



Prevalence of Substance Abuse among Construction Workers

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ABSTRACT

Background: World Health Organization (WHO) has estimated the excess premature mortality attributable to tobacco use as 5 million per year which is expected to reach 10 million by 2025. [1] The Substance Abuse and Mental Health Services Administration study shows that substance use can pose major risks to the health and productivity of workers. [2] *Objective:* To study the socio-demographic profile and to estimate the prevalence and pattern of substance abuse among construction workers. *Materials and Methods:* Based on absolute precision formula, 1000 male workers were interviewed through a questionnaire during May 2010 to Feb 2011. Details related to socio-demographics, including occupational history, education & medical history was taken. Detailed history regarding various addictions, duration of habit and daily consumption was also asked for. The SPSS version 15 was used for data analysis. *Results:* Around 70% of the workers were migrant population. Nearly 50% workers were among 21-30 years of age. Most of the workers involved in substance abuse were illiterate. 62% workers belong to poor socio-economic group. The prevalence of smoke and non-smoke form of tobacco was 21.6 % and 46.1% respectively. The prevalence of alcohol use among construction workers was found to be 15.8%. The most common reason for first use was "company of friends" (59%). 36% reported influence of family / friends as reason for addiction. *Conclusion:* The prevalence of tobacco use among construction workers is very high, warranting immediate intervention programs to reduce the future burden of tobacco related morbidity among these workers.

Keywords: Substance abuse, Construction workers, Migrants.

Introduction

Substance abuse is a major source of morbidity and mortality in India. Tobacco related deaths are increasing in India, and account for approximately a sixth of the world's tobacco related deaths. It is expected that by the year 2030 about 80% of these deaths will be in developing countries. [1] In India tobacco consumption in various forms is the single most important avoidable factor in the growth of non-communicable diseases. It has also been observed that the Tobacco demand in India has remained high and has shown no signs of declining. [1] National Family Health Survey - 3 (NFHS-3) suggests an estimated 120 million Indians smoke, 57% of men and 11% of women aged 15-49 consume some form of tobacco, smoked or non-smoked. After China, India is the second most populous country and the second largest producer and consumer of tobacco in the world. [1] Tobacco taxes are low overall in India. Research shows that a 10% increase in cigarette prices would reduce cigarette consumption by 3.4% in rural India and 1.9% in urban India, while a 10% rise in bidi prices would reduce bidi consumption by 9.2% and 8.5% in rural and urban India, respectively and also averts premature deaths. [1] Report of Global Adult Tobacco Survey (GATS) India, 2010, revealed that current use of tobacco in any form is in 34.6% of adults; 47.9% of males and 20.3% of females. There are 14 % of current tobacco smokers among adults, 5.7 % of current cigarette smokers and 9.2 % of current bidi (hand rolled) smokers and 25.9% are current users of smokeless tobacco. National employment surveys by the National Sample Survey Organization (NSSO) place the direct and indirect tobacco workforce in India at approximately 7 million during 2004-05, representing approximately 1.5% of overall employment in the formal sector. [1]

Construction sector is ever growing industry. The construction industry has registered enormous growth worldwide during last few decades. There are more than 20 million of construction workers in India at present. There are about 37

million unorganized labourers in Maharashtra [3]. The construction company is one of the largest economic activities, playing important role in the nation's economy. Expanding and fast growing construction sector and, in general, lack of greater employment opportunity elsewhere has drawn large number of workers in this sector. Migration from different states to other states in India has now become so rampant that its impact is felt in every aspect of life. Very few studies have explored the problems of construction workers even though they are more susceptible to various myriad of occupational hazards. Majority of employees in the construction sector are aged between 15 and 45, live in single sex quarters, and migrate to their place of work. Hence, alcohol abuse or other risk-taking behaviour is quite common in any area of this sector. [4] Workers in this industry need to do heavy physical work while living in shabby environment. The unhygienic situation, working pattern, absence of any recreational activity and company of friends force them to indulge in various abuse activities. Substance abuse is influenced by a variety of factors including individual attitudes & beliefs, social norms, easy affordability, acceptability, availability, lesser cost and advertising campaigns.[5] There are many misconceptions regarding the tobacco and alcohol, that it helps increase concentration, suppresses appetite, reduces anxiety and tension, causes skeletal muscle relaxation and induces feeling of pleasure. Among the major occupational categories, workers in the construction industries exhibit some of the highest rates of substance abuse, with rates of current illicit drug use (14.1%). [6]

Materials and Methods

Setting a unique example of Public Private Partnership, the Department of Community Medicine collaborated with a construction company in Vidyavihar (West), Mumbai, employing a large number of migrant workers, to provide comprehensive health services during the working hours of the hospital. A health team comprising of Resident Medical Officers, In-

terns and Medical Social Workers were posted on site. Due to constraints of the construction company and the nature of the work, all the workers were males, staying at the site. To assess the extent of substance abuse among the workers, cross-sectional study design was chosen and sample size was calculated using the formula for estimating a population proportion with specified absolute precision.

$$[n = z21- \alpha/2 P (1- P) / d2] ; \text{Where } (\alpha=0.03, P=0.65 \text{ and } d= 3\%)$$

The minimum sample size was calculated to be 971; however the number of workers studied was 1000.

Addiction proforma consisting of standard questions related to socio-demographics, including occupational history, education & medical history was designed. Detailed history regarding various addictions, duration of habit and daily consumption was also asked for. A person using any tobacco product on daily basis for more than 1 year was labelled as 'tobacco user'. Alcohol users were considered as those who had consumed alcohol at least once per month. The Modified B G Prasad classification was used to classify the socio-economic status [7]. The data was analyzed using SPSS 15 version. Chi square test was applied to detect the statistical significance between the socio-demographic determinants and the substance abuse.

Results and Discussion

Socio-demographics: Out of 1000 workers (all males), nearly two third (64.8%) workers belonged to the age group of 20 – 40 years. The mean age of workers was 26.58 years. More than half (58.9%) of the workers were unmarried, most of the workers (71.4%) were following Hindu religion. Nearly third (32.8%) workers were illiterate. Out of 892 migrants, majority (31.6%) of workers had migrated from West Bengal, followed by Uttar Pradesh (19.3%) and Bihar (18.7%). A tenth (10.8%) had migrated from various parts of Maharashtra. 8.3% workers belonged to Below Poverty Line. [Table 1] Majority of workers were unskilled labourers. Most of them stayed within premises of construction site. Dwelling arrangement was in the form of tin shed and dormitory with temporary public toilets.

Table 1: Socio-demographic profile

Parameters	Sub-category	No. of workers (%) (N = 1000)
Age Group (Years)	< 20	276 (27.6)
	20 – 40	648 (64.8)
	> 40	76 (7.6)
Marital Status	Unmarried / Separated	411 (41.1)
	Married	589 (58.9)
Religion	Hindu	714 (71.4)
	Muslim	239 (23.9)
	Sikh	42 (4.2)
	Christian	5 (0.5)
Education	Illiterate	328 (32.8)
	Primary	276 (27.6)
	Secondary	300 (30.0)
	High secondary	58 (5.8)
	Graduate +	38 (3.8)
State of Origin	West Bengal	316 (31.6)
	Uttar Pradesh	193 (19.3)
	Bihar	187 (18.7)
	Maharashtra	108 (10.8)
	Punjab	65 (6.5)
	Orissa	47 (4.7)
Socioeconomic Status*	Others	84 (8.4)
	APL**	917 (91.7)
	BPL***	83 (8.3)

* Socio-Economic Status as per modified BG Prasad classification, 2008 [7]

** APL = Above Poverty Line

*** BPL = Below Poverty Line

Addiction Pattern: The overall prevalence of tobacco use was 63.8% and that of alcohol use was 15.8%. 13.2% workers were using both tobacco and alcohol. There was a single intra-venous drug abuser using Inj. Fortwin (Generic name-Pentazocine). Nearly fifth (21.6%) workers were smoking and nearly half (46.1%) were using smokeless form of tobacco. More than half (58.3%) of those smoking tobacco were using bidi (hand rolled) and third (32.4%) were smoking manufactured cigarettes. Amongst the smokeless tobacco users, half of them (49.7%) were using khaini (tobacco with lime), third (33%) were using gutka (betel nuts and tobacco, it also includes an extract of acacia called catechu, slaked lime and sweet & savory flavorings), and tenth (9.3%) were using both khaini as well as gutka. Among the alcohol users majority (42.4%) consumed beer followed by (30.4%) who were using country liquor or desi including tadi (Palm wine also called Palm Toddy or simply Toddy is an alcoholic beverage created from the sap of various species of palm tree such as the Palmyra, and coconut palms), 27.2 % consumed whisky, rum, vodka or wine. There were 5.1% workers who had no particular choice. [Table 2]

Table 2: Addiction Pattern

Addiction	Sub Type	Frequency (%)
Type of Addiction	Tobacco	638 (63.8)
	Alcohol	158 (15.8)
	Tobacco & Alcohol	132 (13.2)
	Intravenous Drug	1 (0.1)
Tobacco Users (N = 677)	Smoking	216 (21.6)
	Smokeless	461 (46.1)
	Smoking & Smokeless	39 (3.9)
Tobacco (Smoking) (N = 216)	Bidi (Hand Rolled)	126 (58.3)
	Manufactured Cigarette	70 (32.4)
	Bidi & Cigarette	20 (9.3)
Tobacco (Smokeless) (N = 461)	Khaini (Tobacco with lime)	229 (49.7)
	Gutka	152 (33.0)
	Khaini with Gutka	43 (9.3)
	Other forms*	37 (8.0)
Alcohol Users (N = 158)	Country liquor	48 (30.4)
	Beer	67 (42.4)
	Others forms**	43 (27.2)
	Any form	8 (5.1)

* Other forms of Smokeless Tobacco: Mawa (Tobacco, slaked lime and areca nut), Zarda (Constituted of tobacco, lime, spices, vegetable dyes and areca nut), Masherī [(Tobacco is baked on a hot metal plate until toasted or partially burnt, then powdered and applied to the teeth and gums, often for the purpose of cleaning the teeth. Users then tend to hold it in their mouths (due to the nicotine addiction)], and Pan (Tobacco, areca nuts, slaked lime and flavoring agents such as menthol, camphor, sugar, rosewater, aniseed, mint, or other spices).

** Other forms of Alcohol: Whisky, Rum, Vodka, and Wine.

Three out of every five workers (59.4%) reported company of friends or peer pressure as the reason for first use followed by 5.2% stating experimentation and curiosity raised by advertisements in various mass media as the reason. [Table 3]

Nearly half of the workers (45.2%) knew substance abuse of any kind can affect family. Majority (79.4%) of the workers knew the adverse effect of tobacco consumption. Two third (69.3%) knew adverse effects of alcohol as against 38.5% workers who claimed to know adverse effects of intravenous drug abuse. One in four (25.8%) workers agreed to have taken medicines without prescription. Near about half (47.8%) had thought of giving up the habit however less than third (27.7%) had made any attempts. [Table 3]

Table 3: Factors affecting substance abuse:

Reason for first use	Frequency (%)
Company of friends / Peer pressure	594 (59.4)

For experiment / Curiosity	52 (5.2)
Copying parents / Siblings	10 (1.0)
In depression	7 (0.7)
Other (Pleasure)	7 (0.7)
Knowledge regarding substance abuse	
Whether substance abuse affects family	452 (45.2)
Knew adverse effects of Tobacco	794 (79.4)
Knew adverse effects of Alcohol	693 (69.3)
Knew adverse effects of Intravenous Drugs	385 (38.5)
Medicines without prescription	258 (25.8)
Thought of giving up habit	316 (47.8)
Attempts of giving up in past	183 (27.7)

Significant association was found between tobacco use and socio-economic parameters such as age group, marital and educational status. The tobacco use was significantly more in 40 years and above age group followed by the age group of 20 - 40 years (p=0.000). The tobacco use was significantly more in the married workers (p=0.000). Those who were illiterate had significantly higher prevalence of tobacco use (p=0.003). [Table 4] The study found the alcohol use to be significantly associated with the age group, marital and educational status. In the age group of 40 years and above, the alcohol use was found to be significantly higher followed by the 20 – 40 years of age group (p=0.000). The married workers were indulging significantly more in alcohol abuse as shown by study (p=0.000). In the educational category those with higher secondary education followed by graduation had more prevalence of alcohol use; however it was statistically not significant. [Table 5]

Table 4: Tobacco and Socio-demographic parameters

Parameter		Tobacco Use		Chi square value	P value
		Yes	No		
Age group (years)	< 20	135	141	39.03	0.000
	20 – 40	444	204		
	> 40	59	17		
Marital status	Single	328	261	40.51	0.000
	Married	309	101		
Education	Illiterate	226	102	16.15	0.003
	Primary	176	100		
	Secondary	190	110		
	Higher Secondary	31	27		
	Graduate +	15	23		
SES***	APL*	590	327	1.40	0.237
	BPL**	48	35		

* APL = Above Poverty Line

** BPL = Below Poverty Line

*** SES = Socio-Economic Status

Table 5: Alcohol and Socio-demographic parameters

Parameter		Alcohol Use		Chi square value	P value
		Yes	No		
Age group (years)	< 20	19	257	22.80	0.000
	20 – 40	124	524		
	> 40	15	61		

Marital status	Single	70	520	17.34	0.000
	Married	88	322		
Education	Illiterate	50	278	7.36	0.118
	Primary	44	232		
	Secondary	41	259		
	Higher Secondary	16	42		
	Graduate +	7	31		
SES***	APL*	148	769	0.96	0.328
	BPL**	10	73		

* APL = Above Poverty Line

** BPL = Below Poverty Line

*** SES = Socio-Economic Status

Discussion

The overall prevalence of tobacco use in the present study was 63.8%, which is higher than that reported by earlier community-based studies of tobacco use from other parts of the country.

It is clear from this cross-sectional study that tobacco consumption is highly prevalent among construction workers. The reasons underlying this may be low educational status, occupation involving hard labour, and poverty coupled with ignorance. Several studies have documented a positive relationship between tobacco consumption and low socio-economic status. One major factor for heavy tobacco use in this group may be the fact that they were doing night shift work.

The educational level of the construction workers was found to be very low. Consistent with earlier studies, this study found that lower the education, higher the prevalence of tobacco consumption, while overall tobacco use falls as education level rises. NFHS showed that 77.8% of tobacco use is seen among illiterates as compared to 52.9% among literates (2005). [1] A study of smoking prevalence among men in Chennai (India) in 1997 showed that the highest rate is found among the illiterate population (64%). [8] Hence, education is an important factor to be considered in any tobacco control programme. In a study of tobacco use in a rural area of Bihar, tobacco use had a prevalence of 74.1% among men and 45% among women. [9] In a rural community in Khera District in Gujarat, tobacco use was reported by 69% of males and 30% of females. [10] In a prevalence survey of tobacco use in Karnataka and Uttar Pradesh, the overall prevalence of 'ever use' of any kind of tobacco was 29.6% in Karnataka and 34.6% in Uttar Pradesh. [10]

The average age at initiation of tobacco use was 20.87 years. Those who started with addiction are more common in the 11-20 years (53.7%) and 21-30 years (38.6%) age-groups. According to NFHS-3, 2007, increase in tobacco use was particularly large among males aged 15-24 years and among low wealth index. [1] This data reveals the failure of tobacco control programmes in the vulnerable section of the community.

Conclusion

The prevalence of tobacco use (63.8%) and alcohol use (15.8%) among construction workers is very high compared to that in the general population. Maximum workers are migrants. Most of the substance abuse is seen among the young population, married and low educational status. Immediate intervention programs are warranted to reduce the future burden of tobacco and alcohol use related morbidity among these workers.

Recommendation

The need of the hour is to devise an immediate intervention program so as to reduce the future burden of morbidity related to tobacco and alcohol use among construction workers. Regular health education sessions along with cancer awareness activities need to be carried out. Interventions should focus on behaviour change, especially aimed at tobacco and alcohol cessation and through programmes for empowering workers with knowledge, motivation and resistive skills required to abstain from or abandon the use of tobacco &

alcohol habit. Screening camps for tobacco related cancers are to be planned for these high risk groups of construction workers. Services ranging from counselling to de-addiction therapies and affordable supply of pharmacological agents for those who need it should be provided. Developing a public health model to tackle with the problem of addictions is the next step for the department to deal with the menace of substance abuse.

Time and again the argument of legal steps has been undertaken; however the measures have not been fully successful.

Levying taxes (to raise prices of tobacco products) definitely act as disincentive for purchase, especially to youth on the threshold of tobacco experimentation, if coupled with awareness can be a good control measure. The regulation of tobacco product (for constituents, emissions health warnings and misleading health claims) has already been enforced. Innovative statutory warnings should be called for. The alternative arrangement for the labourers working in tobacco and alcohol industry along with the alternative revenue generation for the industries should be dealt on priority basis by the Indian government.

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