

# Study On Prevalence And Factors Associated With Smoking And Smoking Cessation Among Psychiatric Patients Attending To Tertiary Care Centre

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## ABSTRACT

**Introduction:** Smoking is one of the leading causes of mortality and morbidity in both developing and developed nations, accounting for 8 million deaths globally with more than 7 million deaths directly related to tobacco use. Tobacco consumption increases the risk of lung diseases, stroke, cardiovascular diseases and cancer. There is a need to understand the prevalence, and factors associated with smoking in treatment-seeking psychiatric patients.

**Aim and Objective of the study:** To estimate the prevalence of smoking among psychiatric subjects and to study the factors associated with smoking and to find out the factors that encourage smoking cessation.

**Materials and Methods:** A modified version of the Global Adult Tobacco Survey (GATS) was used to capture data that included sociodemographic information (age, gender, ethnicity, education, housing, income, etc.), and questions regarding their smoking status. A descriptive analysis of the data was done. The clinical diagnosis of the participant was captured as indicated in the electronic medical records which follows the fifth edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM-5) criteria. Participants were also asked if their smoking started before their psychiatric condition was diagnosed and if they have suffered from any of the smoking-related diseases.

**Results and Discussion:** Out of the total a total of 400 subjects screened in our study, 380 participated in the study after informed consent. We evaluated the prevalence of smoking among the study participants and found that the prevalence of smoking was 48% (182), past-smokers 13% and non-smokers 39% respectively. Majority of the smokers were males. Family history of smoking was reported in 79% of the smokers and 83.2% in past smokers. 56% of the current smokers (n=102) had nicotine dependence and 37.5% of the past smokers (n=18) had nicotine dependence. There was no statistically significant difference ( $p < 0.05$ ) between current smokers and past smokers w.r.t nicotine dependence.

**Conclusion:** The factors associated with smoking included gender, employment, education and diagnosis of schizophrenia spectrum, depressive disorder and other psychotic disorders. Males were more likely to smoke as compared to females, male gender was statistically significantly associated with smoking. Subjects with primary education as the highest qualification had a higher likelihood of smoking than those with secondary and university education. Subjects suffering from depressive disorder were more likely to smoke in comparison to subjects suffering from schizophrenia spectrum and other psychotic disorders. Smoking cessation: 58% of the current smokers admitted that they had made at least one attempt to quit smoking in the past 12 months and 42% reported that they will try to quit smoking in next six months. Smokers have placed an opinion that by increasing the cost of cigarettes, and reducing the availability of cigarettes, and increasing the awareness about

the health impacts of smoking could encourage smoking cessation. Past smokers claim that self-determination/motivation, family and spouse support, substitution of smoking with other type of foods helped them in cessation of smoking. Constant and constituent motivation of smokers by promoting awareness of smoking cessation educational programmes and policy changes are crucial in achieving successful cessation.

**Keywords:** smoking cessation, factors associated with smoking, prevalence of smoking, schizophrenia and depressive disorder.

## INTRODUCTION

Morbidity and mortality related to smoking is a major public health challenge worldwide. Approximately 3 million deaths are reported each year and about 10 million mortalities from smoking-related diseases are expected globally by 2030. About 70% of these mortalities are expected from developing countries, due to high prevalence of smoking [1-3].

There are certain risk groups who are more prone to tobacco use and Nicotine Dependence(ND). Previous studies have noted strong associations between ND and psychiatric diseases [4-6]. When compared to the general population, those with mental illness had 2 to 3.2 times higher risk of smoking and 25% less chance of quitting [7,8]. Previous studies have shown that the prevalence of smoking is higher in individuals with major depressive disorder, schizophrenia, and bipolar disorder [9,10]. This is hypothesized to be due to a combination of genetic/biological, social and psychological factors. Genetic predisposition towards smoking, poor coping strategies, smoking as self-medication to cope with the symptoms of mental illness, or as a social reinforcement where smoking is a social activity/culture in mental health/rehabilitation facilities, and the higher severity of withdrawal symptoms [11,12] have all been implicated.

Tobacco consumption also increases the risk of lung diseases, stroke, cardiovascular diseases and cancer. There is need to understand the prevalence, factors associated with smoking and smoking cessation in treatment seeking psychiatric patients.

## AIM AND OBJECTIVES OF THE STUDY:

1. To estimate the prevalence of smoking among psychiatric subjects
2. To study the factors associated with smoking
3. Finding out the factors that encourage smoking cessation.

## MATERIALS AND METHODS

**Source of data:** This is a cross-sectional study conducted at our tertiary care center in the Dept. of Psychiatry.

**Study population:** We included the subjects from the inpatient wards and outpatient clinics of Department of Psychiatry.

**Inclusion criteria:** We included the subjects in the age group between 21 to 65 years old and those who had a diagnosis of either depressive disorder or schizophrenia spectrum and other psychotic disorders.

**Exclusion Criteria:** We excluded the subjects who did not have the mental capacity to consent to the study.

**Data Collection:** Informed consent was obtained from all patients included in the study. The study was approved by institutional ethical committee. The attending clinician referred clinically stable patients who fulfilled the criteria to the study team members who screened them by verifying the eligibility against their medical records after obtaining the written consent. Thereafter eligibility was assessed by the trained study team members by checking the medical records. The survey was administered in either English or Tamil as preferred by the participants.

**Smoking habits and Cessation:** A modified version of Global Adult Tobacco Survey (GATS) was used to capture data that included sociodemographic information (age, gender, ethnicity, education, housing, income, etc.), and questions regarding their smoking status. The classification of smoker, non-smoker, and past smoker was based on the definitions from the national health interview survey where participants who had smoked at least 100 cigarettes in their lifetime and were currently smoking at the time of the survey were classified as a smoker. Participants who had smoked at least 100 cigarettes but had quit smoking at the time of the survey were classified as former smokers. Those who had never smoked or had smoked less than 100 cigarettes in their lifetime were classified as non-smokers. The questionnaire also captured data on current and past smoking patterns and frequency, including questions on smoking habits where participants were asked if they smoke/used to smoke daily or less than daily. The GATS questionnaire is designed in branching pattern with sets of questions in different domains. Frequency of smoking (daily or weekly), type of tobacco products used and their age of onset for tobacco use were captured for both current and past smokers. Questions also included the smoking status of their close family members. Smoking cessation and attitudes towards cessation were also assessed using the modified smoking cessation module of the GATS. **Health Status:** The clinical diagnosis of the participant was captured as indicated in the electronic medical records which follows the fifth edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM-5 TR) criteria. Participants were also asked if their smoking started before their psychiatric condition was diagnosed and if they have suffered from any of the smoking related diseases. **Sampling and Sample Size:** We included a total of 400 subjects after evaluating the prevalence from the previous studies with approximately 10% missing data.

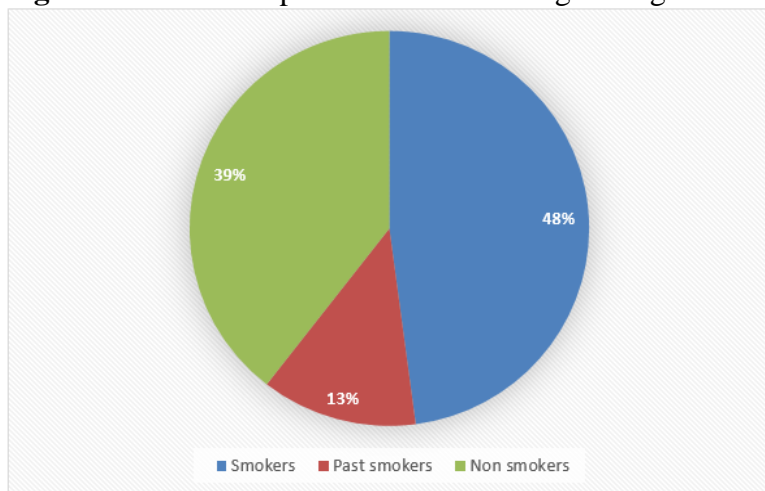
**Nicotine dependence:** It was measured using the Fagerstrom Test for Nicotine Dependence (FTND) in smokers and past smokers. FTND is a 6-item scale scored from 0 to 3. The total score is calculated by totalling the responses for the 6 items and a score of 0 to 4 is classified as low dependence, 5 to 7 as moderate and above 8 is scored as high dependence. A cut-off score of 5 and above was set for nicotine dependence.

**Statistical analysis:** Mean and standard errors were calculated for continuous variables and frequencies and percentages for categorical variables. Chi-square test was used to study if the sociodemographic variables and ND between the groups were significantly different. Multiple logistic regression was used to explore the risk factors of smoking. Age, gender, ethnicity, education, employment, income, diagnosis, and risk perception (assessed based on the question “Do you believe that breathing in smoke (passive smoking) can cause serious illness?”) were used as covariates in the analysis. All statistical analyses were carried out using SPSS p-value 0.05 being considered as statistically significant.

## RESULTS:

We screened a total of 400 subjects in our study, out of which 380 participated in the study after informed consent. We evaluated the prevalence of smoking among the study participants found that the prevalence of smoking was 48% (182), past-smokers 13% and non-smokers 39% respectively (figure 1). Majority of the smokers were males. Family history of smoking was reported in 79% of the smokers and 83.2% in past-smokers.

**Figure 1:** Shows the prevalence of smoking among the study subjects.



**Table 1:** Shows the demographic profile of the subjects participated in the study.

Socio demographic factors		Smokers (n = 182)	Past Smokers (n = 48)	Non-smokers (n = 150)	Total
Age	21-40	102 (56%)	26 (54.1%)	80 (53.3%)	208
	41-65	80 (43.9%)	22 (45.8%)	70 (46.6%)	172
Gender	Males	162 (89%)	48 (100%)	120 (80%)	330
	Females	20 (10.9%)	0	30 (20%)	50
Marital status	Single	142 (78%)	32 (66.6%)	100 (66.6%)	274
	Married	28 (15.3%)	10 (20.8%)	36 (24%)	74
	Divorced/Widowed	12 (6.59%)	6 (12.5%)	14 (9.33%)	32
Employment	Employed	100 (54.9%)	26 (54.1%)	80 (53.3%)	206
	Unemployed	82 (45%)	22 (45.8%)	75 (50%)	179
Diagnosis	Depressive disorder	88 (48.3%)	32 (66.6%)	68 (45.3%)	188
	Schizophrenia spectrum and other Psychotic disorder	94 (51.7%)	16 (33.4%)	82 (54.6%)	192

**Table 2:** Shows Nicotine dependence among smokers and non-smokers

ND	Smokers (n=182)	Past smokers (n=48)
Low (0-4)	96 (52.7%)	28 (58.3%)
Moderate (5-7)	54 (29.6%)	12 (25%)
High (>8)	32 (17.5%)	8 (16.6%)
Overall (>5)	102 (56%)	18 (37.5%)

**Table 3:** Shows the factors associated with smoking

Socio demographic factors		p value
Age	21-40	NS
	41-65	
Gender	Males	0.000
	Females	
Marital status	Single	NS
	Married	
	Divorced/Widowed	
Employment	Employed	NS
	Unemployed	
Education	Primary or lower	0.004
	Secondary	NS
	Diploma and higher	NS
Diagnosis	Depressive disorder	0.000
	Schizophrenia spectrum and other Psychotic disorder	

## DISCUSSION AND CONCLUSION

We screened a total of 400 subjects in our study, out of which 380 participated in the study after informed consent. We evaluated the prevalence of smoking among the study participants found that the prevalence of smoking was 48% (182), past-smokers 13% and non-smokers 39% respectively (figure 1). Majority of the smokers were males. Family history of smoking was reported in 79% of the smokers and 83.2% in past-smokers. 56% of the current smokers (n=102) had nicotine dependence and 37.5% of the past smokers (n=18) had nicotine dependence. There was no statistically significant difference ( $p < 0.05$ ) between current smokers and past smokers w.r.t nicotine dependence.

The factors associated with smoking included gender, employment, education and diagnosis of schizophrenia spectrum, depressive disorder and other psychotic disorders. Males were more likely to smoke as compared to females, male gender was statistically significantly associated with smoking. Subjects with primary education as the highest qualification had a higher likelihood of smoking than those with secondary and university education. Subjects suffering from depressive disorder were more likely to smoke in comparison to subjects suffering from schizophrenia spectrum and other psychotic disorder.

Smoking cessation: 58% of the current smokers admitted that they had made at least one attempt to quit smoking in the past 12 months and 42% reported that they will try to quit smoking in next six months. Smokers have placed an opinion that by increasing the cost of cigarettes, and reducing the availability of cigarettes, and increasing the awareness about the health impacts of smoking could encourage smoking cessation. Past smokers claim that self-determination/motivation, family and spouse support, substitution of smoking with other type of foods helped them in cessation of smoking. Constant and constituent motivation of smokers by promoting awareness smoking cessation educational programmes and policy changes are crucial to achieve successful cessation.

Smoking is used as a coping mechanism to deal with stress. While some studies support smoking initiation as a coping mechanism for subjects with mental illness others contradict the findings to show that smoking precedes mental illness. Our data shows that smoking preceded the clinical diagnosis of mental illness with 82% of the participants reporting smoking initiation 12 years earlier than their diagnosis. It is not clear if the participants were experiencing symptoms of mental illness at the time of smoking initiation and smoking was used as a coping mechanism to deal with the symptoms of the disease. A detailed investigation on the factors surrounding smoking initiation could answer this question. This is an important research area that should be explored in the future research studies.

Sociodemographic factors (gender, education) were associated with smoking in the study sample. The findings of our study are consistent with previous reports where males, those with primary education, a diagnosis of depression, and lower risk perception, are more likely to smoke. People with depressive symptoms may smoke more as a coping mechanism to deal with the symptoms of depression and therefore have a lower possibility of successfully quitting, even if they are motivated. Therefore, this specific sociodemographic group who is at a higher risk of smoking and thus smoking-related complications should be given special attention and interventions to improve the cessation rate

**Limitations of the study:** One of the limitations of this study might be the cross-sectional study design, which does not allow causal inference. Small sample size for the past smokers, which made the comparisons between the groups challenging. The data is captured through self-report and included questions regarding age of initiation, smoking patterns and types of services used, which are subject to recall bias. The study used a quota sampling and thus care should be taken while generalising the results to the wider population.

**Strength of the study:** This study highlights that the smoking prevalence among mental illness patients and there is no much data available in our population. As we have correlated sociodemographic factors in association with smoking it gives the important information to conduct the study on larger scale. Our survey also gathered the information about cessation of smoking among mental illness patients which gives information about their attitudes to stop smoking and what measures can be implemented at policy maker levels to promote cessation of smoking.

**Conflict of interest:** There is no conflict of interest.

## REFERENCES

1. P. V. Asharani, Vanessa Ai Ling See, Edimansyah Abdin, Fiona Devi Siva Kumar. Smoking and Mental Illness: Prevalence, Patterns and Correlates of Smoking and Smoking Cessation among Psychiatric Patients. *Int. J. Environ. Res. Public Health* 2020; 17, 5571
2. Peto R, Boreham J, Lopez AD, Thun M, Health C. Mortality from tobacco in developed countries: indirect estimation from national vital statistics. *Lancet*. 1992;339(8804):1268–1278.
3. Peto R. Smoking and death: the past 40 years and the next 40. *Br Med J*. 1994;309:937–939.
4. Dierker L.C., Ramirez R.R., Chavez L.M., Canino G. Association between psychiatric disorders and smoking stages among Latino adolescents. *Drug Alcohol Depend*. 2005;**80**:361–368.
5. Wilens T., Biederman J., Adamson J., Henin A., Sgambati S., Gignac M., Sawtelle R., Santry A., Monuteaux M.C. Further evidence of an association between adolescent bipolar disorder with smoking and substance use disorders: A controlled study. *Drug Alcohol Depend*. 2008;**95**:188–198.
6. Grant B.F., Hasin D.S., Chou S.P., Stinson F.S., Dawson D.A. Nicotine dependence and psychiatric disorders in the United States: Results from the national epidemiologic survey on alcohol and related conditions. *Arch. Gen. Psychiatry*. 2004;**61**:1107–1115.
7. Lasser K., Boyd J.W., Woolhandler S., Himmelstein D.U., McCormick D., Bor D.H. Smoking and mental illness: A population-based prevalence study. *J. Am. Med. Assoc*. 2000;**284**:2606–2610.
8. 18. Smith P.H., Mazure C.M., McKee S.A. Smoking and mental illness in the US population. *Tob. Control*. 2014;**23**:e147–e153.
9. Li X.-H., An F.-R., Ungvari G.S., Ng C.H., Chiu H.F.K., Wu P.-P., Jin X., Ning Y. Prevalence of smoking in patients with bipolar disorder, major depressive disorder and schizophrenia and their relationships with quality of life. *Sci. Rep*. 2017;**7**:8430.
10. Wootton R.E., Richmond R.C., Stuijzand B.G., Lawn R.B., Sallis H.M., Taylor G.M., Hemani G., Jones H.J., Zammit S., Smith G.D., et al. Evidence for causal effects of lifetime smoking on risk for depression and schizophrenia: A Mendelian randomisation study. *Psychol. Med*. 2019:1–9.

11. Ziedonis D., Williams J.M., Smelson D. Serious Mental Illness and Tobacco Addiction: A Model Program to Address This Common but Neglected Issue. *Am. J. Med. Sci.* 2003;**326**:223–230.
12. Winterer G. Why do patients with schizophrenia smoke? *Curr. Opin. Psychiatry.* 2010;**23**:112–119.