DETERMINANTS OF RISKY SEX AMONG MALE MIGRANTS IN INDIA

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1. Introduction

The discourse on HIV prevention has centered around the assumption that individuals' subjective perceptions about infection affects the extent to which they undertake health-damaging or risky behaviour[1–3]. Condom use in the context of sexual relationships has been seen as the most effective preventive intervention that can reduce transmission. Behavioural interventions have attempted to focus on the multiple factors that might influence a person's decision about condom use [5,6].

Early research on the epidemic indicated the need for public health education programmes to reduce risky sexual behaviour predominantly within populations at high risk of infection[7–10]. Programmes with such focus on individuals' risk assessment, influence the decision to reduce risk through perceptions of enjoyment or self-efficacy and the enabling environment to implement the change.

The migrant population has been identified with risky sexual behaviour associated with multiple sexual partners. As with other high-risk groups, prevention programmes for migrants primarily revolve around their risky behaviour with a focus on influencing their "choice" to engage in safe sex. This approach assumes that risk perceptions are irrational under uncertainty as opposed to being scientific and rational, and do not necessitate engagement with the socio-cultural context that affects risk perceptions[12]. Clearly, structural factors are important to recognize in the context of risk behaviour for designing sustainable prevention programmes. Migration itself is a result of structural factors that may in turn influence and determine choices about a variety of activities including sexual behaviour in this group. A substantial literature now exists that bring out the role of migration in the spread of the virus in the context of developing countries [17,18]. The situational conditions of migration with structural impediments, cultural loss at the place of destination, lower psychosocial status and barriers to using health services have shown high association with risky behaviour [19].

However, the area of structural factors and risk-taking may need further investigations using newer tools of analyses. While the bulk of the literature on migrants' sexual behaviours and related HIV risks come from sociology, anthropology and epidemiology[20–24], very few studies have used economic research tools to analyse

risk-taking behaviour of migrants. We fill this gap by using a two-step sequential decision-making framework to estimate the determinants of risky behaviour among male migrants in India, and in particular answer two questions: (a) why migrants engage in non-monogamous relationships and (b) the factors that determine the demand for condom use among migrants. We argue that estimating only the demand for safe sex directly, without taking into account factors that influence who decides to engage in non-monogamous relationships in the first place may distort the results of estimation and may be misleading in designing prevention policies. We bring in key structural factors explicitly by including individual level variables that act as proxies for wider social and economic factors.

2. Migrants and risk behaviour: a review

Plausible hypotheses have been offered on the kind of vulnerabilities that may expose migrants to risks of contracting HIV[26, 27]. The dynamics of migration bring into play a gamut of factors like spatial, temporal, structural and institutional, and result in varying levels of risks and vulnerability, so that targeting all migrants under an uniform umbrella of intervention may not be very effective [28].

Definitions and measures of risky sexual behaviour vary, depending on the perspective[29]. With respect to sexual partners, having multiple partners, partners from specific risk groups, such as commercial sex workers (CSW) or men who have sex with men (MSM) classifies for risky behaviour. The non-use or infrequent use of condom across sexual experiences outside marriage also qualifies as risky behaviour.

Age, education, marital status and place of residence[30–33,35] have been associated with unsafe sexual practices of migrant men. In addition, the duration of migration, place of residence, type of occupation, substance abuse, type of sexual partners and exposure to prevention messages are some of the other variables used in analyses[36–37, 39-41].

In India, monogamous married women comprise 40 percent of the HIV-positive individuals, and sex with an infected husband is considered the most serious risk of HIV to women[42,43]. The perceived risks of wives and partners of migrant workers arise due to their mobility that heighten risky behaviours, and provides a vehicle through which infection can move from high to low epidemic regions[42–44]. Most studies suggest that migrants initiate and engage in risky sexual behaviours in places of destination due to separation from their family and spouse for extended periods[17,45, 47–49], though other variables like socio-cultural norms, anonymity of living in a city, illegal residential status, and the nature of work are important as well[50,51]. This has resulted in HIV prevention interventions targeting migrants mostly at either the major destination areas or the work place sites to reach migrant workers. However, more recent literature indicates important justifications to intervene at the places of origin as well[18,48,52]. A recent study indicates that while return and active migrants have

higher risk behaviours than the non-migrants, most migrants initiate non-marital sex in the place of origin and many continue these behaviours in places of destination[17].

These findings indicate that migrants' preferences rather than places of origin may be of importance in determining who engages in risky sex. To that extent, it is important to understand the factors that impact on migrants' risky behaviour of engaging in non-monogamous relationships. Estimating the demand for safe sex directly, without taking into account factors that influence preferences regarding monogamy may distort the results of estimation and may be misleading in designing prevention policies. This paper proposes an alternative way of analysing risky sexual behaviour in a sequential decision-taking framework.

3. Methodology

The paper uses data from a survey of migrant male workers carried out by Population Council and their research partner institutions in twenty one districts across four high prevalence states[53] (Andhra Pradesh, Karnataka, Tami Nadu, Maharashtra) from southern India, that have had high influx of migrants in 2008. The main aim was to assess retrospective relationship history paired with migration and travel events and to examine its relationship with HIV risks in India.

The dependent measure in this paper is two-fold: sex with non-monogamous partner in last 12 months (yes/no) and consistent condom use in all non-monogamous relationships (yes/no). The explanatory variables include: age, marital status, education, living arrangements, degree of mobility, age at first migration, age at first sex, alcohol use, exposure to sex materials, knowledge of condoms, and income. Additional independent variables used are education, living arrangements, age at first migration and at sexual debut and income, alcohol consumption and exposure to sexual material also influence individual's socio-sexual reactions.

A sequential decision-making process in the demand for safe sex is assumed to operate in two stages: in the first stage, the individual decides whether he wants to be in a non-monogamous relationship. Non-monogamous relationships or alliances are defined as having sex with anyone including female or male (paid female partners, unpaid casual female partners, paid male partners, unpaid male partners and transgender) outside marriage or if single, with any male/female, in the last 12 months prior to the survey.

In the second stage, individuals who prefer to be non-monogamous in turn take a decision on risk-taking with their partners measured by the extent of condom use in non-monogamous sexual alliances.

4. Results

About 25 percent of the migrants had sex outside their marriages in the last 12 months. The distribution of non-monogamous partners indicates that a majority of migrants had relations with females who were not sex workers (71 percent)[1], followed by female sex workers (59 percent). Twenty five percent of those who were married or in stable relationships had a non-monogamous relationship outside marriage.

Consistent condom use (CCU) is defined as "every time condom use" in the last 12 months for CSW and 6 months for non-CSW due to the different reference periods mentioned in the questionnaire. CCU is relatively much higher at 62 percent with CSW, compared to sex with non-CSW (20%). Overall, only 10 percent of the migrants who were in non-monogamous relationship were using condoms consistently.

Only 25 percent of the sample reported any non-monogamous relationships/alliances, and overall only 10 percent of those in non-monogamous relationship used condoms consistently. The sample of interest - migrants who are in sexual alliances with someone outside of marriage/stable relationship - consists of only those who *choose* to be non-monogamous and may differ in unmeasured ways from those who prefer to be monogamous. It is possible, therefore, that some of the independent variables in the outcome equation are correlated with the unmeasured variable in the overall population, and are therefore, correlated in the selected sample. Such selection bias essentially means that the error terms in the two equations are going to be correlated, leading to inconsistent estimates if selection is not corrected for[54]. Since both the selection and outcome equations have bivariate dependent variables, we use a bivariate probit model with sample selection[55], along the lines of Heckman's sample selectivity model.

The independent variables in the first stage probit are: age, education, marital status, income, living arrangement at the current place, age at first sex, behavioural factors like exposure to sexual materials, and migration related variables like age at first migration and mobility at the current place of living. The variables that are *not* used in the outcome equation are living arrangements, age at first sex and the migration-related variables like mobility and age at first move. In addition, CCU is directly hypothesized to be affected by how long the person has been sexually active and correct knowledge regarding condom and HIV.

The premise is that time since sexual initiation, opportunities to be sexually active outside of a stable relationship (living arrangements, and whether the person stays away from home for long periods), age at first sexual experience directly impact on a person's preference and opportunities vis- a- vis monogamy, but not condom use. Also, consumption of alcohol as a leisure time activity during off/vacation days (not

[1] These percentages will not add up to 100 because a migrant may have more than one type of partner.

alcohol use prior to sex) was also assumed to impact choice of being monogamous, but not of condom use[2].

The estimates of the selection equation (Table 1) indicate that almost all the variables are significant. The variables that are positively and significantly impacting on the probability of being non-monogamous are: age, less education, alcohol consumption, early migration, high mobility in job and exposure to sexual materials. Income is negatively related to the probability of being non-monogamous.

The equation on use of condom consistently with non-monogamous partners presented shows that some of the common variables of both the equations have significantly opposite effect on CCU, as expected. For example, older and less educated individuals have lower probability of using condoms consistently. Higher the age at first sexual encounter, higher is the probability of CCU. Finally, knowledge of condom use has a positive influence on CCU. Income and marital status have no independent effect on the decision to use a condom consistently, once selection bias is accounted for.

Table 4: Heckman probit estimates of the use of condom among high-risk migrants

Description	**CONSISTENT CONDOM USE**	**NON-MONOGAMOUS**
	Outcome equation	*Selection equation*
Age	-0.183*	0.240*
Age square	0.003*	-0.004*
No education	-0.353*	0.248*
Education up till primary only	-0.259*	0.267*
Education up till secondary only	-0.051	0.087**
Marital status	0.064	-0.330*
Log of Income	-0.012	-0.203*
Age at first sexual encounter	0.024*	
Knowledge of condom	0.254*	
Alcohol consumption during last month		0.759*
Living arrangement		0.038
Early migrant		0.307*
High mobility		0.216*
Exposure to the sexual materials		0.386*
N censored	8422	
Model Chi-square	26.82	

[2] Information on aalcohol use prior to sex was not available for non-CSW and could not be used in the condom use equation.

* Significant at 1 percent
** Significant at 5 percent

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