

# Prosthetic Status and Treatment Needs of Prisoners in Central Prison, Chennai

Benley George

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**Abstract** Prisoners who are entangled in legal matters and imprisonment are isolated from family members and other social activities and rarely give attention to their general health and oral health. The present study aims to assess the prosthetic status and treatment needs of prisoners in Central Prison, Chennai. A cross-sectional epidemiological survey was conducted in Central Prison, Chennai. The study population consisted of 1,060 prisoners from three divisions of the Central Prison. A single examiner assessed the prosthetic status of the prisoners according to WHO specifications. The present study shows that among males, 2.3 % of the subjects had bridge, 1.2 % had partial denture in the upper jaw, 0.8 % had bridge and 0.4 % had partial denture in the lower jaw. Among females, 8.6 % had partial denture in the upper jaw and 5.7 % had partial denture in the lower jaw. This study shows that edentulousness was a common problem among the prisoners. The prosthetic needs of this group of people should be delivered with the services of a prosthodontist in the prison settings. Oral health care facilities should be incorporated in prison settings which would intercept the progress of dental diseases and thus minimize tooth loss.

**Keywords** Prostheses · Prisoners · Chennai

## Introduction

Prison is a place properly arranged and equipped for reception of persons who by legal process are committed to

it for safe custody while awaiting trial or for punishment [1]. The target groups in most oral health surveys conducted worldwide have consisted primarily of children, adolescents, and adults from the general population. Despite a substantial decrease in the prevalence of dental caries and loss of permanent teeth in most populations of highly industrialized countries in Europe and Northern America, voluminous epidemiological literature has suggested glaring disparities in oral health in those from poor families compared with their higher status counterparts and for disadvantaged groups of people with 'special' health care needs [2, 3].

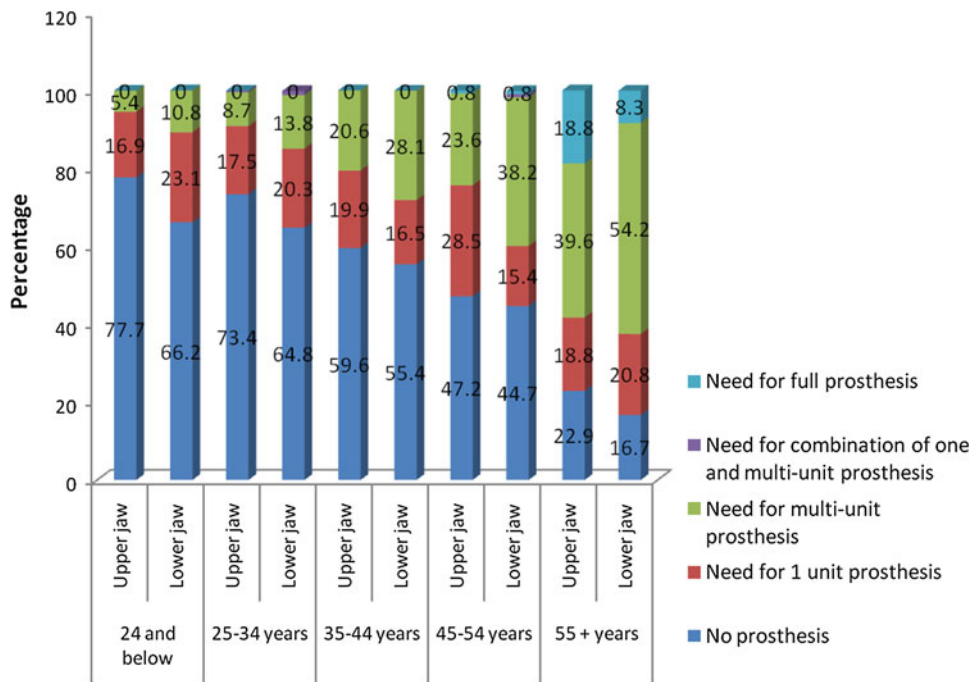
Among these disadvantaged groups, the health of prisoners is of great concern particularly because the number of persons under the jurisdiction of correction systems, including those on probation or parole, continues to increase dramatically [4]. A survey conducted among 124 male prisoners in southern Norway revealed a DMFT of 18.8 for those below 30 years of age and a DMFT of 21.7 for 30 years and above [5]. A study among male prisoners in Kansas in USA showed that the percentage of prisoners with no teeth increased with age: 5 % of 35–44 years olds were edentulous, 17 % of 45–54 years olds and 45 % of those over 55 years of age. Overall 70 % of the surveyed prisoners attended the dentist voluntarily in a 12 month period [6].

Improving the oral health of inmates is a challenging task. As service users, 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, sometimes associated with drug abuse.

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B. George (✉)  
Department of Public Health Dentistry, Pushpagiri College of  
Dental Sciences, Medicity, Perumthuruthy, Tiruvalla 689107,  
Kerala, India  
e-mail: georgebenley@yahoo.co.in

**Fig. 1** Distribution of study subjects based on prosthetic need and age



An acute shortage of literature pertaining to the prosthetic status of prisoners across the world has hampered the knowledge of prison settings. In India, especially in Chennai no data was available pertaining to the prosthetic status of prisoners. Hence the present study was aimed at assessing the prosthetic status and treatment needs of prisoners in Central Prison, Chennai.

**Materials and Methods**

The present survey was conducted in Central Prison, Chennai. It is one of the largest prisons in Asia. In Tamil Nadu there are 16,757 prisoners including 1,116 women. Of them, 5,400 are convicts and the rest consist of 7,952 remand prisoners and 2,348 undertrials. The study population consisted of 1,060 prisoners from three divisions of the Central Prison in Puzhal, Chennai during the period of April–May 2009.

The investigator and recorder had been trained and calibrated through a series of clinical training sessions. The kappa statistics for intra-examiner variation was 0.90. All subjects, regardless of the duration of time already spent in prison, were given oral information emphasizing the purpose of the study. Subjects who were willing to participate gave a written informed consent and were included the study.

**Clinical Examination**

A single investigator assessed the prosthetic status and treatment needs of each subject. Dental examinations were

done under natural light by means of mouth mirror and a periodontal probe which conform to World Health Organization (WHO) specifications [7].

**Statistical Analysis**

The data were coded and analysed using the SPSS version 16 software.

**Results**

Table 1 depicts the distribution of study subjects by age and gender. The study population consisted of 1,060

**Table 1** Distribution of study subjects by age and gender

Variables	Total subjects	
	n	%
Gender		
Male	1,025	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	1,060	100

**Table 2** Distribution of study subjects by prosthetic status and gender

Prosthetic status	Male (n = 1,025)				Female (n = 35)			
	Upper jaw		Lower jaw		Upper jaw		Lower jaw	
	n	%	n	%	n	%	n	%
No prosthesis	981	95.7	1,008	98	32	91.4	32	91.4
Bridge	24	2.3	8	0.8	0	0	0	0
More than one bridge	3	0.3	2	0.2	0	0	1	2.9
Partial denture	12	1.2	4	0.4	3	8.6	2	5.7
Both bridge and partial denture	4	0.4	3	0.3	0	0	0	0
Full removable denture	1	0.1	0	0	0	0	0	0
Total	1,025	100	1,025	100	35	100	35	100

**Table 3** Distribution of study subjects by prosthetic status and age

Prosthetic status	24 years and below		25–34 years		35–44 years		45–54 years		55+ years											
	Upper jaw		Lower jaw		Upper jaw		Lower jaw		Upper jaw		Lower jaw									
	n	%	n	%	n	%	n	%	n	%	n	%								
No prosthesis	128	98.5	130	100	476	96.7	486	98.8	255	95.5	257	96.3	110	89.4	120	97.6	44	91.7	47	97.9
Bridge	2	1.5	0	0	16	3.3	5	1	4	1.5	3	1.1	2	1.6	0	0	0	0	0	0
More than one bridge	0	0	0	0	0	0	1	0.2	2	0.7	2	0.7	1	0.8	0	0	0	0	0	0
Partial denture	0	0	0	0	0	0	0	0	3	1.1	3	1.1	9	7.3	2	1.6	3	6.3	1	2.1
Both bridge and partial denture	0	0	0	0	0	0	0	0	3	1.1	2	0.7	1	0.8	1	0.8	0	0	0	0
Full removable denture	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2.1	0	0
Total	130	100	130	100	492	100	492	100	267	100	267	100	123	100	123	100	48	100	48	100

**Table 4** Distribution of study subjects based on prosthetic need and gender

Prosthetic need	Male				Female			
	Upper jaw		Lower jaw		Upper jaw		Lower jaw	
	n	%	n	%	n	%	n	%
No prosthesis	669	65.3	606	59.1	21	60	10	28.6
Need for one unit prosthesis	201	19.6	200	19.5	4	11.4	3	8.6
Need for multi-unit prosthesis	145	14.1	208	20.3	8	22.9	22	62.9
Need for combination of one and multi-unit prosthesis	2	0.2	6	0.6	0	0	0	0
Need for full prosthesis	8	0.8	5	0.5	2	5.7	0	0
Total	1,025	100	1,025	100	35	100	35	100

prisoners which included 1,025 males and 35 females. The study subjects were from the age group of 19 to 74 years. The study subjects were distributed in the following age groups, 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 mean age of the study subjects was 34.6 years.

Table 2 shows distribution of study subjects by prosthetic status and gender. Among males, 2.3 % of the

subjects had bridge, 1.2 % had partial denture in the upper jaw, 0.8 % had bridge and 0.4 % had partial denture in the lower jaw. Among females, 8.6 % had partial denture in the upper jaw and 5.7 % had partial denture in the lower jaw.

Table 3 shows distribution of study subjects by prosthetic status and age. Among study subjects of 25–34 years, 3.3 % had bridge in the upper jaw and 1 % had bridge in the lower jaw. Among study subjects of the

age group of 55 years and above, 6.3 % had partial denture in the upper jaw while 2.1 % had in the lower jaw.

Table 4 depicts distribution of study subjects by prosthetic need and gender. Among males, 0.8 % required full prostheses for the upper jaw and 0.5 % required full prostheses for the lower jaw. Among females, 5.7 % required full prostheses for the upper jaw.

Figure 1 represents the distribution of study subjects based on prosthetic need and age. 39.6 % of the study subjects of the age group of 55 years and above required multi-unit prostheses in the upper jaw and 54.2 % required multi-unit prostheses in the lower jaw. 18.8 % of the subjects of 55 years and above required full prostheses in upper jaw and 8.3 % required full prostheses in the lower jaw.

## Discussion

The prison population is unique and challenging with many health problems like hypertension, diabetes, mental disorders including poor oral health [8]. There has been an acute shortage of literature pertaining to the prosthetic status of prisoners across the globe.

In the present study it was observed that the perceived need for prosthesis was 34.9 % which was lower compared to a study conducted in Italy [4]. The prosthetic need of the study subjects shows that a greater proportion of the study subjects required prosthetic rehabilitation.

Therefore our findings underscore the importance of providing dental prevention services in the prison settings, since it seems doubtful whether most prisoners with these problems would receive preventive care. Future studies should focus on assessing the attitudes of the prisoners towards oral health so as to aid in oral health promotion of the prisoners.

## Conclusion

The present study reveals that the prosthetic status of the inmates is poor. The alarming rate of tooth loss among this

group of population is of great concern for prosthodontists. A significant proportion of the male inmates across all age groups required various forms of prosthetic rehabilitation. Only a small proportion of the inmates had obtained prosthodontic rehabilitation prior to the start of the study. The limitation of the present study was the small sample size of female inmates. The current study recommends the inclusion of prosthodontic services in prison settings which would help in the restoring the form and function of the inmates. This study emphasizes the need for future researches on assessment of quality of life of inmates after provision of prosthodontic services.

## References

1. Tamil Nadu Prison Department. Available from <http://www.prisons.tn.nic.in>. Accessed 16 Jan 2009
2. Angelillo IF, Nobile CGA, Pavia M, De Fazio P, Puca M, Amati A (1995) Dental health and treatment needs in institutionalized psychiatric patients in Italy. *Commun Dent Oral Epidemiol* 23: 360–364
3. Gibson G, Grimes RM, Goodman HS (2003) A national survey of the oral health status of homeless veterans. *J Public Health Dent* 63(1):30–37
4. Nobile CGA, Fortunato L, Pavia M, Angelillo IF (2007) Oral health status of male prisoners in Italy. *Int Dent J* 57(1):27–35
5. Hurlen B, Jacobsen N, Hurlen P (1984) Hepatitis B serum markers and oral health in a group of Norwegian male prisoners. *Acta Odontol Scand* 42:53–58
6. Mixson JM, Eplee HC, Fell PH, Jones JJ, Rico M (1990) Oral health status of a federal prison population. *J Public Health Dent* 50(4):257–261
7. WHO (1999) Oral health survey-basic methods, 4th edn. AITBS, New Delhi
8. Heng CK, Morse DE (1998) Dental caries experience of female inmates. *J Public Health Dent* 62(1):57–61