

A comparative study of depression, anxiety, stress and their relationships with smoking pattern in caregivers of patients of casualty and outpatient departments

Abstract

Background: Smoking is prohibited in India at all the public places including hospital premises, but people with habit of smoking are not able to abide the rules strictly. Somehow, level of dependence and stress along with other psychological variables like anxiety and depression play key roles in smoking in the hospital premises. **Methodology:** Present study aimed to know the level of dependence and other psychological variables like depression, anxiety, and stress in the caregivers of patients of casualty and outpatients departments. Seventy five participants were recruited purposively from the hospital premises. The Fagerström Test for Nicotine Dependence and the Depression Anxiety Stress Scales (DASS)- Hindi were administered. **Result:** Participants reported nicotine dependence was associated with psychological variables like mild to moderate level of depression, anxiety, and stress. Caregivers of casualty patients were having high level of stress than caregivers of outpatients. **Conclusion:** It can be concluded that psychological variables play a significant role in nicotine dependence.

Keywords: Nicotine Dependence. Psychological Variables. Mood.

**Purushottam¹, Bhupendra Singh²,
Krishan Kumar³, Rajiv Gupta⁴**

¹Assistant Professor, Department of Psychiatry, PGIMS, Rohtak, Haryana, India, ²Psychiatric Social Worker, Department of Psychiatry, PGIMS, Rohtak, Haryana, India, ³Assistant Professor, Department of Psychiatry, PGIMS, Rohtak, Haryana, India, ⁴Head of the Department, Department of Psychiatry, PGIMS, Rohtak, Haryana, India

Corresponding author: Dr. Purushottam, Assistant Professor, Department of Psychiatry, Pt BD Sharma PGIMS, Medical Road, Maharshi Dayanand University, Rohtak-124001, Haryana, India. docpuru71@gmail.com

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Introduction

Smokers often report that smoking help relieve feelings of stress. Cigarette smoking is a mood modifier for smokers, calming and reducing anxiety and anger.[1] However, the stress levels of adult smokers are slightly higher than those of non smokers; smokers report increasing levels of stress as they develop regular patterns of smoking, and smoking cessation leads to reduced stress. Far from acting as an aid for mood control, nicotine dependency seems to exacerbate stress. This is confirmed in the daily mood patterns described by smokers, with normal moods during smoking and worsening moods between smoking. Thus, the apparent relaxant effect of smoking only reflects the reversal of the tension and irritability that develop during nicotine depletion. Dependent smokers need nicotine to remain normal. The message that tobacco use does not alleviate stress, but actually increases it needs to be far more widely known. The majority of smokers report feeling more relaxed when they smoke a cigarette/bidi and state that mood control is an important reason for smoking. Ikard *et al.*[2] found that 80% of smokers agreed with statements indicating that cigarette smoking was 'relaxing' or 'pleasurable'.

The definition of 'open spaces', not referred in India's anti-tobacco rules, might be an excuse of smokers in public

places. However, regular smokers also report adverse moods when they have not smoked recently, with feelings of stress and irritability building up during periods of nicotine abstinence.[3,4] The positive mood changes experienced during smoking may therefore reflect instead the simple reversal of these unpleasant abstinence effects: "Smoking doesn't make the smoker less irritable or vulnerable to annoyance, not smoking or insufficient nicotine makes him more vulnerable".[5]

When smokers were asked about their moods over the day, they typically report a pattern of repetitive mood fluctuations, with normal moods during smoke inhalation followed by periods of increasing stress between smoking.[6-8] These mood fluctuations also tend to be strongest in the most dependent smokers, who also report mood control is a core reason for their smoking.[8] However, smokers' stress levels tend to be similar to non-smokers' only when they have just smoked and become worse during periods of nicotine abstinence.[9] This shows that the apparent mood benefits of smoking only reflect a process of mood normalisation: The simple reversal of the tension and irritability that build up during nicotine abstinence.[5]

Stress can be caused by anything from major life events to daily hassles that add up over time. Even happy events, like

holidays with family, or an accident, illness can be prompting factors. The causes of stress are different for each person. Many people smoke when they feel stressed, anxious, or alone. Even though they know that smoking hurts them and the ones they love, some smokers find it hard to give up smoking as a way to cope with stress. Stress is part of life, so a key part of quitting smoking for many people is finding ways to handle stress and take care of themselves without smoking. They develop cynical thought that smoking is only a temporary solution for handling stress, tension, or depression.[10]

The idea that people smoke to help ease the signs and symptoms of stress is known as 'self-medication'. Stress is very common, affecting us when we feel unable to cope with unwelcome pressure. It can cause physical symptoms like headaches or breathlessness as well as making people feel irritable, anxious, or low. These feelings can alter our behaviour and feeling stressed, and often make people smoke more than usual. Long term stress is also related to anxiety and depression.

Research into smoking and stress has shown that instead of helping people to relax, smoking actually increases anxiety and tension. Nicotine creates an immediate sense of relaxation; so, people smoke in the belief that it reduces stress and anxiety. This feeling of relaxation is temporary and soon gives way to withdrawal symptoms and increased cravings. Smoking reduces nicotine withdrawal symptoms, which are similar to the symptoms of anxiety, but it does not reduce anxiety or deal with the underlying causes.

People with depression have particular difficulty when they try to stop smoking and have more severe withdrawal symptoms during attempts to give up. Nicotine stimulates the release of the chemical dopamine in the brain. Dopamine is involved in triggering positive feelings. It is often found to be low in people with depression, who may then use smoking as a way of temporarily increasing their dopamine supply. However, smoking encourages the brain to switch off its own mechanism for making dopamine; so, in the long term the supply decreases, which in turn prompts people to smoke more.

Most people start to smoke before they show signs of depression; so, it is unclear whether smoking leads to depression or depression encourages people to start smoking. The most likely explanation is that there is a complex relationship between the two.[11]

Need of the study

It's been more than ten years since India banned smoking in public places; the sale of tobacco products near schools and to people under the age of 18 is prohibited. But, violations are easy to spot. With the restriction of places for smoking in the country, the temptation to grab a smoke outside during the workday is strong including outside of emergency/casualty department and outpatient department (OPD) blocks where the present study was conducted. With above observations in mind, we planned hospital-based study comparing the nicotine dependence and the level of depression, anxiety, and stress among the caregivers of outpatients and casualty patients.

Aim

- To assess the level of nicotine dependence in caregivers of patients in hospital premises
- To know the level of depression, anxiety, and stress of caregivers of OPD and casualty patients.

Methodology

A cross-sectional study was conducted among the caregivers of patients of OPD and casualty department to find depression, anxiety, and stress in relation with nicotine dependence.

Sample

Thirty caregivers of casualty patients and 45 caregivers of outpatients were recruited by purposive sampling from Pt BD Sharma Post Graduate Institute of Medical Sciences (PGIMS), Rohtak.

Study was conducted from August 2014 to January 2015. Being cross-sectional, non-invasive, without any interventions, and a questionnaire-based study, it was exempt from ethical committee approval. After taking written consent of participants, following scales had been administered to assess level of nicotine dependence and other psychological variables.

The Fagerström Test for Nicotine Dependence[12]

The Fagerström Test for Nicotine Dependence (FTND) is a standard instrument for assessing the intensity of physical addiction to nicotine. The test was designed to provide an ordinal measure of nicotine dependence related to cigarette smoking. It contains six items that evaluate the quantity of cigarette consumption, the compulsion to use, and dependence.

The Depression Anxiety Stress Scales

The Depression Anxiety Stress Scales (DASS), developed by Lovibond and Lovibond,[13] is one of most widely used scale in clinical and non-clinical population across the globe including India; this scale is translated into Hindi by Singh *et al.*[14]

Procedure

Pt BD Sharma PGIMS has taken a lead in implementing ban on smoking in the hospital premises by declaring itself a smoking free zone. This institute is the only major institute for medical education and research in the Haryana state. Patients from Haryana, Rajasthan, Punjab, and Uttar Pradesh are getting treatment from the available facilities in the campus of PGIMS. Present study was carried out at casualty unit which is the tertiary referral and emergency management centre, and OPD which is treatment centre for patients with various illnesses.

Result

A total of 75 participants were included in the study. Surprisingly, most of the highly qualified and younger age

people denied participation in the study though they did not share the reason.

Table 1 shows that the average age of the participants of both groups was 43 years, though nearly 50% participants had completed the secondary education and their smoking behaviour started in the adolescent age. Majority of the participants were married and their occupation primarily related to labourers and farmers. Most of the participants did not reveal the reason for smoking. Though it has been observed that maximum participants started their smoking with their friends circle, participants from both the groups reported increased smoking due the illness of family members and relatives.

Table 2 shows 56.66 % caregivers of casualty patients reported moderate to high level of nicotine dependence which is almost equal (62.22%) in caregivers of OPD patients.

Table 1: Socio-demographic characteristics of participants

Variable	Mean±SD	
	Caregivers of casualty patients	Caregivers of out patients
Age (years)	42.96±14.49	42.62±12.57
Education (years)	7.63±4.70	7.88±4.30
Years of smoking	23.56±14.74	21.24±14.50
Age of starting smoking (years)	17.44±5.88	18.24±8.02
Marital status		
Married	22 (73.33)	37 (82.22)
Unmarried	5 (16.66)	4 (8.88)
Widow	3 (10)	4 (8.88)
Occupation		
Student	3 (10)	4 (8.88)
Labour	7 (23.33)	17 (37.77)
Service	2 (6.66)	3 (6.66)
Business	2 (6.66)	7 (15.55)
Unemployed	2 (6.66)	0
Agriculture	14 (46.66)	14 (31.11)
Reasons for smoking		
Not replied	17 (56.66)	25 (55.55)
Habit	4 (13.33)	10 (22.22)
Fun/time pass	6 (20)	6 (13.33)
Peer pressure	3 (10)	4 (8.88)
How smoking started		
With friends	19 (63.33)	26 (57.77)
Experiment	4 (13.33)	4 (8.88)
Following elders	1 (3.33)	3 (6.66)
No answer/forgotten	6 (20)	12 (26.66)
Smoking behaviour in the hospital		
Increased	22 (73.33)	24 (53.33)
Decreased	8 (26.66)	8 (17.77)
Static	0	13 (28.88)

SD=Standard deviation

Maximum (55%) participants reported normal level of depression, followed by mild (36.66%) and very few (15.65%) participants from both the groups reporting moderate depression. Similarly, 50% participants reported normal level of anxiety, 37.77% reported moderate level and few (12.22%) of them reported mild level of anxiety. In the stress, caregivers of OPD patients reported normal (80%) and mild (20) level of anxiety; but, 39.99% caregivers of casualty patients reported moderate to extremely severe level of anxiety and only 36.67 were reported normal range of anxiety. Both the groups were having statistically significant ($P<0.05$) level of difference.

Table 3 shows negative correlation with FTND and stress and anxiety, and positive correlation with depression; anxiety was positively correlated with depression in both the groups. However, other domains of study didn't show any significant correlation.

Discussion

It has been seen that there is very less literature available in the same domain. So, it is primarily a unique study that has been designed with the above mentioned aim.

Table 2: Comparison of smoking, depression, anxiety, and stress between caregivers of patients in casualty and OPD

Variables	Casualty N=30 (%)	OPD N=45 (%)	χ^2	df	P
FTND					
No dependence	3 (10)	4 (8.88)	3.26	4	0.51
Low dependence	4 (13.33)	5 (11.11)			
Low to moderate dependence	6 (20)	8 (17.77)			
Moderate dependence	7 (23.33)	19 (42.22)			
High dependence	10 (33.33)	9 (20)			
Depression					
Normal	16 (53.33)	26 (57.77)	0.39	5	0.82
Mild	12 (40)	15 (33.33)			
Moderate	2 (6.66)	4 (8.88)			
Severe	0	0			
Extremely severe	0	0			
Anxiety					
Normal	16 (53.33)	21 (46.66)	1.92	5	0.38
Mild	2 (6.66)	8 (17.77)			
Moderate	12 (40)	16 (35.55)			
Severe	0	0			
Extremely severe	0	0			
Stress					
Normal	11 (36.66)	36 (80)	24.48	5	0.00*
Mild	7 (23.33)	9 (20)			
Moderate	7 (23.33)	0			
Severe	4 (13.33)	0			
Extremely severe	1 (3.33)	0			

*= $P<0.001$, OPD=Outpatient department, df=Degree of freedom, FTND=The Fagerström test for nicotine dependence

Table 3: Correlation between stress, anxiety, depression, and smoking among caregivers of OPD and casualty patients

Domain	Fagerström nicotine dependence	Stress	Anxiety	Depression
Fagerström nicotine dependence	1	-0.173	-0.167	0.004
Stress		1	-0.036	-0.054
Anxiety			1	0.608*
Depression				1

*Correlation is significant at the 0.01 level (2-tailed), OPD=Outpatient department

The present study conducted with the aim to assess the level of smoking dependence of caregivers in hospital premises and psychological variables, i.e. depression, anxiety, and stress of caregivers of OPD and casualty patients. Considering these above mentioned aim, it has been found that there was no significant difference of smoking dependence in the caregivers of the patients in OPD and casualty service. But, if consider the fact of education and consent about this study, it has been found that higher educated people refused to involve themselves in the present study.

This study should be considered as a keynote for hospital and outside premises to make policy to prevent smoking, including financial punishment and ban for selling tobacco products; but, it is not effective. Sahoo *et al.*[15] also reported that hospital did not impose ban on smoking effectively. Smokers are not following the instructions putted in the hospital premises. It may be due to poor knowledge, guidelines, and motivation of making smoke free hospital premises.

The current observations are as follows:

- Maximum participants are farmers and they do not consider their smoking as a difficulty; but, they explained it as a habit.
- In both groups, smoking behaviour is practised in the peer groups.
- Smoking is increased in both the groups during the near ones' illness or hospitalisation.
- Present findings show that participants' dependence level did not differ in the both the groups.
- Mild to moderate depression and anxiety was reported in half of the participants in both the study groups. However, these results were not statistically significant.
- Stress is comparatively high in the caregivers of casualty patients.
- Anxiety is having significant positive correlation with depression.

Due to the nature, chronic course, resulting disability, and associated stigma of illnesses like epilepsy and schizophrenia, caregivers of such patients have had emotional, physical, and financial burden that is severe enough.[16] Certain level of stress is observed in all the family members of patients with mental illness, and severe stress related to finance is seen in highest number of such family members.[17] Although, as found out by Sen and Nath,[18] not only financial, but also effects on other familial activities are burdensome equally.

Conclusion

There is no straight forward research in the same domain which we tried to validate through this study and there is lack of research including psychological correlates in nicotine dependence. New approaches must be adopted if are willing to reduce the harms of smoking and implement the rule over the next decade. In this study, we tried to emphasise how psychological variables play a significant role in nicotine dependence and vice versa. Though there are few good studies available about nicotine dependence and patients, but in future studies must be carried out taking caregivers as a key variable.

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