



# Oral health status of female hospitalized psychiatric patients in Jazan: A Case-control study

Estado de saúde bucal de pacientes psiquiátricas hospitalizadas em Jazan: Um Estudo de caso-controle

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## ABSTRACT

**Objectives:** Poor oral health is an important determinant of general health in patients with mental illnesses. The present study was conducted to evaluate the dental and periodontal status of hospitalized female psychiatric patients in Jazan city, Saudi Arabia. **Material and Methods:** This study included 82 subjects: 37 psychiatric female patients, and 45 age- and gender- matched healthy controls. Dental caries experience (decayed, missing, and filled teeth index ( DMFT ) and periodontal health status were recorded. SPSS version 21 was used for data analysis, and p-value < 0.05 was considered statistically significant. **Results:** The mean ages were comparable among the two groups. Psychiatric patients showed poor oral hygiene practices, with only 56.6% reported regularly brushing their teeth as compared with 82.2% of controls (P < 0.05). Control subjects had significantly higher DMFT mean scores than psychiatric female patients. However, psychiatric patients had significantly higher mean scores of missing teeth (M component) and lower restored teeth (F component) as compared with controls. Moreover, the mean attachment loss scores were significantly higher in the psychiatric group (0.76±1.58) compared with controls (0.23; 0.44 p < 0.01). **Conclusion:** Psychiatric patients showed poor oral hygiene practices and a high prevalence of untreated dental caries and periodontal diseases. Effective oral health promotion strategies need to be implemented to improve the oral health and oral health practices of this group of people.

## KEYWORDS

Psychiatric patients; Dental; Periodontal disease; Oral hygiene.

## RESUMO

**Objetivo:** A má saúde bucal é um importante determinante da saúde geral em pacientes com doenças mentais. O presente estudo foi realizado para avaliar o estado dentário e periodontal de pacientes psiquiátricos do sexo feminino hospitalizados na cidade de Jazan, Arábia Saudita. **Material e Métodos:** Este estudo incluiu 82 indivíduos: 37 pacientes psiquiátricas do sexo feminino e 45 controles saudáveis pareados por idade e gênero. A experiência de cárie dentária (índice de dentes cariados, perdidos e obturados (CPOD) e o estado de saúde periodontal foram registrados. O programa SPSS versão 21 foi usado para a análise dos dados, e o valor de p < 0,05 foi considerado estatisticamente significativo. **Resultados:** As médias das idades foram comparáveis entre os dois grupos. Pacientes psiquiátricos mostraram práticas de higiene bucal precárias, sendo que apenas 56,6% relataram escovar os dentes regularmente, em comparação com 82,2% dos controles (P < 0,05). Os indivíduos controle tiveram pontuações médias de CPOD significativamente mais altas do que as pacientes psiquiátricas. Os pacientes tiveram escores médios significativamente maiores de dentes perdidos (componente P) e dentes restaurados menores (componente O) em comparação com os controles. Além disso, os escores médios de perda de inserção foram significativamente maiores no grupo psiquiátrico (0,76 ± 1,58) em comparação com os controles (0,23 ± 0,44; p < 0,01). **Conclusão:** Pacientes psiquiátricos apresentaram práticas inadequadas de higiene bucal e uma alta prevalência de cárie dentária e doença periodontal não tratada. Estratégias eficazes de promoção da saúde bucal precisam ser implementadas para melhorar a saúde bucal e as práticas de saúde bucal desse grupo de pessoas.

## PALAVRAS-CHAVE

Pacientes psiquiátricos; Doença periodontal; Higiene oral.

## INTRODUCTION

Mental illnesses are a common public health problem worldwide. The prevalence of mental illnesses is approximately 17.6% among the general population [1]. Psychiatric illnesses impair level of functioning and alter the awareness and behavior towards oral health [2]. Sleeping and eating arrangements take priority over personnel hygiene, making them more predisposed to a lot of dental and periodontal diseases [2]. Oral health is an important part of general health and wellbeing [2]. The literature showed that patients with psychiatric illnesses have poorer oral hygiene and higher prevalence of oral diseases than the general population [3-8]. Poor oral health status in psychiatric patients is multifactorial that includes, but not limited to, multiple psychotropic medications that induce hyposalivation, poor nutrition, irregular dental visits, tobacco chewing, and the lack of awareness about dental health [7]. Inaccessibility of dental services and the lack of dentists with special skills to treat these patients are also important contributory factors [7,9]. The most common dental diseases affecting psychiatric patients are dental caries and periodontal diseases [2,3,7]. Gingivitis varied from mild to severe among psychiatric patients [7]. Untreated dental caries and periodontal diseases can have detrimental consequences; they can cause severe pain and interfere with daily functions such as eating swallowing and speaking, ultimately severely impairing the patients' overall quality of life [2,7]. A number of studies have evaluated oral health status among psychiatric patients worldwide [3-6,8]. In Saudi Arabia, data regarding oral health among psychiatric patients are scarce; to date, there is only one study documented oral conditions among Saudi hospitalized psychiatric patients, and the results showed worse oral health in psychiatric patients compared with healthy

controls [10]. However, no such studies were conducted among psychiatric patients in Jazan region. Information regarding oral health of this vulnerable group of people is crucial for prevention and public health planning. Hence, the present study sought to evaluate dental and periodontal health status of female hospitalized psychiatric patients and compare them with age- and gender matched controls.

## MATERIALS AND METHODS

This case-control study involved 82 females (37 psychiatric patients and 47 control healthy subjects). The study was carried out between November 2016 and April 2017 in Jazan region, Saudi Arabia. The study was approved by the Institutionalized Review Board of Faculty of Medicine, Jazan University (reference number CODJU 16101). The study was conducted in full compliance with Helsinki ethical declaration, and verbal consent was obtained from all participants. Psychiatric patients were recruited from Al-Mal psychiatric hospital, while healthy age-matched controls were recruited from dental outpatient clinics, Faculty of Dentistry, Jazan University. Inclusion criteria for cases were: all female patients diagnosed with any mental illness such as schizophrenia, psychosis, and dipolar psychosis; age  $\geq$  18 years; and cooperative patients. Age-matched mentally healthy individuals were considered as controls. Pregnant women, disabled patients, and patients with severe systemic disease were excluded.

Questionnaire was used to collect the general information including, age, education level, marital status, oral habits (smoking and shamma chewing), tooth brushing frequency, and number of visits to the dentists. Medical and demographic information was retrieved from the hospital clinical files. Clinical examination was conducted by two trained examiners. Dental status was ascertained

using the Decay, missing and Filling teeth Index (DMFT) according to the WHO criteria. The attachment loss (AL) was recorded to ascertain the periodontal health status. AL was measured using William periodontal probe using predetermined index teeth according to Ainamo et al 1982 (Ainamo, 1982). Clinical attachment was defined as the distance from the cement-enamel junction to the base of the pocket. Diagnosis of periodontitis was based on criteria set by the Centers for Disease Control and Prevention (Page and Eke, 2007). All measurements were performed by two dentists (F and S). A pilot study was carried out before starting to collect the study sample, in which 5 cases were selected from female patients attending College of Dentistry in Jazan University. The purpose of this pilot study was to carry out an inter-examiners calibration. The examiners were trained and calibrated till an acceptable agreement was reached.

#### Statistical analysis:

The data collected was analyzed using the SPSS 21 version. Chi-square test and t-test were used to compare between groups. A p-value of < 0.05 was considered statistically significant.

## RESULTS

A total of 82 female patients, aged 18-50 years, participated in this study: 37 psychiatric patients and 45 controls. The correlation coefficient (r) between the two examiners for DMFT and attachment loss measurements was 0.92 and 0.89, respectively. The mean age of psychiatric patients was  $39.22 \pm 13.25$  and that of control subjects was  $37.02 \pm 11.90$ , with no significant differences between the two groups ( $P > 0.05$ ) (Table I).

**Table I** - General characteristics of subjects among psychiatric and control groups.

Variable	Psychiatric patients (n= 37)		Control group (n= 45)		P-value
	N	%	N	%	
Age (mean±SD)	39.22 ±13.25		37.02 ±11.90		> 0.05
<b>Marital status</b>					
Single	12	32.4	29	64.4	< 0.05
Married	25	67.6	16	35.6	
<b>Educational level</b>					
Educated	22	59.5	36	80.0	< 0.05
Illiterate	15	40.5	13	28.9	
Dental visits	19	51.4	32	71.7	< 0.05
Tooth-brushing (Daily)	21	56.8	37	82.2	< 0.05
Shamma users	11	29.7	10	22	> 0.05

With respect to education, only 59.5% psychiatric patients received formal education compared to 80% of control ( $P < 0.05$ ). Two thirds of psychiatric patients and one third of controls were married ( $P < 0.01$ ). Psychiatric patients showed poor oral hygiene practices, with only 56.8% reported regularly brushing their teeth compared to 82.2% of control subjects ( $P < 0.05$ ). Significantly lower proportion of psychiatric patients (51.4%) reported regularly visiting dentists than control subjects (71.7%;  $P < 0.01$ ). Table II shows the mean DMFT scores among cases and controls.

**Table II** - Distribution of mean score and standard deviation of the DMFT, attachment loss.

Variable	Psychiatric group		Non-psychiatric group		P-value
	Mean	SD	Mean	SD	
D	3.11	2.82	6.02	3.92	< 0.001
M	2.29	3.18	1.04	1.69	< 0.05
F	0.29	0.85	1.93	2.68	< 0.001
DMFT	5.70	3.77	9	4.24	< 0.001
AL	0.76	1.58	0.23	0.44	< 0.001

D: decayed - M: missing - F: filled - AL: attachment loss.

Overall, psychiatric patients showed significantly lower DMF than control subjects. However, psychiatric patients had significantly higher “M” component (missing teeth) than controls. Restored teeth ( F component) were significantly lower in psychiatric patients than in control subjects ( $P < 0.01$ ). D component contributed the biggest portion of DMFT for both groups.

As presented in Table II, the mean attachment loss scores were significantly higher in the psychiatric group ( $0.76 \pm 1.58$ ) compared with controls ( $0.23$ ;  $0.44$   $p < 0.01$ ). Although not statistically significant ( $p > 0.05$ ), periodontitis was slightly more common in psychiatric group than in controls ( $24.3\%$  vs.  $18.3\%$ ) (Figure 1). Periodontitis in psychiatric groups was more common among shamma users than non-users ( $39.4\%$  vs.  $19.2\%$ ).

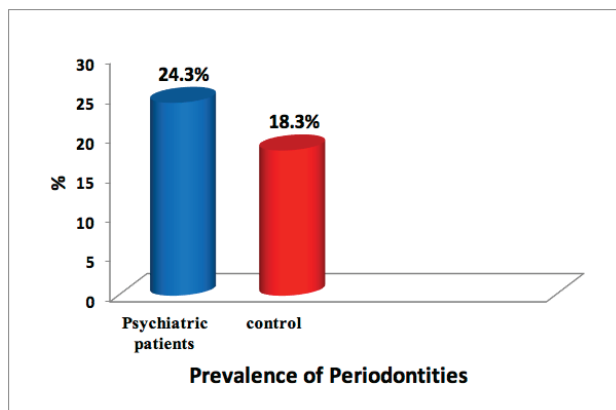


Figure 1 - Prevalence of Periodontitis in cases and controls.

## DISCUSSION

To the best of our knowledge, this is the first study that evaluated oral health status among psychiatric patients in Jazan region, Saudi Arabia. Overall, the results showed poor oral health status and high unmet treatment needs among psychiatric patients. Nevertheless, the results of the present study should be considered with caution given the small sample size and other methodological

weaknesses discussed at the end of this section.

The results revealed poor oral hygiene practices of the psychiatric patients, with only half of the subjects reported brushing their teeth. These results are consistent with the literature that reported poor oral hygiene practices among psychiatric patients [5,6].

Dental caries was very common among the psychiatric patients. It is important to mention that although the mean DMFT in our study subjects is lower than that control subjects, the psychiatric patients showed higher missing teeth and lower restored teeth, indicating higher treatment needs and less access to dental treatment among this group of patients. Psychotic medications, irregular dental visits, soft diet, financial reasons, insufficient dental services may explain the high untreated dental caries among psychiatric patients [7-9]. The results of the present study are in line with previous studies conducted among psychiatric patients in Malaysia, Singapore, India, Europe (3-9). Another important findings found in this study is the high periodontal diseases (attachment loss and periodontitis) in psychiatric patients. Such results are also consistent with previous studies [3,4,7]. This can be attributed to poor oral hygiene practices (such as regular brushing and dental visits), local oral habits (especially shamma and Khat) and xerostomia [7,13,14]. In the present study around one third of psychiatric patients and around 22% of controls reported regularly using shamma, a local name of smokeless tobacco. Shammah use is very common in Jazan region and is associated with various oral and dental diseases including oral cancer, white lesions, and periodontal diseases [15,16,17]. Interestingly, most of patients with periodontitis in the present study were shamma users, indicating the detrimental effects of this deleterious habit on periodontal health status, especially among this vulnerable



group of people [16,18].

This is first study that assessed oral health status among female psychiatric patients in Jazan region. It has shed some light on oral health condition of this group of people. However, this study has certain limitations that should be acknowledged. The first limitation is the relative small sample size. Another limitation is the nature of the study design (cross-sectional). Furthermore, due to small sample size no attempt was made to correlate oral health status with duration and/or type of the psychiatric disease. Additionally, potential confounders such as diet, age, oral habits were not accounted for in this study. However, despite these limitations, we believe this study has provided valuable information about oral health status among this group of people which can be the basis for future large-scale studies.

## CONCLUSIONS

the results of the present study suggest that psychiatric patients in Jazan region have poor oral hygiene status and high unmet dental treatment needs. An immediate intervention is needed to help improve oral health status of psychiatric patients in Jazan region and nationwide. Future, multi-center large-scale studies are recommended to further explore the extent and the risk factors of oral diseases among psychiatric patients in Saudi Arabia.

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## Conflict of interests

“The authors declare that they have no conflict of interests”.

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