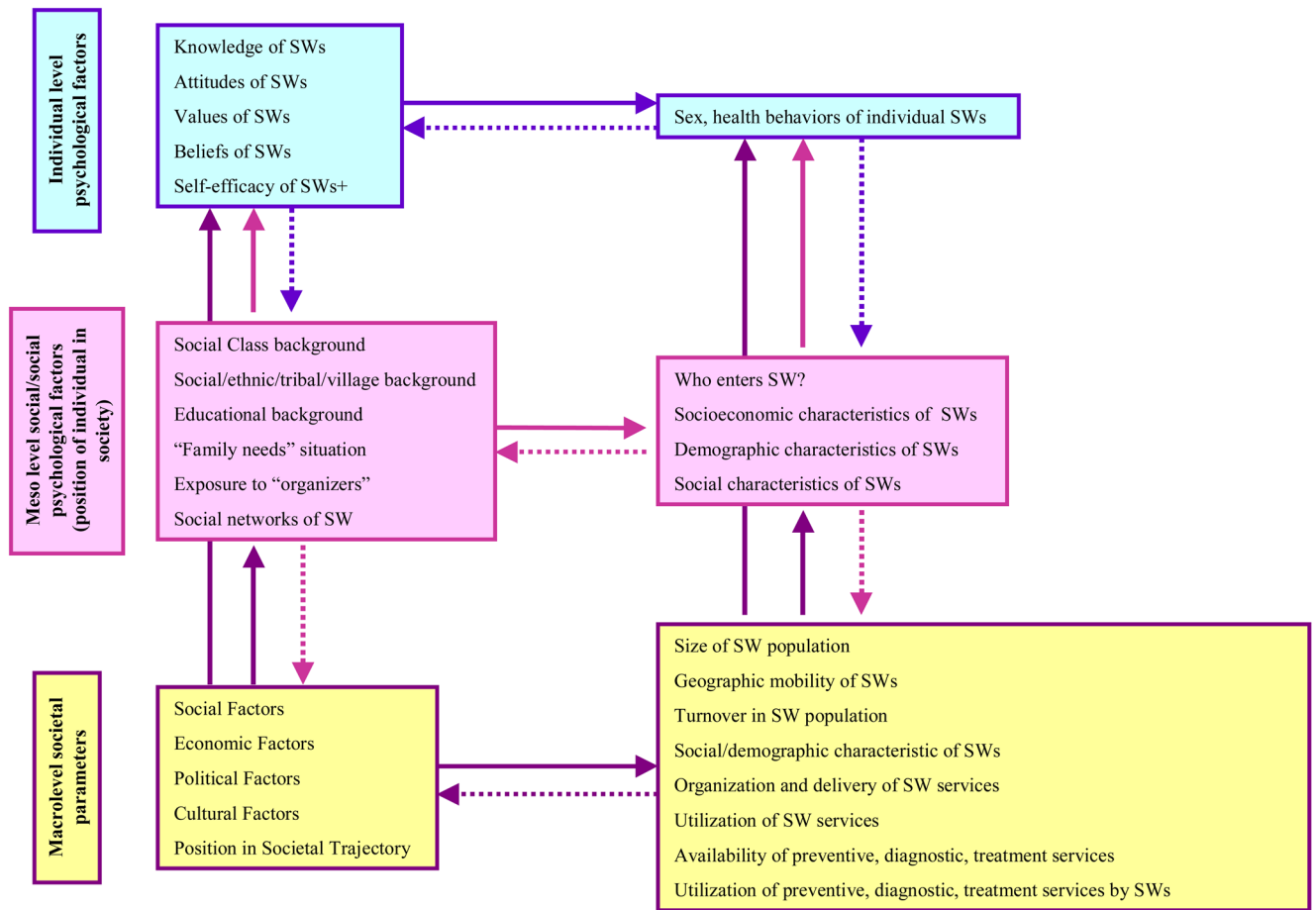


Figure 1. Straight arrow indicates direct influence. Dotted arrow indicates feedback influence.

Table 1

Individual and socio-demographic characteristics of 1567 female sex workers from northern Karnataka, India, interviewed from Jan–July 2008

Characteristics	Total N=1567 N (%)	Non-Migrant* n=730 n (%)	Migrant† n=645 n (%)	Mobile‡ n=192 n (%)	P-value§
District					
Bagalkot	874 (55.8)	382 (52.3)	431 (66.8)	61 (31.8)	<0.0001
Belgaum	441 (28.1)	223 (30.6)	110 (17.1)	108 (56.2)	
Bijapur	252 (16.1)	125 (17.1)	104 (16.1)	23 (12.0)	
Age					
< 25	504 (32.2)	168 (23.0)	281 (43.6)	55 (28.6)	<0.0001
25–29	476 (30.4)	230 (31.5)	201 (31.2)	45 (23.4)	
30–34	259 (16.5)	132 (18.1)	89 (13.8)	38 (19.8)	
35–39	214 (13.7)	131 (17.9)	51 (7.9)	32 (16.7)	
40+	114 (7.3)	69 (9.5)	23 (3.6)	22 (11.5)	
Usual Place of residence					
Place of interview (POI)	1334 (85.1)	730 (100.0)	418 (64.8)	186 (96.9)	<0.0001
Other than POI	233 (14.9)	0 (0.0)	227 (35.2)	6 (3.1)	
Literacy					
Illiterate	1265 (80.7)	589 (80.7)	551 (85.4)	125 (65.1)	<0.0001
Literate	302 (19.3)	141 (19.3)	94 (14.6)	67 (34.9)	
Current marital status					
Currently married	72 (4.6)	41 (5.6)	5 (0.8)	26 (13.5)	
Separated	119 (7.6)	57 (7.8)	28 (4.3)	34 (17.7)	<0.0001
Divorced	66 (4.2)	15 (2.1)	36 (5.6)	15 (7.8)	
Widowed	138 (8.8)	84 (11.5)	24 (3.7)	30 (15.6)	
Never married	15 (1.0)	1 (0.1)	11 (1.7)	3 (1.6)	
Devadasi¶	1156 (73.8)	531 (72.8)	541 (83.9)	84 (43.8)	
Languages spoken ¶					
One	556 (35.5)	401 (54.9)	58 (9.0)	97 (50.5)	
Two	624 (39.8)	225 (30.8)	350 (54.3)	49 (25.5)	<0.0001
More than two	387 (24.7)	104 (14.2)	237 (36.7)	46 (24.0)	
Highest level of schooling					

Characteristics	Total N=1567 N (%)	Non-Migrant* n=730 n (%)	Migrant† n=645 n (%)	Mobile‡ n=192 n (%)	P-value§
None	1223 (78.0)	572 (78.4)	525 (81.4)	126 (65.6)	0.001
Primary	180 (11.5)	83 (11.4)	67 (10.4)	30 (15.6)	
Higher Primary	132 (8.4)	58 (7.9)	45 (7.0)	29 (15.1)	
High school	25 (1.6)	12 (1.6)	7 (1.1)	6 (3.1)	
Pre-university and more	7 (0.4)	5 (0.7)	1 (0.2)	1 (0.5)	
Household size					
Single	35 (2.2)	24 (3.3)	4 (0.6)	7 (3.6)	<0.0001
2–3 members	248 (15.8)	135 (18.5)	64 (9.9)	49 (25.5)	
4–8 members	1000 (63.8)	470 (64.4)	422 (65.4)	108 (56.3)	
9+	284 (18.1)	101 (13.8)	155 (24.0)	28 (14.6)	
Main reason for coming into sex work					
I needed to meet my own financial needs	89 (5.7)	41 (5.6)	27 (4.2)	21 (10.9)	<0.0001
I needed to meet my family's financial needs	727 (46.4)	308 (42.2)	311 (48.2)	108 (56.3)	
I was initiated into the devadasi tradition	712 (45.4)	364 (49.9)	290 (45.0)	58 (30.2)	
Other	39 (2.5)	17 (2.3)	17 (2.7)	5 (2.6)	
Number of living children					
None	425 (27.1)	126 (17.3)	265 (41.1)	34 (17.7)	<0.0001
1	411 (26.2)	167 (22.9)	190 (29.5)	54 (28.1)	
2	436 (27.8)	241 (33.0)	133 (20.6)	62 (32.3)	
3+	295 (18.8)	196 (26.8)	57 (8.8)	42 (21.9)	
Number of children supported financially					
None	322 (20.5)	110 (15.1)	185 (28.7)	27 (14.1)	<0.0001
1	403 (25.7)	164 (22.5)	183 (28.4)	56 (29.2)	
2	438 (28.0)	240 (32.9)	143 (22.2)	55 (28.6)	
3+	404 (25.8)	216 (29.6)	134 (20.8)	54 (28.1)	
Monthly household income‡					
< 2000	265 (16.9)	204 (27.9)	23 (3.6)	38 (19.8)	<0.0001
2000–4999	593 (37.8)	350 (47.9)	160 (24.8)	83 (43.2)	
5000–9999	494 (31.5)	160 (21.9)	281 (43.6)	53 (27.6)	
10000+	215 (13.7)	16 (2.2)	181 (28.1)	18 (9.4)	

* Migrant sex worker: A female sex worker who has been outside the district or outside the state for more than 2 weeks in the past year

⁷ Mobile sex worker: A female sex worker who has been outside the district or outside the state for less than 2 weeks in the past year

⁸ Non-Migrant sex worker: A female sex worker who has not been outside the district or outside the state for sex work in the past year

⁹ p-value is for Chi-square test of independence comparing all 3 levels of migration

// Designated as a marital status

¹⁰ Most common languages spoken are Kannada, Hindi and Marathi

Table 2
 Characteristics of sex work of 1567 female sex workers in Northern Karnataka, India, interviewed from Jan–July 2008

Characteristics	Total N=1567 N (%)	Non-Migrant n=730 n (%)	Migrant n=645 n (%)	Mobile n=192 n (%)	P-value*
Age at sex work debut					
< 18 years	963 (61.5)	437 (59.9)	438 (67.9)	88 (45.8)	<0.0001
18–24 years	420 (26.8)	193 (26.4)	172 (26.7)	55 (28.6)	
25–29 years	118 (7.5)	60 (8.2)	26 (4.0)	32 (16.7)	
30+ years	66 (4.2)	40 (5.5)	9 (1.4)	17 (8.9)	
Duration in sex work					
< 2 years	50 (3.2)	13 (1.8)	23 (3.6)	14 (7.3)	<0.0001
2–4 years	230 (14.7)	95 (13.0)	103 (16.0)	32 (16.7)	
5–9 years	540 (34.5)	218 (29.9)	258 (40.0)	64 (33.3)	
10+ years	747 (47.7)	404 (55.3)	261 (40.5)	82 (42.7)	
Monthly income from sex work (In Indian rupees ₹)					
< 1000	387 (24.7)	321 (44.0)	17 (2.6)	49 (25.5)	<0.0001
1000–2999	533 (34.0)	328 (44.9)	120 (18.6)	85 (44.3)	
3000–4999	278 (17.7)	77 (10.5)	169 (26.2)	32 (16.7)	
5000+	369 (23.5)	4 (0.5)	339 (52.6)	26 (13.5)	
Contribution to household income from earnings from sex work †					
All	1026 (65.5)	577 (79.0)	333 (51.6)	116 (60.4)	<0.0001
More than half	496 (31.7)	142 (19.5)	283 (43.9)	71 (37.0)	
Less than half	43 (2.7)	10 (1.4)	28 (4.3)	5 (2.6)	
Source of income other than sex work					
Present	694 (44.3)	524 (71.8)	61 (9.5)	109 (56.8)	<0.0001
Main place of solicitation ‡					
Home	749 (47.9)	592 (81.3)	83 (12.9)	74 (38.5)	<0.0001
Brothel	456 (29.2)	5 (0.7)	402 (62.4)	49 (25.5)	
Street	227 (14.5)	16 (2.2)	153 (23.8)	58 (30.2)	
Other	132 (8.4)	115 (15.8)	6 (0.9)	11 (5.7)	
Source of clients §					

Characteristics	Total N=1567 N (%)	Non-Migrant n=730 n (%)	Migrant n=645 n (%)	Mobile n=192 n (%)	P-value*
Independently	529 (33.8)	178 (24.5)	302 (46.9)	49 (25.5)	<0.0001
Clients come on their own	923 (59.0)	489 (67.2)	316 (49.1)	118 (61.5)	
Other	152(9.8)	71 (9.8)	48 (7.8)	33 (17.0)	
Main place of having sex \$, 					
Home	777 (49.7)	604 (83.0)	100 (15.5)	73 (38.0)	<0.0001
Brothel	649 (41.5)	1 (0.1)	540 (83.9)	108 (56.3)	
Other	138 (8.8)	123 (16.9)	4 (0.6)	11 (5.7)	
Number of clients per day 					
1	471 (30.1)	417 (57.3)	5 (0.8)	49 (25.5)	<0.0001
2	335 (21.4)	246 (33.8)	40 (6.2)	49 (25.5)	
3+	758 (48.5)	65 (8.9)	599 (93.0)	94 (49.0)	
Number of sexual acts per day 					
1	417 (26.7)	380 (52.2)	5 (0.8)	32 (16.7)	<0.0001
2	325 (20.8)	253 (34.8)	28 (4.3)	44 (22.9)	
3+	822 (52.6)	95 (13.0)	611 (94.9)	116 (60.4)	
Practice sex work in native village/POI‡					
Ever gone outside the district for sex work	967 (61.7)	230 (31.5)	645 (100)	92 (47.9)	<0.0001
Practice sex work in other places within the district	316 (20.2)	79 (10.8)	52 (8.1)	185 (96.4)	<0.0001
Planning to go to other places in the districts in the next 3 months	211 (13.5)	29 (4.0)	19 (2.90)	163 (84.9)	<0.0001
Practice sex work in other places outside the district/state	967 (61.7)	230 (31.5)	645 (100.0)	92 (47.9)	<0.0001
Planning to go to other places outside the districts in the next 3 months	664 (42.4)	28 (3.8)	588 (91.2)	48 (25.0)	<0.0001
Have sex with new/occasional client §	1294 (82.6)	502 (68.8)	633 (98.1)	159 (82.8)	<0.0001
Have sex with regular client §	1372 (87.6)	649 (88.9)	581 (90.1)	142 (74.0)	<0.0001
Have sex with non-paying partner§	623 (39.8)	478 (65.5)	120 (18.6)	25 (13.0)	<0.0001
Condom use with new/occasional clients\$, 					
Every time	1202 (92.6)	428 (84.8)	629 (99.2)	145 (91.2)	<0.0001
Condom use with regular clients\$, 					
Every time	1148 (83.7)	491 (75.8)	550 (94.7)	107 (75.4)	<0.0001
Condom use with non-paying partners\$, 					

Characteristics	Total N=1567 N (%)	Non-Migrant n=730 n (%)	Migrant n=645 n (%)	Mobile n=192 n (%)	P-value*
Every time	149 (23.5)	104 (21.6)	31 (24.8)	14 (50.0)	<0.0001
Ever been arrested for sex work					
No	1110 (70.8)	710 (97.3)	300 (46.5)	100 (52.1)	<0.0001
Yes	51 (3.3)	14 (1.9)	27 (4.2)	10 (5.2)	
No response	406 (25.9)	6 (0.8)	318 (49.3)	82 (42.7)	

* p-value is for chi-square test of independence comparing all three levels of migration

[†] 1 Dollar ≈ 42 Indian rupees at the time of data collection

[‡] During piloting, respondents and interviewers indicated that a response of exactly half was not appropriate and therefore this response option was not included

[§] Home includes any house or rented room

[§] Brothel includes lodge, dhaba (small restaurants and rest stops along highways) or brothel

[§] Street includes bar/nightclub, vehicle, park, street, cinema halls, bus stands, railway stations and highway

[§] other includes any other place other than mentioned above

// At place of residence for non-migrant sex workers and at most recent place of migration for migrant and mobile sex workers

// POI: Place of interview

¶ Among FSWs who had these clients

Table 3

Multivariate analysis of the association of individual, structural and contextual characteristics with migration status among 1567 female sex workers, Karnataka India, Jan–July 2008

Characteristics	Non-Migrant n=730	Migrant n=645	Mobile n=192
Main place of solicitation[†]			
Street	1 (Ref)	1.0 (Ref)	1 (Ref)
Home	1 (Ref)	0.02 (0.01–0.05)	0.05 (0.02–0.1)
Brothel	1 (Ref)	5.7 (1.6–20.0)	2.9 (0.9–9.5)
Other	1 (Ref)	0.1 (0.03–0.4)	0.04 (0.02–0.1)
Marital status			
Non-Devadasi	1 (Ref)	1 (Ref)	1 (Ref)
Devadasi	1 (Ref)	0.6 (0.3–1.3)	0.2 (0.1–0.4)
Monthly income from sex work (INR)			
<1000	1 (Ref)	0.21(0.09–0.5)	0.5 (0.3–0.9)
1000–2999	1 (Ref)	1 (Ref)	1 (Ref)
3000–4999	1 (Ref)	3.7 (1.8–7.6)	1.8 (0.9–3.6)
5000+	1 (Ref)	42.2 (12.6–142)	13.2 (3.9–44.6)
Languages spoken			
One	1 (Ref)	1 (Ref)	1 (Ref)
Two	1 (Ref)	3.1 (1.6–6.1)	0.5 (0.3–0.8)
More than two	1 (Ref)	5.6 (2.6–12.0)	0.8 (0.4–1.4)
Number of clients per day[‡]	1 (Ref)	2.9 (1.2–7.2)	0.7 (0.4–1.3)
Number of sex acts per day[‡]	1 (Ref)	3.5 (1.3–9.3)	5.3 (2.9–9.5)
Source of income other than sex work			
No	1 (Ref)	1 (Ref)	1 (Ref)
Yes	1 (Ref)	0.3 (0.2–0.6)	0.7 (0.4–1.3)

Abbreviations: Ref=Reference or baseline, AOR=Adjusted Odds Ratio; CI=Confidence Interval; INR: Indian Rupees. 1US dollar = Approximately 42 INR

* Odds ratios adjusted for age and district

[†]Place of solicitation at the place of residence for non-migrant and at place of destination for migrant and mobile FSWs

[‡]Adjusted odds ratio represents the increase in odds with each additional client/sex act