

Dental caries status of inmates in central prison, Chennai, Tamil Nadu, India

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Abstract

Aim: To understand the dental health among prison inmates, we assessed the dental caries status of central prison inmates in Chennai, India. **Materials and Methods:** A total of 1060 inmates from three divisions of the central prison in Chennai were assessed by a single investigator for dental caries status based on World Health Organization specifications. **Results:** Among the inmates, 58.2% of males and 54.2% of females had decayed teeth. About 4.1% of males and 2.9% of females had filled teeth. The mean decayed, missing, filled teeth index was 5.1 and 3.9 for female and male prisoners, respectively. The prevalence of dental caries was highest among inmates younger than 24 years age. **Conclusion:** Our study suggests that a high proportion of prison inmates was affected by dental caries, which necessitates the need for initiating oral health promotion activities among prison inmates.

Key words: Dental caries, oral health, prisoners, prisons

INTRODUCTION

Most of the oral health surveys conducted worldwide has mainly targeted children, adolescents, and adults from the general population. Several epidemiological studies suggest glaring disparities in the oral health of economically poor families and disadvantaged groups of people with “special” health care needs.^[1,2] Among these disadvantaged groups, are prisoners and their number continues to increase dramatically. A survey conducted among 124 male prisoners in Southern Norway revealed a decayed, missing, filled teeth (DMFT) index of 18.8 for those below 30 years of age and a DMFT of 21.7 for over 30 years of age.^[3]

Improving the oral health of prison inmates is a challenging task. As inmates are more likely to have disadvantaged backgrounds or come from localities with increased levels of social exclusion, with a high proportion of them being unemployed prior to sentencing. As a consequence, oral health requirements of prisoners at admission may be particularly high with a significant amount of unmet treatment needs. Dental problems may be severe, which sometimes may be associated with drug abuse.^[4] Currently, systematic investigations to assess oral health status and dental epidemiological investigations of individuals in the prison environment although necessary are lacking. Hence, this study was planned to assess the dental caries status of inmates in central prison, Chennai, India.

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MATERIALS AND METHODS

The present survey was conducted in central prison, Chennai (one of the largest prisons in Asia). The study population consisted of 1060 inmates from three divisions of the central prison in Chennai. The investigator and recorder were trained through a series of clinical training sessions prior to the start of the survey. The kappa statistics for intra-examiner variation was 0.90. Prior permission and approval for the conduct of the study was obtained. Prison inmates who were willing to participate in the study were included in the study following a written informed consent.

A single investigator assessed the dental caries status of each inmate. The inmates were asked to sit comfortably on a chair in a well-ventilated room and clinical examination was carried out under natural light with a mouth mirror and community periodontal index probe (American Dental Association, Type III, examination method) which conform to World Health Organization (WHO) specifications.^[5] Autoclaved instruments were used for examination of the inmates. The data were recorded by the investigator on a printed oral health assessment form (1997, WHO).

Statistical analysis

The data were coded and analyzed using the IBM SPSS version 16 software. Independent *t*-test was used. $P < 0.05$ was set as significant for the purpose of analysis.

RESULTS

Distribution of prison inmates by age and gender is presented in Table 1. The study population consisted of 1060 inmates that are, 1025 (96.7%) males and 35 (3.3%) females. The age group distribution was as follows: 24 years and below: 130 (12.3%), 25-34 years: 492 (46.4%), 35-44 years: 267 (25.2%), 45-54 years: 123 (11.6%) and 55 years and above: 48 (4.5%).

The distribution of inmates based on DMFT and gender is presented in Figure 1. Among the inmates, 58.2% of males and 54.2% of females had decayed teeth, whereas 4.1% of males and 2.9% of females had filled teeth.

The distribution of inmates based on mean DMFT is presented in Table 2. The mean decayed teeth were 2.6 and 3.4 for males and females prison inmates respectively. The mean missing teeth was 1.2 for males and 1.5 for females. The mean filled teeth were 0.1 for males and 0.2 for females. The mean DMFT was higher among females (5.1) when compared to male (3.9) prison inmates.

The distribution of inmates based on DMFT and age is presented in Table 3. The prevalence of dental caries was

Table 1: Distribution of study subjects by age and gender

Variables	Total subjects		
	N	%	
Gender	Male	1025	96.7
	Female	35	3.3
Age (years)	24 and below	130	12.3
	25-34	492	46.4
	35-44	267	25.2
	45-54	123	11.6
	55+	48	4.5
Total	1060	100	

Table 2: Distribution of study subjects based on mean decayed, missing and filled teeth

Variables	Male	Female	Significance
Mean Decayed Teeth (SD)	2.6 (2.9)	3.4 (4.1)	NS
Mean Missing Teeth (SD)	1.2 (1.6)	1.5 (2.2)	NS
Mean Filled Teeth (SD)	0.1 (0.2)	0.2 (0.5)	NS
Mean DMFT (SD)	3.9 (5.2)	5.1 (7.8)	NS

NS: Not Significant, $p > 0.05$

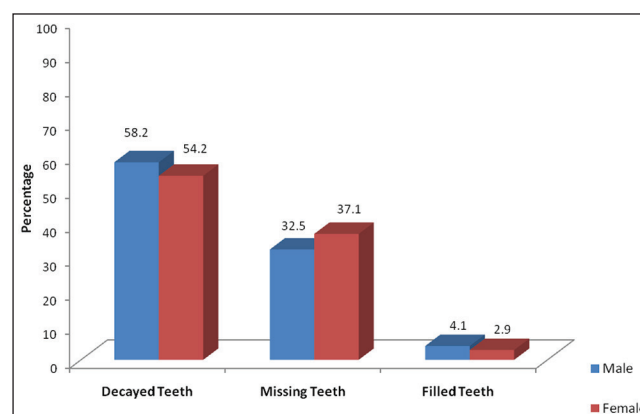


Figure 1: Distribution of study subjects based on decayed, missing and filled teeth and gender

78.5% among inmates 24 years and below. 5.4% of the inmates 24 years and below had filled teeth. The prevalence of missing teeth was 49.6% among inmates 45-55 years old. The mean DMFT was 4.6 (7.7) for inmates 55 years and above age.

DISCUSSION

The prison population have unique and challenging health problems such as hypertension, diabetes, mental disorders, including poor oral health.^[6] To the best of our knowledge, the current study is the first attempt to assess the dental caries status of prisoners in Chennai, India. The mean DMFT score of male and female inmates in our study is low in comparison to previous studies.^[3,7-9] The mean decayed teeth of males in the present study is greater than a study conducted in Italy^[8] and lower compared to studies

Table 3: Distribution of study subjects based on decayed, missing and filled teeth and age

Variables	24 years and below			25-34 years			35-44 years			45-54 years			55+ years			Significance (ANOVA)
	<i>n</i>	%	Mean DMFT (SD)	<i>n</i>	%	Mean DMFT (SD)	<i>n</i>	%	Mean DMFT (SD)	<i>n</i>	%	Mean DMFT (SD)	<i>n</i>	%	Mean DMFT (SD)	
Decayed Teeth	102	78.5		287	58.3		141	52.8		60	48.8		26	54.2		<i>p</i> > 0.05
Missing Teeth	32	24.6	3 (5.7)	136	27.6	4.2 (7.1)	94	35.2	4 (6.9)	61	49.6	3.8 (6.3)	23	47.9	4.6 (7.7)	
Filled Teeth	7	5.4		19	3.9		12	4.5		4	3.3		1	2.1		

conducted in England,^[10] Iowa,^[11] and Brixton.^[9] Similarly, the mean missing teeth and filled teeth observed in our study subjects is lower than a study conducted in Italy^[8] and Brixton.^[9] Such discrepancies may be due to lack of awareness among the inmates pertaining to dental treatment.

The mean DMFT (5.1) of the present study for females was low when compared to the studies conducted in Rikers Island^[12] and Connecticut.^[6] The mean decayed teeth of females were 3.4, which was similar to studies conducted in Rikers Island^[12] and Iowa.^[11] The mean missing teeth of females in this study was 1.5 which was low in comparison to a study conducted at Connecticut^[6] and Iowa.^[11] Similar findings were observed in a study conducted at Rikers Island.^[12]

The mean filled teeth of females in the present study was 1.5 which was low in comparison to studies conducted at Rikers Island^[12] and Connecticut.^[6] The low proportion of filled teeth among prisoners could be attributed to the difficulty in accessing dental services, their negative attitude toward dental health, and limited resources available at prison settings.

The mean DMFT of inmates 25-34 years and below, 35-44 years and 45-54 years old was lower compared to a study conducted in Kansas^[7] and higher compared to a study conducted in Rajasthan,^[13] Brazil^[14] and Firozepur.^[15] Similarly, the mean DMFT of inmates of 55 years and above was lower compared to studies conducted in Kansas^[7] and Hong Kong^[16] and high when compared to a study conducted in Rajasthan^[13] and Firozepur.^[15]

A limitation of the present study includes the smaller sample size of female inmates available during the period of the survey. Nevertheless our findings underscore the importance of providing dental prevention services in the prison settings, and it seems unlikely that prisoners with dental problems would receive preventive care.

We conclude that a large proportion of the inmates was affected by dental caries. Hence, oral health programs targeted at correction and prevention of dental diseases should be incorporated in prison settings to promote the oral health of this disadvantaged group of individuals. Health education programs should also be organized in such settings to create awareness on the importance of good oral health.

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Conflicts of interest

There are no conflicts of interest.

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