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Identification and Treatment of Patients with Nicotine Problems in Routine Clinical Psychiatry Practice

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Abstract

The aim of this study is to assess the rates of nicotine problems diagnosed by psychiatrists, the characteristics of psychiatric patients who smoke, and the services provided to them in routine psychiatric practice. Data were obtained by asking psychiatrists participating in the American Psychiatric Institute for Psychiatric Research and Education's Practice Research Network to complete a self-administered questionnaire to provide detailed sociodemographic, clinical, and health plan information on three of their patients seen during routine clinical practice. A total of 615 psychiatrists provided information on 1,843 patients, of which 280 (16.6%) were reported to have a current nicotine problem. Of these, 9.1% were reported to receive treatment for nicotine dependence. Patients with nicotine problems were significantly more likely to be males, divorced or separated, disabled, and uninsured, and have fewer years 20 of education. They also had significantly more comorbid psychiatric disorders, particularly schizophrenia or alcohol= substance use disorders; a lower Global Assessment Functioning score; and poorer treatment compliance than their counterparts. The results suggest a very low rate of identification and treatment of nicotine problems among patients treated by psychiatrists, even though psychiatric patients who smoke seem to have more clinical and psychosocial stressors and more severe psychiatric problems than those who do not smoke. Programs should be developed to raise the awareness and ability of psychiatrists to diagnose and treat patients with nicotine problems, with a particular emphasis on the increased medical and psychosocial needs of psychiatric patients who smoke.

Cigarette smoking among patients with alcohol, drug abuse, or mental (ADM) disorders is an issue of great public health concern, and psychiatrists, as physicians who treat mental disorders, have the potential to play a critical role in its prevention and treatment. Persons with ADM disorders have a significantly higher rate of smoking than the general population. Studies have shown that between 40 and 90% of individuals with mental disorder or substance abuse are cigarette smokers.^{1–3} A recent report from a population-based study shows a prevalence of current smoking among individuals with past-month ADM disorders of 41.0%, in contrast to a prevalence of 22.5% among individuals with no ADM disorders. Additionally, there seems

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to be a dose-response relationship between the number of ADM disorders and the prevalence of smoking. The extent of the smoking problem among persons with ADM is such that it has been estimated that individuals with a psychiatric or substance abuse disorder consume 44% of the cigarettes smoked in the US.³

The prevalence of smoking varies depending on the type of ADM disorders. The highest prevalence rates of current smokers among individuals with pastmonth mental disorders have been found for drug abuse and dependence (67.9%), bipolar disorder (60.6%), alcohol abuse or dependence (56.1%), generalized anxiety disorder (54.6%), agoraphobia (48.1%), panic attacks (46.4%), and non-affective psychosis (45.3%).³ Among illicit drug users in the general population, it has been reported that the adjusted odds of being a smoker are significantly greater than for the general population, and the quit rate, although substantial, is half that of the non drug users. Also, the odds of being a smoker were higher for poly- versus mono-drug users and rose with increased drug use.⁴ In samples drawn from patients receiving drug abuse treatment, the rates of cigarette smoking ranges from 60% to 88%.⁵⁻⁷

Comparisons between smokers and non-smokers who have psychiatric disorders have shown important differences in demographic and psychosocial characteristics. Smokers, for example, are more likely to be single, childless, and sexually active; use alcohol and other drugs; and have schizophrenia.^{2,8} Also, smokers have higher rates of mood, anxiety, substance abuse, and personality disorders.^{4,9,10} A recent study comparing smokers versus never smokers showed that the prevalence of alcohol use disorders was 13.1% vs. 3.1%; drug use disorders, 6.4% vs. 0.8%; anxiety disorder, 9.3% vs. 4.2%; affective disorder, 10.9% vs. 5.1%; and psychosis, 2.3% vs. 0.4%; respectively. In addition, there was a significant difference between smokers and never smokers in the mean scores of measures of mental well-being.¹⁰

Patients with ADM are willing to learn about smoking and its medical consequences and are also reported to have substantial quit rates.^{1,3,4,11,12} A review of the literature on smoking cessation studies using persons with mental disorders showed that the quit rates of patients with psychiatric disorders were similar to those in the general population. The authors conclude that the conventional belief that persons with mental disorders are unlikely to quit smoking should be modified, and clinicians should be more proactive in asking patients about their smoking problem and any interest in quitting.¹³ Educational strategies seem to increase the possibility of moving smoking patients from the precontemplation stage to contemplation, and action stages of smoking cessation.¹⁴

Psychiatric treatment may be a critical venue to address the smoking problem. It has been recognized that hospitalization or physicians' visits can be a "window of opportunity" to quit smoking.^{6,15,16} However, nicotine dependence has been a diagnosis neglected by clinicians in most mental health settings.¹⁷ Currently, there is a lack of published data from mental health samples to assess the rates of smoking problems in patients seen in routine psychiatric practice and the psychosocial and clinical characteristics of those patients who smoke. The purpose of this study is to compare the demographic, clinical, treatment, and health plan characteristics of psychiatric patients with and without nicotine problems. We hypothesize that nicotine problems are common among psychiatric patients and that those with nicotine problems are more likely to have medical and psychosocial complications. Results from this study may help to increase the awareness of psychiatrists about screening for smoking and suggest strategies to address the medical and psychotherapeutic needs of psychiatric patients who smoke.

METHODS

Psychiatrists participating in the Practice Research Network (PRN) *1999 Study of Psychiatric Patients and Treatments* (SPPT) were asked to complete a self-administered questionnaire on

a randomly assigned start day and time to provide detailed sociodemographic, clinical, treatment, and health plan information on three of their patients who had been systematically pre-selected and seen during routine clinical practice. The Institutional Review Board of the PRN approved the study. After the study procedures had been fully explained, all psychiatrists participating in the study signed the IRB-approved informed consent form. Previous publications provide detailed descriptions of the methods and implementation of the study 1997 SPPT, which were replicated for this study in 1999.^{18,19} The study sample included 784 eligible PRN psychiatrists who were members of the American Psychiatric Association and spent at least fifteen hours/week in direct patient care. Fortyeight percent (n = 378) were randomly selected and recruited from the APA membership to ensure representativeness across public and private, inpatient and outpatient settings; the remainder was self-selected volunteers obtained through a nationwide recruitment by the APA central office and local district branches. The response rate was 78% (n = 615).

To assess smoking problems, psychiatrists were asked, "Is this patient currently experiencing a nicotine problem?" Answer options were "yes," "no," and "don't know." Psychiatrists were then asked if they provided treatment for a nicotine problem at the current visit. We assessed the demographic, clinical, treatment, and health plan characteristics of psychiatric patients with smoking problems as compared to those without smoking problems. Demographic definitions were based on the assessment conducted by the psychiatrist. A glossary of definitions was provided as an appendix to the survey. Clinical characteristics were based on the clinical judgment of the psychiatrist. Psychiatric diagnoses were clinically made by the reporting psychiatrist and based on the DSM-IV classification of psychiatric disorders. Psychiatrists were asked to provide the score of the Global Assessment of Functioning (GAF) for each patient. Disability in work, family, and social functions and other clinical problems, such as illicit drug use, alcohol use, disomnias, poor treatment compliance, and prior psychiatric hospitalization were assessed as individual questions in the mailed questionnaire to be answered by the psychiatrist.

The psychiatrists were asked to provide information about the treatment characteristics, including the locus of care, type and number of medications prescribed, and treatment provided at the current visit or in the past thirty days, including the treatment of smoking problems. The assessment of health plan characteristics included the availability of health insurance, type of health plan covering the current visit, main source of payment, reimbursement mechanism, and if the patients' treatments were subject to utilization management techniques or if the patients received a different form of treatment due to financial considerations (eg, managed care limitations or limitations of a public system).

Statistical Methods

Sampling weights were created to generate nationally representative estimates based on a three-stage propensity score weighting scheme. The weight adjusts for discrepancies between the random and volunteer samples along with discrepancies between the psychiatrists in the PRN (including both random and volunteer members) and non-PRN APA members. The weight also accounts for the probability of a patient being selected into the study based on a psychiatrist's caseload.^{18,19}

All analyses were conducted using the SAS (Version 8.01; SAS Institute, Cary, NC) and the SUDAAN software packages to accommodate the complex sampling design of the SPPT and the sampling weights. Cross-tabulations and design-based significance tests (Wald chi-square tests for categorical variables and Wald F tests for continuous variables) were conducted to assess whether there were demographic, clinical, treatment, and health plan differences among psychiatric patients with smoking problems as compared to those without such problems. A stepwise logistic regression analysis assessing the likelihood of having a smoking problem

after adjusting for demographic, clinical, and health care factors was conducted. In addition, the characteristics of patients with nicotine problems who received or did not receive treatment were compared.

RESULTS

A total of 615 psychiatrists provided information on 1,843 patients. Of these patients, psychiatrists reported that 280 (15.2%) patients had a current nicotine problem, 1472 (79.9%) did not have a nicotine problem, and for 91 (4.9%), the psychiatrist reported that he/she “did not know” or the data were missing. The 91 patients whose psychiatrist reported “don’t know” or with missing data were excluded from these analyses; therefore, 280/1752 (16.6%) were compared to 1472/1752 (83.4%). The demographic characteristics of persons with or without smoking problems are shown in Table 1. The group of psychiatric patients with nicotine problems had a significantly higher proportion of patients who were male, divorced or separated, disabled, and had fewer years of education. As expected, the group of smokers had a significantly lower proportion of individuals less than eighteen years of age.

Table 2 shows the comparison of clinical and psychosocial characteristics between psychiatric patients with and without smoking problems. With regard to the principal or co-morbid disorder, patients with smoking problems were significantly more likely to have schizophrenia, alcohol/substance use disorders, and personality disorders. There were no significant group differences for depressive, bipolar, and anxiety disorders. However, we found that the group of smokers had a higher proportion of patients with two or more DSM-IV Axis IV psychosocial problems and with GAF scores of 50 or below.

Psychiatrists report that psychiatric patients with smoking problems made up a significantly higher proportion of individuals who reported that their health status was generally fair, as compared to nonsmokers, who were more often reported to be in excellent or good health. Moderate/severe depressive and psychotic symptoms and a disability in areas such as work, family, and social functioning were significantly higher in the smoking group. Smokers were also more likely to have other clinical problems, such as illicit drug use, alcohol use, disomnias, poor treatment compliance, and prior psychiatric hospitalizations.

With regard to treatment characteristics (see Table 3), psychiatric patients who smoke were more likely to be treated in inpatient or partial hospitalization settings. They were also significantly more likely to receive antipsychotic medications and mood stabilizers, and in general they showed a significant trend toward receiving more medications. Smokers were significantly more likely to receive medication management, as opposed to non-smokers, who were significantly more likely to receive psychotherapy.

Of the 280 psychiatric patients with smoking problems, the psychiatrists report that only 27 (9.1%) received treatment for smoking problems. Group comparisons of the health plan used for the current visit (see Table 4) showed that a significantly higher proportion of smokers did not have health insurance and used public funds as the main source of payment, and that the treating psychiatrist was being paid by a salary.

Table 5 shows the results of stepwise logistic regression analyses assessing the likelihood of having a nicotine problem after adjusting for demographic, clinical, and health care factors. Factors most strongly associated with patients’ having a current nicotine problem include the completion of fewer years of education and having a diagnosis of depression, schizophrenia, or alcohol/substance use disorder.

The comparison of patients with nicotine problems who received versus those who did not receive treatment for their nicotine problem showed that the group who received treatment had

a significantly greater proportion substance use disorders (77.1% versus 43.9%; chi-square: 7.8, $p = 0.005$) than those who did not receive treatment. Patients treated in inpatient settings (49.0% versus 24.8%; chi-square: 6.9; $p = 0.03$) showed a similar disparity.

DISCUSSION

This study is the first to report the rate of smoking problems in a sample of patients treated by psychiatrists in routine clinical practice and the psychosocial and clinical characteristics of the psychiatric patients who smoke. We found a remarkably low prevalence of current nicotine problems (16.6%) reported by psychiatrists in this sample of psychiatric patients. This prevalence is lower than the lifetime prevalence of smoking reported in the general population (24.0%),²⁰ in persons with a lifetime history of ADM (34.8%), in persons with a past-month history of ADM (41.0%),³ in a sample of psychiatric outpatients (52%),²¹ and among psychiatric patients at a public mental health hospital (58.9%).² It is therefore likely that the low prevalence found in this study does not reflect the true extent of the smoking problem among psychiatric patients seen in routine clinical practice. While it is possible that psychiatrists may see a segment of the mentally ill population with lower prevalence rates of nicotine problems, the opposite is more likely, as smoking is associated with more severe illness and psychiatrists tend to see those who are more severely ill.²² Under-reporting is also unlikely because in this research study, there were no incentives to fail to report known nicotine problems. A lack of awareness and making undue assumptions about smoking behavior are more likely explanations of the low level of detection of smoking problems by psychiatrists in their patients.

Another important finding in this study is that less than one-tenth the psychiatric patients who were identified with nicotine problems received treatment for their nicotine problem. This result contrasts with findings from the Medical Expenditure Panel Survey, showing that 57% of smokers who had a routine check-up in the last year were counseled by a physician to stop smoking.²³ National health care organizations, recognizing that at least 50% of patients' health problems are caused by preventable behavioral risks factors, recommend routinely screening patients for behavioral health risks strongly associated with increased morbidity and mortality, including the risk of tobacco use.²⁴ It is likely that the low treatment rate found in this study may be due in part to psychiatrists' under-reporting/under-detection. It has been recognized that physicians frequently do not document their clinical preventive activities, though from a medico-legal point of view, it is important to document the preventive health care recommendations provided to patients.¹⁴ Another possible explanation is that psychiatrists may tend to under-treat their smoking patients. Although it is established that nicotine replacement therapy and bupropion are effective pharmacotherapies for smoking, the questions that arise are if psychiatrists tend to separate the treatment of smoking from the treatment of other psychiatric disorders or if psychiatrists feel that smoking treatment is not part of an overall comprehensive psychiatric treatment plan. Nicotine problems and dependence may appear relatively mild compared to other clinical and psychosocial problems identified in this population and the potential distress related to tobacco withdrawal.

According to our results, the patients with nicotine problems who are more likely to receive treatment are those who are treated in inpatient settings or have a co-morbid, non-nicotine substance use disorder. As health care providers, psychiatrists have a great responsibility to diagnose and treat nicotine problems,^{6,25-27} and although a recent study failed to prove that physician smoking cessation interventions yield significant gains in long-term quit rates among cancer patients,¹⁵ we believe that all psychiatric patients who smoke could greatly benefit from prompt diagnosis and treatment of their nicotine problem. As with any other medical treatment, psychiatric treatment may offer a unique window of opportunity to diagnose and reduce the rates of smoking in this disadvantaged population.

The results of the comparison of psychosocial and demographic characteristics between patients with and without nicotine problems should be interpreted with caution. It is possible that patients who were not recognized by their psychiatrists as smokers were classified as non-smokers, thereby biasing the results; however, the psychosocial and demographic differences between smokers and non-smokers that we found are similar to those previously reported in the scientific literature.^{2,9} Psychiatric patients who smoke are more likely to be male, with more socially challenging living arrangements (single, divorced, or separated), lower education, and more psychological stressors, including the use of alcohol and other drugs. Smokers also were reported to have worse health status, a higher rate of current and previous psychiatric hospitalization, more severe disability, and poorer treatment compliance than those reported not to smoke. These findings suggest that psychiatric patients who smoke should be paid particular attention, and treating psychiatrists should have the tools to address their multiple psychosocial needs.

Although this study replicates what has been reported in previous literature about the high proportion of schizophrenia and alcohol/substance use disorders among psychiatric patients who smoke, the prevalence of schizophrenia and substance use disorders in our sample is lower (31.6% and 46.1%, respectively) than the rates found in a sample of psychiatric patients at a department of adult mental health in France (66% and 87%, respectively).² The proportion of patients with the diagnoses with or without smoking problems in our sample was approximately 3:1 for schizophrenia and 4:1 for substance use disorders. The proportion in the sample from France for schizophrenia was 2:1 and 8:1 for substance-related disorders. The differences in these findings may be due to sampling procedures or methods of obtaining the data. However, it may signify that substance-abusing or schizophrenic patients who smoke are more obvious to the psychiatrists or that providers who treat patients particularly with substance use disorders are more trained or skilled in identifying addictions and accurately report those patients who smoke. Moreover, the findings support the need to develop special measures to address the smoking problem of patients with schizophrenia and substance use disorders.

Group comparisons of the source of payment for the current visit (see Table 4) showed that a significantly higher proportion of smokers did not have health insurance, and used public funds as the main source of payment, and the treating psychiatrist was being paid by salary rather than through a fee for service. These findings may reflect the recent trend toward refractory smoking among individuals in lower socio-economic groups or with lower education who have less access to covered health plans and be treated in public settings.²⁸ The results of the multivariate analysis support the hypothesis that psychiatric patients with nicotine problems are more likely to have a psychosocial disadvantage, and much may be explained by the greater likelihood of having lower education and higher prevalence of alcohol/substance use disorders (almost four times), schizophrenia, and depression. It is possible that specific diagnoses or treatments could reinforce smoking behaviors via common biological mechanisms.¹¹

The data used for these analyses have a number of limitations. One of the limitations is that the study is based on the report of psychiatrists about their patients. Consequently, their validity depends on the extent to which psychiatrists accurately reported treatment and practice information. As discussed above, this may in part explain the low rates of smoking problems reported by psychiatrists. Other studies conducted in psychiatric populations that reported higher rates of nicotine problems have collected the data by direct interview of patients. Although clinicians are encouraged to fill out the questionnaires as soon as possible after seeing the patient, there is a risk that clinicians either do not ask about some of the items on the study questionnaire or have recall biases. Finally, because these data are cross-sectional and observational, we are not able to assess whether the increased rate of psychosocial problems among patients who smoke is *due* to their smoking problem, or if patients smoke to mitigate

their psychosocial problems. We may be able to conclude that smoking may represent a marker for patients with greater severity or acuity of illness.

Some of the strengths of the study are that data were collected from a nationally representative sample of psychiatrists, accessing information from a wide range of psychiatric treatment settings, which captures the heterogeneity and complexity of the patients with smoking problems in routine clinical practice in psychiatry. This type of information is unlikely to be captured in clinical trials or other types of population-based research. Furthermore, there is no precedent of a similar study to address this important public health issue.

The results suggest that during routine clinical practice, psychiatrists tend to under-report patients who smoke and under-treat their smoking problem. This is aggravated by the fact that psychiatric patients who smoke have greater psychosocial needs than those who do not. Given that psychiatrists are physicians who provide mental health services, these professionals can play a very significant role in the reduction of smoking among their patients and contribute to solve this important public health problem. Educational programs, perhaps offering additional Continuing Medical Education (CME) bonus points, should be developed to raise the awareness of psychiatrists to diagnose smoking problems in routine psychiatric practice and address the increased psychosocial needs of psychiatric patients who smoke. Education, however, may not be sufficient. Quality improvement strategies that monitor psychiatrist's performance in this area should be applied more broadly. In addition, financial disincentives positively influencing psychiatrists to identify and treat nicotine problems should be identified, and incentives for improved performance should be developed. Further follow-up studies should be conducted to assess trends in the identification and treatment of nicotine problems by psychiatrists.

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TABLE 1
Sociodemographic Characteristics of Psychiatric Patients with and without Nicotine Problems

Variable	No Nicotine Problem (n = 1472)	SE	Current Nicotine Problem (n = 280, 16.6%)	SE	χ^2	df	p Value
Gender					7.0	1	0.0084
Male	44.5	1.7	55.3	3.8			
Female	55.5	1.7	44.7	3.8			
Race					6.1	3	0.1093
White	78.4	1.5	80.1	3.0			
Black	10.0	1.0	11.7	2.5			
Hispanic	7.1	1.0	3.1	1.4			
Other	4.6	0.9	5.1	1.6			
Marital Status					16.7	3	0.0009
Married	35.4	1.7	22.2	3.2			
Divorced/separated	18.3	1.2	31.1	3.5			
Never married	41.1	1.9	41.7	3.8			
Widowed	5.2	0.7	5.0	2.1			
Age					29.6	3	0.0000
Under 18	16.5	1.6	4.3	1.8			
18–35	19.6	1.3	23.9	3.3			
36–64	52.6	1.7	66.4	3.9			
65+	11.3	1.0	5.4	2.6			
Education					24.0	2	0.0000
Less than high school	27.0	1.8	28.6	3.5			
Graduate high school	21.5	1.4	39.5	4.0			
More than high school	51.5	2.0	31.9	3.7			
Employment status					35.0	4	0.0000
Full-time/part-time work	40.2	1.8	33.3	3.6			
Disabled	24.5	1.7	45.1	4.0			
Student/homemaker	25.3	1.8	10.7	2.5			
Retired	6.4	0.8	4.6	2.5			
Other	3.7	0.7	6.3	2.3			

TABLE 2
Clinical Characteristics of Psychiatric Patients (%) with and without Nicotine Problems

Variable	No Nicotine Problem	SE	Current Nicotine Problem	SE	χ^2	df	p Value
Principal or comorbid disorder							
Schizophrenia spectrum	13.3	1.3	31.6	4.0	18.3	1	0.0000
Depressive	52.9	1.8	46.7	4.0	2.0	1	0.1625
Bipolar	12.1	1.1	16.5	2.6	2.4	1	0.1197
Anxiety	25.8	1.6	19.5	3.0	3.3	1	0.0701
Alcohol or SUD	13.0	1.3	46.1	4.0	55.9	1	0.0000
Personality disorder	18.4	1.4	26.1	3.7	3.9	1	0.0491
Number of Axis IV psychosocial problems					30.1	2	0.0000
None	13.6	1.3	3.4	1.2			
One	26.9	1.5	23.9	3.3			
Two or more	59.5	1.8	72.8	3.4			
GAF score 50 or below	30.9	1.8	52.3	4.1	22.6	1	0.0000
Health status					12.0	2	0.0026
Excellent/good	75.2	1.4	62.3	3.9			
Fair	18.8	1.3	31.8	3.4			
Poor	6.1	0.7	5.9	1.7			
Depressive symptoms					6.5	2	0.0400
None	24.7	1.6	17.5	3.1			
Mild	33.5	1.6	30.6	3.4			
Moderate/severe	41.8	1.8	52.0	3.9			
Anxiety symptoms					0.8	2	0.661
None	18.5	1.5	20.0	3.4			
Mild	37.5	1.7	34.0	3.5			
Moderate/severe	43.9	1.8	46.0	4.2			
Psychotic symptoms					19.3	2	0.0001
None	78.5	1.5	59.2	4.0			
Mild	8.9	1.0	13.5	2.4			
Moderate/severe	12.7	1.2	27.4	3.5			
Disability in work functioning					16.0	2	0.0004

Variable	No Nicotine Problem	SE	Current Nicotine Problem	SE	χ^2	df	p Value
None	31.7	1.7	24.7	3.7			
Mild	20.8	1.4	12.6	2.4			
Moderate/severe	47.5	1.8	62.7	3.9			
Disability in family functioning					10.2	2	0.0054
None	33.6	1.9	23.2	3.6			
Mild	23.8	1.4	19.8	3.3			
Moderate/severe	42.6	1.8	56.9	4.2			
Disability in social functioning					35.3	2	0.0000
None	17.8	1.5	5.8	2.0			
Mild	27.5	1.5	17.6	3.1			
Moderate/severe	54.7	1.7	76.6	3.5			
Other clinical problems (current)							
Illicit drug use	2.9	0.6	22.3	3.1	33.2	1	0.0000
Alcohol use	5.0	0.7	30.2	3.7	40.3	1	0.0000
Sleep problems	35.9	1.7	46.6	4.2	5.6	1	0.0179
Medication side effects	20.5	1.3	27.6	3.7	3.2	1	0.0732
Treatment compliance problem	16.3	1.0	39.0	0.8	26.9	1	0.0000
Prior psychiatric hospitalization	37.2	1.8	74.8	3.3	67.5	1	0.0000

TABLE 3
Treatment Utilization Characteristics of Psychiatric Patients with and without Nicotine Problems

Variable	No Nicotine Problem	SE	Current Nicotine Problem	SE	χ^2	df	p Value
Locus of care					24.8	2	0.0000
Inpatient	12.6	1.3	26.4	3.6			
Outpatient	82.6	1.6	59.9	4.4			
Partial/other	4.9	1.0	13.7	4.0			
Medications prescribed							
Antidepressant	65.0	1.8	60.6	3.6	1.3	1	0.2589
Antianxiety/benzodiazapine	33.1	1.7	36.7	3.9	0.8	1	0.3756
Antipsychotic	24.8	1.6	47.4	4.0	26.3	1	0.0000
Mood stabilizer	16.4	1.3	26.6	3.4	7.7	1	0.0056
Number medications prescribed					20.6	4	0.0004
No medications	9.9	1.1	3.7	1.3			
1 medication	28.8	1.5	23.3	3.2			
2 medications	30.0	1.5	27.9	3.4			
3 medications	16.7	1.3	22.2	3.0			
4 or more medications	14.6	1.3	22.8	3.1			
Treatments provided at this visit or in past thirty days							
Medication management	83.2	1.4	89.5	2.4	5.8	1	0.0167
Psychotherapy	68.7	1.8	53.9	4.3	9.9	1	0.0018
Tx for nicotine problem (n = 27), combined treatments, past thirty days			9.1	2.4	26.0	3	0.0000
Medication no psychotherapy	25.6	1.7	38.7	4.3			
Psychotherapy, no medication	11.1	1.2	3.1	1.1			
Both	57.6	1.8	50.9	4.2			
Neither	5.8	0.8	7.4	2.2			
Mean number of medications	2.1	0.1	2.6	0.1	14.7	1,609	0.0001

Variable	No Nicotine Problem	SE	Current Nicotine Problem	SE	χ^2	df	p Value
Mean duration of tx (months)	27.2	1.3	34.2	3.5	3.6		0.0574

TABLE 4
Health Plan Characteristics Utilized by Psychiatric Patients with and without nicotine problems

Variable	No Nicotine Problem	SE	Current Nicotine Problem	SE	χ^2	df	p Value
No health insurance	15.2	1.5	25.1	3.3	7.9	2	0.0194
Health plan type					6.8	3	0.0801
Managed	38.4	1.9	29.1	3.7			
Non-managed	28.8	1.7	29.6	3.6			
Don't know	30.0	1.9	37.6	3.9			
Other	2.8	0.5	3.7	1.6			
Main source of payment					23.9	3	0.0000
Private	37.5	1.9	25.0	3.3			
Public	36.5	1.9	58.3	4.0			
Self pay	20.8	1.6	13.5	2.6			
Reimbursement mechanism					17.1	3	0.0007
Salary	38.3	2.4	54.8	4.5			
Undiscounted FFS	24.1	1.8	15.1	3.4			
Discounted FFS	32.5	2.1	22.4	3.4			
Patients' treatments are subject to utilization management techniques	51.7	2.1	59.9	4.0	4.0	1	0.0471
Patients received a different form of treatment due to financial considerations	24.0	1.7	30.8	3.8	3.2	1	0.0748

TABLE 5

Multivariate Analysis of the Likelihood of Having a Nicotine Problem, Adjusting for Demographic, Clinical, and Health Care System Factors

Variable	Adjusting for Demographic, Clinical, and Health Care System Factors		
	OR	95%CI	p
Age 17 and under	0.26	.09–.70	0.0082
Age 18–34	0.93	.58–1.48	n/s
Age 35–64	1.00	1.00	
Age 65+	0.23	.11–.48	0.0001
Male	1.00	1.00	
Female	0.45	.12–1.77	n/s
White	1.00	1.00	
Black	0.45	.26–.79	0.0054
Hispanic	0.81	.39–1.66	n/s
Other	1.38	.67–2.85	n/s
Married	1.00	1.00	
Divorced/separated	1.49	.96–2.39	n/s
Never married	1.34	.85–2.11	n/s
Less than high school education	2.25	1.39–3.65	0.0010
High school education	1.67	1.12–2.48	0.0112
More than high school	1.00	1.00	
Employed full-time/part-time	1.00	1.00	
Disabled	0.80	.50–1.30	n/s
Student/homemaker	1.07	.57–2.03	n/s
Retired	1.35	0.42–1.77	n/s
Depressive disorder	1.68	1.02–2.76	0.0409
Bipolar disorder	1.64	.95–2.86	n/s
Schizophrenia	1.91	1.09–3.33	0.0235
Anxiety disorder	1.03	.66–1.61	n/s
Alcohol/SUD	3.76	2.62–5.39	0.0000
Personality disorder	0.97	.63–1.49	n/s
Excellent/good health	1.00	1.00	
Fair health	2.02	1.36–30.1	0.0006
Poor health	1.16	.58–2.32	n/s
GAF score 50 or below	1.35	.90–1.99	n/s
No Axis IV problems	1.00	1.00	
One Axis IV problem	1.62	.86–3.04	n/s
Two or more Axis IV problems	1.55	.82–2.96	n/s
Previous hospitalization	2.30	1.56–3.41	0.0000
Private insurance	1.00	1.00	
Public payment source	1.05	.70–1.55	n/s
Self pay	0.84	.52–1.37	n/s

Variable	Adjusting for Demographic, Clinical, and Health Care System Factors		
	OR	95%CI	<i>p</i>
Provider reimbursed by salary	0.98	.54–1.76	n/s
Undiscounted FFS	1.00	1.00	
Discounted FFS	0.93	.53–1.63	n/s
Inpatient setting	1.40	.90–2.18	n/s
Outpatient setting	1.00	1.00	
Partial care setting	2.43	1.14–5.16	0.0213