

Assessment of Oral Health Status and Treatment Needs of Institutionalized Chronic Psychiatric Patients Fulfilling the ICD-10 Criteria.

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Abstract

Introduction: Chronic psychiatric patients are an established high risk group with respect to oral health. Nonetheless, little attention has been given to certain aspects of oral health care for those with psychiatric and mental disorders. This study was designed to assess the oral health status and treatment needs of institutionalized chronic psychiatric patients fulfilling the International Classification of Diseases (ICD) – 10 criteria.

Methodology: A cross-sectional institution based study was conducted among 698 chronic psychiatric patients aged 15-80 years. Demographic details, number of years of institutionalization, systemic diseases, smoking and smokeless tobacco and alcohol consumption of the

individuals were recorded. The clinical examination of all the subjects was done using WHO Oral Health Assessment Form 1997. Statistical analysis was done using descriptive statistics, Pearson’s Chi-Square and Kruskal Wallis test. Mann-Whitney U test was used to conduct pair-wise comparisons between numbers of years of institutionalization with oral health. The level of significance was set at $P < 0.05$.

Results: The majority of study population (48%) suffered from schizophrenia, schizotypal and delusional disorders. It was observed that only 1.7% had a healthy periodontium. Also 82.5% of the study population had caries. The mean DMFT score was 9.815. Majority of study subjects (49.4%) needed prosthodontic treatment.

There was a statistically significant association of psychiatric diagnosis with Community Periodontal Index (CPI), Loss of Attachment (LOA), DMFT and dentofacial anomalies. Also number of years of institutionalization was significant predictor of oral health.

Conclusion: This study revealed a high prevalence of periodontal disease, high caries prevalence, very severe malocclusion and highly unmet dental treatment needs among the population of institutionalized chronic psychiatric patients.

Keywords: Chronic psychiatric patients, ICD-10, oral health, treatment needs.

Introduction

The term, mental illness or psychiatric illness, is used to describe clinically recognizable pattern of psychological symptoms or behavior causing acute or chronic ill health, and personal distress.¹ Psychiatric illness is an “equal opportunity disease” affecting all ages, all races, all economic groups and both genders. It affects a person’s ability to carry out the normal activities of daily living and impairs one’s quality of life in general.

The very first attempt to estimate the number of mentally ill in India and the differences in rates of insanity was made in the census of 1871.² According to the National Mental Health Survey of India 2015-2016, the overall weighted prevalence for any mental morbidity was 13.7% lifetime and 10.6% current mental morbidity.³ A large number of epidemiological surveys done in India on psychiatric disorders have demonstrated the prevalence of mental morbidity in rural and urban areas of the country; which is at par with the global rates.⁴

Chronic psychiatric patients have been documented in many countries for having poorer oral health than other segments of the population.⁵ Institutionalized chronic psychiatric patients are considered a high risk group with respect to oral health, because of poor oral hygiene, self-

neglect, improper dietary pattern, and the side effects of medications.

Dental treatment for these patients is challenging because of their lack of motivation and apathy, limited cooperation, low adaptability to new prosthesis, mobility difficulties, fear of treatment, poor communication as well as financial considerations. A lot of individuals suffering from psychiatric illness will not receive a proper and timely diagnosis and appropriate treatment for their oral problems.

In India, psychiatric epidemiology remains a challenge.³ Cumulative scientific evidence during the past two decades has improved our understanding of the importance of oral health care in systemic disorders. Nonetheless, little attention has been given to certain aspects of oral health care for those with psychiatric and mental disorders, a unique and disadvantaged group of patients. This study was designed to assess the oral health status and treatment needs of institutionalized chronic psychiatric patients and to compare the oral health status in different psychiatric disorders. It also aimed to assess if number of years of institutionalization affected oral health.

Materials and Methods

This study is a cross sectional institution based study, conducted to assess the oral health status and treatment needs of institutionalized chronic psychiatric patients. A request for permission to examine the psychiatric patients was sent to all the psychiatric institutions in the states of Karnataka and Maharashtra, India. The criteria set were; the institutions which had long term stay facility for psychiatric patients; ICD-10 classification was used by the institutions to diagnose their patients and the heads of the institution granted permission to carry out the oral health survey at their institutions. Hence the study population comprised of institutionalized chronic psychiatric patients

aged 15-80 years, of both genders and residing at the following institutions:

- 1) Seon Ashram, Belthangady
- 2) Chaitanya Mental Health Care Centre, Pune
- 3) Kripamayee Institute For Mental Health, Miraj
- 4) Snehalaya Mental Health Care Institute, Talapady.

The study population included all the patients present in the institutions during the time of the study and consenting to the examination.

The ethical clearance for the study was obtained. Consent form was duly obtained from each study participant during their lucid interval or from their guardian.

The demographic details such as name, age, sex and period of institutionalization of each patient were recorded in the study proforma. Habits like smoking, smokeless tobacco and alcohol consumption was recorded. A detailed history of their diagnosis and medication was collected from the institution.

The oral clinical examination of all the subjects was done by a single examiner with the help of a recorder in the hospital where the patients were institutionalized. Prior to the study, the examiner was trained to record the oral health status, according to WHO Oral Health Assessment Form 1997.⁶ For examination, the subjects were made to lie down on a table or an examination bed and the examiner sat behind the subject's head in 12'O clock position. Where this position was not possible, the subjects were seated in a chair with proper head rest and the examiner stood on the right side, slightly behind or in front of the patients during examination. All the subjects were positioned so as to receive maximum natural illumination. Adequate supply of instruments was maintained at the site of examination. Plain mouth mirror, WHO periodontal probe, tweezers, cotton and gauze, disposable gloves and mouth masks were used for the

study. Proper sterilization of instruments was maintained throughout the survey.

The classification of psychiatric disorders used was International Classification of Diseases (ICD) - 10, Chapter V- Mental and Behavioural disorders.-WHO (1992).⁷ A group of "unspecified mental disorders" is a part of ICD-10 criteria; which was not included in the study.

Statistical Analysis: The Statistical Package for the Social Sciences (SPSS for Windows, version 20.0, SPSS Inc., Armonk, NY, USA) was used to analyze the data. The comparison between data obtained on psychiatric diagnosis and number of years of institutionalization with CPI and LOA was done using Pearson's chi-square test, while the comparison between psychiatric diagnosis and number of years of institutionalization with DMFT and dentofacial anomalies was done using Kruskal Wallis test. Mann-Whitney U test was used to conduct pairwise comparisons between number of years of institutionalization with DMFT and Dental Aesthetic Index (DAI) scores. The level of significance was set at $P < 0.05$.

Results

The final study sample consisted of 698 chronic psychiatric patients. The study population was divided into four age groups of below 15, 16-30, 31-60 and above 60 years. The highest numbers of study subjects, 428 (61.3%) were aged 31-60 years. Among the study subjects, 62.3% were males as compared to 37.7% females. The gender by age distribution of subjects is represented in Figure 1.

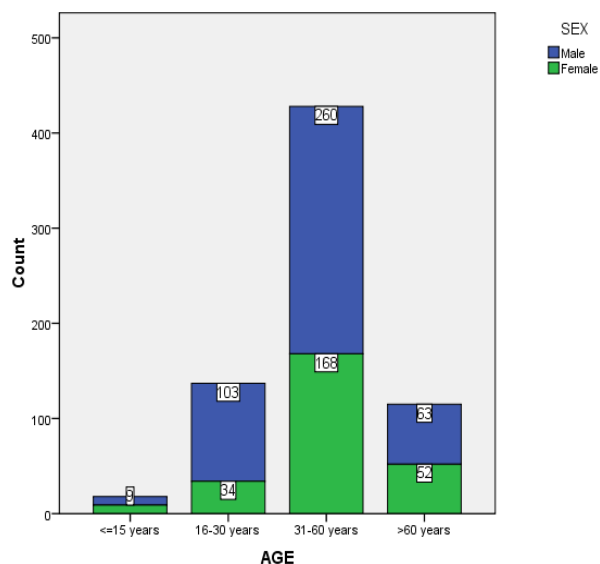


Figure 1

The study was conducted in four institutions. As these institutes were ensured anonymity regarding results, they were randomly assigned numbers from one to four. The distribution of study sample according to study site is depicted in Figure 2.

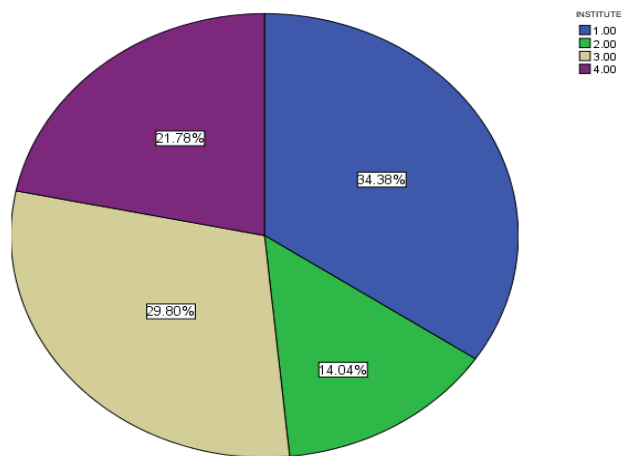


Figure 2

Table 1: Distribution of study participants according to psychiatric disorders using ICD-10 criteria

ICD Codes	Psychiatric disorder using ICD-10	Number (%)
0	Organic, including symptomatic, mental disorders	38 (5.4%)
1	Mental and behavioral disorders due to use of psychoactive substances	35 (5%)
2	Schizophrenia, schizotypal and delusional disorders	335 (48%)
3	Mood disorders	85 (12.2%)

Majority of study population (48%) were suffering from schizophrenia, schizotypal and delusional disorders. Table 1 shows distribution of study subjects according to their psychiatric disorder. The number of years of institutionalization was stratified into four groups such as less than 1 year, 1-2 years, 2-5 years and greater than 5 years. The majority of study subjects, 291 were institutionalized for more than 5 years. The medications prescribed in all the four institutions were found to be uniform with only difference in the brand names.

Out of 698, 18.1% suffered from systemic diseases additionally to mental illness. Only those individuals who gave a history of continuation of habit after institutionalization were recorded under the presence of habit. The distribution of study subjects on the basis of habits was 9.5% were smokers, 14.8% were addicted to smokeless tobacco consumption and 8.2% consumed alcohol.

4	Neurotic, stress-related and somatoform disorders	30 (4.3%)
5	Behavioral syndromes associated with physiological disturbances and physical factors	11 (1.6%)
6	Disorders of personality and behavior in adult persons	44 (6.3%)
7	Mental retardation	106 (15.2%)
8	Disorders of psychological development	14 (2%)
Total		698 (100%)

It was observed that the prevalence of Temporomandibular joint (TMJ) disorders was observed in 3.6% patients. Out of the 25 patients with oral mucosal lesions, 8 patients presented with leukoplakia. Enamel defects and fluorosis was observed in 2.5% and 1% of the study population respectively.

In this study it was observed that only 1.7% had a healthy periodontium. The study subjects were distributed on the basis of the highest score of CPI and it was observed that bleeding as highest score was seen in 33.2% and calculus in 40% population. The mean number of sextants with loss of attachment and distribution of study subjects by highest loss of attachment was analyzed. The mean number of sextants with loss of attachment 0-3mm was 3.71; with loss of attachment 4-5mm was 0.83; loss of attachment 6-8mm was 0.24, loss of attachment 9-11mm was 0.24 and loss of attachment 12 mm or more was 0.03. It was observed that the majority of the population, 55.7% had their highest loss of attachment scores as 0-3mm.

In case of caries experience of the study population, it was observed that 82.5% had caries while only 17.5% of the study population was caries free. Among the study population, the mean DMFT score was 9.815 ± 9.14

(mean \pm SD). [Figure 3] It was observed that root caries was present in 202 of study subjects.

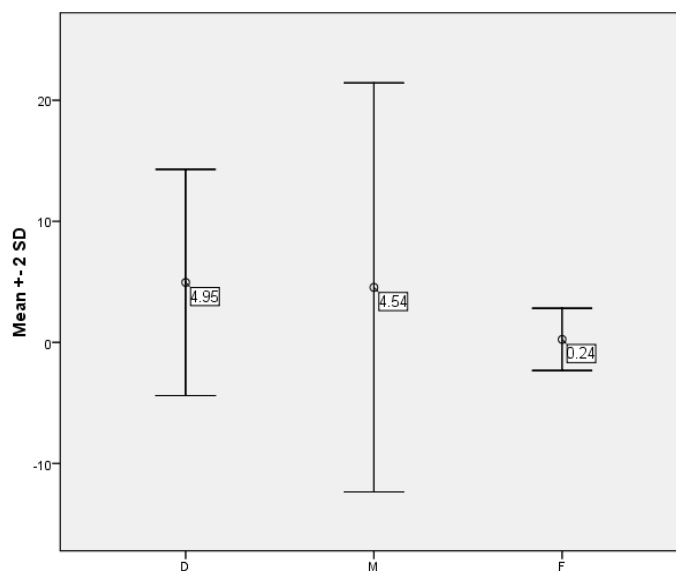


Figure 3

The treatment needs of the population were evaluated. It was observed that majority of study subjects, 49.5% needed prosthodontic treatment. (TABLE 2) It was seen that 2.7% and 2.57% study population had maxillary and mandibular dental prosthesis respectively. The dental prosthetic needs of the population were largely unmet in this population. 44.8% needed maxillary dental prosthesis while 48.6% needed mandibular prosthesis.

Table 2: Number and percentage of study subjects according to their Treatment Needs.

Further Treatment Required	Number	Percentage
No Treatment	56	8%
One Surface Fillings	69	9.9%

Two or more Surface Fillings	33	4.7%
Crowns	1	0.1%
Pulp Care And Restoration	42	6%
Extraction	75	10.7%
Prosthetic treatment	345	49.5%
Periodontal treatment	73	10.5%
Not recorded	4	0.6%
Total	698	100%

DAI was not recorded for 16.5% study subjects aged 60 years or older. The study population was distributed on the basis of the DAI severity scores. The study population was distributed on the basis of the DAI severity scores. 219 (31.4%) subjects with scores 25 and below had normal occlusion on the basis of the interpretation of the DAI severity scores. 83 (11.8%) had definite malocclusion (scores 26-30), 78 (11.2%) had severe malocclusion (scores 31-35), and 203 (29.1%) had handicapping malocclusion (scores 36 and above).

The association between psychiatric diagnosis and CPI codes was statistically significant with Pearson's Chi-Square, $\chi^2 (40) = 116.11$ and the p-value was <0.00001 . The association between psychiatric diagnosis and LOA was statistically significant with Pearson's Chi-Square, $\chi^2 (40) = 147.11$ and the p-value was <0.00001 .

The comparison between psychiatric diagnosis with respect to DMFT and dentofacial anomalies was done using Kruskal Wallis test. Kruskal Wallis test revealed that psychiatric diagnosis was a significant predictor of DMFT Scores ($\chi^2 (8) = 20.477, p=0.009$). The Kruskal Wallis test also indicated that psychiatric diagnosis was a significant predictor of DAI Scores. ($\chi^2 (8) = 35.894, p=0.000018$).

The association between number of years of institutionalization and CPI codes was statistically significant with Pearson's Chi-Square, $\chi^2 (15) = 50.196$ and p-value=0.000011. The association between number of years of institutionalization and LOA was statistically significant with Pearson's Chi-Square, $\chi^2 (15) = 36.197$ and p-value=0.002.

The comparison between number of years of institutionalization with respect to DMFT and dentofacial anomalies was done using Kruskal Wallis test; which indicated that number of years of institutionalization was a significant predictor of DMFT Scores ($\chi^2 (3) = 56.007, p<0.00001$). It also indicated that number of years of institutionalization was a significant predictor of DAI Scores. ($\chi^2 (3) = 43.406, p<0.00001$).

For further analysis Mann-Whitney U test was used to conduct pairwise comparisons while controlling the level of significance ($\alpha=0.05$). There was a statistically significant relationship between DMFT scores and number of years of institutionalization. In other words subjects who had more number of years of institutionalization had greater DMFT scores. There was also a statistically significant relationship between DAI scores and number of years of institutionalization. (TABLE-3)

Table 3: Mann-Whitney U test was used to conduct pair-wise comparisons between number of years of hospitalization with DMFT and DAI scores.

DMFT		DAI Score	
Comparison*	P-value	Comparison*	P-value
1-2	0.008	1-2	0.040
1-3	0.237	1-3	0.004
1-4	0.288	1-4	0.292
2-3	<0.001	2-3	<0.001
2-4	0.001	2-4	<0.001
3-4	<0.001	3-4	0.005
*1= Less than 1year, 2= 1-2 year, 3=2-5 year, 4= Greater than 5 year			

Discussion

In India, psychiatric disorders are estimated to contribute to 11.6% of the global burden of disease (WHO, 2008).⁸ Since Goffman’s seminal work on psychiatric institutions, ‘deinstitutionalization’ has become a leading term in the psychiatric debate. Although deinstitutionalization is widely accepted worldwide, a lot of countries still follow the system of institutionalization of psychiatric patients.

The present study deals with the oral health status and treatment needs of institutionalized chronic psychiatric patients. Among the 698 study subjects, majority of study subjects 291 (41.7%) were institutionalized for more than 5 years. This data is in contrast to the data collected by WHO on mental health of India in 2011, which revealed that the percentage of persons staying in long term care in mental hospitals in India was less than 1 year (62%), more than 1 and less than 5 years (24%) and more than 5 years (14%).⁸ This may be due to the high number of destitute and homeless psychiatric individuals residing at two of the psychiatric institutions.

In the present study it was observed that only 12 (1.7%) subjects had a healthy periodontium. The population was distributed on the basis of the highest CPI codes and it was observed that bleeding was found as highest code in

232 (33.2%) population, calculus in 279 (40%) population, 4-5 mm shallow pockets in 106 (15.2%), 6mm or more deep pockets in 21 (3%) and not recorded for 46 (6.6%) of study subjects. This is similar to the findings by Jyoti B et al⁹, Kenkre and Spadigam¹⁰, and Tang et al¹¹. They have also found that only 1.2 to 5% of an institutionalized psychiatric population had healthy periodontium. The lack of proper oral hygiene, self-neglect and the effect of psychotropic medication on the periodontium can attribute to the observed poor periodontal health in this population.

In case of caries experience of the study population, it was observed that 82.5% had caries while 17.5% of the study population was caries free. Present findings are higher as compared to previous findings of Mirza et al,¹² Gowda et al¹³ and Tang et al¹¹ who have reported that 65 to 75.3% of acute psychiatric patients had dental caries. The caries prevalence was found to be high in the present study with mean DMFT score 9.815. The caries prevalence was higher in contrast to other studies conducted in India; 6.1 by Rekha R et al¹⁴, 0.92 by Kumar M et al¹⁵ and 3.7 by Jyoti B et al⁹. The higher prevalence of dental caries in this population can be attributed to higher number of years of institutionalization observed in this study.

The highly unmet dental demands may be attributed to the barriers of utilization of dental services by this population. The barriers faced by the population under study included lack of perceived need, anxiety or fear, financial considerations, lack of access, inadequate manpower resources, and insufficient sensitivity to these patients' attitudes and needs by the healthcare system.

The association between some medications and tooth wear is also influenced by salivary flow. Neuroleptics, tricyclic antidepressants, and antihypertensive drugs can cause a significant reduction in the flow rate of saliva, which may subsequently influence tooth wear.¹⁶ Psychiatric patients are usually under long-term treatments; need to be evaluated for tooth wear. Hence some additional findings like generalized attrition, generalized abrasion and black stains were observed in 14.5%, 1.6% and 2% of study population respectively.

The comparison between psychiatric diagnoses with CPI, loss of attachment, DMFT and DAI was statistically significant. There was no literature found on such comparison in other studies. Also the association between number of years of institutionalization with CPI, LOA, DMFT and DAI was statistically significant. The literature^{17, 18 and 19} also showed that there was a positive correlation between the DMFT index and cumulative lifetime spent in an institution.

The limitation of this study is that it could not analyze the extent and severity in each group. This was due to the non-homogenous distribution of study subjects in various psychiatric disorders. Further analytical studies can be planned to fill this lacunae in scientific literature.

Oral health and quality oral health care contribute to holistic health, which should be a right rather than a privilege. A recent pilot study reported that overall caries experience is lower in deinstitutionalized psychiatric population than that reported in existing literature, which

is usually related to traditionally institutionalized psychiatric patients.²⁰ Therefore it is the patients with the most severe psychopathology who remain institutionalized and who are at increased risk of oral disease. They need more preventive care and restorative treatment to prevent oral health problems. Hence with sound planning, clear communication, and clearly drawn limits to services provided, successful efforts can be made to alleviate the high dental neglect experienced by institutionalized chronic psychiatric patients.

Conclusion

This study revealed a high prevalence of periodontal disease, high caries prevalence, very severe malocclusion and highly unmet dental treatment needs among the population of institutionalized chronic psychiatric patients. Hence attention should be focused on improving the oral health status and treatment needs of institutionalized chronic psychiatric patients.

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