Dental Caries among Mental Patients in Kerbala-Iraq in 2019

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Abstract

Background: The world is facing an epidemic of dental caries, which affects all age groups, and the problem is clearer among specific risk groups such as mental patients. This problem has a great impact on humanity, on oral health, on quality of life and general health, economic, social and esthetic drawbacks. **Patients and methods:** A cross-sectional prospective study covered 124 mental patients visiting a private psychiatric clinic in Kerbala city. clinical diagnosis and medication history were registered. In addition, oral examination was conducted to determine DMFT index diagnose other dental manifestations (plaque and hairy tongue), and xerostomia was investigated through a specific questionnaire. **Results and discussion**: Dental caries and poor oral health of 124 patients with equal gender distribution and a mean age of 35.04±12.52 year. More than three quarters of the sample had dental caries of at least one tooth with significantly higher prevalence among females. DMFT value >2 was encountered in 54% of females compared to 42% of males. Teeth brushing was never or irregularly performed by two thirds of the patients and was a high significant predictor of total DMFT, Decay and Missing component. A great majority (85%) had xerostomia, 50% had plaque staining, 13% had bruxism, 9% had hairy tongue and 3% had denture some of these conditions were positively associated with DMFT or its components. **Conclusions:** Especial attention needs to be paid for the oral health of mental patients the xerostomia encountered as a side effect of most medicines in these patients could influence oral health in general and dental caries in particular.

Keywords: *Dental caries, DMFT index, Mental patients, Kerbala*

Introduction

The World Health Organization (WHO) put since 1948 three main pedicles for health, namely physical, mental and social. Mental disorders and dental caries are highly prevalent in all regions of the world and the former represent a major source of disability and social burden worldwide [(1)]. The WHO estimated that one quarter of the world population will be affected by mental or neurological disorders at some point in their lives and around 450 million people currently suffer from such conditions [(2)], and the burden has risen by 41% in the last two decades [(3)]. In the Eastern Mediterranean Region (EMR), mental disorders contributed to 5.6% of the total disease burden in 2013 [(4)]. It was found in a global epidemiological review that in spite of the measures to combat dental caries; its prevalence is increasing [(5)], and dental caries and periodontal disease are in fact the two most common oral diseases [(6)]. Additionally, a recent systematic review found a significant negative correlation between dental caries indices with the socioeconomic and educational level [(7)]. Although many psychological disorders are associated with comorbid physical illnesses such as cardiovascular diseases and cancer and death [(8)], less attention has been paid to the issue of oral health [(6, 9, 10)], and these physical impacts are further deteriorated by the chronic intake of large amount of alcohol, or illicit drug use, prevalent among mental patients [(11, 12)]. The reasons behind these higher rates of oral diseases among mental patients include: their lower motivation toward oral health maintenance, ignorance, lower immunity, drugs side effects, iatrogenic, and many other factors [(6, 13, 14)]. It has been found that psychiatric patients in general had a worse DMFT score, worse oral hygiene and increased frequency of periodontitis [(5, 15)]. A systematic review of literature between 1971 and 2009

estimated a substantial reduced optimal oral health (61%) among individuals with serious mental illnesses [16]. On the other hand, reduced saliva (quantity and quality) as medicines side effect [17]; deprives these patients from many protective functions: antimicrobial, buffering, and lubricating agent that promotes cleansing and removal of food debris within the mouth and maintaining oral mucosa and teeth mineralization [18]. A recent study among internally people in Baghdad, reported positive association between DMFT index and severity of depression, while a second study put forwards the hypothesis behind this association [19, 20]. The mentioned association was extensively investigated by a large sum of references, globally [15, 21]. Little previous published study investigated oral health of mental patients while many others surveyed mostly schoolchildren. The mean DMFT values for a random sample of 516 students (13-15 year) in Mosu1 was 5.17. Significant predictors were age and gender (more caries females) in many studies [22, 23]. poor among a rural population in a village in Mosul was also reported in Mosul in 2006 [24].

Patients and Method

The study was conducted in a private psychiatric clinic in Karbala/Iraq during the period from 1st April till 31st May 2019. All patient who accepted to undergo oral health examination. All the patients suffering from any systematic disease (hypertension and diabetes mellitus) or pregnancy excluded. Demographic and the xerostomia criteria test reported by Fox [25], were obtained before oral examination. In addition, the entire patient undergo to. The statistical analysis us included descriptive and analytic methods using SPSS-23 at a significance level of <0.05.

Results

The mean age of the patients was 35.04±12.52 year, and the gender proportions were almost equal. Only one third of the patient reported brushing their teeth regularly, against one third who never brushed their teeth. The smoking prevalence among the sample was 14.5%, while only four patients (1.6%) reported alcohol consumption. For the number of used medications, four fifths of the patients were on one to three medications, whilst only one fifth reported no current medication (table 1).

Table 1: The main demographic and other characteristics of the mental patients in Kerbala/Iraq in 2019 (n=124)

Variable	Group	Frequency	Percentage
Gender	Male	61	49.2
	Female	63	50.8
Age category	Below 20 year	15	12.1
	20-29 year	26	21.0
	30-39 year	41	33.1
	40-49 year	25	20.2
	50 year or more	17	13.7
Tooth brushing	Never	41	33.1
	Irregular	44	35.5
	Regular	39	31.5
Smoking	Smoker	18	14.5
	Non-smoker	106	85.5
Alcohol consumption	Yes	4	1.6
	No	120	98.4

Cont... **Table 1: The main demographic and other characteristics of the mental patients in Kerbala/Iraq in 2019 (n=124)**

Occupation	Official employer	21	16.9
	Housewife	51	41.1
	Retired	5	4.0
	Private shop	1	.8
	Student	10	8.1
	Unemployed	9	7.3
	Laborer	27	21.8
Number of medications taken	0	26	21.0
	1	24	19.4
	2	38	30.6
	3	35	28.2
	4	1	0.8
Total		124	100.0

Total DMF ranged between 0 and 28 and the mean was 4.76±6.10, with one third of the patients having DMF index >5, while one quarter had an index of zero.

Comparison between male and female patients showed that females had higher DMF index than males 5.06± 5.79 vs. 4.60± 6.64). However, this difference was not significant (p=.428). More than one half of the female patients (53.9%) had a DMFT value >2 compared to only 42.6% of the male patients and this difference was significant (p=.007).For teeth brushing; it was found to be highly significant predictor of oral health indices. The difference in the mean DMF index between those who brush their teeth was highly significantly lower than those who do not (p=.006) and in older patients (p=.049). Similar significant differences were observed among Missing teeth categories (p=.002), while no such difference was found among Decay or Filling categories (p=.763).

The means DMF index and its components (D, M and F) were: 4.94±6.3, 1.88±3.15, 2.29±4.84 and 0,77±1.59, respectively.

Significant Caries Index (SiC Index) is the mean DMFT of the one third of the study group with the highest caries score. The index is used as a complement to the mean DMFT value. In this sample of mental patients the oral health indices for the worst third of the sample showed that the mean DMFT was 12.08± 6.482 (table 2).

Table 2: The minimum, maximum, mean and standard deviation of the main oral health indices of the mental patients in Kerbala/Iraq in 2019 (n=40)

Variable	Minimum	Maximum	Mean	Std. Deviation
D	0	18	4.28	4.535
M	0	28	6.35	6.878
F	0	7	1.45	2.253
DMFT	0	28	12.08	6.482

Tooth filling was the least prevalent among the mental patients, while comparable proportions observed for decay and missing teeth. Caries free patients was 10.48% of the total sample.

Among the total patients; 105 patients (84.7%) had xerostomia according to the xerstomia test, one half of the sample (62 patients) had plaque staining, 16 patients (12.9%) complained of bruxism, 11 patients (8.9%) had hairy tongue and four patient (3.2%) had denture. Cross-tabulation was used through chi-square test in addition to t-test to compare means to predict the association of these factors with DMFT and its components. Plaque staining had highly significant association with decay (p<.001, table 3). Similarly, DMFT was significantly associated with plaque staining (p=.039), but not with missing teeth or filling (p=.632 and .100, respectively). While no other significant association was found except for missing teeth and denture (p=.007).

Table 3: The distribution Decay categories among mental patients in Kerbala/Iraq in 2019 (n=124)

Plaque staining	D Category				Total
	Null	1-2	3-5	>5	
Negative	35 (56.5%)	22 (35.5%)	5 (8.1%)	0 (0%)	62 (100.0%)
Positive	19 (30.6%)	22 (35.5%)	8 (12.9%)	0 (0%)	62 (100.0%)
Total	54 (43.5%)	44 (35.5%)	13 (10.5%)	13 (10.5%)	124 (100.0%)

p<.001

Discussion

Dental caries and periodontitis are the most common oral disease globally, and represent the major causes of tooth loss [5-7, 26]. Many psychiatric disorders are associated with dental diseases such as dental erosion, caries, and periodontitis [27].

The reported caries predisposing factors included: age, gender, type and length of psychiatric disorder and treatment and smoking [28].

For this reason, taking a thorough medical history and performing oral examination can assist physicians in delivering best care to these patients. The results of the present study showed that mentally ill patients had poor oral health [27, 28].

A 40 years systematic review suggested suboptimal oral health in approximately two thirds of patients with severe mental illness [16]. While, a systematic review reported (DMF-T) in chronically hospitalized patients with mental disorders a mean score of 26.74 (out of a possible 32), one of the highest reported in the literature [29]. Patients with severe mental illnesses in Western countries were reported to have scores of more than 20 [30].

While a study among 133 outpatient psychiatric patients in India in 2014 reported a mean DMF score of 2.10, which was not significantly associated with age, while, periodontal condition worsened as age increased. The prevalence of caries was 54.89%, in addition to poor hygiene practices. One quarter of those below 50 year had healthy gingiva, in comparison to none of those above 50 year (p<.05) [31]. In addition, a cross-sectional study in a hospital in Lahore/Pakistan reported DMFT at 3.83± 0.469 [32]. It was found that people with severe mental illness have 2.7 times risk of losing all their teeth, compared with the general population [27]. In Iraq, a study among 213 people in village in Mosul reported a men DMFT of 2.42 among 10-19 year age group but increased significantly to 8.73 among those aged ≥40 year, while the proportion of individuals who have missing teeth increased from 14.29% to 73.33% in

these age groups. Only a minority (15.49%) were caries free [24]. While a study among adolescent sample of 981 students reported a mean DMFT of 3.26 and 4.43 for males and females, respectively; with significant difference according to age [23].

In Iraq, a recent study measured DMFS among 121 internally displaced people in Baghdad demonstrated that depression had a negative effect on caries prevalence and severity [19]. The effect of dry mouth is a major risk factor for oral health problems and is often associated with opportunistic gingivitis as a result of nutritional deficiencies secondary to psychosis or anorexia nervosa [30]. A case-control study reported a significantly higher DMFT and its components among hospitalized schizophrenia patients in Belgrade in in 2016 [11].

Conclusions

Poor oral health among mental patients reflected from the results call for an urgent program to halt the downward progress of oral health in this risky group of patients. Health education concentrating on preventive measures such as tooth brushing and regular checking represents an important tool in this program.

Ethical Clearance: The Research Ethical Committee at scientific research by ethical approval of both environmental and health and higher education and scientific research ministries in Iraq

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