



TO EVALUATE THE PERIODONTAL STATUS OF PRISON INMATES OF JODHPUR CENTRAL JAIL: AN EPIDEMIOLOGICAL STUDY

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ABSTRACT

Aim and Objectives: To evaluate the periodontal status and its relation with age of prison inmates of Jodhpur central jail.

Materials and Methods: The present cross-sectional study was conducted in Central jail of Jodhpur city, Rajasthan, for a period of 6 months. Purposive sampling has been used in this study. Study included the group of individuals who were actually available for the investigations (All the inmates). There are 1400 prisoners in Jodhpur Central jail. Among them total of 981 prison inmates participated in the study. Descriptive statistical analysis has been carried out in the present study. Results on continuous measurements are presented on Mean \pm SD (Min-Max) and results on categorical measurements are presented in Numbers (%). Significance is assessed at 5% level of significance. ($p < 0.05$). One way ANOVA tests were used.

Results: Shows that periodontal condition of prisoners by using community periodontal index the shows that 123(12.6%) of prisoners had bleeding on probing whereas 467(47.7%) of prisoners had presence of calculus, also 300 (30.6%) Of prisoners showed the pocket depth of 4-5 mm and 42 (4.3%) of prisoners showed pocket depth of 6 mm and more. Regarding loss of attachment it has been seen that 257(26.3%) of prisoners shows loss of attachment between 0-3mm, while 386 (39.4%) of prisoners shows attachment loss ranging between 4-5 mm of cemento enamel junction within black band, also 295(30.1%) of prisoners showed attachment loss of 6-8mm (cej between 8.5 mm and 11.5mm rings) and 42 (4.3%) of prisoners showed loss of attachment ranging between 9-11 mm.

Conclusion: Our findings indicate a substantial need for improvement of periodontal health of prison inmates of Jodhpur central jail.

KEYWORDS : Periodontal Health, Epidemiological Survey

INTRODUCTION

General health and oral health are interlinked. Dental and oral diseases are the neglected epidemic in this country. Despite an improvement in the socioeconomic condition, fluoridation of the public water supply, and an increase in expenditure on dental care, dental and oral diseases continue to plague certain segments of the population needlessly and disproportionately.¹ Early intervention is the most cost-effective means of controlling dental diseases, unfortunately certain segments of the population either do not avail themselves of or are denied access to dental services.² Prison is a place of compulsory detention in which people are confined while on remand awaiting trial, on trial or for punishment following conviction for a criminal offence (not including police cells) and a prisoner is a person held in prison, awaiting trial or serving a prison sentence³. There are 1336 prisons across our country.

Prisoners come predominantly from the lower social classes with fewer educational qualifications, less work experience, and poorer housing conditions (with many of them being homeless at the time of imprisonment) than the general population. People from social classes IV and V are not only less likely than the general population to use preventive health services (such as screening, immunization, and health advice), but they are also more likely to practice health damaging behaviors such as smoking, drinking and recreational drug use that contribute to poorer oral and general health.⁴

The health of prisoners is of great concern, particularly because of the number of persons under the jurisdiction of correction systems, continues to increase dramatically. It is generally acknowledged from extensive research that correctional populations are more vulnerable to a wide range of health problems, most commonly alcoholism, drug abuse, infectious diseases, chronic illnesses, mental illnesses, and psychosocial and psychiatric problems.³ Not only medical problems but dental diseases are also increasing at an alarming proportion in the prison setting. Oftentimes, prisoners have poor oral health, dental cavities, and gum disease.⁵

Health personnel's especially dentists use sharp instruments in the basic screening and treatment procedures, which makes it difficult to assure security by the jail staff against any odds by the prisoners. As a result, medical and dental services in jails are meager. Lack of provision of basic facilities, Health professional's reluctance to work in jails and negligence of health concern by the jail staff further deteriorates the health of prison inmates.⁶

Many challenges exist in delivering services in the prison system, including service provision with respect to security procedures, recruitment and retention of dental staff in relation to strong demand and lucrative remuneration for dentists in private practice. There is currently no standardized system of assessment and prioritization of the dental needs of prisoner.⁷

In order to plan comprehensive treatment plan for these prisoners it is important to assess the existing periodontal health status of prisoners and identify their treatment needs. So the present study is conducted with the objective to identify the periodontal health status of prisoners of central jail.

MATERIALS AND METHODS:

Study Design

The present cross-sectional study is conducted in Central jail of Jodhpur city, Rajasthan, for a period of 6 months. The reason for selecting central jail is that among all the prisons in jodhpur city central jail is only the place where we are getting prisoners who are more in number and have been imprisoned from longer duration of time which is sufficient to carry out a survey.

Ethical Clearance

Ethical approval was taken from the ethical committee of Vyas Dental College and Hospital. A written permission was taken from the central jail committee to carry out the examination and later informed consent was obtained. Also Prior permission was taken from the Superintendent of central Jail, Jodhpur, to conduct the study among all the inmates

Sampling: -

Purposive sampling has been used in this study. That is purposively selecting the individuals for the study. It included the group of individuals who were actually available for the investigations (All the inmates). There are 1400 prisoners in Jodhpur Central jail. Among them total of 981 prison inmates participated in the study.

Inclusion Criteria

1. The prisoners who have been imprisoned from 3 months.
2. All the inmates who were willing to give the consent were included in the study.

Exclusion Criteria

1. The subjects who did not give their consent for oral examination were excluded

Collection Of Data:

Proforma

The study involved the completion of a pre-designed questionnaire on general information, oral hygiene measures and duration of imprisonment and modified WHO 1997 preform for determining the periodontal health status.

Training and Calibration:

Before the starting of the survey, the guide calibrated the investigator regarding the WHO criteria for diagnosing the oral disease. The mean Kappa co-efficient values for intra-

examiner reliability with respect to Kappa co-efficient of all the indices used in the WHO Oral Health Assessment format was 0.75.

Examination Area

The prisoners were escorted in groups to the examination hall by 2-3 policemen for maintaining a strict security during the examination. The investigator himself carried out the clinical examination throughout the study. The inmates were examined in the hall as well as in hospital of jail, and were asked to sit comfortably on an ordinary chair with backrest and examination was carried out using natural light with examiner standing behind or in front of the chair. All the data was recorded by the recording assistant. The recording assistant was seated in front of the examiner, so that the codes being recorded were seen by the examiner.

Training of recording assistant

The examiner was assisted by a recording assistant who was trained to write codes clearly. The instructions were given to the assistant about how to record the data on the assessment form and other entries correctly.

Armamentarium

The clinical examination was carried out by using sterilized instruments PMT sets (explorer, mouth mirror, tweezer), CPI Probe, Disposable Gloves and Mouth Masks, Kidney trays, Recording forms and Pen Torch by a single examiner. Autoclaved instruments were carried to examination hall. Later, cold method of sterilization of instruments was followed using Activated Gluteraldehyde Solution – 2.5% (cidex) for the twenty minutes.

Statistical Analysis

The data obtained was compiled systematically, and it was transformed from a pre-coded proforma to a computer and a master table was prepared. The total data was distributed meaningfully and presented as individual tables along with graphs.

Descriptive statistical analysis has been carried out in the present study. Results on continuous measurements are presented on Mean ±SD (Min-Max) and results on categorical measurements are presented in Numbers (%). Significance is assessed at 5% level of significance. (p< 0.05). One way ANOVA tests were used.

Statistical Software

The statistical software namely SPSS 19 was used for analysis of the data and Microsoft excel was used to generate results. An epidemiological study was conducted to evaluate the periodontal health status of prisoners of central jail Jodhpur, who have been imprisoned for more than 3 months. The study was carried out on 981 prisoners of central jail and the following findings were revealed.

Table 1: Distribution Prisoners Of Central Jail According To Age, Gender And Duration Of Jail

Characteristics	No. of prisoners(n)	Percentage(%)
Age		
15-30Years	391	39.9%
31-60Years	549	56.0%
61 and above	41	4.1%
Gender		
Male	856	87.3%
Female	125	12.7%
Duration of Stay in Jail		
3 month-1 Year	224	22.9%
1-3 Years	256	26.1%
4-6 Years	220	22.5%
7-9 Years	136	13.9%
10-12 Years	68	6.9%
13-15 Years	45	4.6%
16 and above	31	3.2%

- Number of patients in a particular category

Table 2 – Distribution Of Prisoners According To Periodontal Conditions

CPI		
Healthy	48	4.9%
Bleeding	123	12.6%
Calculus	467	47.7%
Pocket4-5mm	300	30.6%
Pocket6mmormore	42	4.3%
Excluded	00	0%
NotRecorded	00	0%
LOA		
0-3mm	257	26.3%
4-5mm cement enamel junction(CEJ)within blackband	386	39.4%
6-8mm(CEJ)betweenupperlimitofblackbandand 8.5mmring)	295	30.1%
9-11mm (CEJ) between 8.5mm and11.5mmrings)	42	4.3%
12mm or more (CEJ) beyond 11.5mm rings)	00	0%
Excluded Sextant	00	0%
Not Included	00	0%

Table 3: Relation Between Age And Periodontal Health Status Of Prisoners

Oral Health Status		N	Mean	S.D.	Fvalue	p-Value	Significance
OHI-S	15-30Years	391	2.250	0.619	2.936	0.054	Significant
	31-60Years	549	2.327	0.640			
	61andabove	40	2.125	0.991			
CPI	15-30Years	391	2.017	0.817	10.071	0.000	Significant
	31-60Years	549	2.279	0.870			
	61andabove	40	2.275	1.240			
LOA	15-30Years	391	0.997	0.809	10.022	0.000	Significant
	31-60Years	549	1.220	0.841			
	61andabove	40	1.400	1.007			

(One-Way ANOVA test) ($p \leq 0.05$ – Significant, CI = 95 %)

Table 3 shows relationship between age groups and periodontal health status of prisoners using one way ANOVA analysis. The results suggests that among prisoners there was significant relationship between their age groups and CPI (F=10.071, p=0.000, S), LOA (F=10.022, p=0.000, S).

DISCUSSION

The results of this cross-sectional study on prisoners provide a unique opportunity to analyse the periodontal health status in this left out population of society. The present study shows poor periodontal condition. To assess the periodontal status and treatment needs of a given population, Ainamo et al. (1982),⁸ developed an index called the Community Periodontal Index for Treatment Needs (CPITN) However, Baelum et al. 1995⁹ observed that this may result in severe underestimation of periodontal treatment in younger individuals.⁹ To overcome these limitations, another index called Community Periodontal Index (CPI) with attachment loss was included in WHO Oral Health Surveys - Basic Methods, the same has been used in the present study. The Community Periodontal Index (CPI) was introduced by the WHO to provide profiles of the periodontal health status and to plan intervention programs for effective control of periodontal diseases.

The periodontal condition of prisoners in this study was accessed by using community periodontal index and it was seen that (47.7%) of prisoners had CPI score of 2, which shows presence of calculus, also 30.6% of prisoners showed the CPI scores of 3 and 4, (showing pocket depth of 4-5 mm and more), while 12.6% of prisoners had CPI score of 1 (that is bleeding on probing), this study was in concordance with study conducted by Veera R 2012⁷ on 800 life imprisoned inmates in the Central Jails of Karnataka showing that a majority of the subjects had a CPI score of 2, and 21.6% had a CPI score of 4.⁷

Another study carried by Mundoor Manjunath Dayakar 2014¹⁰ showed that a majority of the study population had

Community Periodontal Index (CPI) score of 1, which implied that the subjects had bleeding on probing; 36.3% of the subjects had a score of 2, which implied presence of deep calculus; 13.8% had scores of 3 and 4, which implied that they had a pocket depth of more than 4 mm.¹⁰

In a study conducted on institutionalized elderly in Hong Kong by Lo et al 2004¹¹ the percentage of subjects with CPI scores were 1% (CPI-0), 2% (CPI-1), 41% (CPI-2), 37% (CPI-3) and 20% (CPI- 4) respectively.¹¹

In literature, there have been very few studies carried out on the oral health status of prisoners. Of these, some studies¹²⁻¹³ have reported that the periodontal status of prison inmates is worse than that of the general population.

The loss of attachment score estimates the lifetime accumulated destruction of the periodontal attachment. A survey done by Veera R⁷ carried out on 800 life imprisoned inmates in the Central Jail of Karnataka (16), observed that 30.1% of the prisoners had an LOA score of 1 or 2 and 1.7% of the prisoners had a score of 4. This study was in concordance with the present study, which shows that 39.4% of prisoners has loss of attachment score of 1(4-5 mm cement enamel junction (CEJ) within black band) and 30.1% of prisoners showed loss of attachment score of 2,(6-8 mm(CEJ) between upper limit of black band and 8.5 mm ring) and 4.3% of prisoners showed loss of attachment score of 3 (ranging between 9-11 mm) and 26.3% of prisoners shows loss of attachment score 0 (between 0-3mm). Similar study conducted by Mundoor Manjunath Dayakar 2014¹⁰ established that a majority had a score of 0 (65%) and 2.5% had a score of 4.

The study conducted by Dhanker K¹⁴ shows similar results indicating 38.2% of the study population had a loss of attachment score of 0 (0- 3mm) and 32.9% of the inmates had a score of 4-5mm, loss of attachment i.e. code 1.¹⁴

CONCLUSION:

Our findings indicate a substantial need for improvement of

periodontal health of prison inmates of Jodhpur central jail.

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