

## Oral hygiene and Periodontal Status Among Eunuchs in Chennai, India

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**Received:** October 16, 2017; **Published:** October 27, 2017

### Abstract

**Objectives:** An eunuch is a castrated man: the term usually refers to those who are castrated. It represents a classic example of socially deprived and orchestrated community. This study tried to analyse the oral hygiene status and periodontal conditions of eunuchs in Chennai, Tamil Nadu, India.

**Methods:** 165 eunuchs in the age of 28 to 45 years participated in the study, 350 controls were selected. Oral hygiene index-simplified (OHI(S)) was used; pocket depth and clinical attachment loss were also measured.

**Results:** OHI(S) score in eunuchs was 2.69. Calculus index was more in eunuchs when compared to controls. Clinical attachment loss was 2.39 mm and pocket depth was 2.41 mm in eunuchs.

**Conclusion:** This study shows that the oral hygiene and periodontal status of eunuchs is not deplorable, but demands professional care. This study helps in understanding the need to impart oral hygiene education among eunuchs. It serves as a baseline data for further research.

**Keywords:** Eunuchs; Oral Hygiene Status; Periodontal Status

### Introduction

An eunuch is a castrated man [1]. Eunuchs in India commonly known as Hijras are underrepresented and marginalised [2], their existence is well described in ancient Indian texts [3]. In India, hijras are seen as a "third gender" which is neither male nor female but contains elements of both. An eunuch is an intersexed impotent man who undergoes emasculation [4]. The term usually refers to those castrated in order to perform a specific social function, as was common in many societies of the past.

Most of them are below poverty line. They make their living as sex workers and by begging [5]. They rarely get access to conventional health-provider systems due to mistrust and fear of censure [2]. Deficiency of literature among eunuchs made us conduct this study among this underprivileged group which can be uplifted with definite social support and initiatives. Studies done were primarily based on their social life whereas health issues apart from HIV are truly limited. Epidemiology is primarily concerned with the prevalence of dis-

eases, and the determinants of health and disease, it is a valuable tool in assessing the actual status of disease among a given population. Periodontal disease is the most common disease in oral cavity and oral health is an integral part of healthy life. This made us conduct the study to evaluate the oral hygiene status and periodontal conditions of eunuchs in Chennai, Tamil Nadu, India.

**Material and Methods**

The study sample consisted of 165 eunuchs out of 500 registered eunuchs in Chennai [6] among which 59 were known HIV positive. 350 controls were selected of similar age group and socioeconomic status. The age of the eunuchs ranged from 28 - 35 years; mean age being 32.6 years. Difficulty in recruiting study subjects due to their work culture and migrating life styles limited the sample size. This study had more controls, who were selected from the same age groups as that of eunuchs and from the same locality as well as socioeconomic status. The number of controls was more so that the bias is reduced.

Clinical examination was carried out using mouth mirror, explorer, and William’s probe with the help of the torch light. The examination was carried out by a single examiner. The sample was examined for their oral hygiene status using oral hygiene index simplified [OHI(S)] [7], Other periodontal conditions like clinical attachment level and pocket depth were recorded by using William’s periodontal probe on all the tooth present. The maximum clinical attachment loss (CAL) values for each tooth were determined by measuring the distance between the cement-enamel junction and the bottom of the pocket on six sites around each tooth. Whereas the maximum pocket depth (PD) of each tooth was assessed by measuring the distance from the margin of the gingiva to the base of the gingival sulcus/pocket on six sites around each tooth. Average of the clinical attachment loss and pocket depth was considered in the study.

All the subjects were examined by a single examiner. A few study subjects were re-examined. Intra examiner variability was assessed. The data recorded by the examiner was subjected for kappa statistical analysis in order to find the degree of consistency or variation in judgement by the examiner. The kappa coefficient value was found to be 0.81 which reflects a high degree of conformity in observational judgement of the examiner. The statistical analysis was carried out using ‘t’ test.

**Results**

Parameters	Sample	No of sample (N)	Mean	Std Deviation	t value	P value
OHI Index	Controls	350	2.76	0.95	0.442	P > 0.05
	Eunuchs	165	2.69	2.62		
Calculux index	Controls	350	0.45	0.63	11.50**	P < 0.01
	Eunuchs	165	2	2.35		
Clinical attachment loss (CAL)	Controls	350	2.74	0.081	13.10**	P < 0.01
	Eunuchs	165	2.39	0.490		
Pocket depth (PD)	Controls	350	2.71	0.11	11.70**	P < 0.01
	Eunuchs	165	2.41	0.44		

**Table 1:** Mean values of oral hygiene, clinical attachment loss (CAL) and pocket depth (PD) among Eunuchs and controls.

\*\* Highly significant

Mean value of Oral hygiene index (simplified) of eunuchs and controls were 2.69 and 2.76 respectively. The mean calculus index in eunuchs was 2.0 whereas it was only 0.45 in controls. The mean clinical attachment loss in eunuchs and controls were 2.39 and 2.74 respectively. The mean pocket depth was 2.41 and 2.71 among eunuchs and controls respectively. In all the variables except oral hygiene index (Simplified), the mean values were more in controls than in eunuchs.

## Discussion

Periodontal diseases are chronic and multifactorial influenced by a variety of factors ranging from local site-specific accumulation of plaque and calculus, anatomic factors, iatrogenic factors such as faulty restorations to systemic diseases that modify the course and outcome of periodontal disease process.

In the present study the mean OHI-S score was less in eunuchs than in controls, but revealed no statistically significant difference ( $P > 0.05$ ,  $t$  value 0.442). The scores were less when compared to the studies conducted among isolated rural populations of Yoruba and Ibo of Nigeria [8] which were 4.1 and 2.9 respectively but are higher when compared to studies conducted among Americans [9]. Considering the calculus index, eunuchs had higher scores than the controls showing statistically highly significant difference ( $p$  value  $< 0.01$ ,  $t$ -value = 11.50). These scores were higher than the scores obtained in studies conducted in North American population [9].

In this study inspite of OHI-S scores being less in eunuchs, the calculus score was significantly higher i.e. the debris score was less in the eunuchs. The reason for this difference may be due their lifestyle, which warrants better oral hygiene giving lesser debris scores whereas lack of adequate professional care due to social stigma leads to higher calculus scores.

In the present study the CAL score among eunuchs was 2.39 this was less when compared with the studies among the population of Karnataka-India [10], Uganda [11], Sudan [12], Germany [13] and Tanzania [14] where 33%, 44.03%, 51.2%, 69.7% and 79% of the population had CAL of more than 4 mm. In studies conducted among 12 - 19 year old children by NHANES [15] in United States and Corriani P, *et al.* [16] in Brazil 5.14% and 8% of the sample had CAL of more than 4 mm respectively. In studies conducted in Karnataka-India [10], Uganda [11], Nigeria [17] and Tanzania [14] showed that 51.2%, 36.4%, 79.6% and 45% of the studied population had pocket depth of more than 4 mm respectively. In the present study, the mean pocket depth was 2.41 mm, which is in the range of clinical normalcy. Clinical attachment loss (CAL) and pocket depth (PD) revealed a highly statistically significant difference, ( $p$  value  $< 0.01$ ,  $t$ -value = 13.107) for CAL and ( $p$  value  $< 0.01$ ,  $t$ -value = 11.7) for PD respectively. In both these variables, the scores were higher in controls than in eunuchs. The reason for the lesser clinical attachment loss and pocket depth among eunuchs in the present study can be attributed to repeated tooth brushing and better self implemented oral hygiene measures among eunuchs to meet their professional demands. Absolute absence of literature about the oral hygiene status and periodontal health conditions among eunuchs was the major point of difficulty in discussing the status of the sample.

## Conclusion

Eunuchs in India represent a marginalized, isolated population with low socioeconomic status. This is the first consolidated attempt to provide an insight in the oral and periodontal health status of this population. This study shows that the oral hygiene and periodontal status of eunuchs is not deplorable, but demands professional care. The data can be used as baseline for further research and for designing preventive measures among such populations. Anyhow, further studies are required to understand the various dimensions of their oral health status and dental treatment needs.

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**Volume 15 Issue 4 October 2017**

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