

## Tobacco Usage and Attitude towards Tobacco Cessation among Prisoners in India – A Cross Sectional Survey

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### Abstract:

**Background:** Tobacco is a highly addictive substance. Tobacco usage is considered one of the main causes responsible for the death of adults worldwide, with 4.9 million deaths occurring worldwide each year. And if the current tobacco usage patterns continue, it will cause some 10 million deaths every year by 2020.

**Materials and Methods:** A descriptive study was carried out among 566 prisoners of central prison Bangalore, who met the inclusion criteria. Data were collected using a questionnaire and nicotine dependence was assessed using fagerstrom questionnaire.

**Results:** The study group was categorized based on the age, gender, imprisonment status and education. In this study, 87.5% subjects were smokers, and 15.9% were smokeless tobacco users. 69.1% mentioned they use more tobacco daily during incarceration than at liberty. 87.1% agreed with the fact that "prison stress" was a factor enhancing the need for tobacco usage. 69.1% mentioned as lack of freedom, 77.4% mentioned boredom as factors enhancing need for tobacco usage while imprisoned. While 69.9% mentioned stress as a factor that trigger tobacco usage at liberty. 69.6% mentioned that they had never attempted to quit tobacco. Fagerstrom scale for level of nicotine dependence smoking showed that for smoking form 62.7% were at very high dependence and for smokeless form 64.4% were at very high dependence.

**Conclusion:** The findings of this study suggest many implications for policy relevance, since the findings indicate the sales of tobacco products in the prison canteens.

**Key Words:** Prisons, smoking, tobacco usage

### Introduction

Tobacco is a highly addictive substance. It is estimated that 1.9 billion people worldwide currently smoke. It is also known, that the greatest proportion of people affected can be found in the developed world. According to the WHO, tobacco is the second leading cause of death in developed and developing countries. Tobacco usage is considered one of the main causes responsible for the death of adults worldwide, with 4.9 million deaths occurring worldwide each year. And if the current smoking practices continue, it will cause several deaths every year (WHO, 2007b).<sup>1</sup>

Tobacco usage is considered an integral part of prison life and also a part of the culture. Little attention has been paid to smoking prevention in prison. Prevalence rates of smoking in prison are at least doubled or even tripled compared to the general population.<sup>1</sup> Smokeless tobacco use is a significant part of the overall world tobacco problem. The prevalence of use is relatively high in many countries especially in South Asia, there is strong evidence that smokeless tobacco use leads to oral mucosal lesions, including oral pre-cancerous lesions, and gingival recession.<sup>2</sup>

Use of smokeless tobacco products has been reported to increase the chances of subsequent initiation of smoking. All smokeless tobacco products have nicotine as a major constituent and are potentially addictive. Most smokeless tobacco products have constituents that are known to be hazardous, such as tobacco-specific nitrosamines, cadmium, and nicotine.<sup>2</sup>

Central prison of Bangalore has 5000 prisoners. They live in small dormitories and are regularly affected by both active and passive smoking. There is the sale of beedi and cigarettes in the prison canteens, and there is no compulsion to give up smoking.<sup>3</sup>

This study was mainly designed to know factors determining tobacco usage among prisoners and know their attitude toward tobacco cessation.

### Materials and Methods

A descriptive study was carried out among prisoners of central prison Bangalore, who used tobacco. The study was carried out according to the principles of the declaration of Helsinki (Version 17c, 2004). Ethical clearance was obtained from Institutional Review Board, The Oxford Dental College and Research Centre, Bangalore, India.

Based on the previous literature scanning, with the smoking proportion of 81% among the prisoners and 5% precession, the sample size estimated was 566 (*n*) with 99% confidence interval. The study was started after obtaining permission from Inspector General of prisons, Central Prisons Office Bangalore. The list of serial numbers of the prisoners was obtained from the central prisons office. The total number of prisoners in the central jail in Bangalore city was 5000 (*n*) which consists of 4800 male and 200 female prisoners. The study sample was selected by systematic random sampling. The samples were uniformly taken from the male and female cells (i.e.) since the male to female ratio in jail was (4800:200) the proportionate sample taken for the study was 543 male and 23 female prisoners respectively.

Prisoners who used tobacco were included, and prisoners who were not willing to participate were excluded from the study.

The data was assessed using a questionnaire which was developed both in English and Kannada and nicotine dependence was assessed using Fagerstrom questionnaire.<sup>4</sup> The psychometric properties (i.e.) validity and reliability were assessed. Content validity of the questionnaire was assessed by a panel of eight expert members (staff members of Department of Public Health Dentistry, The Oxford Dental College, Hospital and Research Centre, Bangalore). The purpose of this assessment was to depict those items in the questionnaire with a high degree of agreement among experts. Aiken's V-test was used to quantify the concordance between expert members for each item; values obtained were higher than 0.92.<sup>5</sup>

Before commencing the study, a pilot study was performed among 60 prisoners who used tobacco, to check the internal consistency of the questionnaire. The results thus obtained were subjected to statistical analysis. Cronbach's alpha value of 0.82 showed good internal consistency of the questionnaire.<sup>6</sup>

The main study was scheduled over a period of 30 days. The data was collected from the prisoners through personal interview, by filling the questionnaire. In the questionnaire form, the participants were informed about the aim of the study and were informed that participation survey was totally voluntary and anonymous. Data analysis was carried out using the SPSS software version 16 (SPSS 15.0 Inc. Chicago, IL 60606-6412).

## Results

A descriptive study consisting of 566 prisoners was undertaken to assess the factors determining tobacco usage and to know their attitude toward tobacco cessation.

The study population was categorized based on the age, gender, and education. 23 (4.1%) subjects were below the age

of 20 years, 286 (50.5%) subjects were from 21 to 30 years, 174 (30.7%) subjects were from 31 to 40 years, 41 (7.2%) subjects were from 41 to 50 years, and 42 (7.4%) subjects were above the age of 50 years. The study included 543 (95.9%) male subjects and 23 (4.1%) female subjects (Table 1).

The subjects were categorized based on the level of education. Nine (1.6%) subjects belonged to profession or honors, 25 (4.4%) subjects graduate or post graduate, 35 (6.2%) subjects Intermediate or post high school diploma, 100 (17.7%) subjects high school certificate, 7 (18.9%) subjects middle school certificate, 189 (33.4%) subjects primary school certificate, and 101 (17.8%) subjects illiterate.

The study population was categorized based on the imprisonment status. 421 (74.4%) subjects were provisionally detained in custody and 145 (25.6%) subjects were convicted. The study group was categorized based on the type of tobacco usage as smokers and smokeless tobacco users. 497 (87.5%) subjects were smokers and 90 (15.9%) subjects were smokeless tobacco users (Table 2).

Based on the monthly expenses on tobacco the subjects were categorized. 113 (19.9%) subjects spent less than Rs. 500, 163 (28.8%) subjects spent Rs. 500-1000, 182 (32.2%) subjects spent Rs. 1001-1500, and 86 (15.2%) subjects spent Rs. 1501-2000 and 22 (3.9%) subjects spent above Rs. 2000 (Table 3).

About 110 (19.4%) subjects mentioned that they use less tobacco daily during incarceration than at liberty,

**Table 1: Distribution of the study population based on demographic details.**

Characteristics	Number	Percentage
Total number of subjects examined	566	100
Age		
≤20	23	4.1
21-30	286	50.5
31-40	174	30.7
41-50	41	7.2
>50	42	7.4
Gender		
Male	543	95.9
Female	23	4.1
Education		
Profession or honors	9	1.6
Graduate or post graduate	25	4.4
Intermediate or post high school diploma	35	6.2
High school certificate	100	17.7
Middle school certificate	107	18.9
Primary school certificate	189	33.4
Illiterate	101	17.8

**Table 2: Distribution of study population based on imprisonment status.**

Imprisonment status	Number	Percentage
Provisionally detained in custody	421	74.4
Convicted	145	25.6

391 (69.1%) subjects mentioned they use more tobacco daily during incarceration than at liberty and 61 (10.8%) subjects mentioned that they use the same amount of tobacco daily. 493 (87.1%) subjects agreed with the fact that "prison stress" was a factor enhancing the need for tobacco usage, and 73 (12.9%) didn't agree with this (Table 4).

When the subjects were asked about the factors enhancing need for tobacco usage while imprisoned 391 (69.1%) subjects mentioned as lack of freedom, 36 (6.4%) subjects mentioned

as anxiety about the case and sentence, 104 (18.8%) subjects mentioned as fear about the crime committed, 15 (2.7%) subjects mentioned as bad relations with the penitentiary staff, 21 (3.7%) subjects mentioned as bad relations with other prisoners, 298 (52.7%) subjects mentioned as missing family and close friends, 8 (1.4%) subjects mentioned as anxiety about their own affairs to deal with at liberty, 26 (4.6%) subjects mentioned as the lack of alcohol, 7 (1.2%) subjects mentioned as the lack of narcotics, 55 (9.7%) subjects mentioned as the lack of sex and 438 (77.4%) subjects mentioned as boredom.

And when the subjects were asked about the factors that trigger tobacco usage at liberty, 8 (1.4%) subjects mentioned as a pleasant taste and smell of smoke, 396 (69.9%) subjects mentioned stress, 20 (3.5%) subjects mentioned as the will to increase concentration, 106 (18.7%) subjects mentioned as to relax, 94 (16.6%) subjects mentioned as having meals or drinking coffee, 67 (11.8%) subjects mentioned as drinking alcohol, 183 (32.3%) subjects mentioned depressed mood and 136 (24%) subjects mentioned the will to resemble friends.

When the prisoners were questioned to know their attitude toward tobacco cessation, 172 (30.4%) subjects mentioned that they had made an attempt to quit tobacco were, and 394 (69.6%) subjects mentioned that they had never attempted to quit tobacco. When they were asked for the reasons for quitting attempts, 16 (9.3%) subjects mentioned limited access to tobacco, 47 (27.3%) subjects mentioned as the will to save some money, 129 (75%) subjects mentioned as anxiety about health, 43% (25%) subjects mentioned as somebody else's instigation and 1 (0.6%) subjects mentioned the will to gain authority. When they were asked about their success in quitting tobacco only 4 (0.8%) subjects were successful in quitting. When they were asked for the reasons for relapse in quitting, 9 (1.6%) subjects mentioned as alcohol drinking, 108 (19.1%) subjects mentioned as stress, 2 (0.4%) subjects mentioned as yielding to one's persuasion, 46 (8.1%) subjects mentioned as depressed mood 9 (1.6%) subjects mentioned as joy and 87 (15.4%) subjects mentioned as boredom, and 4 (0.7%) subjects mentioned other reasons (Table 5).

The subjects were categorized based on the level of nicotine dependence for both smoking and smokeless form of tobacco. For smoking form, 6 (1.1%) subjects who were at very low dependence, 10 (1.8%) subjects were at low dependence, 15 (2.7%) subjects were at medium dependence, 111 (19.6%) subjects were at high dependence and 355 (62.7%) subjects were at very high dependence. Fagerstrom scale for level of nicotine dependence smoking showed that for smoking form 62.7% were at very high dependence and for smokeless form 64.4% were very high dependence (Table 6).

**Table 3: Distribution of study population based on the type of tobacco usage and their monthly expenses on tobacco.**

Characteristic	Number	Percentage
Type of tobacco usage		
Smoking	497	87.5
Smokeless	90	15.9
Monthly expenses on tobacco		
<500	113	19.9
500-1000	163	28.8
1001-1500	182	32.2
1501-2000	86	15.2
>2000	22	3.9

**Table 4: Distribution of study population based on the factors promoting tobacco usage in prison and at liberty.**

Factors	Number	Percentage
Changes in tobacco usage habit in prisons		
I use less tobacco daily during incarceration than at liberty	110	19.4
I use more tobacco daily during incarceration than at liberty	391	69.1
I use the same amount of tobacco daily	61	10.8
Is "prison stress" a factor enhancing the need for tobacco usage		
Yes	493	87.1
No	73	12.9
Factors enhancing need for tobacco while imprisoned		
The lack of freedom	391	69.1
Anxiety about the case and sentence	36	6.4
Fear about the crime committed	104	18.4
Bad relations with the penitentiary staff	15	2.7
Bad relations with other prisoners	21	3.7
Missing family and close friends	298	52.7
Anxiety about your own affairs to deal with at liberty	8	1.4
The lack of alcohol	26	4.6
The lack of narcotics	7	1.2
The lack of sex	55	9.7
Boredom	438	77.4
Any other reasons	-	-
Factors that trigger tobacco usage at liberty		
A pleasant taste and smell of smoke	8	1.4
Stress	396	69.9
The will to increase concentration	20	3.5
Relax	106	18.7
Having meals or drinking coffee	94	16.6
Drinking alcohol	67	11.8
Depressed mood	183	32.3
The will to resemble friends	136	24.0
Any other reasons	4	0.7

**Table 5: Distribution of study population based on the factors responsible for tobacco cessation.**

Factors	Number	Percentage
Attempted to quit tobacco		
Yes	172	30.4
No	394	69.6
Reasons for quitting attempts	(n=172)	
Limited access to tobacco	16	9.3
The will to save some money	47	27.3
Anxiety about health	129	75.0
The fight against your own weakness	0	0.0
Somebody else's instigation	43	25.0
The will to gain an authority	1	0.6
Any other reasons	0	0.0
Sentences describing the fact of successfully quitting tobacco		
I have successfully stopped using tobacco at liberty	0	0.0
I have successfully stopped using tobacco while imprisoned	4	0.8
Reasons for relapse in quitting tobacco:		
Alcohol drinking	9	1.6
Stress	108	19.1
Yielding to one's persuasion	2	0.4
Depressed mood	46	8.1
Joy	9	1.6
Boredom	87	15.4
Any other reasons	4	0.7

**Table 6: Distribution of study population based on the level of nicotine dependence for smoking and smokeless tobacco.**

Type of tobacco usage	Number	Percentage
Smoking		
0-2 very low dependence	6	1.1
3-4 low dependence	10	1.8
5 medium dependence	15	2.7
6-7 high dependence	111	19.6
8-10 very high dependence	355	62.7
Smokeless (n=90)		
0-7 high dependence	32	35.6
8-16 very high dependence	58	64.4

## Discussion

The community dwelling of prisoners is different from other social groups in ways, like in the terms of psychosocial factors, their level of education, usage of alcohol and substance abuse, and their attitudes toward health and in lifestyle.

These above mentioned factors account for the higher prevalence of tobacco usage among prisoners, in comparison with the general population.

In the present study, the prisoners were less educated, and this finding reflected in other studies.<sup>7-9</sup> the monthly expense on tobacco was very high.

In the present study, 69.19% subjects use more tobacco daily during incarceration than at liberty. Similar findings were reported by Sieminska *et al.* 2006<sup>10</sup> where (75%) subjects expressed a stronger need to smoking, while they were imprisoned than free.

And 87.1% subjects consider "prison stress" a factor enhancing the need for tobacco usage. Similar findings were reported by Sieminska *et al.* 2006.<sup>10</sup>

In the present study 77.4% subjects mentioned boredom, 69.1% subjects mentioned the lack of freedom, 52.1% subjects mentioned missing family and close friends as main factors enhancing need for tobacco, while imprisoned. Similar findings were reported by Sieminska *et al.* 2006<sup>10</sup> where 66% mentioned missing family and close friends, 57% mentioned lack of freedom and 44% mentioned boredom.

When they were asked for the factors that trigger tobacco usage at liberty, 69.9% subjects mentioned stress; they also mentioned other reasons such as to overcome stress at job, time pass, while driving and during night duty.

In the present study only 30.4% subjects of tobacco users had attempted to quit tobacco, out of which only 0.8% subjects stopped tobacco usage successfully, while imprisoned. These findings were similar with those reported by Sieminska *et al.* 2006<sup>10</sup> where only 2% subjects were successful in quitting. Boredom and stress were mentioned as the main factors for the relapse in quitting attempts.

On the other hand, 69.6% of them had never made an attempt to quit. The rate of never quitters did not differ from that in other correctional population Cropsey *et al.* 2004.<sup>11</sup> Lack of motivation to quitting among prisoners may be the reasons for this.

Surprisingly in this study the most important trigger to quit tobacco usage was anxiety about health; reported by 75% of the prisoners who had attempted to quit. Similar findings were reported by Sieminska *et al.* 2006.<sup>10</sup> The cigarette pack covered with warning labels (anti-tobacco legislation) may be the reason for this.

In the present study, 15.4% subjects mentioned boredom and 19.1% subjects mentioned stress as the main factors for the relapse in quitting attempts which were similar with the findings were reported by Sieminska *et al.* 2006,<sup>10</sup> where the most frequently reported cause of failure in tobacco quitting was stress. Alcohol drinking was also reported to be a strong factor for relapses following smoking cessation as reported by Shiffman and Jarvik, 2003.<sup>12</sup>

Almost all tobacco users in the present study, in the light of Fagerström's criteria,<sup>4</sup> reported to be strongly addicted to nicotine, with 62.7% subjects at very high nicotine dependence for smoking and 64.44% subjects for smokeless form. Similar findings were reported by Sieminska *et al.* 2006.<sup>10</sup>

Efforts to reduce tobacco usage in prisons should tackle both the group and individual factors and health programs mainly

anti-tobacco program should be addressed with all aspects of tobacco usage.

### Conclusion

Our findings suggest several implications for policy relevance, since the findings indicate the sales of tobacco products in the prison canteens. Efforts to reduce tobacco usage in prisons need should consider all the factors influencing these habits in prisons. Our findings also suggest that the subjects are aware about the ill effects of tobacco on health, but there is a clear lack of motivation to quit tobacco, so proper health education including behavioral and psychological process governing addiction on nicotine should be given to the prisoners.

### Recommendations

Our finding shows that the tobacco usage among prisoners is very high. In this study Prisoners mentioned boredom as one of the important triggering factor for this. Engaging them in sports, and other physical exercises may help them to overcome boredom. Our findings also indicate the sales of tobacco products in the prison canteens, this suggests several implications for policy relevance. Our findings also suggest that the subjects are aware about the ill effects of tobacco on health, but there is a clear lack of motivation to quit tobacco, so appropriate health education including behavioral and psychological process governing addiction on nicotine should be given to the prisoners.

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