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Rate of Tobacco Smoking Among Psychiatric Outpatients Attending a Tertiary Care Hospital in Oman: A Cross-sectional Study

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ABSTRACT

Objectives: Tobacco smoking is the single most avoidable cause of morbidity and mortality around the world. Patients with psychiatric disorders tend to smoke tobacco at a higher rate than the general population, with significant adverse health consequences. This study aimed to determine the rate of tobacco smoking among psychiatric outpatients attending Sultan Qaboos University Hospital, a tertiary care hospital in Muscat, Oman. ***Methods***: We conducted a cross-sectional study among psychiatric outpatients attending a psychiatric clinic from 1 January to 1 August 2017. The patients' demographic information, history of smoking, previous hospitalizations, and the number of and specific psychotropics used during treatment was documented. The degree of dependence on tobacco smoking was measured using the Fagerstrom test for nicotine dependence. ***Results:*** A total of 272 patients were included in this study. The overall rate of smoking among psychiatric patients was 13.6%. Patients with schizophrenia had the highest rate of smoking (22.2%), followed by those with bipolar (13.1%), and anxiety disorders (11.1%). Patients who smoked tobacco were more likely to be admitted to the psychiatric ward than non-smokers ($p < 0.050$). ***Conclusions:*** Tobacco smoking is common among psychiatric patients, a finding consistent with similar studies conducted in different parts of the world. Assessment of smoking status and its associated adverse health associations among patients with mental disorders is of paramount importance.

Tobacco consumption (either by smoking or chewing) is an ongoing public problem that can cause several health-related issues.[1] The World Health Organization (WHO) reported that 33% of the adult population worldwide smoke tobacco.[2] Tobacco smoking is a well-established risk factor for cancer, coronary vascular disease, and stroke. It is considered the single most avoidable cause of morbidity and mortality in the world.[3,4] Around seven million people die each year due to tobacco smoking according to the latest WHO survey,[5] and this number may increase to 10 million by 2020.[6]

Tobacco smoking is more prevalent among patients with mental health disorders than the general population.[7] In particular, patients with schizophrenia smoke tobacco at a higher frequency than those with any other mental health disorder.[8] The lifetime prevalence of smoking among individuals with mental health disorders is around 44%.[9] Patients with mental health disorders who smoke tobacco are more likely to suffer adverse health consequences than smokers without a mental health disorder.[10] Thus, it is not surprising that the resultant mortality and morbidity rates among patients with mental health disorders who smoke tobacco are higher than the rest of the population.

Several reasons have been postulated to explain the higher rates of tobacco smoking among patients with mental health disorders. Some studies have shown that patients with mental disorders smoke tobacco as a means to self-medicate their psychiatric symptoms, particularly the cognitive and negative symptoms.[11] Moreover, tobacco smoking is known to

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increase the hepatic clearance of some antipsychotic medications, decreasing their side effects.[12] These hypothesized reasons are currently under intensive molecular and genetic study.[12]

In Oman, the rate of smoking among the general population was estimated to be 7%, with the vast majority of smoker being male.[13] It is considered as the lowest rate in the Gulf countries, but it may reach up to 33% by 2025.[14] To date, there is no epidemiological data regarding smoking and mental health disorders in Oman. This study aimed to determine the rate of smoking among patients with mental health disorders attending an outpatient clinic at Sultan Qaboos University Hospital (SQUH), Muscat, Oman.

METHODS

We conducted a cross-sectional study. All patients above the age of 18 attending the outpatient psychiatry clinic at SQUH from 1 January to 1 August 2017 were assessed for their inclusion eligibility. The study included patients with a documented mental disorder visiting the psychiatric clinic within the study dates and those who consented to participate. A self-administered questionnaire was used to collect patients' demographic characteristics, history of cigarette smoking, alcohol and other substance abuse, number of previous hospitalizations, and presence of medical comorbidities. The hospital's medical record system was used to check the patients' information regarding their diagnosis and both current and past psychopharmacological therapy, including number of medications used, dosage, and whether the patients were on oral medications, injectable long-acting medication, or both. This study focused on tobacco smoking only.

The study was approved by the research committee at Sultan Qaboos University and followed the Declaration of Helsinki standards for medical research on human subjects. Informed consents were obtained from all participants after explanation of the study. The patients were selected using systematic random sampling. Every third patient who attended the psychiatry clinic was invited to participate by a psychiatric nurse who explained the aims of the study, obtained the patient's consent, and distributed the questionnaires. For those who were illiterate, the nurse guided them to fill the required data. The investigators verified the information given by the patients and completed the other variables by reviewing the patients' medical records. The sample size was calculated with the help of a sample size calculating website taking into consideration the total patients attending SQUH psychiatry outpatient department and a confidence interval (CI) of 95%.

The patients' mental health disorder diagnosis was based on the criteria of the Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM-5). Patients were excluded if they declined to sign a written consent form and when their clinical presentation was not consistent with DSM-5 criteria for any mental disorder.

The Fagerstrom test for nicotine dependence was used to assess the intensity of the patients' nicotine addiction. This is a self-administered six-item questionnaire that evaluates the quantity of cigarette consumption, the patient's compulsion to use, and their nicotine dependence. The test yields a total score of 10, with a higher score indicating a more physical dependence on nicotine. This is a reliable test for nicotine dependence[15] and has been found to be useful in measuring the extent of smoking among patients with schizophrenia.[16] An English expert translated the test into the Arabic language, which was then back-translated into English. No major differences were noted between the two versions.

According to the Fagerstrom test for nicotine dependence, a score of 1 or 2 indicates that the patient has low nicotine dependence, a score of 3 or 4 means that the patient has low-to-moderate nicotine dependence, and a score of 5 to 7 indicates moderate nicotine dependence. High nicotine dependence is indicated by a score of 8 or more.[14]

SPSS Statistics (IBM Corp. Released 2013. IBM SPSS Statistics for Windows, Version 22.0. Armonk, NY: IBM Corp.) was used for data analysis. For descriptive purposes, categorized variables were described as percentages with CIs. Continuous variables were presented as means with standard deviations or medians with interquartile ranges. To assess relationships between the variables, a univariate analysis chi-square test, *t*-test, and analysis of variance were used.

RESULTS

A total of 272 patients (female: 46.6%; male: 54.4%) were included in this study. The patients mean age

Table 1: Patients' demographic information (n = 272).

Characteristic	Number of participants	Percentage, %
Age, years		
18–30	91	33.5
31–50	149	54.8
> 50	32	11.8
Sex		
Female	124	45.6
Male	148	54.4
Marital status		
Single	98	36.0
Married	155	57.0
Others	19	7.0
Educational level		
Illiterate	31	11.4
High school	157	57.7
Bachelor	77	28.3
Other	7	2.5

Table 2: Rates of tobacco smoking among different mental disorders.

Diagnosis (n)	Rate of tobacco smoking, % (95% CI)
Schizophrenia (72)	22.2 (13.5–34.0)
Depression (70)	7.1 (2.4–15.9)
Bipolar disorder (39)	13.1 (4.3–27.4)
Anxiety disorders (36)	11.1 (3.1–26.3)
Others (55)	14.5 (6.5–26.7)
Total (272)	13.6 (9.8–34.0)

CI: confidence interval.

was 37.0±11.0 years. Patients were diagnosed with schizophrenia (26.5%), depression (25.7%), an anxiety disorder (13.2%), and bipolar disorder (14.3%). The demographic characteristics of all patients are illustrated in Table 1.

The rate of tobacco smoking among all patients was 13.6% (95% CI: 9.8–34.0). While only one female patient (0.8%) reported to smoke tobacco, 24.3% of the male patients were reported to be smokers.

The rate of tobacco smoking was higher among patients with schizophrenia compared to the other diagnoses. Of the 72 patients with schizophrenia, 22.2% (95% CI: 13.5–34.0 smoked tobacco, representing 26.5% of all smokers in the sample. The difference between the rate of tobacco smoking among patients with schizophrenia and patients with other diagnoses was statistically significant ($p < 0.050$). The rates of tobacco smoking among the various mental disorders are shown in Table 2.

The response rate to the Fagerstrom test for nicotine dependence among patients who smoked tobacco was 65.0%. The average score of the Fagerstrom test was 8.0±3.8, indicating high nicotine dependence. There was no significant association between the degree of nicotine dependence and the specific mental health disorder diagnosis.

Using the chi-square test for independence, a statistically significant ($p < 0.050$) relationship was noted between smoking tobacco and a history of admission to the psychiatric ward. On the other hand, there was no association between tobacco smoking and the number and type of psychotropic medications used for treatment. The average number of medications in smoker and nonsmoker groups was two.

DISCUSSION

Our study is the first to measure the rate of tobacco smoking among patients with mental health disorders attending a tertiary care hospital in Oman. Schizophrenia, depression, and bipolar disorder were the most common diagnoses noted in our study population.

The overall rate of tobacco smoking among patients with a mental health disorder in this study was 13.6% (95% CI: 9.8–34.0), almost double the prevalence rate of tobacco smoking in the Omani community (7%). The vast majority of patients who smoked tobacco were males (97.3%), and aged 31–50 years old (54.8%). These findings are consistent with a community-based study including 7011 Omani participants.[13]

Tobacco smoking is less prevalent among the Omani community than other culturally and geographically closer communities. For example, the prevalence of smoking in Saudi Arabia is currently 17.5% (and 25% among the elderly).[17] Similarly, the prevalence of tobacco smoking in a community-based study in Kuwait was found to be 17%.[18] Both studies found that tobacco smoking is more common among adult males.

The rate of tobacco smoking among psychiatric outpatients in our study was lower than the regional and international rates. Notably, in a group of randomly selected patients from five different

hospitals in Saudi Arabia, 57% of male psychiatric outpatients smoked tobacco.[19] The majority of the patients in that study were diagnosed with schizophrenia and bipolar disorder, which is consistent with our study. Moreover, other studies from the US, Europe, China, and India have yielded higher tobacco smoking rates among patients with mental health disorders.[20–25]

Tobacco smoking, as well as consumption of other illicit substances such as alcohol, is strongly discouraged in the Omani community. A moral stigma may be attached to tobacco smokers. The growing number of anti-smoking campaigns run by governmental and non-governmental associations aiming to fight the smoking trade and tobacco use have played a major role in this regard. Additionally, the influence of the conservative Omani culture and the rules of Islam have culminated in lower rates of smoking among the Omani community. This may, in turn, explain the lower rates of tobacco smoking among psychiatric patients compared to other countries. However, the rate of tobacco smoking among patients with mental health disorders was high in this study compared to the rate of smoking in the general population.

Patients with mental health disorders who smoke tobacco are at a higher risk of adverse health associations than non-smokers.[26] Studies have shown that smoking tobacco results in patients taking higher doses of psychotropics, an increased risk of Parkinson's disease, akathisia side effects, and increased hospitalizations compared to non-smoking patients.[26] On the other hand, patients with schizophrenia have a decreased life expectancy by 20.5 years compared to the general population. This high proportion of increased morbidity and mortality is mainly due to tobacco smoking.[27]

Factors which contribute to the high tendencies of patients with schizophrenia to smoke tobacco have been thoroughly researched. Boredom, poor impulse control, enhanced concentration, and decreased antipsychotic side effects are some of the most widely-accepted explanations.[26] Recent studies have demonstrated the biological and molecular basis of tobacco smoking to self-medicate the underlying symptomatology of schizophrenia.[28]

Despite the evidence of higher rates of tobacco smoking among patients with mental health disorders, these patients are less likely to be in smoking cessation programs.[29] Additionally, the degree of motivation to stop smoking is equal among patients with mental disorders and the general population.[30] Further studies are needed to investigate the reasons behind the higher rates of tobacco smoking among patients with mental health disorders in Oman to help tailor plans and policies. Our study is limited by its sample size. Including psychiatric outpatients from more than one center could increase the sample size and yield more generalizable results. Increasing the sample size may also yield a more statistically significant association. Another limitation of our study is that the Fagerstrom test for nicotine dependence has not been validated in Arabic language.

CONCLUSION

Tobacco smoking is common among psychiatric outpatients, with male patients making up the majority of smokers in this population. Patients with schizophrenia smoke at a higher rate than patients with other psychiatric disorders. Due to the higher morbidity and mortality rates associated with tobacco smoking among patients with mental health disorders, assessment of smoking status among these patients is of paramount importance.

Disclosure

The authors declared no conflicts of interest. No funding was received for this study.

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