RESEARCH ARTICLE

Frequency of Cigarette Smoking Among Psychiatric Inpatients Evaluated by the Fagerström Test for Nicotine Dependence

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Abstract

Background: In this study our aim was to determine the rate of smoking in a sample of psychiatric in-patients with diagnoses of schizophrenia, bipolar disorder and major depression and to examine factors related to smoking status and the level of dependence in this population. Materials and Methods: A total of 160 people were included in this descriptive study. 80 were inpatients with schizophrenia, bipolar disorder and major depression and 80 people without any psychiatric diagnoses were included as a control group. The participants were interviewed face-to face using a semi-structured questionnaire and Fagerström Test for Nicotine Dependence was used to define smoking habits. Results: The mean age of the participants was 37.24±12.19 years ranging from 18 to 81 years, 54.4% of the participants were (n=87) female, and 45.6% cases (n=73) were male. 70% (n=56) of the patients and 55% of the control group were smoking and the difference was statistically significant (p<0.01). Total score of Fagerström Test for Nicotine Dependence in the patient group was statistically significantly higher than in the control group (p<0.01). Conclusions: In our sample, the frequency of cigarette smoking and nicotine dependence among psychiatric inpatients was high, posing a high risk for smoking related diseases including cancers; therefore there should be counseling on tobacco control and smoking cessation programming targeting this population.

Keywords: Nicotine - dependence - smoking - mental illness - psychiatric inpatients - tobacco

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Introduction

Turkey is among the countries with high smoking rate. Although several measures are taken by the government like smoking bans in closed areas, the available literature indicates that smoking is the most important public health problem and preventable cause of mortality in Turkey. In a study which included a representative sample of adults aged 15 years and over in 1988, revealed that adult smoking prevalence was 44% (63% in males and 24% in females) in Turkey (PIAR report, 1988).

The most recent study which was conducted in 2008 on behalf of the Ministry of Health, the Global Adult Tobacco Survey (GATS), reported that 31.2% (approximately 16 million people) of adults over 15 years of age in Turkey were current smokers. The prevalence of smoking was (and the occasional use every day), 47.9% for males and 15.2% for women (GATS, 2008).

Over the past decade, several studies in developed countries have reported higher prevalence of cigarette smoking among people with severe mental illnesses than in the general population (Brown et al., 2000; Goff et al., 2005; Hennekens et al., 2005; Filik et al., 2006; Kilian et al., 2006; Salokangas et al., 2006; Strassnig et al., 2006).

There is evidence that individuals with schizophrenia have higher mortality rates from cardiovascular diseases and cancer than the general population and the high prevalence and amount of smoking may be one of the reasons for such higher mortality rates (Brown et al., 2000; Goff et al., 2005; Hennekens et al., 2005; Filik et al., 2006; Strassnig et al., 2006).

There are several studies relating to tobacco use and the related health hazards in the psychiatric population, from Turkey, but there is no study on psychiatric inpatients studying their tobacco use. In this study our aim was to determine the frequency of smoking in a sample of psychiatric inpatients with diagnoses of schizophrenia, bipolar disorder and major depression and to examine factors related to smoking status and the level of dependence in this population.

Materials and Methods

Istanbul Bakirkoy Neuropsychiatry Hospital is the oldest and largest mental health center in Turkey. The hospital receives referrals from all over Turkey and treats both acute and chronic mental illnesses.

Eighty in-patients were interviewed in a single

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psychiatry inpatient unit. Diagnoses were made by staff psychiatrists at the hospital using DSM-IV Diagnostic criteria (American Psychiatric Association, 1994).

None of the patients we approached declined participation in the interview. Inclusion criteria comprised aging older than 18 years. The exclusion criterion was inability to answer the interview due to disorganized speech or thought content. The study was reviewed and approved by the Ethics Committee Board of Bakirkoy Neuropsychiatry Hospital. All the patients answered a standard clinical/demographic questionnaire. Smoking patients responded to the Fagerström Test for Nicotine Dependence. The participants were asked about smoking history, dependence, and cessation motivation. They were also asked if they were current (daily or occasional), former or never smokers. Daily smokers were defined as individuals who smoke cigarettes regularly, which means at least one cigarette per day. Smoking dependence was determined through the FTND. The FTND has 6 items with an overall score ranging between 0-10. As in other studies, high dependence was defined as a FTND score ≥6. Fagerström Test for Nicotine Dependence is validated by Uysal et al. for Turkish use (Uysal et al., 2004).

Demographic and socio-cultural information were also ascertained. Patients were included in the study after signing the approved informed consent form. The control group consisted of people who were visitors of the inpatients, approached while they were waiting for their relatives either in the hospital garden or waiting room. They had never been diagnosed with a psychiatric illness.

Statistical analyses

Statistical analyses were performed using NCSS 2007 and PASS 2008 statistical software (Kaysville, Utah, USA). Descriptive statistics were calculated as the mean±standard deviation and frequency. These data were analyzed using the Kruskal-Wallis test and the Mann–Whitney U test. The Chi-square test was used to compare categorical data. For the analysis of the relationship between parameters Spearman's rho correlation coefficient was used. Statistical significance was defined at $p < 0.05$.

Results

Out of 80 patients 45% (n=36) were females and 55% (n=44) were males. In the control group 51.25% (n=41) were females and 48.75% (n=39) were males. The mean age of the patient group was 36.83±12.18 years, while it was 37.65±12.26 years in control group. There was no statistically significant difference in patient and control groups in terms of sex and age (p=0.67; p=0.387). The marital and the educational status of the patient and control groups were shown in Table 1. When the distribution of diagnosis is examined, schizophrenia is the most commonly seen, followed by bipolar disorder and depression. The diagnosis of the patients according to gender is shown in Table 2.

The overall smoking rate in the patient group was 70.0% (n=56) while it was 55% (n=44) in the controls which was statistically significant (p=0.050). Patients started to use tobacco at a younger age (16.73±4.74 years) compared to control counterparts (19.57±5.54 years) (p=0.007). The amount of money spent (per month) for tobacco by the patient group is higher than that of the control group (statistically significant, p=0.006). The control group smoked less than a packet a day while the majority of the patient group smoked more than a packet a day (statistically significant p=0.001).

The distribution of the reasons for tobacco use of the cases is presented in Table 3. The rate of being deprived of daily needs among the patient group is higher than that of control group (statistically significant, p=0.001). There is no statistically significant difference between the ways of tobacco access among the groups (p>0.05). 66.1%, (n=37) of the patients pointed out the reason of tobacco use as to deal with the symptoms of the disease. 92.9 % of the patients and 75 % of the controls do think of quitting smoking (p=0.013). 88.7% (n=47) of the smoker patients have been already using tobacco before diagnosis of their disease, the rest 11.3% (n=6) began smoking after the diagnosis. 26.8% (n=15) stated that they abused alcohol.

In the patient group, male (84.1%) patients smoked more than female patients (52.8%), (p=0.002) (Table 4). Smoking dependence was determined by using the FTND (Table 5). Test scores of the patient group (6.04±2.01) was higher than that of control group (4.14±2.18) (p=0.001).

There is a statistically significant difference between the answers of the groups to the question "How soon after you wake up do you smoke your first cigarette?" the rate of people who answered as "Within 30 minutes" among the patient group is higher compared with the control group (p=0.003).

There is a statistically significant difference between the answers of groups to the question "How many cigarettes per day do you smoke?" the patient group answered as "16 or more", while the control group

Table 1. Evaluation of the Groups According to Demographic Characteristics

		Patient group n=80 (%)	Control group n=80 (%)	p
[a]Age (Mean±Sd)		36.83±12.18	37.65±12.26	0.67
Sex	Woman	36 (45.0%)	41 (51.25%)	0.387*
	Man	44 (55.0%)	39 (48.75%)	
Marital Status				
	Single	45 (56.3%)	16 (20.00%)	0.001**
	Married	30 (37.5%)	49 (61.30%)	
	Widow	5 (6.3%)	15 (18.80%)	
Educational Status				
	Elementary School	42 (52.5%)	22 (27.50%)	0.001**
	Middle School	13 (16.3%)	8 (10.00%)	
	High School	16 (20.0%)	24 (30.00%)	
	University	9 (11.3%)	26 (32.50%)	

*p<0.05, **p<0.01

Table 2. The Diagnoses of the Patients According to Gender

	Women n=36 (%)	Men n=44 (%)	Total
Diagnoses			
Bipolar Disorder	13 (36.1%)	12 (27.3%)	25
Depression	7 (19.5%)	6 (13.6%)	13
Schizophrenia	16 (44.4%)	26 (59.1%)	42

Table 3. Distribution of Tobacco Use

	Patient Group n (%)	Control Group n (%)	p
[a]Age at starting to use Tobacco [Mean±Sd (Median)]	16.73±4.74	19.57±5.54	0.007**
[b]The amount of money spent on Tobacco per month [Mean±Sd (Median)]	173.57TL±10 (115$)	122.05TL±8 (80$)	0.006**
Tobacco Use			
Yes	56 (70.0%)	44 (55.0%)	0.050*
No	24 (30.0%)	36 (45.0%)	
Number of cigarettes smoked per day (packet)			
<1	11 (19.6%)	30 (68.2%)	0.001**
1	28 (50.0%)	11 (25.0%)	
2	14 (25.0%)	3 (6.8%)	
>2	3 (5.4%)	0 (0.0%)	
Reasons for Tobacco Use			
Do not use	24 (30.0%)	36 (45.0%)	-
Habit	12 (15.0%)	6 (7.5%)	
Addiction	0 (0.0%)	2 (2.5%)	
Do not know	1 (1.3%)	1 (1.3%)	
Society	0 (0.0%)	4 (5.0%)	
Need	1 (1.3%)	0 (0.0%)	
Desire to experiment	1 (1.3%)	14 (17.5%)	
Boredom	25 (31.3%)	14 (17.5%)	
Loneliness	7 (8.8%)	0 (0.0%)	
Pleasure	9 (11.3%)	3 (3.8%)	
Were left without daily needs because of tobacco use			
Yes	19 (33.9%)	3 (6.8%)	0.001**
No	37 (66.1%)	41 (93.2%)	
Ways to access to tobacco			
Purchase	55 (98.2%)	43 (97.7%)	1000
Taking from other people	1 (1.8%)	1 (2.3%)	
Usage of Tobacco to deal with the symptoms of the disease			
Yes	37 (66.1%)	-	-
No	19 (33.9%)	-	
Do Think of quitting			
Yes	52 (92.9%)	33 (75.0%)	0.013*
No	4 (7.1%)	11 (25.0%)	
Do Know the Harms of Tobacco (n=56)			
Yes	37 (66.1%)	-	-
No	19 (33.9%)	-	
Alcohol-Substance Abuse (n=56)			
Yes	15 (26.8%)	-	-
No	41 (73.2%)	-	
Initiation of Tobacco Use			
Before Diagnosis	47 (88.7%)	-	-
After Diagnosis	6 (11.3%)	-	

*p<0.05, **p<0.01, 1US$=1304 TL, Chi-square test [a]Student t test, [b]Mann Whitney U test

Table 4. Evaluation of Tobacco Use According to Sex and Tobacco Use Initiation Age

	Women n (%)	Men n (%)	p
Patient Group: [A]Tobacco Use Initiation Age (Mean±Sd)	17.63±5.67	16.27±4.19	0.352
Control Group: [a]Tobacco Use Initiation Age (Mean±Sd)	20.0±6.04	18.73±4.49	0.635
Patient Group: Tobacco Use			
Yes	19 (52.8%)	37 (84.1%)	0.002**
No	17 (47.2%)	7 (15.9%)	
Control Group: Tobacco Use			
Yes	21 (51.2%)	20 (51.2%)	0.657
No	20 (48.8%)	19 (48.8%)	

*Chi square, [a]Student test, **p<0,01

Table 5. Fagerström Test for Nicotine Dependence

	Patient Group n (%)	Control Group n (%)	p
[b]Total Scores of Fagerström Test for Nicotine Dependence [Mean±Sd (Median)]	6.04±2.01 -6	4.14±2.18 -4	0.001**
How soon after you wake up do you smoke your first cigarette?			
After 30 minutes	20 (35.7%)	29 (65.9%)	0.003**
Within 30minutes	36 (64.3%)	15 (34.1%)	
Do you find it difficult to refrain from smoking in places where it is forbidden?			
Yes	9 (16.1%)	6 (13.6%)	0.735
No	47 (83.9%)	38 (86.4%)	
Which cigarette would you hate most to give up?			
Any other	29 (51.8%)	21 (47.7%)	0.687
The first in the morning	27 (48.2%)	23 (52.3%)	
How many cigarettes a day do you smoke?			
1-15	9 (16.1%)	30 (68.2%)	0.001**
16-25	22 (39.3%)	11 (25.0%)	
≥26	25 (44.6%)	3 (6.8%)	
Do you smoke more frequently during the first hours after waking than during the rest of the day?			
Yes	13 (23.2%)	11 (25.0%)	0.836
No	43 (76.8%)	33 (75.0%)	
Do you smoke even if you are so ill that you are in bed most of the day?			
Yes	21 (37.5%)	15 (34.1%)	0.724
No	35 (62.5%)	29 (65.9%)	
Total scores of Fagerström Test for Nicotine Dependence			
≥6 points	15 (26.8%)	4 (9.1%)	0.025*
≤6 points	41 (73.2%)	40 (90.9%)	

*p<0.05, **p<0.01, Chi square test has been used [b]Mann Whitney U test

answered as "less than 16" mostly (p=0.001).

If we are to categorize FTND scores according to the "6" cut off point, naming the cases who get 6 or more as "highly dependent", the rate of highly dependent smokers in the patient group is significantly higher than that of the control group (p=0.025).

Discussion

To our knowledge, this is the first Turkish study to evaluate the smoking dependence by FTND in a group of psychiatric in–patients. In this study we have demonstrated that the overall smoking rate in the psychiatric in-patient group was higher than the control group. The overall smoking rate in the patient group was 70.0% while it was 55% in the controls which was statistically significant. The male patients smoked more than female patients and tended to be heavy smokers highly dependent on nicotine. In a Turkish study, Ogel et al. (2003) reported that in Istanbul the rate of respondents who indicated that they were regular smokers (according to WHO regular smokers are those who regularly smokes at least once a day) was 60.3%. In the same study they have found out that 74.4% of the people who stated that they have received psychiatric treatment previously were regular smokers and 59.2% who did not receive psychiatric treatment previously smoked on a regular basis (Ogel et al., 2003). Kelly et al. (1999) found a rate of 58% of nicotine consumption prevalence among schizophrenia

patients and he also stated that male patients smoked more than females (Kelly et al., 1999).

Gender has been a substantial concern in tobacco use; men have been more likely to smoke than have women. Although the gender gap in the general population's smoking rate is narrowing, there remains a considerable contrast in the smoking rates of men and women with serious mental illness. Further research is needed for people with serious mental illness to explain the associations among gender, psychiatric diagnosis, and smoking status.

In our study, patients started to use tobacco at a younger age compared to control counterparts. Kelly et al. observed that individuals with schizophrenia started to smoke at least 4 years earlier before disease onset (Kelly et al., 1999). The reason might be to cope with anxiety and to relieve boredom which might be the early symptoms of their psychiatric illness that started during adolescent age. Majority of the patients in our study pointed out the reason of tobacco use was to cope with their psychiatric symptoms. Williams et al. have reported that the stimulating effect of nicotine was known to modulate social and interpersonal factors to reduce anxiety and to relieve boredom (Williams et al., 2004). Nicotine also alters the neurochemistry of the brain and affects the rate at which psychotropic medications are metabolized.

Obviously, the use of tobacco has serious implications on the budget of the patient group. The amount of money spent per month for tobacco by the patient group was higher than that of the control group. The control group smoked less than a packet a day while the majority of the patient group smoked more than a packet a day. As a consequence in our study sample, the rate of being deprived of daily needs because of money spent on tobacco among the patient group was higher than that of control group.

The FTND scores showed statistically significant differences in 3 individual items of the FTND: Majority of our patient group tended to urge smoking within 30 minutes after they woke up and the cigarettes a day they smoked were ≥26. Total score of Fagerström Test for Nicotine Dependence in the patient group was statistically significantly higher than in the control group. In a Brazilian study, differences in the FTQ scores were found (Chaves and Shirakawa, 2008). The patients with schizophrenia preferred high-nicotine cigarette content, always inhaled smoke and they also had urgency to smoke (smoke up to 30 minutes) which was similar with our findings.

Interestingly, in our sample majority of the patients know the harms of tobacco and almost all of the patients stated that they think of quitting smoking. In Osborn et al. (2003) study a large proportion of smokers with schizophrenia recognized that smoking was a problem, and a subset of them reported they wanted to quit (Osborn et al., 2003).

Tobacco cessation programs should be offered to all patients who want to stop smoking. One of the reasons for the high smoking rates among people with mental illness may be due to the mental healthcare providers' underestimating the co-morbidity of smoking and the lack of attention given to tobacco dependence in psychiatric patients. In psychiatric inpatients, physicians usually focus on the psychiatric index disease and may underestimate the other health risks of these patients. These patients are under the risk of tobacco related diseases including various cancers. Several studies reported that brief advice <10 minutes from physicians increases smoking cessation rates.

In conclusion, in our sample, the frequency of cigarette smoking and nicotine dependence among psychiatric inpatients was high, posing a high risk for smoking related diseases including cancers; therefore there should be counseling on tobacco control and smoking cessation programming targeting this population.

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