Pattern of high-risk behavior of male construction workers and exposure to HIV/AIDS in an Indian metropolitan city

Rakesh B. Waghmare, Seema S. Bansode-Gokhe[1], Ratnendra R. Shinde[1]

Department of Community Medicine, Shri V.N. Government Medical College, Yavatmal, [1]Department of Community Medicine, Seth G.S. Medical College, Mumbai, Maharashtra, India

ABSTRACT

Context: Recent industrialization and globalization are changing the Indian occupational morbidity drastically. This trend leads to many workers being exposed to high-risk social, sexual lifestyle and unhealthy environmental conditions, which have a deleterious effect on their health. **Aims:** To study the sociodemographic status, high-risk behavior among construction workers and to suggest recommendations. **Settings and Design:** This was a cross-sectional study carried out over a period of 2 years on 296 male construction workers at randomly selected 10 construction sites of Mumbai city. **Subjects and Methods:** Systemic random sampling was used for selection and questionnaire-related to sociodemographic profile, high-risk behavior was administered and responses were noted. **Statistical Analysis Used:** Descriptive statistics for sociodemographic factors and morbidity; cross-tabulation and test of significance to find association between different variables were used. **Results:** Of 296, 78.38% workers were migrants. One-third married workers were living with their spouses. Among all workers 27.36% had visited commercial sex worker (CSW) for one or more than one time and among them 17.28% workers had not used condom for one or more than one time. Prevalence of high-risk behavior was significantly higher among Madhya Pradesh workers. High-risk behavior was significantly associated with younger age group workers and those who were newer in City. **Conclusions:** More than 25% of workers had high-risk behavior and that were also more in younger workers. Unprotected sexual act with CSWs predispose them to the risk of HIV.

Key words: Construction worker, high-risk behavior, HIV, migrant

INTRODUCTION

There are about 37 million unorganized laborers in Maharashtra.[1] As per census 2001, 29.90 million workers migrated for reasons of employment.[2] Construction workers hold a unique place in the labor sector due to their unique life-style including high risk behavior due to their work conditions which have made them suffer various morbidities having an effect over their family too. The rationale was to understand high-risk behavior and to evolve some suggestions to improve the health status of workers. The objectives were to study the sociodemographic status, high-risk behavior among construction workers and to suggest recommendations.

SUBJECTS AND METHODS

It was cross-sectional observational study done over the duration of 2 years in F south ward area of Mumbai city. A total of 296 construction workers were included in the study from 10 randomly selected construction sites out of the total of 18 which were registered in F south ward. Then workers were selected by systemic random sampling method from each construction site, for this the available record of construction workers was taken from the contractor of each site.

There were a total of 1785 workers registered in 10 construction sites. So to get the desired 296 study subjects by systemic random sampling, sampling interval was

Address for Correspondence: Dr. Rakesh Balaji Waghmare, Quarter Number 01, Type 3 Quarter, SVN GMC Yavatmal - 445 001, Maharashtra, India. E-mail: rakeshbw0326@gmail.com

calculated by the formula: Total frequency/sample size. Hence, the sampling interval was 6 (1785/296 = 6.03). So from each construction site every 6th worker was selected.

Contractor from each construction site was identified, the purpose of the study was explained to them and permission to carry out the study was obtained. The selected construction workers were identified, and rapport was formed and the purpose of the study was explained. Then each construction worker was interviewed by face to face interview method after taking consent of participation and confidentiality was maintained, and the data was collected with the help of a structured questionnaire.

Data were entered in Microsoft excel software 2007 version and analysis was done by using SPSS version 17 software. Descriptive statistics for Socio-demographic factors was done. Cross tabulation was done to find an association between different variables and Chi-square test, *t*-test was used wherever applicable.

Operational definitions

Construction worker
A construction worker is one whose job is to work on a construction site where structures such as bridges or houses are being built.

Construction site
A place where the building is being built or repaired.

Migrant
A person who is living in the Mumbai city of which he or she is not a native.

Commercial sex worker
The person who offers sexual intercourse or gratification especially for money.

RESULTS

Total 296 construction workers were enrolled in the study. The mean age of 296 workers was 28.67 years with standard deviation (SD) of ±5.685. Most of the workers, that is, 35.48% belong to 28–32 years of age group [Table 1].

Two 32 (78.38%) construction workers had come to Mumbai from different parts of the country, and they were in-migrants. Most of the workers came from northern states of India like Uttar Pradesh, Madhya Pradesh and Bihar [Figure 1].

Table 1: Age-wise distribution of construction workers

Age group in years	Number of workers	Percentage
18-22	68	22.97
23-27	69	23.31
28-32	105	35.48
33-37	42	14.19
38-42	12	4.05
Total	296	100
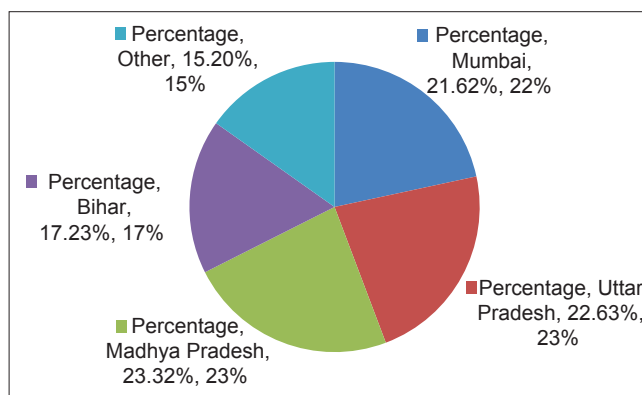
Figure 1: Distribution of construction workers with reference to native places

The average years of duration of stay in Mumbai city of those workers who were from other states was 4.36 years with ±2.10 SD It was observed that 67.23% workers were Hindu by religion, followed by Muslim 16.89%, Buddhist 12.5% and 3.38% of other religion. 67.23% (199) workers were married [Table 2].

Among 199 married workers only 33.16% workers were living with their spouses. Among 296 construction workers 81 (27.37%) workers had given history of sexual intercourse with commercial sex workers (CSWs) for one or more than one time [Figure 2].

Among 81 construction workers who had done sexual intercourse with CSW 61.72% workers were married, and also among 81 workers 82.72% had used condoms during each sexual intercourse, whereas 17.28% workers had not used condom for one or more than one time. Most of the workers who had high-risk behavior were migrant (81.28%), but the relationship between migration status with high-risk behavior was not significant with Chi-square test [Table 3].

Out of 69, 42.02% (29) construction workers of Madhya Pradesh had high risk behavior. The Chi-square value found is 12.92 at dF 4 which is more than the table value at 95% confidence interval (9.488).

Hence, the relationship between native place and high-risk behavior among study subjects was found statistically significant with $P = 0.011$, and it is more in Madhya Pradesh workers when compared with others [Figure 3].

The mean age of 81 workers who had visited the CSWs was 25.28 years with ±3.81 SD and those 215 workers who did not visit was 29.40 years with ±6.01 SD The relation of mean age with high risk behavior was found significant with *t*-test as *P* value was found 0.0001.

The average years of living in Mumbai of 66 migrant workers who had visited the CSWs was 3.13 years with ±1.20 SD, and those 166 workers who had not visited was 4.69 years with 2.25 years of SD. This relation of migrants with high-risk behavior was found significant with *t*-test and $P = 0.0001$.

It was evident that 32.98% (31) unmarried and 25.12% (50) married workers had visited CSW's. The relation between marital status and high-risk behavior was not found statistically significant after applying Chi-square test ($P = 0.209$). It was observed that among the 66 married male who were living with their wives, 34 (51.52%) had high risk behavior and among 133 married male who were not living with their wives 16 (32%) had high risk behavior. It was found statistically significant with $P = 0.0001$ with Chi-square test and hence high-risk behavior was more in those workers who were living with their wives [Table 4].

DISCUSSION

The mean age of workers was 28.67 with SD of ±5.685. The study conducted by Balkrishna B Adsul *et al.* found the mean age of construction workers was 26.25 ± 8.49 years which was almost similar to our findings.[3]

The majority of the construction workers working in the Mumbai city were coming from north Indian states, which almost count 60% of the workers. This finding was paradox when compared with the Adsul *et al.* they found that third of the workers belonged

Table 2: Distribution of construction workers according to their marital status

Marital status	Number of workers	Percentage
Married	199	67.23
Unmarried	94	31.76
Divorced/separated/widower	3	1.01
Total	296	100

**Table 3: Relationship between migrant status and high risk behavior among study subjects**

Migration status	High risk behavior (H/O visit to CSW)				Total
	Yes		No		
	Number of workers	Percentage	Number of workers	Percentage	
Nonmigrants	15	23.43	49	76.57	64
Migrants	66	28.44	166	71.56	232
Total	81	27.36	215	74.64	296

$\chi^2=0.634$, df=1, $P=0.425$. CSW: Commercial sex worker
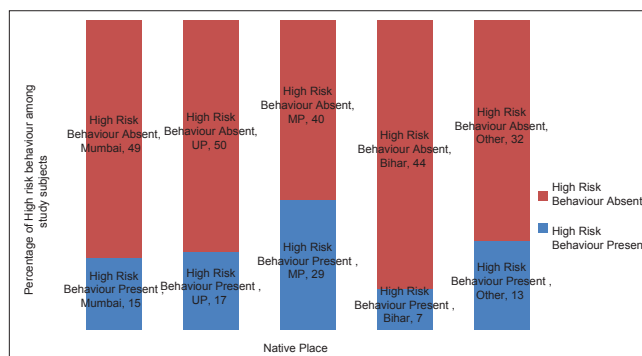
Table 4: Relationship between high risk behavior and status of living with wife among married study subjects ($n=199$)

Living with wife	High risk behavior				Total married workers
	Yes		No		
	Number of workers	Percentage	Number of workers	Percentage	
Yes	34	51.52	32	48.48	66
No	16	32	117	68	133
Total	50	25.12	149	74.88	199

$\chi^2=36.56$, df=1, $P=0.0001$
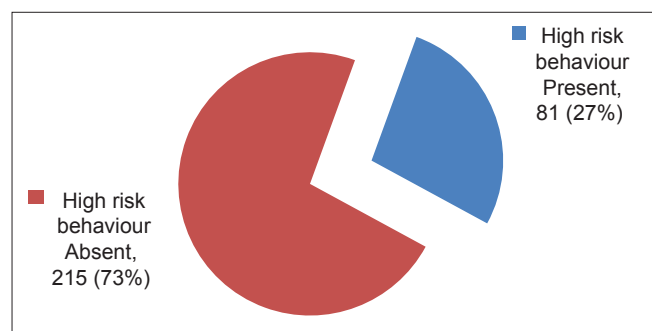
Figure 2: High risk behavior among male construction workers

Figure 3: Relationship between native places and high risk behavior

to West Bengal and Gurav *et al.* study done on daily wage workers of Kalyan (Maharashtra) in which About 62.15% were natives of Maharashtra state, while 16.67% were from Andhra Pradesh and 8.68% were from Rajasthan.[3,4]

In this study, more than 3/4th construction workers were migrants whereas in the study conducted by Bodhare *et al.* in 2011 on 211 construction workers in Andhra Pradesh, they found 51.18% workers were migrant, which is less than this study finding. This reflects that the migration is more in Mumbai city.[5]

Almost 3/4th workers were married; in the study conducted by Adsul, *et al.* in 2010 who carried out a cross-sectional study on construction workers found 42.7% workers were married, which is less than this finding.

2/3rd workers were Hindu by religion; this finding was similar with the study done by RB Gurav *et al*. They found 71.18% were Hindus, 22.57% Buddhists and 6.25% were Muslims.

The International Labor Organization conducted a study in Raigadh district, Maharashtra, in 2008 to study high-risk behavior of construction workers; it was revealed that 25% reported sex with sex workers, this finding of high risk behavior is similar with our finding. They also found that 25% of workers who reported sex with sex workers did not use a condom during intercourse.[6] In our study finding 17.28% workers did not use condom while intercourse.

Weine *et al.* carried out a study on 200 Tajik married male seasonal labor migrants in Moscow from 18 construction sites to investigate HIV risk behaviors, they found unprotected sex with sex workers in 33% study subjects.[7] Study showed the high-risk behavior was more prevalent in younger age group and also in those workers who were newer in Mumbai. The Asia AIDS Commission report released in 2008 shows that 2/3rd, that is, 66% male visitors were married; this is similar with our finding. It was found that high-risk behavior was more in those workers who were living with their wives, though the finding is strange, but indirect relation can made as many unmarried and those married workers who were away from their spouses were used to stay at the construction sites and does overnight shifts.

Information Education Communication (IEC) activities should incorporate the principles of behavior change communication emphasizing on risk reduction, additional information on public health care facilities available in the area which will ensure the increase utilization of health care services. Hence, it can have an additive effect of minimizing the out of pocket expenditure on health care issues.

Mandatory pre-placement check-up of each worker should be done, and confidentiality should be maintained. This provides an opportunity to have insight in the seropositivity status and high-risk behavior of workers and also intensified IEC can be provided to this population.

Though the amendment has done in 2012 in the building and other construction workers (regulation of employment and conditions of service), Act 1996, but no attention has focused on high-risk behavior of workers. As national AIDS control organization has provided the special attention on migrant population of construction workers, it established the need of mainstreaming this important component and establishment of intersectoral communication mechanism between construction authorities and Mumbai District AIDS control society administration.

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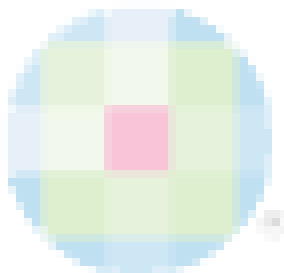
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