Psychiatry Research 210 (2013) 268–273

Contents lists available at ScienceDirect

Psychiatry Research

journal homepage: www.elsevier.com/locate/psychres

Current smoking rate in patients with psychiatric disorders in Japan: Questionnaire survey

Wakako Umene-Nakano [a,*], Reiji Yoshimura [a], Tsutomu Hoshuyama [b,c], Chiharu Yoshii [d], Kenji Hayashi [a], Hideki Nakano [a], Hikaru Hori [a], Atsuko Ikenouchi-Sugita [a], Asuka Katsuki [a], Kiyokazu Atake [a], Jun Nakamura [a]

[a] Department of Psychiatry, School of Medicine, University of Occupational and Environmental Health, Japan
[b] Department of Environmental Epidemiology, University of Occupational and Environmental Health, Japan
[c] Ushibuka City Hospital, Amakusa, Japan
[d] Department of Respiratory Medicine, Wakamatsu Hospital of University of Occupational and Environmental Health, Japan

ARTICLE INFO

Article history:
Received 23 August 2012
Received in revised form
21 March 2013
Accepted 24 March 2013

Keywords:
Smoking
Psychiatric disorders
Schizophrenia
Survey

ABSTRACT

The association between smoking and psychiatric disorders (PD) has been known for many years. Support for smoking cessation among patients with PD is provided in advanced nations, but there is a little support for smoking cessation among patients with PD in Japan, where few studies have investigated the smoking rate. The aim of the present study is to determine the smoking rate and smoking habits of Japanese patients with PD. The subjects included outpatients who visited the outpatient psychiatric clinic at a University hospital between January and March of 2011. They answered a questionnaire consisting of questions about their sociodemographic background and smoking habits. In an analysis of 733 subjects, the overall smoking rate was 25.1%. The smoking rates among the patients with schizophrenia and depression were 17.3% and 23.9%, respectively, and these rates were lower than the results of previous studies. Among the current smokers, 43.4% had experienced smoking cessation, and only 26.1% were not interested in smoking cessation. Of the current smokers, 37.5% spent between US$128.88 and US$257 per month on cigarettes.

1. Background

Patients with psychiatric disorders (PD) experience poorer physical health and lower life expectancy than patients without PD (Phelan et al., 2001). The causes of these health inequalities are multifactorial, but smoking-related illnesses are a major contributor to excess mortality and morbidity. Patients with PD are two to three times more likely to smoke than patients without PD (Lasser et al., 2000). The hypotheses accounting for the high rates of smoking in PD (Ziedonis and George, 1997) include shared genetic factors that determine vulnerability to both smoking and PD, self-medication of clinical symptoms by cigarette smoking, side effects of medications, cognitive deficits associated with PD, and common environmental factors, such as psychological stress, which can increase the expression of smoking behavior and the onset of PD. The close association between smoking and PD has been known for many years. The smoking rate in schizophrenia is reported to be 77% (range, 49–90%) (de Leon and Diaz, 2005), and it is even higher than the rates found in mood disorder (de Leon et al., 2002) and bipolar disorder (Ucok et al., 2004). There is a strong association between smoking and depression. People with current or past depression are about twice as likely to be current smokers and smoke more cigarettes per day than people without depression (Wilhelm et al., 2003). Tobacco smoking is two to three times more common among people with bipolar disorder than among individuals without the disorder (Diaz et al., 2009). Cigarette smoking is highly correlated with alcohol and other drug use among individuals with bipolar disorder (Heffner et al., 2008) and in the general population (Grant et al., 2004).

The daily rates of cigarette smoking (age-standardized rate) in both sexes in the general population in the G7 countries in 2009 were: France 27%, Germany 25%, Italy 22%, Japan 25% (male: 39%, female: 11%), the United Kingdom 16%, and the United States 15% (WHO database, http://apps.who.int/gho/data/#). Japan had one of the highest smoking rates. In fact, cigarette consumption in Japan is the highest in the world, at an annual rate of 2500 cigarettes per person for individuals aged 15 years and older. Thus, smoking has become a major public health concern because annual health care costs from tobacco-related diseases and deaths are becoming a social issue in Japan (Nakamura et al., 2007). In 2006, smoking-cessation treatment was approved by the Japanese governmental health insurance via the recognition of 'nicotine dependence' as a

* Correspondence to: Department of Psychiatry, School of Medicine, University of Occupational and Environmental Health, 1-1 Iseigaoka, Yahatanishi-ku, Kitakyushu, Fukuoka 8078555, Japan. Tel.: +81 936917253; fax: +81 936924894.
E-mail address: wakako-u@med.uoeh-u.ac.jp (W. Umene-Nakano).

0165-1781/$ - see front matter © 2013 Elsevier Ireland Ltd. All rights reserved.
http://dx.doi.org/10.1016/j.psychres.2013.03.024

disease. While support for smoking cessation has been provided for patients with PD in many countries (Moss et al., 2010), there is little support for smoking cessation in Japan, and there have been few large-scale studies concerning the smoking rates among Japanese PD patients.

The main objective of this study was to identify the smoking rate and the smoking habits of patients with PD in Japan.

2. Methods

2.1. Participants

The subjects were outpatients who visited the psychiatric clinic at the University of Occupational and Environmental Health (UOEH) hospital between January 5th and March 31st, 2011. They answered a questionnaire that included the subject's identification number (ID), sex, age, living situation, income, caffeine consumption (everyday, sometimes, or almost never), and smoking habit [nonsmoker (NS), nonsmoker who has never smoked (NS1), nonsmoker who had smoked occasionally in the past (had not smoked during the 30 days preceding the survey, but had smoking experience) (NS2), nonsmoker who had previously smoked but quit (NS3), current smoker (CS), current smoker who smokes occasionally (smoking at least one cigarette in the 30 days preceding this survey) (CS1), and current smoker who smokes daily (CS2)].

For the CS, we gathered more details about the patients' smoking habits, such as whether they ever attempted smoking cessation and whether they were interested in smoking cessation (A, not interested; B, interested, but will not quit in the next 6 months; C, will quit within 6 months but not in the next month; and D, will quit within 1 month). Information on the monthly expenditures on cigarettes and the percent of the total living expenses that was spent on cigarettes was also collected. The patients were classified into the following categories according to the amount spent on cigarettes: less than 5000 Japanese yen (US$64.44 (US $1.00=77.56 JPY)), 5000–10,000 Japanese yen (US$64.44–US$128.88), 10,000–20,000 Japanese yen (US$128.88–US$257.77), 20,000–30,000 Japanese yen (US $257.77–US$386.65), and more than 30,000 Japanese yen (US$386.65). The categories for the percent of total living expenses spent on cigarettes were less than 10%, 10–20%, 20–30%, 30–40%, 40–50%, and more than 50%. The Tobacco Dependence Screener Scale (TDS) 8, a scale that ranges from 0 to 10, is used in the smoking-cessation treatment service and is reimbursed by public health insurance in Japan. The Fagerström Test for Nicotine Dependence (FTND), which is derived from the Fagerstrom Tolerance Questionnaire, was administered to measure the nicotine dependence levels in current smokers (Heatherton et al., 1991). The FTND is scored on a 10-point scale with dependence defined as low (0–2 points), medium (3–5 points), and high (7–10 points). The subjects wrote their patient IDs on the questionnaires, and the attending physicians recorded the diagnoses according to the criteria of the 10th version of "The International Classification of Diseases" (ICD-10). The protocol for this study was approved by the ethics committee of UOEH. All the patients and control subjects gave consent to participate after they were informed of the purpose of the study.

All the patients and control subjects gave consent to participate after they were informed of the purpose of the study.

2.2. Statistical analyses

All the statistical analyses were performed using SAS version 9.1 (SAS Institute, Cary, North Carolina, USA). Mann–Whitney *U*-tests and chi-square tests were used to compare the variables between the NS and CS. Odds ratio (OR), 95% confidence interval (CI), and *p* values were calculated using multiple logistic regression analysis. The level of significance for the results was set at $p < 0.05$.

3. Results

We administered the questionnaire to 1279 of the 1911 patients that visited our clinic during the study and received 1242 responses (the response rate was 97.1%). Nine hundred and ninety six patients answered the question about smoking status [nonsmoker (NS) or current smoker (CS)] correctly (Answer, A), and 246 patients answered incorrectly or did not answer about their smoking status (Not Answer, NA). There were no differences in the characteristics between Answer and Not Answer (mean age: A, 50.8 ± 19.2 years; NA, 53.1 ± 20.5 years, $p=0.2655$; rate of males: A, 40.4%; NA, 42.4%, $p=0.6908$). There was no significant difference in living situation between the two groups (rate of living alone: A, 16.6%; NA, 14.7%, $p=0.6428$). However, the A group had a higher rate of self-earned income than group NA (A, 25.6%; NA, 16.3%, $p=0.0481$). We chose group A as subjects for the study because knowledge of the smoking status of the individual was critical to the main purpose of this survey. Furthermore, we selected 733 patients with Substance use disorders (F1), Schizophrenias (F2), Affective disorders (F3) and Anxiety disorders (F4) (Fig. 1).

The demographic characteristics of the NS and CS are shown in Table 1. The number of NS was 548, and the number of CS was 185, which yielded a smoking rate of 25.1% among the identified subjects. A significantly higher number of males living alone and having income were classified as CS compared with NS, while the mean age of the CS was significantly lower than the age of the NS.

The diagnoses and smoking statuses are shown in Table 2. The smoking rate was the highest (70.4%) in the category of substance-use disorder diagnoses (other than nicotine dependence). The smoking rates for schizophrenia and depressive episode (depression) were 17.3% and 23.9%, respectively.

The smoking histories of the individuals with various diagnoses are shown in Fig. 2, which is ranked from the highest to the lowest

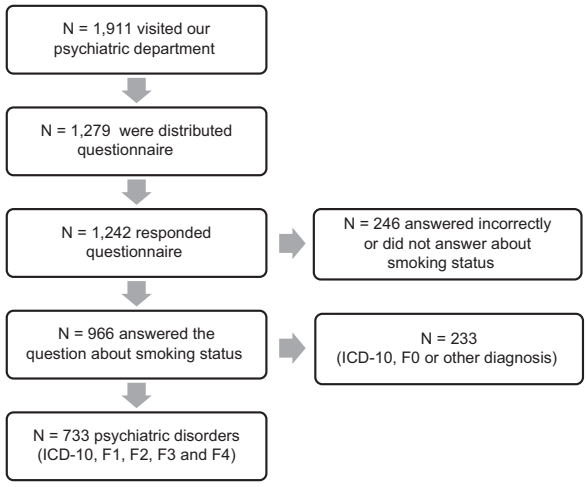

Fig. 1. Study flowchart.

Table 1
Demographics of nonsmoker (NS) and current smoker (CS).

	Total	By current smoking status		*P*
	(*N*=733)	NS[a] (*N*=548)	CS[a] (*N*=185)	
Smoking rate (%)			25.1	
Sex (%)				
Male	39.7	36.0	50.5	0.0005[c]
Female	60.3	64.0	49.4	
Age (mean ± S.D.)	48.2 ± 17.6	50.0 ± 18.5	43.0 ± 13.6	< 0.0001[b]
Living situation (%)				
Alone	16.8	14.9	22.3	0.0203[c]
With someone	83.2	85.1	77.7	
Income (%)				
Yes	27.3	24.4	35.7	0.0032[c]
No	72.7	75.6	64.3	
Caffeine consumption (%)				
Almost never	12.7	13.8	9.6	0.0002[c]
Sometimes	24.2	27.6	14.7	
Everyday	63.1	58.6	75.7	

[a] Nonsmokers (NS), current smokers (CS).
[b] Mann–Whitney *U*-test.
[c] Chi-square test.