Original Research Article

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Relationship between personality traits and tobacco smoking behaviour in outpatients of a tertiary care hospital, Mandya

Manikanta K. V., Harish B. R., Sudhir Gowda*, Charan Amogh Raj

Department of Community Medicine, Mandya Institute of Medical Sciences, Mandya, Karnataka, India

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*Correspondence: Dr. Sudhir Gowda.

E-mail: dheergowda@yahoo.co.in

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ABSTRACT

Background: This study was conducted on 168 patients to assess nicotine dependence in tobacco smokers and to compare their personality profiles with non-smokers.

Methods: The patients were grouped into nicotine dependent and non-nicotine dependent based on the DSM IV-TR, Personality profile assessed with the big five personality test. informed consent was taken before collecting the data. The test of significance used was independent sample t-test and one way ANOVA.

Results: A total of 168 participants were included in this study, comprised of 84 smokers (50%) and 84 non-smokers (50%). Smokers revealed a higher score in neuroticism compared to non-smokers (25.19±4.33 vs. 24.07±3.99), higher extroversion (19.02±4.67 vs. 18.64±6.18) lower Conscientiousness (20.30±6.64 vs. 21.37±5.18) and lower openness to experience (22.14±6.24 vs. 22.75±5.25). mean score of neuroticism is significantly more in moderate (26.12±5.50) level nicotine dependence, openness to experience showed significantly high (28.4±2.31) level nicotine dependence. 41.6% of smokers belong to low to moderate level ND, 30.9% moderate level ND, 22.6% high-level ND, and 0.04% low-level ND. Neuroticism showed health concerns as the reason to quit smoking than those who did not.

Conclusions: 39.2% of the participants did not even attempt to quit smoking and the most common reason to quit smoking was health concerns and social factors so it is important to educate these individuals and motivate them to quit smoking. Major causes of relapse were social factors and media/advertisement. Hence strict rules against the display of smoking can help to prevent relapse

Keywords: Smoking, Tobacco use, Personality traits, Big five personality test, Addiction

INTRODUCTION

Even though 67% of regular smokers have considered quitting and 52% have attempted to do so during the past year, most efforts to remain abstinent for at least 6 months are unsuccessful. Various biological, psychological, and social factors have been implicated in difficulties achieving and maintaining abstinence. Elucidating phenotypes linking such factors with smoking behaviours may enhance our capacity to develop tailored treatment strategies for treating nicotine dependence (ND). Personality traits have been the subject of sustained

attention in mediating the development and presentation of ND.³ Strong evidence is available attesting to this relationship. For example, in a meta-analysis of cross-sectional studies, smokers had higher neuroticism and extraversion scores than non-smokers.⁴ Another meta-analysis revealed that smokers scored higher on neuroticism and extraversion and lower on conscientiousness than non-smokers, and increased likelihood of relapse to smoking was associated with higher neuroticism.³ In addition, daily smokers, as compared with former and never smokers, tend to score higher in neuroticism.⁵ Increased neuroticism is associated with a higher rate of smoking as a means for

managing negative moods as well as poorer cessation outcomes.⁶ Smoking initiation in adulthood is predicted by a lower level of conscientiousness in childhood; furthermore, a lower level of agreeableness is often associated with higher risk of smoking. Some studies have noted that cigarette smokers score higher on extraversion and openness to experience than do nonsmokers.⁷ The health behaviour model of personality is one of the leading theories that address the role of personality in determining an individual's health. According to this model, certain personality traits (particularly conscientiousness and neuroticism) are associated with health promoting or health debilitating behaviours (e.g., smoking, drinking, and/or drug use), thereby determining health outcomes. In essence, health behaviours mediate the relationship between personality and both morbidity and mortality. Thus, this relatively consistent body of findings indicates the presence of relationship between higher neuroticism and lower conscientiousness and smoking status.

Objectives

Objectives of the current study were to assess the level of nicotine dependence in tobacco smokers, to study their personality profile and compare it with non-smokers, to study the association of their personality traits with continuing smoking behaviour.

METHODS

Study design, duration and population

Current study was a cross-sectional study conducted for the duration of 3 months. The study population will be patients of all ages who are visiting medicine outpatient department in government tertiary care hospital, MIMS, Mandya.

Sample size

Sample size was calculated using the formula;

$$n = Z2s2 \div d2$$

Where, Z=level of significance, s= standard deviation, d= allowable error. Total sample size calculated was 168. Therefore, it was decided to study 84 smokers and equal number of non smokers 84 will be included in the study.

Inclusion criteria

Inclusion criteria for current study were; smokers aged ≥ 18 yrs and ≤ 30 , smokers who are nicotine dependent according to DSM IV-TR, smokers visiting Medicine outpatient department in MIMS, Mandya and smokers who give consent for the study.

Exclusion criteria

Exclusion criterion for current study was those smokers who are seriously ill or debilitated at the time of the interview.

Study details

This is a cross-sectional study with a total of 168 participants out of which 84 participants were smokers and equal number of non-smokers (84 participants) were included. The selection criteria of subjects were the age of the participant between 18 and 30 years, patients who were tobacco smokers and nicotine-dependent according to the diagnostic and statistical manual of mental disorders (DSM-IV-TR) criteria were included in this study. Those who are not willing to give informed consent and medically unstable clients were excluded from the study.

Study tools

DSM IV-TR was used to diagnose nicotine dependence in smokers. Fagerstrom's test for nicotine dependence was used to calculate nicotine dependence in the participants, this test consists of six variables which give a score between 0 to 10. More the score, higher the nicotine dependence level. To assess the personality profile, the big five personality test questionnaire which is a wellvalidated in the Indian population was administered in patients own language of understanding. It is a comprehensive measure of personality based on the fivefactor model of extroversion, agreeableness, conscientiousness, neuroticism and openness experience, thus correlating each trait to nicotine dependence. The test contains 50 questions in their language of understanding and is scored between zero to forty for each factor.

Statistical analysis

All the data was entered in an excel worksheet and statistical analysis was carried out with SPSS 19.0. The test of significance used was independent sample t-test and one way ANOVA.

RESULTS

A total of 168 participants were included in this study, comprised of 84 smokers (50%) and 84 non-smokers (50%). All the participants were male (100%). The mean age of smokers was 24.92±2.63 years and non-smokers was 25.38±2.81 years. As shown in (Table 1) smokers revealed higher scores in neuroticism (25.19±4.33 vs. 24.07±3.99), higher extroversion (19.02±4.67 vs. 18.64±6.18) lower Conscientiousness (20.30±6.64 vs. 21.37±5.18) and lower openness to experience (22.14±6.24 vs. 22.75±5.25).

Table 1: Association between personality traits of smokers and non-smokers.

Parameters	Smokers (N=84) Mean±S.D	Non- smokers (N=84) Mean±S.D	P value
Age	24.92±2.63	25.38 ± 2.81	-
Sex (M/F)	84/0	84/0	-
Personality related	variables		
Extroversion	19.02±4.67	18.64±6.18	>0.05
Conscientiousness	20.30±6.64	21.37±5.18	>0.05
Openness to Experience	22.14±6.24	22.75±5.25	>0.05
Agreeableness	24.23±5.06	23.10±6.01	>0.05
Neuroticism	25.19±4.33	24.07±3.99	>0.05

The Association between nicotine dependence by Fagerstrom and the mean score of big five personality traits was assessed using a one-way ANOVA test. As

shown in (Table 2) mean score of neuroticism is significantly more in moderate (26.12±5.50) and low to moderate (23.20±2.76) level nicotine dependence, openness to experience showed significantly high (28.4±2.31) level nicotine dependence. According to the Fagerstrom test for nicotine dependence(ND), 41.6% of smokers belongs to low to moderate level ND, 30.9% moderate level ND, 22.6% high-level ND, and 0.04% low-level ND. The Association between the number of cigarettes smoked per day and personality traits is assessed using a one-way ANOVA test and the results are shown in (Table 3). Participants with higher neuroticism (26.45±5.13) smoked 20-30 cigarettes per day, participants with higher agreeableness (26.46±7.64) smoked more than 30 cigarettes per day. P value of this result is <0.05, hence statistically significant. The Association between smoking in places where it is forbidden and personality traits shows that participants with higher neuroticism (24.88±4.35) find it difficult to refrain from smoking in places where it is forbidden (Table 4).

Table 2: Association of nicotine dependence with personality traits.

Dangan aliku kwaika	Nicotine dep	Nicotine dependence					
Personality traits	Low	Low to moderate	Moderate	High	P value		
Number (n=84)	4	35	26	19			
Extroversion	19.00±6.16	16.17±5.89	20.54±7.47	20.53±2.38	< 0.05		
Conscientiousness	23.75±2.7	22.14±4.00	22.15±6.34	18.37±4.86	< 0.05		
Openness to experience	21.75±4.19	20.63±3.95	21.31±5.25	28.4±2.31	< 0.05		
Agreeableness	23.5±2.87	22.31±5.37	23.12±7.02	23.10±6.26	>0.05		
Neuroticism	21.25±4.85	23.20±2.76	26.12±5.50	23.47±1.92	< 0.05		

Table 3: Association of personality trait with cigarette smoked per day.

Personality	Cigarette smoked per day					
reisonanty	<10	10-20	20-30	>30	P value	
Number (n=84)	28	21	22	13		
Extroversion	15.68±6.77	19.86±3.33	19.45±3.55	21.69±9.26	< 0.05	
Conscientiousness	21.96±3.91	19.00±3.39	21.64±6.19	23.46±7.06	>0.05	
Openness to experience	21.79±3.76	22.52±6.16	23.59±6.77	23.77±3.29	>0.05	
Agreeableness	24.43±4.54	19.71±4.16	22.64±6.75	26.46±7.64	< 0.05	
Neuroticism	22.84±4.12	23.24±2.02	26.45±5.13	23.92±2.13	< 0.05	

Table 4: Finding difficulty to refrain from smoking in places where it is forbidden.

Parameters	Yes	No	P value
Number (n=84)	49	35	
Extroversion	19.59±6.37	17.31±5.72	>0.05
Conscientiousness	20.31±5.89	22.86±3.55	< 0.05
Openness to Experience	24.37±5.44	20.49±4.06	< 0.05
Agreeableness	23.92±6.46	21.94±5.20	>0.05
Neuroticism	24.88±4.35	22.94±3.16	< 0.05

Out of 84 participants who had a history of smoking, 39.2% (33) participants did not try to quit smoking at least once. 60.8% (51) of participants tried to quit smoking. The reasons to quit were grouped as health concerns, social factor and financial factor. Health concern include; awareness about hazards to self, awareness about hazards to others and ill-health. Social factors include; religious, friends and family pressure. Reasons to relapse were grouped as social factors, occupational factor and media/advertisement. Social factor include; family tensions, friends pressure, people at the workplace, and any life event. occupational factors include; poor work performance, nature of work, and excess travelling due to job.

Table 5: Association of personality traits and reason to quit.

Parameters	Yes (mean±SD)	No (mean±SD)	t value	Significance
Health concerns				
N	26	25		
Extroversion	19.3±5.9521	18.12±6.064	0.706	0.484
Agreeableness	22.69±6.221	22.08±5.612	0.369	0.713
Conscientiousness	20.46±5.587	22.00±4.183	1.110	0.270
Neuroticism	24.50±4.545	24.48±4.520	0.016	0.987
Openness to experience	23.54±5.464	21.52±4.464	1.441	0.156
Social factors				
N	24	27		
Extroversion	18.79±5.349	18.67±6.587	0.074	0.941
Agreeableness	22.29±5.797	22.48±6.060	-0.114	0.910
Conscientiousness	19.92±5.174	22.37±4.550	-1.788	0.078
Neuroticism	22.67±4.678	24.33±4.394	0.262	0.794
Openness to experience	23.33±5.616	21.87±4.487	1.046	0.301
Financial factor				
N	10	41		
Extroversion	20.80±5.922	18.22±5.952	1.230	0.224
Agreeableness	26.70±6.897	21.34±5.170	2.748	0.008
Conscientiousness	21.10±6.471	21.24±4.619	-0.081	0.935
Neuroticism	22.50±2.877	24.98±4.698	-1.588	0.119
Openness to experience	27.90±3.510	21.24±4.499	4.354	< 0.0001

Table 6: Association of personality traits and reason to relapse.

Parameters	Yes (Mean±SD)	No (Mean±SD)	t value	Significance
Occupational factor				
N	16	35	_	
Extroversion	19.75±4.107	18.26±6.661	0.825	0.333
Agreeableness	22.81±6.080	22.20±5.865	0.342	0.734
Conscientiousness	19.69±5.313	21.91±4.705	-1.506	0.138
Neuroticism	25.25±5.615	24.14±3.912	0.815	0.419
Openness to experience	24.75±6.191	21.51±4.161	2.181	0.034
Social factors				
N	25	26		
Extroversion	19.12±6.280	18.35±5.768	0.459	0.649
Agreeableness	23.20±6.331	21.62±5.419	0.962	0.341
Conscientiousness	20.52±5.724	21.88±4.102	-0.982	0.331
Neuroticism	24.48±4.602	24.50±4.465	-0.016	0.987
Openness to experience	23.32±5.573	21.80±4.481	1.070	0.290
Media/advertisement				
N	10	41		
Extroversion	20.40±2.757	18.32±6.486	0.988	0.328
Agreeableness	24.70±6.343	21.83±5.700	1.398	0.169
Conscientiousness	19.20±4.962	21.71±4.895	-1.449	0.154
Neuroticism	22.30±2.869	25.02±4.672	-1.757	0.085
Openness to experience	28.20±2.936	21.17±4.477	4.705	< 0.001

The Association between personality traits and reason to quit smoking were compared using an independent sample t-test and the results are shown in Table-5. Smokers with a higher score of neuroticism showed health concerns as the reason to quit smoking than those who did not. Openness to experience as a personality trait is significantly associated with financial factor as a reason to quit smoking.

The Association between personality traits and reason for relapse were compared using an independent sample t-test and the results are shown in (Table 6). Participants with high scores of openness to experience trait is significantly associated with occupation factor and media/advertisement as a reason to relapse compared to those who did not give this reason. Association between personality trait and reason to quit smoking were compared using independent sample t-test and the results are shown in (Table 5). Smokers with a higher score of neuroticism showed health concerns as the reason to quit smoking than those who did not. Openness to experience as a personality trait is significantly associated with financial factor as a reason to quit smoking.

DISCUSSION

Tobacco smoking is the most common and most popular form of recreational drug use. Even after the awareness regarding adverse effects of smoking on health prevalence rate is high but still quitting tobacco is one of the hardest things to do. The purpose of this study was to determine the association between the big five personality traits and tobacco smoking behavior that is the number of cigarettes smoked per day, nicotine dependence level, difficulty to refrain smoking in places where it is forbidden, early morning smoking and reason to quit smoking and reason for its relapse.

This study showed that smokers had a higher score in neuroticism and extroversion, lower Conscientiousness and lower openness to experience compared to nonsmokers. According to the Fagerstrom test for nicotine dependence (ND), most smokers belong to low to moderate level ND. Neuroticism is the tendency to experience negative emotions, such as anger, anxiety, or depression and it is a state of emotional instability.8 A high score on neuroticism showed moderate and low to moderate level nicotine dependence, and People who are open to experience are intellectually curious, open to emotion, sensitive to beauty and willing to try new things.8 A high score on openness to experience showed significantly high-level nicotine dependence. Most of our participants smoke <10 cigarettes per day smokers with a high score of neuroticism smoked most cigarettes per day and they felt difficulty refraining from smoking in places where it is forbidden. In our study, the matter of concern is that 39.2% of participants did not even try to quit smoking at least once. 60.8% of participants tried to quit smoking. Most of the participants gave health concerns and social factors the reason to quit smoking. Those who scored high on openness to experience gave financial factor as the reason to quit smoking.

Most of the participants reported that the major cause of relapse was the social factor that is family tensions, friends pressure, influence of people at the workplace, and life event. those who scored high on neuroticism showed social and occupational factor as a reason to relapse. One more ingesting finding is, those who scored high on openness to experience reported media/advertisement as the reason to relapse. This could be understood that media and advertisement can influence a person to smoke and use of recreational drugs.

CONCLUSION

In this study, the results indicate that personality traits are associated with the tobacco smoking status and the degree of nicotine dependence level. Smokers scored high in neuroticism and extrovert compared to non-smokers. Most of the smokers belong to low to moderate level ND. Neuroticism reported a high score in moderate and low to moderate level ND, openness to expertise showed high ND. 39.2% of the participants did not even attempt to quit smoking, so it is important to educate these individuals and motivate them to quit smoking. Most common reason to quit smoking was health concern and social factor. So educating and bringing awareness regarding health hazards due to smoking to them and their family members can help to quit smoking. The major cause of relapse was social factor that is family tensions, friends pressure, influence of people at the workplace. media/ advertisement is significantly influenced those who scored high on openness to experience to relapse smoking. Hence strict rules against the display of smoking and the use of recreational drugs on media/advertisements can help to quit smoking.

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Ethical approval: The study was approved by the

Institutional Ethics Committee

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