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## Research Article

### RELATIONSHIP OF PSYCHIATRIC DISORDERS WITH CLEANING HABITS, ADVERSE HABITS, PERIODONTAL CONDITIONS AND PROSTHETIC STATUS, A HOSPITAL BASED CROSS-SECTIONAL STUDY

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#### ABSTRACT

Higher oral disease rates are concentrated mostly in specific segments of the population and in them, chronic psychiatric patients have been documented in other countries for having poorer oral health than most other segments of the population

**Objective:** Relationship of psychiatric disorders with cleaning habits, adverse habits, periodontal conditions and prosthetic status.

**Materials and Methods:** A cross-sectional study with the simple random sampling of 700 psychiatric patients aged between 35-74 years attending the psychiatric outpatient department of two government hospitals ie. Patna Medical College and Hospital (PMCH) & Nalanda Medical College and Hospital (NMCH).

**Results:** Among psychiatric patients, majority brush their teeth using the brush and paste and, clean their teeth once per day and had no adverse habits. Majority of sextants in psychiatric patients had CPI-2(calculus) score and LOA-1(4-5mm loss of attachment) score. When compared with the type of condition, the majority were from schizophrenia group and on medication and the association was statistically significant ( $p < 0.001$ ). Majority needed 1 unit prosthesis in maxillary arch and 2 unit prosthesis in mandibular arch, among which maximum was suffering from schizophrenia and association was statistically significant ( $p < 0.001$ ).

**Conclusion:** An oral health care system must have three concurrent approaches to care: treatment of oral diseases, oral disease prevention, and oral health promotions In order to gain a deeper understanding of the research area, further investigations of oral health in psychiatric populations both hospitalized and in outpatient care is needed.

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#### INTRODUCTION

Oral health is an important and integral part of general health and essential for the overall well-being of a human being. The accumulating scientific evidence during the past two decades

has significantly contributed to our understanding of the importance of not only the oral cavity but also the craniofacial complex.

Little is known about the dental health status of psychiatric patients of Patna City. Several studies of the oral health status

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of psychiatric patients in other countries have revealed that mental illness can cause and magnify the severity of dental diseases. Hospitalized psychiatric patients in those other countries appear to constitute a high-risk group of patients with respect to dental disease and require special attention[1]. Reduced salivary flow is commonly noted in patients with schizophrenia and dementia[2] and patients taking psychotropic drugs. The resultant decrease in salivation (xerostomia, dry mouth)[3] is the oral side-effect most frequently reported by patients and clinicians. The phenothiazines and tricyclic antidepressants have the greatest anticholinergic effect and therefore produce the worst symptom[4]. Psychiatric patients with xerostomia have an increased prevalence of dental disease, specifically, dental caries[5] and oral mucosal lesions, such as candidiasis and stomatitis.

Poor oral hygiene and excessive sugar intake also contribute to the increased dental caries[5] rate seen in hospitalized psychiatric patients. Other factors contributing to the prevalence and severity of dental caries include the fact that these patients are unable or unwilling to cooperate with treatment. The nursing staff lacks the necessary knowledge, abilities, and motivation to provide oral hygiene care to these patients, and these institutions lack the necessary funds to provide appropriate levels of dental care.

Psychiatric disorders are amongst the most prevalent health problems of a modern society[6]. They are characterized by alterations in thinking mood or behavior (or some combination thereof) and are associated with significant distress and impaired functioning over an extended period of time[6,7]. In the course of a lifetime, every individual experiences symptom which may also occur in a diagnosable psychiatric disorder. These symptoms are not related to any serious psychiatric illnesses and for example, may occur in understandable or stressful situations[7].

#### **Aim of the study**

Relationship of psychiatric disorders with cleaning habits, adverse habits, periodontal conditions and prosthetic status.

#### **Objectives of the Study**

1. To assess the prosthetic status and periodontal conditions among psychiatric patients.
2. To assess the relationship of H/O medication with Psychiatric conditions of the Psychiatric patients.
3. To assess the relationship of cleaning habits and adverse habits with Psychiatric conditions of the Psychiatric patients.
4. To provide adequate information to the patients regarding preventive and curative measures.

## **MATERIALS AND METHODS**

### **Study Population and Study Design**

#### **Study group**

Psychiatric patients aged between 35-74 years attending the psychiatric out-patient department of two government hospitals ie. Patna Medical College and Hospital (PMCH) & Nalanda Medical College and Hospital (NMCH).

#### **Approval of study**

Ethical clearance was obtained from the research ethical committee of Buddha dental college and hospital following which a consent was taken from Patna Medical College and Hospital (PMCH) & Nalanda Medical College and Hospital (NMCH) to perform the study in the respective hospitals. The protocol for this study required obtaining informed consent from all participants.

#### **Calibration and training**

- Calibration of investigator was carried out in the Department of Public Health Dentistry, Buddha Institute of Dental Sciences and Hospital, Patna
- Training of Co-investigator for filling of the self-administered questionnaire was done prior to the start of investigating procedure.

The investigator conducted these examinations for a period of four months in which all the patients between 35-74 years of age, attending OPD of psychiatric department of these hospitals were examined based on the study protocol.

#### **Pilot testing**

Immediately after the calibration of the examiner, a pilot testing was carried out by the investigator on 20 psychiatric patients. The study subjects were chosen from patients visiting OPD of the psychiatric ward of PMCH hospital. The pilot test assessments were utilized for planning the future course of the study. The subjects participated in the pilot study were not considered in the main study. The pilot study assessments were utilized for planning, rescheduling and executing the main study.

#### **Duration & Sampling of the Study Group**

A simple random sampling of 700 psychiatric patients attending the OPDs of these hospitals during March 2014 to June 2014 was selected as the study population.

## **METHODOLOGY**

Relationship of psychiatric disorders with deleterious habits, oral mucosa conditions, TMJ assessment in two government hospitals in Patna City. The study protocol was discussed with the concerned administrative head and members of the institutions and reassured them that there would be no harm to the individuals by being a part of this study and also concerns regarding the benefits to the patients and confidentiality of the reports were discussed.

#### **Inclusion criteria**

1. Psychiatric patients aged between 35-74 years attending the psychiatric department in two government hospitals.
2. Subjects whose medical condition does not restrict them to be the part of this investigation.
3. Subjects who fulfilled the research criteria and ready to give the consent to participate were considered for the study

#### **Exclusion criteria**

In order to prevent certain medical complications as a result of the intra-oral examination and to best adhere to ethical protocol, the following exclusion criteria will be observed:

1. Individuals requiring prophylactic antibiotic coverage prior to dental exams (i.e. probing), according to guidelines set by the American Health Association
2. Individuals with a medical condition, including a psychiatric disorder, as determined by hospital officials, which would have increased the risk of harm to the patient and/or the examiner during or following the collection of clinical data.
3. Individuals unable to give informed consent due to a cognitive impairment as determined by hospital officials (staff psychiatrist, dental health professional or attending nurse).

**Examination**

1. Extraction of data based on demographic details and other information from patients through direct interviews using structured questionnaire and OPD records.
2. An intra-oral examination of the patients was conducted by a single examiner throughout the study. The examination was assessed as per the criteria mentioned in WHO ORAL HEALTH ASSESSMENT FORM, 1997. Clinical examination (type 3) was conducted under artificial light and aseptic precautions were taken during an intraoral examination.

**Statistical Analysis**

The data was entered on a personal computer and the master charts were prepared for analysis of data. The data were analyzed using the statistical software. SPSS version 18.0 was used to analyze the data. Pearson’s chi-square test was applied to see the difference in nominal type data and t-test was used to see the mean difference between two groups. A p-value less than 0.05 is considered as significant.

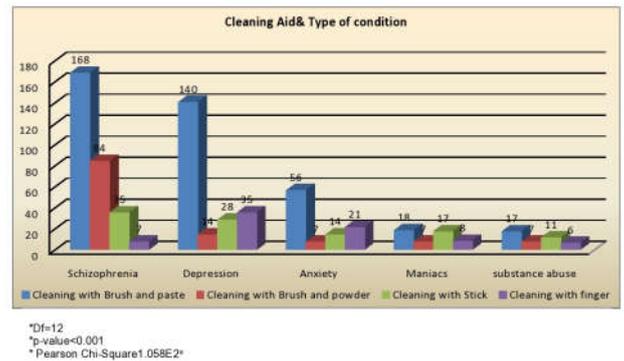
**RESULT**

In the present study among 700 psychiatric patients, there is seen equal no. Of males and females. Among 700 psychiatric patients, majority 294(42 percent) had schizophrenia, 217(31 percent) had depression, 98(14 percent) had anxiety, 50(7.1 percent) are maniacs, and 41(5.9 percent) suffer from substance abuse. Among 700 psychiatric patients, 630(90 percent) had the history of medication and only 70(10 percent) were not having such history.

In these patients there is seen that majority 399(57 percent) brush their teeth using brush and paste, 119(17 percent) used brush and powder for cleaning teeth, 105(15 percent) used stick to clean teeth and only 77(11 percent) use finger only for cleaning and out of them, majority 679(97 percent) rinse their mouth with water and 21(3 percent) rinse with mouthwash.

Among 700 psychiatric patients, majority 294(42 percent) had never visited a dental clinic, 147(21 percent) had visited 3-5 years back, 112(16 percent) have visited more than 5 years back and 49(7 percent) have visited 1-2 years back. Among 700 psychiatric patients, only 399 patients got their treatment done, out of which 133(33.3 percent) got preventive treatment done, 98(24.6 percent) got extraction done, 91(22.8 percent) did not remember what treatment they got done, 35(8.8 percent) got both extraction and preventive treatment, 21(5.3 percent) got restorative treatment done, 7(1.8 percent) got both extraction and restorative and 7(1.8 percent) got both

restoration and preventive treatment done. Among 700 psychiatric patients, majority 483(69 percent) clean their teeth once per day, 189(27 percent) brush twice daily and 28(4 percent) brushes their teeth only once a week. Among 700 psychiatric patients, majority 301(43 percent) had no adverse habits, 147(21 percent) had habit of smoking, 133(19 percent) had habit of tobacco chewing, 49(7 percent) had habit of both tobacco chewing and alcohol, 42(6 percent) had habit of alcohol and 7(1 percent) had habit of both tobacco chewing and smoking. Among 700 psychiatric patients, majority 399(57 %) used the brush and paste to clean teeth. Association is calculated by chi-square test and the results are statistically significant (p< 0.001) (Figure 1)

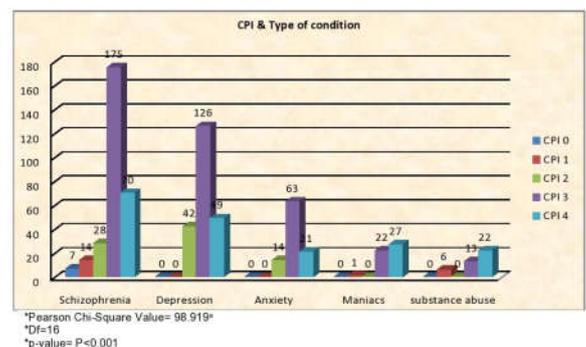


**Figure 1** Association between the oral hygiene habits (cleaning aids) of psychiatric patients and type of psychiatric condition

Among 700 psychiatric patients, majority 679 (97%) patients used only water for rinsing and only 7(3%) used mouthwash for rinsing. Relationship between oral rinsing and type of condition was statistically insignificant (p-value >0.05).

Among 700 psychiatric patients, 469(67%) patients did not visit a dental clinic. This shows that their psychiatric condition was of more concern to them compared to their oral health. Association is calculated by chi-square test but the results are statistically insignificant (p>0.05)

Among 700 patients, majority of sextants 1568(37.3%) in psychiatric patients, had CPI-2(calculus) score, and second highest number of sextants 1323(31.5%) had CPI-3(pocket 4-5mm) score, 560(13.3%) sextants had CPI-4(pocket>5mm) score. Among 700 psychiatric patients, when compared with gender and age, majority 399(57%) had CPI-3(4-5mm pocket). Among these subjects majority, 217(54.4%) were males compared to 182(45.6%) females and majority 175(43.8%) belong to 45-54 years of age. Association was statistically significant (p<0.001).



**Figure 2** Association of CPI with type of psychiatric conditions

Among 700 psychiatric patients, when compared with the type of condition, majority 399(57%) had CPI-3(4-5mm pocket) score. Among them, majority 175(43.8%) were from schizophrenia group, and second highest 126(31.6%) no. of patients belong to depression group. Association was statistically significant( $p<0.001$ )(Figure 2). Among 700 psychiatric patients, majority 406(58%) were having CPI-3(4-5mm pocket) score among whom, majority 392(96.5%) were on medication. This is related to 71% of psychiatric patients who were on medication. Association was statistically significant ( $p<0.001$ )(Table 1).

**Table 1** Association of CPI with history of medication

CPI score	History of medication		Total
	On medication	Not on medication/placebo	
0	7	0	7
1	7	7	14
2	49	35	84
3	392	14	406
4	175	14	189
Total	630	70	700

\*n=700  
\*p-value=0

Among 700 patients, the majority of sextants in psychiatric patients 1729(41.2%) had LOA-1 (4-5mm loss of attachment). Among 700 psychiatric patients, when compared with gender and age, majority 385(55%) had LOA-2(6-8 mm loss of attachment). Among these subjects majority, 203(52.7%) were females compared to 182(47.3%) males and majority 175(45.4%) belong to 45-54 years age group. Association was statistically significant ( $p<0.001$ ). Among 700 psychiatric patients, when compared with the type of condition, majority 385(55%) had LOA-2(6-8 mm loss of attachment) score. Among them, majority 133(34.5%) were from schizophrenia group, and second highest 105(27.2%) belong to depression group. Association was statistically significant ( $p<0.001$ )(Table 2).

**Table 2** Association of LOA with type of psychiatric conditions

LoA score	Type of Condition					Total
	Schizophrenia	Depression	Anxiety	Maniacs	substance abuse	
0	7	0	0	0	0	7
1	70	70	0	4	10	154
2	133	105	84	37	26	385
3	84	42	14	9	5	154
Total	294	217	98	50	41	700

\*n=700  
\*p- value= 0

Among 700 psychiatric patients, majority 227(32.4%) needed 1 unit prosthesis in the maxillary arch in mouth among which 101(44.5%) belong to schizophrenia category and 70(30.8%) suffered from depression. Among these subjects only 126(18.2%) needed 2 unit prosthesis and 347(49.5%) did not need any prosthesis and the results were statistically significant ( $p<0.001$ ).

Among 700 psychiatric patients, majority 452(64.5 %) needed 2 unit prosthesis in the mandibular arch of mouth among which maximum 235(52%) were suffering from schizophrenia and the

second highest 133(29.4%) were suffering from depression. Among the study subjects, 120 (17.1%) needed no prosthesis and the results were statistically significant( $p<0.001$ ).

## DISCUSSION

The present study showed equal distribution of males and females whereas in the study conducted by Vigild M *et al* (1993)[1] in institutionalized patients in Spain showed male-female ratio as 40% and 60 %, similar study conducted by Fairouz Sayegh *et al*[6] on non-institutionalized patients had the similar result as the present study. The study conducted by Viral R. Shah *et al*[7] again on non-institutionalized patients showed male to be 66.17%. The present study showed that among 700 psychiatric patients, majority 294(42 percent) had schizophrenia, 217(31 percent) had depression, 98(14 percent) had anxiety, 50(7.1 percent) are maniacs, and 41(5.9 percent) suffer from substance abuse. This result was almost similar to the study conducted by Fairouz Sayegh *et al*[6] on non-institutionalized patients which showed 57%schizophrenia and 43% mood disorder including unipolar and bipolar disorder.

The present study showed that Among 700 psychiatric patients, majority 483(69 percent) clean their teeth once per day majority 294(42 percent) had never visited dental clinic, almost similar result was seen in study conducted by Viral R. Shah, Priyadarshini Jain, Nayna Patel[8] in which 93.2% patients clean their teeth daily. Ilyas Mirza *et al*[9], reported good oral health practices, where 20 out of 29 patients brush regularly and 13 had visited the dentist in the last one year. Jovanovic *et al*[10] investigated that psychiatric patients visited a dentist less frequently, brushed their tooth, less often, and failed to acknowledge the adverse effects of oral diseases on their general health condition ). In the present study, 74% used a toothbrush but in contrast only about half used a toothbrush in the study done by Luciene Ribeiro Gaiao and *et al* in 2008[11]. Only 8% had visited a dentist in the preceding three months in Luciene and *et al* study but in the present study, none of the patients visited the dentist in last 1 year.

### Periodontal Status and Psychiatric Condition

In present study among 700 patients, majority of sextants 1568(37.3%), had CPI code 2(calculus), and second, highest number of sextants 1323(31.5%) had CPI code 3(pocket 4-5mm), 560(13.3%) sextants had CPI code 4(pocket>5mm).

These findings (CPITN-2) are in line with the study conducted by Bhuvan Jyoti *et al*[12] which revealed that more psychiatric patients are in need of periodontal treatment and the study conducted by Fairouz Sayegh *et al*[13] revealed that CPITN 3 and 4 were scored in 37% of the study group .the highest percentage of the sextant in the study group was recorded for the CPITN score 2 which was 48.1 %this finding is consistent with the study of Eugenio Velasco[14]. Who found that CPITN 2 got the highest percentage 43.8%. The study conducted by Rekha R, Hiremath S S, Bharath S[15] revealed a higher prevalence of periodontal diseases particularly shallow pockets(37.3%) and deep pockets(15.5%). Cheraskin6 has hypothesized that altered salivary quality and quantity, altered oral micro flora, endocrine dysfunction and lowered resistance to infection for periodontal diseases and changes among these patients lead to a higher prevalence of periodontal diseases

In present study healthy gingiva was seen only in 1.7% psychiatric patients, calculus in 37.3%, shallow pocket in 31.5%, bleeding in 11.7% and deep pocket in 13.3% and is very much similar to study done by Manish *et al*16, where 1.9% of patients had healthy gingiva, calculus was present in 40.6%, shallow pockets in 35.3%, bleeding in 10.5% and deep pockets in 7.8% of patients

Whereas in the study conducted by Viral R. Shah *et al*[17] findings were a bit different from present study. Community periodontal index revealed the poor periodontal condition of psychiatric patients indicated by healthy gingival in only 6.8% of patients. Calculus and shallow pockets were the priority problems in study group i.e. 45.1 and 24.8%. Other problems of the study group were bleeding (16.5%) and deep pockets (4.5%).

In the present study, the Percentages of the patient who required oral prophylaxis was 92.6%, which is similar to study done by Rekha R *et al*[15] with 93.8% and is almost similar to the study done by Bhuvan Jyoti *et al*[12] where it was 98.6%. This reveals that the psychiatric patients are having poor periodontal health, which indicates that they are in need of periodontal treatment.

#### **Prosthetic Needs and Psychiatric Conditions**

In present study 82.9% patients needed upper prosthesis and 82.8% patients needed lower prosthesis whereas in the study done by Bhuvan Jyoti *et al*[12] patients who needed prosthesis were 20.6%, in study done by Shlomo Paul Zusman *et al*[18] 26% needed some type of prosthetic treatment and in study done by Vigild *et al*, 40% needed the same.

#### **CONCLUSION AND RECOMMENDATION**

A sample of 700 Psychiatric patients aged between 35-74 years attending the psychiatric outpatient department of two government hospitals was studied. Female participants (50%) were same compared to males (50%).

Among study subjects maximum of patients showed bleeding, calculus, periodontal pockets and attachment loss indicating more of periodontal destruction and the strong need for preventive measures and periodontal therapy.

Among study subjects maximum of the patients were in need of one unit, two unit or more unit prosthesis. The requirement for prophylactic dental treatment was impressive in a gathering of people in treatment in outpatient psychiatric care. Inquiries concerning oral wellbeing and dental participation ought to be tended to frequently both in the mental care benefits and also in social administration. Steady exercises concerning oral wellbeing ought to be established in the person's ability and suited to the person's need. The need of care of mental patients still surpassed that of the all-inclusive community. An oral medicinal services framework must have three simultaneous ways to deal with the mind: treatment of oral sicknesses, oral ailments anticipation, and oral wellbeing advancements so as to pick up a more profound comprehension of the examination region, promote examinations of oral wellbeing in mental populaces both hospitalized and in outpatient mind is required. Additionally, inquire about concerning dental care use in bunches under treatment in mental care who are in danger to diminished oral wellbeing is required.

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