

Barriers to special care patients with mental illness receiving oral healthcare. *A cross sectional study in the Holy City of Makkah, Saudi Arabia*

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Objectives: To assess barriers to patients with mental illness receiving oral healthcare in Makkah city, Saudi Arabia.

Methods: This was a 3-month cross-sectional study from the Department of Psychiatry at Al-Noor, Specialist Hospital in Makkah city, Saudi Arabia, between January 2017 and April 2017. A structured questionnaire with closed-ended questions was considered. A total of 161 psychiatric patients were recruited, made up of 81 male (50.3%) and 80 female (49.7%) participants. Simple descriptive statistics were used to define the characteristics of the study variables, through a form of counts and percentages. The chi-square test was also used to evaluate the distribution of the nominal variables.

Results: Of the 161 psychiatric patients, 51 were aged 26-35 years old (31.7%). Most participants (n=73) had psychological development disorders (45.3%). Ninety-one (56.5%) were unemployed, and among them, 25 (15.5%) reported problems with access to oral health and dental care. Participants also suffered from dry mouth (64%) and dental anxiety (23%).

Conclusions: This study suggested that dental anxiety is considered the major barrier to dental care, followed by the cost of dental treatments and accessibility. Most belonged to the group of psychological development disorder and reported having the most barriers to oral healthcare.

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The oral health of people with mental illness is apparently not given enough emphasis, despite its significance to physical health.¹ The World Health Organization (WHO) estimated that one in 4 people

worldwide have mental health issues in both developed and developing countries.² Unfortunately, a focused review of the literature indicates the lack of an accurate estimate for the prevalence of mental illness in the Kingdom of Saudi Arabia (KSA).³ Twenty-one mental health hospitals have been established in the KSA to meet the needs of psychiatric patients.⁴ In KSA, oral health is poorer among patients with mental and behavioral disorders, and they are more likely to develop oral conditions such as temporomandibular disorder and dental caries.⁵ The treatment of mental illness includes psychological intervention and involves antipsychotic medications. These antipsychotic agents have a negative impact on oral healthcare, such as: dry mouth,⁶ which is a significant risk factor for developing dental caries, periodontal diseases, and gingivitis.^{7,8} Furthermore, the prevalence of smoking among people with mental illness is high; hence, more oral diseases might develop.⁸ Studies have shown that people with mental illness have barriers to oral healthcare for a number of possible reasons, including access issues, fear of stigma, poverty, and lack of awareness of dental diseases.^{1,7} This study aims to assess the barriers to oral healthcare among patients with mental illness in the Holy City of Makkah, Saudi Arabia.

Methods. This 3-month cross-sectional study was conducted between January 2017 and April 2017. One hundred sixty-one was considered a feasible number of participants to recruit within the time frame of the study. Ethical approval was received from the Institutional Review Board (IRB) at Umm Al-Qura University, Faculty of Dentistry (number 41-16) and from the IRB of Al-Noor Specialist Hospital (number 26738) in the Holy City of Makkah, Saudi Arabia.

Questionnaire development. The International Classification of Diseases (ICD-10) of the WHO was considered to assess the prevalence of the most common mental and behavioral disorders among participants.⁹ Demographic characteristics such as age, gender, and occupation status were collected. Subsequently, a self-report standardized structured questionnaire (closed-ended questions) designed by the authors was used to assess the participant's perception of their oral healthcare. The questionnaire was assessing if the participant had difficulties accessing, affording, and accommodating dental treatments or if he/she felt anxious about dental treatments. Furthermore, participants' perception of the mouth dryness, smoking habits and how many times they brushed their teeth were investigated.

Inclusion and exclusion criteria. Participants who were willing to participate and were aged 16 years old or above were considered for the study. The mental capacity of each participant to decide was assessed based on the 4 major criteria of the Mental Capacity Act.¹⁰ Each participant had to: 1) understand the information relevant to the decision, 2) retain that information, 3) use or weigh up that information as part of the process of making the decision, and 4) be able to communicate his/her decision by any means of communication (whether by talking, using sign language, or any other means). Participants with a disease other than a mental illness and/or taking another type of medication that was not an anti-psychiatric agent, as well as those who were not willing to participate, were excluded from the study.

Clinical setting. The patients were invited during their psychiatric appointment to participate in the study. A single researcher introduced the study to the patients prior to their appointment in the waiting area. One hundred sixty-one psychiatric patients at Al-Noor Specialist Hospital in the Holy City of Makkah were recruited. Each participant understood that no clinical examinations would be carried out and that they would have 10 minutes to complete the questionnaire prior to their appointment in a private clinic to preserve their dignity and privacy. A valid consent form was obtained from each participant.

Data analysis. The data were entered into an Excel 2007 (Microsoft Corporation, United States) spreadsheet, and SPSS (Statistical Package for Social Science) (Released 2015. IBM SPSS Statistical for Windows, Version 23.0. Armonk, NY: IBM Corp). Simple descriptive statistics were used to define the characteristics of the study variables through a form of counts and percentages. To establish a relationship between categorical variables, this study used a chi-square test. A conventional p -value of less than 0.05 was the criterion for rejecting the null hypothesis.

Results. Demographic characteristics of the participants. Out of 161 psychiatric patients as the study population, 73 (45.3%) participants had disorders related to psychological development. Forty-one (25.5%) had behavioral symptoms associated with physiological disturbances and physical factors, while 26 (16.1%) had disorders related to adult

personality and behavior. Only 12 participants (7.5%) had behavioral and emotional disorders, with the onset usually occurring during their childhood or adolescent stage. For participants with organic mental disorders and schizophrenia or schizotypal and delusional disorders, each had four participants, taking up 2.5% of the population. One participant among the entire population (0.6%) belonged to the mood disorders group (Table 1). With an age limitation of 16 years old or older, most of the participants were aged 26-35 years old (31.7%). Forty-two (26.1%) participants were aged 36-45 years old, with 45 years old and above comprising 23% of the study group, while 19.3% of participants were below 26 years old. Approximately 81 male (50.3%) and 80 female (49.7%) participants were recruited for the study. This study shows the distribution of the mental illness classifications relevant to the age of participants. Participants aged greater than 45 years comprised most of the population with behavioral symptoms. Those with personality and behavior disorders were aged 36-45 years old. Participants aged 25 years old and below comprised most of the population with psychological development disorders. Meanwhile, participants with organic mental disorders, schizophrenia, schizotypal and delusional disorders, and mood disorders were aged 26-35 years old (Table 2).

Occupation, accessibility, affordability, and accommodation of the participants for dental services. Ninety-one (56.5%) of participants were not working, and among them, only 25 participants (15.5%) reported that they had problems with access to dental care. Fourteen participants (8.7%) had problems with the cost of dental treatments and 18 participants (11.2%) had problems with the accommodation to dental appointments. In the assessment of the accessibility of dental services, the occurrence of problems regarding the cost of dental treatments was the only factor, with a high and statistically significant difference among all groups of mental illness, with a p -value of 0.003. Participants who reported having problems with accessibility to dental care and accommodation to dental appointments belonged to the psychological development disorder group. Among all mental health problems, age, gender and occupational status of participants were observed to have statistically highly significant differences, with $p < 0.001$, as illustrated in Table 2. Most participants were currently employed in each group, except for the group of participants with psychological development disorders. Consistently, the group with psychological development disorders had the highest number of participants, with the problem being the cost of dental treatments. The groups of participants with behavioral

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symptoms and personality and behavior disorders were reported to not have any problems with the cost of dental treatments.

Smoking habits among the participants and their perception of mouth dryness. Twenty-four (14.9%) of the participants were smokers. Smoking was observed to have a statistically significant difference among all groups, with a p -value of 0.011. As such, most smokers belonged to the group of behavioral symptoms, while participants with psychological development disorders had the lowest number of smokers. One hundred and three (64%) participants suffer from dry mouth as a result of their anti-psychotic medications (Table 2).

Participants' perception of dental anxiety to dental treatments. Thirty-seven patients (23%) reported that they were anxious regarding dental treatments. Twenty patients (54.1%) who reported feeling anxious about dental treatments were from the group with psychological development disorders (Table 2).

Oral healthcare of the participant (teeth-brushing). Forty-nine participants (30.4%) brushed their teeth twice or more a day, while 58 participants (36%) brushed only once daily. Ten (6.2%) participants were reported to not clean their teeth at all (Table 2).

Discussion. In general, everyone experienced the same dental health problems and hindrances. Regardless of whether a person was suffering from mental illness, everyone was expected to observe the same dental care as the rest of the entire population. McKibbin et al¹ suggested that patients with mental illness indeed have a greater tendency to experience dental diseases and therefore need more assistance in observing proper dental and oral healthcare. Fifty-one of the participants (31.7%) were observed to be aged 26-35 years old. A similar study by Kossioni et al¹¹ observed that there was a higher prevalence of elderly psychiatric participants in the age range of 59 to 94 years old; however, this was contrary to the trend of this study. The gender distribution of participants was also observed to be relatively equal, with 81 males (50.3%) and 80 females (49.7%). In contrast, males are more likely to suffer from psychiatric disorders; 66% were observed to be males, while only 34% are females.¹² Ninety-one (56.5%) participants were unemployed. Among the unemployed participants, 60 patients suffered from psychological development disorders, accounting for 65.9% of total participants. These results were confirmed by Jovanović et al¹³ where 95% ($n=186$) of patients with mental illness were unemployed, reflecting their poor oral health because they could not afford dental treatments.¹³ Similarly, participants

Table 1 - Demographic characteristics of 161 participants per category.

Demographic characteristics	n (%)
Disorders of psychological development	73 (45.3)
Behavioral symptoms associated with physiological disturbances and physical factors	41 (25.5)
Disorders of adult personality and behavior	26 (16.1)
Behavioral and emotional disorders with the onset usually occurring in childhood and adolescence	12 (7.5)
Organic mental disorders	4 (2.5)
Schizophrenia, schizotypal and delusional disorders	4 (2.5)
Mood disorders	1 (0.6)

who reported having problems with accessibility to dental services (15.5% of the total population) were also mostly composed of patients suffering from psychological development disorders. McKibbin et al¹ and Wey et al⁷ showed that people with mental illness suffer from lack of employment, poverty, poor housing, lack of family support and difficulties in accessing care, including dental services. It is only rational to conclude that these patients are experiencing financial barriers to dental care due to their unemployment; hence, the incapacity to afford such dental treatments. Moreover, previous studies have reported that the cost of the dental services and dental anxiety were considered to be highly significant hindrances to oral healthcare accessibility,¹⁴ which was also confirmed in the present study.

Distinctively, the patients with behavioral disorders comprise mostly of participants who smoke. Eltas et al⁸ have emphasized tobacco use in people with mental health disorders, supporting the fact that individuals who suffer from mental health issues are more likely to be susceptible to oral and dental problems, because the lifestyles of these patients tend to be complicated, with a poor outlook on their health as shown by their poor eating habits, substance abuse and smoking. Relevant to such results, despite the greater tendency of participants with behavioral disorders to smoke, they generally do not have any problems with the accessibility, cost, and accommodation in accessing dental healthcare treatment. Most participants also suffered from dry mouth (64%). It has been reported that many special care patients with mental illness suffer from mouth dryness because of the extrapyramidal effects that are produced by antipsychotic therapy.⁶ Periodontal diseases, gingivitis, fungal infection, and dental caries have high rates of occurrence in patients taking such medications, subsequently affecting these patients' eating capacity and communication, which ends with a poor quality of life.⁸

Table 2 - Patients' categorical variables relative to their mental illness classification (N=161).

Variables	n (%)	Behavioral symptoms	Personality and behavior	Psychological development	Others	P-value
<i>Age</i>						<0.001*
<26	31 (19.3)	3 (9.7)	1 (3.2)	23 (74.2)	4 (12.9)	
26 - 35	51 (31.7)	8 (15.7)	8 (15.7)	26 (51.0)	9 (17.6)	
36 - 45	42 (26.1)	14 (33.3)	11 (26.2)	13 (31.0)	4 (9.5)	
>45	37 (23.0)	16 (43.2)	6 (16.2)	11 (29.7)	4 (10.8)	
<i>Gender</i>						<0.001*
Male	81 (50.3)	37 (45.7)	16 (19.8)	13 (16.0)	15 (18.5)	
Female	80 (49.7)	4 (5.0)	10 (12.5)	60 (75.0)	6 (7.5)	
<i>Do you work or have an occupation?</i>						<0.001*
Working	70 (43.5)	28 (40.0)	16 (22.9)	13 (18.6)	13 (18.6)	
Not working	91 (56.5)	13 (14.3)	10 (11.0)	60 (65.9)	8 (8.8)	
<i>Do you have difficulties accessing dental services for any reasons?</i>						0.748
Yes	25 (15.5)	6 (24.0)	4 (16.0)	10 (40.0)	5 (20.0)	
No	136 (84.5)	35 (26.1)	22 (16.4)	61 (45.5)	16 (11.9)	
<i>Do you have difficulties affording the cost of dental treatment (financial issues)?</i>						0.003*
Yes	14 (8.7)	0 (0.0)	0 (0.0)	9 (64.3)	5 (35.7)	
No	147 (91.3)	41 (27.9)	26 (17.7)	64 (43.5)	16 (10.9)	
<i>Do you have problems to accommodate dental appointments (time and/or date), which might interfere with your medical status (the psychological condition, time of medication, or the carer's ability to accommodate the appointment as well)?</i>						0.961
Yes	18 (11.2)	4 (22.2)	3 (16.7)	8 (44.4)	3 (16.7)	
No	143 (88.8)	37 (25.9)	23 (16.1)	65 (45.5)	18 (12.6)	
<i>Does your mouth feel dry?</i>						0.670
Yes	103 (64.0)	28 (27.2)	14 (13.6)	46 (44.7)	15 (14.6)	
No	58 (36.0)	13 (22.8)	11 (19.3)	27 (47.4)	6 (10.5)	
<i>Do you smoke any of the following (cigarettes, hookah (shisha), pipes, cigars, rolled cigarettes, or smokeless tobacco)?</i>						0.011*
Yes	24 (14.9)	9 (37.5)	3 (12.5)	5 (20.8)	7 (29.2)	
No	137 (85.1)	32 (23.4)	23 (16.8)	68 (49.6)	14 (10.2)	
<i>Do you feel anxious about receiving dental treatment?</i>						0.291
Yes	37 (23.0)	5 (13.5)	7 (18.9)	20 (54.1)	5 (13.5)	
No	124 (77.0)	36 (29.0)	19 (15.3)	53 (42.7)	16 (12.9)	
<i>How many times do you brush your teeth daily?</i>						0.585
Once a day	58 (36.0)	12 (20.7)	10 (17.2)	29 (50.0)	7 (12.1)	
Twice or more	49 (30.4)	12 (24.5)	10 (20.4)	21 (42.9)	6 (12.2)	
Rarely	44 (27.3)	15 (34.1)	4 (9.1)	17 (38.6)	8 (18.2)	
I do not brush my teeth	10 (6.2)	2 (20.0)	2 (20.0)	6 (60.0)	0 (0.0)	

*Significant at p<0.05 using Chi-square test

Generally, 49 participants (30.4%) brushed their teeth twice or more a day, while 58 participants (36%) brushed only once daily. However, 10 of the participants (6.2%) reported not cleaning their teeth at all. Jovanović et al¹³ found that people with mental illness had greater prevalence of caries as shown by a high decay, missing teeth, and filling (DMFT) index score. This explained why this group of patients presents with poor oral health, higher caries prevalence, periodontal diseases, and a high number of missing teeth.

Study limitations. A clinical examination and a larger population can also be taken into consideration to increase the accuracy of the evaluation of the patients' oral health. Furthermore, the results associating smoking and patients are inconclusive. Factors that

need to be considered include the timeframe in which the participants started smoking, how heavily they smoked, and whether such habits developed before or after their psychiatric diagnosis.

In conclusion, the present study suggested that dental anxiety is considered the major barrier to dental care among special care patients with mental illness in the Holy City of Makkah, followed by the cost of dental treatments and accessibility to dental services. It was also observed that the majority of participants who reported having several barriers to oral healthcare belonged to psychological development disorders group and they need medical, social and dental supports. An efficient and constant communication between the patients, dental professionals, psychiatric professionals

and primary care personnel is considered the most vital solution for the improvement of patients' oral healthcare. Finally, implementing special care dentistry in managing such a group of population is crucial.

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