

Five Factor Correlates: A Comparison of Substance Abusers and Non-Substance Abusers

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Substance abuse is a multi-etiological, multi-dimensional and a worldwide problem with an alarming increase in its incidences. The present study investigates the personality traits of substance abusers as compared with non-substance abusers by using the NEO-Five Factor Inventory. The sample consists of substance abusers (N=100) along with non-substance abusers (N=100). In terms of Five Factor model of Personality Taxonomy, the present study revealed that substance abusers scored higher on Neuroticism and Extraversion dimensions, whereas non-substance abusers significantly scored higher on Openness and Conscientiousness dimensions of Big-Five. No significant difference was obtained on Agreeableness domain of personality.

Keywords: Five-Factor Model, Traits, Substance abusers, Non-substance Abusers

Many psychological and social reasons explained the attraction of addictive behavior such as adverse experiences during childhood, mental illness, discord, violence, stressful family life, peer pressure and psychological complications (Crjeervaldsen, Byrvang, & Opjordsoen, 2000; Khan & Salman, 2003; Kirkcarlady, Siefenb, Surallb, & Bischoff, 2004; Labouvie & McGee, 1986). The relationship of personality characteristics to different forms of substance abuse has drawn widespread attention (Cox, 1985; 1987; Earlywine, 1995; Labouvie & McGee, 1986; O'Connar, Berry, Morrison, & Brown, 1999; Tarter, 1988). However, the relationship between personality and drug use are highly complex because the range of personality dimension which have been postulated to exist and which have been hypothesized to influence drug use, is extremely broad (Cox, 1985) and the personality factors may influence the use of drugs at several levels. The notion that an individual's pattern of drug use is based, in part, on personality characteristics and/or psychopathology has received some clinical acceptance (Blatt,

McDonald, Sugarman, & Wilber, 1984; Craig, 1984; Mattoo, Varma, Singh, Khurana, Kaur, & Sharma, 2001; Millmen, 1986.). Earlier studies have indicated dependable association between different dimensions of personality and drug abuse in terms of kind as well extent.

Comprehensive models of personality, such as Big Three or the Five Factor Model of personality have been utilized to succinctly characterize the personality profiles of substance abusers. In terms of Big Three models, Shanmugam (1979) found that drug abusers to be more extraverted while Ebile and Pela (1981) found that drug abusers to be more introverted. It had been consistently found that substance abusers scored higher than non-substance abusers on Neuroticism, but they usually do not differ on Extraversion scale of personality (Barnes, 1983; Eysenck & Eysenck, 1976). Findings revealed that the substance abusers scored higher on both the Neuroticism and Extraversion scales (Kannappan & Cherian, 1989). Heavy users appear to score high on measures of Psychoticism and Neuroticism (Sher, Bartholow, & Wood, 2000). The findings

concerning the third dimension, Extraversion, had been found to be somewhat discrepant, as Rankin, Stockwell, and Hodgson (1982) observed low extraversion in heavy users, while Jackson and Matthews (1988) observed high scores for heavy users on extraversion and its subcomponents, sociability and impulsivity. Similarly in terms of the Five Factor Model of personality, one of the more prominent models in contemporary psychology, individuals prone to abuse intoxicating substances have been characterized by low extraversion (Trull & Sher, 1994), agreeableness (Flory, Lynam, Milich, Leukefeld, & Clayton, 2002; Martin & Sher, 1994), and conscientiousness (Flory et al., 2002; Martin & Sher, 1994), as well as high neuroticism (Sher et al., 2000; Trull & Sher, 1994) and openness (Flory et al., 2002; Sher et al., 2000). Taken as a whole, the findings of these studies suggested that the drug or alcohol users are subjectively distressed and are inclined to be socially nonconforming and impulsive. In terms of the Big Five Personality model, these individuals would be low on emotional stability, agreeableness and conscientiousness.

Ruiz, Pincus, and Dickinson (2003) investigated the relationships between Five-Factor model domains and facets and substance-related behavior and found that neuroticism and conscientiousness were linked to substance-related behavior, but facets of extraversion and agreeableness, but not these domains, were associated with addictive behavior. Brooner, Herbst, Schmidt, Bigelow, and Costa (1993) compared a sample of substance abusers with a normative sample by using NEO-Personality Inventory, and found that higher levels of neuroticism and lower levels of agreeableness and conscientiousness were noted which prompted a characterization of opioid users as emotionally distressed, antagonized and excitement seeking, with low level of conscientiousness. According to Trobst, Wiggins, Costa, Herbst, McCrae, and Masters

(2000) low conscientiousness was associated with other health risk behaviors. A common denominator for heroin abuse was, of course, that they pose a health risk. Hence, it may appear that conscientiousness not only enhances the chance of health risk behavior, but the mechanisms which regulate maintenance and cessation of heroin abuse. The personality profile of opioid addicts appeared different from the normal population, opioid addicts scored higher on Neuroticism and lower on Extraversion, Agreeableness and Conscientiousness (Kvisle, 2004). Kornor and Nordvik (2007) reported that substance dependent sample scored higher on Neuroticism, lower on Extraversion and lower on Conscientiousness than the controls. Effects sizes were small for the difference between the groups in Openness to experience scores and Agreeableness scores. The meta-analysis showed drug involvement was associated with low Conscientiousness, low Agreeableness, and high Neuroticism (Malouff, Thorsteinsson, Rooke, & Schutte, 2007).

Within the field of substance-addictive behavior, the earlier studies have been quite divergent and inconclusive and had failed to identify a unique pattern of personality traits which characterize those who are substance abusers or those who are not. In just mentioning a small handful of studies it can be seen that the findings were broad-ranging and do not seem to fit into an overall picture of personality configuration of substance abused individuals. On the basis of earlier studies, in general, in drug dependent samples, high neuroticism is usually found and is often accompanied by high psychoticism scores but there were contradicting findings regarding extraversion dimension of personality, some studies reported that drug abusers scored higher on this dimension whereas other group of studies reported that drug abusers scored lower on this dimension as compared non drug abusers. Furthermore, most of the earlier studies have analyzed a

limited number of traits (often omitting agreeableness and conscientiousness factors). It was apparent from the review of earlier studies they narrated personality profile of substance abusers in the context of psychopathological characteristics rather than in terms merely personality characteristics.

The high individual and social costs of drug use highlight the need to study factors related to such behaviors. Even if personality differences between drug users and non-users are generally small, these effects can have important clinical implications due to the large number of people involved. Researches on the correlates of drug addiction provide insights for understanding etiology and inform prevention policies and successful intervention strategies (Adams, Heath, Young, Hewitt, Corley & Stallings, 2003). The present study contributes to this line of research by comparing the personality traits of substance abusers with a matched group of normal subjects (non substance abusers). The present study adopts the well-validated Five-Factor Model of personality, which comprehensively covers the five major traits that define human personality across cultures (Costa & McCrae, 1992; Digman, 1990); Neuroticism (N), the tendency to experience negative emotions such as anxiety and depression; Extraversion (E), the tendency to be sociable, warm, active, assertive, cheerful, and in search of stimulation; Openness to Experience (O), the tendency to be imaginative, creative, unconventional, emotionally and artistically sensitive; Agreeableness (A), the dimension of interpersonal relations, characterized by altruism, trust, modesty, and cooperativeness; and Conscientiousness (C), a tendency to be organized, strong-willed, persistent, reliable, and a follower of rules and ethical principles.

Method

Sample:

This study is planned to initially explore the trait profile of substance abusers. The

sample consisted of 100 (aged 18 years and above) adult males who were chronic abusers of heroin, alcohol, cannabis, and multiple drugs. A group of normal subjects (N=120), who never used psychotropic drugs and not chronic smokers and maintained healthy physical life were selected by matching the variables i.e., age, sex, education, domicile and marital status for comparative study. Sample was chosen with the help of case finding sampling method. In this method, General Psychiatric Unit (O.P.D.) of University Hospital (Banaras Hindu University) was approached to furnish data and all substance abusers satisfying certain criteria of substance abuse, were selected for the study. The inclusion criteria were: period of drug intake which was more than 6 months, registered patient at the O.P.D., substance dependence was diagnosed by the concerning psychiatrist according to International Classification of Diseases, 10th Revision (World Health Organization, 1992), and have minimum age 18 years. A minimum of 3 weeks after abstinent from the drugs and when assumed to have achieved a stable state, patients were approached to furnish data. In addition, information was also collected from the psychiatrist, family members, and peer group. In the process of administration of these tests the personal data schedule was filled as a first step for each individual case. This was followed by the administration of the NEO Five-Factor Inventory. Before administering the questionnaires, their willingness to cooperate was first ensured. For this purpose, each subject was assigned to fill up the "Informed Consent". They were told that the answers to the questions would be kept confidential.

Tools:

NEO-Five Factor Inventory, Form s (Costa & McCrae, 1992): The NEO-Five Factor Inventory is a concise measure of the five major dimensions, or domains of personality. The NEO-five factor

Inventory(Costa & McCrae, 1992) is a short version of revised NEO Personality Inventory .It is a 60-item questionnaire answered on 5-point scale ranging from strongly disagree to strongly agree and yields scores on the five major domains of personality. These are neuroticism, extraversion, openness, agreeableness and conscientiousness. In the present study NEO-Five Factor Inventory (Hindi adaptation) was used. Hindi adaptation was done in the first phase of this research work. In the process of investigation the test was administered on normal population (both male and female age ranged 17-50yrs.), for item validity and reliability. Its reliability was checked by alpha coefficient for each

dimension of five factor model of personality as obtained as follows,.81, .82, .73, 80 and .84 respectively. Validity and item-total correlations of this inventory was also obtained ranged between .21 to .86.

Results

A view of the Table-1 shows that, non-substance abused group (control group or normative data) scored significantly higher on Openness ($p<0.05$) and Conscientiousness ($p<0.01$) and significantly scored lower on Neuroticism ($p<0.01$) and Extraversion ($p<0.01$) domain of Five Factor model of Personality as compared to substance abused group. No significant difference was obtained on Agreeableness domain of personality.

Table 1: Mean Scores, SDs and t-values of Big-Five Scores of Substance Abused and Non-Substance Abused Group.

Personality Dimensions	Non-Substance Abused Group(N=120)		Substance Abused Group(N= 120)		t- ratio
	Mean	SD	Mean	SD	
Neuroticism	39.33	5.75	43.64	3.83	6.84**
Extraversion	37.6	3.83	38.80	1.60	3.07*
Openness	39.26	3.96	38.17	3.17	2.36*
Agreeableness	39.34	3.86	38.48	3.81	1.59
Conscientiousness	42.12	3.66	40.45	4.07	3.34**

* $p<0.05$, ** $p<0.01$

Discussion

Personality researchers have recently converged on the five-factor model as an adequate representation of the structure of personality traits. NEO five-factor inventory was a questionnaire designed to measure the factors and some of the traits that define them (McCrae, 1991). Much like the earlier findings (Cohen, Ross, Bagby, Farvolden & Kenndy, 2004; Fisher, Elias & Ritz, 1998; Trull & Sher,1994), the results of present study demonstrated that substance abusers had significantly scored higher on Neuroticism and Extraversion as compared to non-substance abusers. Substance abusers were more anxious, hostile, vulnerable to stress and depressive traits. They have more excitement seeking and assertive tendency as compared

to normal subjects. This finding also consistent with earlier studies which showed that substance abusers had scored higher on Neuroticism and showed more neurotic tendencies as compared to non-substance abusers (Dorus & Senay,1980; Skinner & Allen, 1982; Sher, Bartholow, & Wood, 2000). Neuroticism reflects level of emotional adjustment and instability. High N is associated with irrational ideas, reduced impulse control and poor management of stress (Costa & McCrae, 1992).

Many theoretical explanations had been used to explain the high anxiety level among substance abusers. One of the most prominent works done in this area was Eysenck's three dimensional theory of personality. Eysenck (1979) put forward the

idea that the biological basis of Neuroticism originates from the sensitivity of the limbic autonomic system, which determines our reactivity to environmental and psychological stimuli. Highly reactive individuals are typically easily startled and agitated. These individuals may be expected to use addictive substances for their calming and rewarding effects. He further asserted that addictive behaviours are adopted and utilized because they serve as a useful function for individuals. In other words, it can be interpreted as the nature of addictive behaviour gives certain benefits to the user. Hence, that type of behaviour is continued even though there may be unwanted or negative consequences.

In terms of Five Factor theory of personality, high scores on neuroticism indicate that substance abusers experienced negative feelings. They were more impulsive and emotionally reactive as compared to non-substance abusers. In the present study, findings concerning the substance abusers who are extravert are clear. This implies that they have a preferred level of interpersonal interactions. High scores on Extraversion scale indicate that substance abusers were assertive, excitement seekers and group oriented as compared to non-substance abusers. This result is supported by many earlier findings (Chopra, 1979; Shanmugam, 1979; Jackson & Matthews, 1988). However, our results directly contradict those of some previous researches (Ebile & Pela, 1981; Parrota & Rosa, 2000; Rankin et al., 1982; Sher et al., 2000).

Extraversion is primarily an interpersonal dimension (Costa & McCrae, 1992). Eysenck emphasizes that extraverts had a strong nervous system that is relatively quick to inhibit excessive stimulation. They readily tune out the arousing inputs from social situations and so can tolerate having a lot of activity. In fact, they crave such stimulation and their behavior is governed with stimulation seeking behavior (Eysenck, 1985). Because of their low level

of cortical arousal they need more stimulation for maintaining an optimal level of arousal. Hence they used addictive substances as a form of stimulation. In other words, it can be interpreted as extraverts have a kind of stimulus hunger and are relatively less conditioned to social values and have high inhibitory tendencies of the brain.

The dimension of extraversion has been associated with activity, sociability, risk-taking behaviour and impulsivity (Costa & McCrae, 1992). The idea that impulsivity might be characterized by a lack of behavioral constraint, a lack of caution, and possibly even failure to conform to conventional moral expectations. Drug use and abuse are strongly discouraged by conventional cultural standards, risky activities because of their illicit nature. Individuals who are low on constraint might be at increased risk of drug abuse because they are less likely to accept and be less fearful of the consequences of failing to follow cultural norms governing drug abuse (Eysenck, 1979).

There is an interesting convergence of thinking on the relationship between reward drive and spontaneous impulsiveness in the development and maintenance of substance misuse. Individuals prone to abuse drugs have been found to have lower levels of dopamine concentration in neural pathways than those less prone to abuse drugs.

Conscientiousness measures the level of control, organization and determination. Conscientiousness is a tendency to show self-discipline, act dutifully and aim for achievement. In the present study, non-substance abusers scored higher on this scale as compared to substance abusers. This implies that substance abusers had a lower opinion of their abilities and admits that they were often unprepared and inept as compared to non-substance abusers. They were not driven to succeed. They reported lack of ambition and aimlessness. They had low self-discipline and poor self-control. They were

more unorganized and unreliable as compared to non substance abusers.

This result is in accordance with earlier findings (Flory et.al, 2002, Martin & Sher, 1994; Malouff, Thorsteinsson, Rooke, & Schutte, 2007; Trull & Sher, 1994; Tucker et.al, 1995; Walton & Roberts, 2004). It was expected conscientiousness to be associated with less alcohol use, smoking, and illicit substances.

No significant difference in Openness to experience was an unexpected result despite similar findings in a study by Brooner et al.(1993).Based on the assumption that drug addicts initially have chosen a radical action such as consumption of drugs, either as recreational use or as a means to handle an experienced problem. Openness scale reflects the cognitive style of an individual. Earlier studies reported that substance abusers scored higher on this dimension of personality as compared to non substance abusers ((Flory et al., 2002; Sher et al., 2000). Nevertheless, the result of present study did not consistent with earlier studies. The lack of a significant difference may reflect that substance abusers are not more open to new actions and ideas which are among the Openness to experience facets. This reflects that they have narrow interest and imagination and muted in display of emotions. Substance abusers reported that they have lack of attentiveness to inner feelings and intellectual curiosity.

Agreeableness scale reflects a tendency to compassionate and cooperation (Costa & Widiger, 1993). Substance abusers and non-substance abusers did not differ significantly on this scale. Although substance abusers scored, lower on Agreeableness as compared to non-substance abusers. Agreeableness is associated with positive interpersonal qualities such as altruism and positive attitudes towards others. These are traits not commonly associated with the hardened life of drug addicts. Hence, a lower Agreeableness score is unsurprising, but this result is contrary to

Brooner et al. (1993). Hence, the non-significant agreeableness score is unexpected and difficult to explain.

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