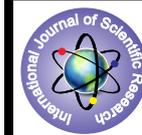


Personality Correlates of Bis and Bas in Tobacco Dependents



Medical Science

KEYWORDS : Tobacco dependence, BIS and BAS, TCI.

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ABSTRACT

BACKGROUND: Grey's theories of BIS and BAS as well as the theories of Cloninger's temperament and character explain personality as biologically driven. Substance use can be explained a result of either inhibition or activation or combination of certain temperament and character according to these authors. Thus, it is acceptable to know the relationship between the variables of temperament and character and BIS/BAS in context of addiction. **OBJECTIVE:** To study the relationship between BIS/BAS with certain temperament and character of smoking and non-smoking university students. **METHODS:** Sample consisted of 25 smokers and 25 non-smokers university students with in the age group of 18 to 25 years. For the assessment the current study used BIS and BAS scales and TCI were used. **RESULTS:** Obtained result shows significant difference on Reward Dependence (43.8, + 20.11), Novelty Seeking (67.36, + 15.29), and Cooperativeness (30.04, + 15.12), and low Harm Avoidance (14.32, + 9.21), and Self Directedness (19.16, + 18.03) in the smoking group. Similarly on various domains of BAS such as drive, fun seeking and reward responsiveness the smoking group scored higher than the non smokers, BIS scores were found to be high in non smoking students. **CONCLUSION:** The need for understanding the relationship of TCI with BIS/BAS and how this influences and reinforces the tendency to smoke were implicated from this study.

Introduction

Personality traits are enduring dispositions (McCrae & Costa 2003) and can be considered as major determinants of behavior (Paunonen 2003). The study of personality in various disease conditions received much attention especially on addictive conditions (Terracciano & Costa 2004). But little attention has been given to study in the cohort of those who are abusing smoking, which also coming under substances. Smokers or users of tobacco in India has been raising day by day hence there are a lot of ample opportunities are created in the field of assessment and intervention to smoking related problems or ceasing the habit of smoking itself (World Health Organization 2002). Understanding of personality, which is considered to be the building block of behavior, would enhance the knowledge of smoking behavior and thus to pave the way to create some paradigm for intervention.

Though there is enough literature to elaborate biological and psychological theories of addiction, the clear cut causal factors of addiction remains unclear. Among the psychological theories various aspects of drug taking behavior such as how the behavior is initiated by the ways of social learning or modeling (Akers) and how its continued by the way of reinforcement (Stephen) are seems to be acceptable for certain conditions. But, why only for certain people always remains in a dilemma to the scientific community. At this junction studying how personality that is considered to be as "Unique pattern of traits" may sometimes explain why only for certain people develops such behavior.

According to personality theorists, who stress the biological determinism in defining personality, contents that there are two general motivational systems underlie behavior (Gray 1987; Carver 2001). A behavioral approach system (BAS), which is believed to regulate appetitive motives, in which the goal is to move toward something desired and is thought to be related to sensitivity to reward as well as approach motivation. A behavioral avoidance (or inhibition) system (BIS) is said to regulate aversive motives, in which the goal is to move away from something unpleasant and is thought to be related to sensitivity to punishment as well as avoidance motivation (Gray 1987). Empirical evidence shows that BAS predicts alcohol craving, binge eating, and involvement in drugs. Another such theory is of Cloninger's (1987) temperament and character constellation. Though this theory has been criticized on its validity and reliability (Waller, Lilienfeld, Tellegen, & Lykken 1991). The theory explains biologically determined temperaments and character constellation builds up a person personality.

Jean-Francois Etter (2010) done comparative study between never and former smokers with daily smokers using Temperament and Character Inventory (TCI). Study found that never and former smokers had higher scores of Harm Avoidance (HA) and lower scores of Persistence and Self-Directedness (SD). Daily smokers had higher scores of Novelty Seeking than never-smokers. In daily smokers, the level of tobacco dependence was associated with higher scores of HA and lowers scores of SD.

Smoking was associated with lower fear, control and drive, higher anger and unstable externalized affective temperaments. Lower control and higher anger were associated with being a heavy smoker and current smoking (Bisol, Soldado, Albuquerque, Lorenzi, Lara 2010). These temperaments were phenomenology can consider as part of impulsive behavior, that are hall mark of behavior activation system, low harm avoidance and high novelty seeking. Hence a detailed assessment of temperament may help the clinician set up a proper smoking cessation plan for such people according to the type of personality that they have (Bisol, Soldado, Albuquerque, Lorenzi, Lara 2010).

Considering all these information present study is an initial foot step towards increasing the understanding of the relationship between BIS and BAS on certain personality temperament and character measured by the use of Temperament and Character Inventory (TCI).

METHODS

Sample: 50 male students (25 smokers and 25 non-smokers) studying in various under graduation and post graduation programs in Sri Ramachandra Medical College & University Porur, Chennai were selected by purposive sampling technique. Initially they were informed about nature of the study to the participants and obtained an informed consent for participation. The sample thus selected had a mean age of 20.28 ± 1.70 in the smoking group and 19.70 ± 1.36 for non smoking group. The participants were contacted individually and data were collected without affecting their usual university or routine schedules.

Tools used: The Behavior Inhibition System and Behavior Activation System scales (BIS/BAS scales). The BIS/BAS scale was developed by Carver, C. S., & White, T. L. (1994). It is one of the most widely used personality trait measures of BIS and BAS functioning. It was developed based on the bio psychological theory of personality which hypothesizes two systems controlling behavioral activity, the Behavioral Inhibition System (BIS)

and the Behavioral Activation System (BAS). A behavioral avoidance (or inhibition) system (BIS) is said to regulate aversive motives, in which the goal is to move away from something unpleasant. A behavioral approach (or activation) system (BAS) is believed to regulate appetitive motives, in which the goal is to move toward something desired. The BIS/BAS scales assess the individual differences in the sensitivity of these systems. Items are rated on a 4-point scale from 1, *disagree strongly* to 4, *agree strongly*. Three sub scales of BIS was Reward Responsivity (RR; 5 items), Drive (DR; 4 items) and Fun Seeking (FUN; 4-items) and BAS consisted on one single domain. Cronbach's α for the BIS, RR, DR, and FUN scales in the derivation sample were .74, .73, .76, and .66, respectively.

The Temperament and Character Inventory (TCI) which was (15+ years of age group form) developed by Robert Cloninger (1994) was used for the study. It is an inventory for assessing personality traits. It consists of 240 self report questions. The temperament dimensions measured in this inventory are Harm Avoidance, Novelty Seeking, Reward Dependence and Persistence. The character dimensions are Self-Directedness, Cooperativeness and Self-Transcendence. Certain combination of the temperament and character determines one's whole personality.

Procedure

The sample who intends to study was first screened out using a clinical proforma in which those who were meeting the inclusion criteria according to ICD-10 were selected by the procedure of purposive sampling method. The individuals who met the criteria were informed about the nature of the study and their consent was obtained. From those who gave consent, the demographic details were collected. Following this, the BIS/BAS scales and the TCI were administered. The instructions for filling up the questionnaires were given in both English and the local language of Tamil. All the tests were done in a single session.

For the comparison of two groups on various measures of TCI and BIS/BAS; Student t test and to know the relationship between variables of BIS and BAS and TCI a Pearson's product moment correlation was used.

RESULTS

TABLE 1: MEAN SCORES OF SMOKERS AND NON SMOKERS ON TCI AND BIS/BAS

Variables	Non-Smokers	Smokers	T	p
	Mean \pm SD	Mean \pm SD		
Novelty Seeking	27.32 \pm 16.74	67.36 \pm 15.29	8.82**	.001
Harm Avoidance	67.20 \pm 19.13	14.32 \pm 9.21	12.44**	.001
Reward Dependence	21.68 \pm 15.02	43.80 \pm 20.11	4.40**	.001
Persistence	23.76 \pm 20.91	48.32 \pm 23.88	3.86**	.001
Self-Directedness	72.40 \pm 14.77	19.16 \pm 18.03	11.41**	.001
Cooperativeness	14.48 \pm 15.60	30.04 \pm 15.12	3.58**	.001
Self-Transcendence	42.92 \pm 24.24	49.80 \pm 20.18	1.09	.281
BAS Drive	7.80 \pm 1.89	14 \pm 2.69	9.41**	.001
BAS Fun Seeking	9.72 \pm 2.65	13.92 \pm 3.08	5.16**	.001
BAS Reward Responsiveness	11.76 \pm 2.27	16.12 \pm 4.91	4.02**	.001
BIS	24.12 \pm 3.46	13.76 \pm 3.60	10.35**	.001

** .p \leq 0.01 level, * .p \leq 0.05 level.

Table 1 show that there is a significant difference between the non smokers and smokers on various dimensions of temperament and character. The Smokers mean scores on Novelty Seeking (67.36, + 15.29), Reward Dependence (43.80, +20.118), Persistence (48.32, 23.886), Cooperativeness (30.04, +15.126) are significantly higher than Non-Smokers. The non-smokers obtained the following scores for Novelty Seeking (27.32,

+16.745), Reward Dependence (21.68, +15.021), Persistence (23.76, +20.915), Cooperativeness (14.48, +15.605)]. The differences on these dimensions were at p \leq 0.01 level. Smokers have significantly lower scores in Harm Avoidance (14.32, +9.214), Self-Directedness (19.16, +18.036) than Non-Smokers [Harm Avoidance (67.20, +19.138), Self-Directedness (72.40, +14.776)].

Similarly on the dimensions of BAS including Drive (14.00, +2.693), Fun Seeking (13.92, +3.081), and Reward Responsiveness (16.12, +4.919) smokers scored significantly higher by Smokers group compared to Non-Smokers (Drive (7.80, +1.893), Fun Seeking (9.72, +2.654), and Reward Responsiveness (11.76, +2.278) at p \leq 0.01 level. They are also low in inhibiting tendencies which is evidence from their lower scores on BIS (13.76, +3.609), which is significantly lower when comparing with non smoking students.

RELATIONSHIP BETWEEN TCI AND BIS/BAS AMONG TOBACCO DEPENDENTS

VARIABLES	NS	HA	RD	P	SD	C	ST	
BAS	DRIVE	.246	.275	-.085	.144	-.183	.071	.061
	FS	-.310	.121	-.368	-.153	-.048	.194	.097
	RR	-.037	.442*	.128	.439*	-.014	-.043	.424*
BIS	-.556**	.011	-.125	.093	.070	-.298	.294	

**Correlation is significant at the 0.01 level (2-tailed). * Correlation is significant at the 0.05 level

(NS= Novelty seeking; HA= Harm Avoidance; RD= Reward Dependence; P= Persistence; SD= Self Directedness; C=Cooperativeness; ST= Self Transcendence; BAS= Behaviour Activation System; BIS = Behaviour Inhibition System)

In the smoking group a significant (p \leq 0.05 level) positive correlation was found between BAS Reward Responsiveness and TCI temperament and characters of Harm Avoidance, Persistence and Self-Transcendence, whereas there is a significant negative correlation between BIS and Novelty seeking.

DISCUSSION

Results indicates that a smoker's high scores on novelty seeking, reward dependence provides light on their temperament as these individuals are interested in novel things in their environment. Kose (2003) reported that individuals high in NS tend to be quick-tempered, excitable, exploratory, curious, enthusiastic, ardent, easily bored, impulsive and disorderly. This can be assumes as causes of initiating the habit of smoking. In complementary to this finding again the high scores on reward dependence further explain the maintenance of smoking habits. The findings of the current study are in line with a study by Wills (1994) focusing on temperament and novelty seeking in adolescent substance use that highlighted that substance use was particularly elevated for persons with high novelty seeking, low harm avoidance, and low reward dependence. In short the temperament profile obtained from this study can be explained as both cause and maintaining the habits of smoking. The results can be further substantiating with the lower score on harm avoidance by the control subjects. They are are fearful of any harm in their environment and may be such harm avoidance making these people to stay away from such health risk habits. That personality dimensions are useful predictors of early onset of cigarette smoking, alcohol abuse, and other drug use in adolescent boys was brought out in a longitudinal study that followed children from kindergarten by Masse and Tremblay (1997) and it supports the findings of the current study.

Similarly the findings from the correlation analysis further reveals that there is an internal persistent tendency to seek cigarette smoking evidenced through high scores on BIS scale on sub domains of drive, or with certain social factors such as fun seeking or reward responsiveness. The study also indicates people who are high in harm avoidance might be reward responsive. They will do whatever things on the basis of the consequence rather than subjecting the event in to a detailed analysis

of the situation. A similar finding was obtained by the finding inhibition of a particular behavior might be sensation seeking behavior which is obtained by negative correlation between novelty seeking and BIS scores.

CONCLUSION

It is seen that there is a strong relationship between one's temperament and behavior. Those who have a drive for more

stimulation tend to take to smoking more easily as compared to those who have a lesser degree of the drive for Novelty Seeking. It may be possible to prevent addiction to smoking by screening and educating those individuals, who are high in Novelty Seeking, Reward dependence and low on Harm Avoidance about the same so that they are able to re-evaluate their decisions and exercise caution.

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