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Personality Profile and Severity of Alcohol Use in Patients with Alcohol Dependence Syndrome: A Cross-Sectional Study from Central Rural India

Sachin Ratan Gedam[1] and P. S. Patil[2]*

[1]Department of Psychiatry, Mahatma Gandhi Institute of Medical Sciences, India

[2]Department of Psychiatry, Jawaharlal Nehru Medical College, India

Corresponding author: Dr. Sachin Ratan Gedam, Associate Professor, Department of Psychiatry, Mahatma Gandhi Institute of Medical Sciences, Sevagram, Wardha, Maharashtra, India, Tel: +918983646448, E-mail: sachinrgedam@gmail.com

Abstract

Introduction: Alcohol dependence syndrome is most prevalent disorder and significant public health problem all over the world [1]. Non-adaptive personality traits may influence pathogenesis, clinical course, treatment outcome and relapse in alcohol dependence syndrome (ADS).

Aim: To assess the personality traits on 16 PF of alcohol dependent individuals, to determine its association with severity of alcohol use and to find factors affecting severity of ADS.

Methodology: Total 100 patients of ADS were selected from psychiatry unit of Acharya Vinoba Bhave Rural Hospital, Sawangi (Meghe) Wardha, Maharashtra. Data was collected through socio-demographic proforma, severity of alcohol dependence questionnaire and 16 personality factor (16 PF) inventory.

Results: Most of the patients scored high on personality traits such as warmth (56%), dominance (67%), social boldness (56%), sensitivity (70%), vigilance (77%), openness to change (65%) and perfectionism (52%) while they scored low on factors liveliness (35%) and privateness (50%). Prevalence of ADS severity was found to be 10% (mild), 38% (moderate) and 52% (severe) respectively. Factors such as emotional stability (0.026) and vigilance (0.019) were found to be significantly associated with severity of ADS. On other hand, factors emotional stability and perfectionism were found to affect severity on multivariate analysis.

Conclusion: This study suggests that personality factors affect the severity of alcohol use and might be associated with poor treatment outcome. Hence, personality traits need to be addressed by clinicians during management to improve outcome.

Introduction

Alcohol abuse and dependence are among the most prevalent disorders in the general population and is a significant public health challenge [1]. All over world, alcohol causes 4% of deaths and contributes 5% to global burden of disease [2]. Alcohol consumption has increased globally over years and there are around 62 million alcoholics in India [3]. The estimated 40 to 50% of alcohol dependent individuals suffer from alcohol induced clinical syndromes [4]. Literature suggests that having co-morbid psychiatric diagnosis influences prognosis and treatment of alcohol dependence syndrome [5].

Previous studies reported that alcohol use disorders (AUD) are associated with mood, anxiety, other substance use and personality disorders [6,7]. Personality disorders are four times more prevalent in addicted patients than in the general population [8]. The role of personality pathology in the etiology and development of alcoholism has been clearly demonstrated [9,10]. The personality traits impulsivity/disinhibition and neuroticism/negative affectivity are associated with excessive alcohol consumption whereas significance of extraversion/sociability characteristics remain inconclusive

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[11,12]. Cloninger divided alcoholism into two types on the basis of personality traits and dependence characteristics. Type I alcoholics are characterized by passive dependent traits, high harm avoidance (HA), low novelty seeking (NS) and high reward dependence (RD). While Type II alcoholics are characterized by high NS, low HA, antisocial traits and little guilt [11,13,14]. The personality traits have been linked to higher drinking, higher risk of alcohol relapse and withdrawal severity of substance dependence [15].

The relation between personality pathology and severity remains complex and unresolved issue. Co-morbid personality pathology is generally associated with earlier onset of alcohol problems, increased alcohol consumption, less favorable course of AUD and more delinquent consequences of drinking [16-18]. Other researchers also reported an important link between personality traits and amount of alcohol consumed [19]. Novelty seeking and related traits such as sensation-seeking are associated with craving, alcohol use and relapse in alcohol-dependent patients [20,21]. Alcohol dependence has been associated with higher neuroticism scores and lesser conscientiousness scores [22]. People with higher scores on Reward Dependency, Cooperation, Persistence and Auto-transcendence have better prognosis whereas those with higher scores on Avoidance of Damage and search for Novelty have worst prognosis [23]. Different studies found higher scores on disinhibition, impulsivity, aggressive and antisocial behavior in people with AUD which suggest low control capacity [24,25].

Though there is lot of research but still the association of personality traits with alcohol dependence syndrome remains inconclusive. There are no Indian studies to our knowledge correlating personality traits with severity of alcohol dependence syndrome. The objectives of present study were to assess personality traits of alcohol dependent patients, to determine association of personality traits with severity of alcohol dependence and to find factors affecting the severity of dependence.

Methodology

The cross-sectional study was conducted at department of psychiatry and de-addiction centre of acharya vinoba bhave rural hospital, sawangi (meghe) wardha, maharashtra over a period of 2 years (from 2016 to 2018). The approval was obtained from the institutional ethics committee and written consent taken from the study participants fulfilling criteria. The sample size was calculated using the formula n = 4 pq/l² (by Mahajan's Methods in biostatistics for medical students and research workers). Considering prevalence of personality disorders 57% among alcohol dependence syndrome in this research [26], therefore p = 57, q = 43, l = 11.4 (20% of p) and sample size thus calculated equals to n = 75. When drop-out rate of 20% considered, figure is rounded off and finally total sample size 100 is taken.

The patients admitted in psychiatry unit diagnosed as Alcohol dependence syndrome (ADS) as per International Classification of Disease-10th Edition (ICD-10) Diagnostic Criteria for Research (World Health Organization, 1993) criteria [27], between ages 18 to 65 years, able to read Hindi, willing to participate and providing consent were included through simple random sampling. Those with serious physical illness, substance abuse other than alcohol or any other dysfunction interfering with assessment were excluded while those with tobacco dependence and psychiatric comorbidities were not excluded. The participants were informed about study and valid written consent was obtained.

The following tools were used to assess the patients:

1. *Semi-structured sociodemographic proforma:* The questionnaire includes age, sex, socioeconomic status, address, occupation, marital status, education status, past history, family history.

2. *Severity of alcohol dependence questionnaire (SADQ):* The SADQ is a self-administered, 20-item questionnaire designed to measure severity of dependence on alcohol as formulated by Edwards & Gross (1976) and Edwards (1978). There are five subscales with four items in each: physical withdrawal, affective withdrawal, withdrawal relief drinking, alcohol consumption, and rapidity of reinstatement. Each item is scored from 0 to 3 on 4-point Likert scale with score ranges from 0 to 60. The score below 16 suggests mild or none level of alcohol dependence, score 16-30 suggests moderate level of alcohol dependence and score 30+ suggests severe level of alcohol dependence.

3. *16 PF inventory:* the 16 PF is an objectively scorable test devised by basic research in psychology to give the most complete coverage of personality possible in a brief testing time. The personality will be assessed by the 16-personality factor test prepared by S. D. Kapoor in Hindi version. The 16 personality factors include warmth, reasoning, emotional stability, dominance, liveliness, rule-consciousness, social boldness, sensitivity, vigilance, abstractedness, privateness, apprehension, openness to change, self-reliance, perfectionism and tension.

Statistical Analysis

The analysis was done by descriptive and inferential statistics using Chi-square and multiple logistic regression analysis. Further data were analyzed with SPSS version 22.0 and considering p-value < 0.05 significant.

Results

In this study 16 PF inventory used to assess the personality variables of the patients. The different personality factors and its descriptors are mentioned in (Table 1) [28,29].

The total 100 patients of ADS were selected in pres-

Table 1: 16 PF variables and its descriptors.

Descriptors of Low Range	Primary Scales	Descriptors of High Range
Reserved, Impersonal, Distant	Warmth (A)	Warm-hearted, Caring, Attentive to Others
Concrete, Lower Mental Capacity	Reasoning (B)	Abstract, Bright, Fast-Learner
Reactive, Affected by Feelings	Emotional Stability (C)	Emotionally Stable, Adaptive, Mature
Deferential, Cooperative, Avoids Conflict	Dominance (E)	Dominant, Forceful, Assertive
Serious, Restrained, Carefull	Liveliness (F)	Enthusiastic, Animated, Spontaneous
Expedient, Nonconforming	Rule-Consciousness (G)	Rule-Conscious, Dutiful
Shy, Timid, Threat-Sensitive	Social Boldness (H)	Socially Bold, Venturesome, Thick-Skinned
Tough, Objective, Unsentimenta	Sensitivity (I)	Sensitive, Aesthetic, Tender-Minded
Trusting, Unsuspecting, Accepting	Vigilance (L)	Vigilant, Suspicious, Skeptical, Wary
Practical, Grounded, Down-To-Earth	Abstractedness (M)	Abstracted, Imaginative, Idea-Oriented
Forthright, Genuine, Artless	Privateness (N)	Private, Discreet, Non-Disclosing
Self-Assured, Unworried, Complacent	Apprehension (O)	Apprehensive, Self-Doubting, Worried
Traditional, Attached to Familiar	Openness to Change (Q1)	Open to Change, Experimenting
Group-Orientated, Affiliative	Self-Reliance (Q2)	Self-Reliant, Solitary, Individualistic
Tolerates Disorder, Unexacting, Flexible	Perfectionism (Q3)	Perfectionistic, Organized, Self-Disciplined
Relaxed, Placid, Patient	Tension (Q4)	Tense, High Energy, Driven

Median column means the name of factor.

Table 2: Distribution of patients according to socio-demographic variables.

Variables	Number	Percentage
Age	36.73 ± 9.56 (23-65 yrs)	
1. 18-25 yrs	10	10
2. 26-35 yrs	43	43
3. 36-45 yrs	28	28
4. > 45 yrs	19	19
Gender		
1. Male	99	99
2. Female	1	1
Religion		
1. Hindu	81	81
2. Muslim	6	6
3. Buddhist	13	13
Occupation		
1. Employed	75	75
2. Unemployed	25	25
Socio-economic status		
1. Lower	53	53
2. Middle	45	45
3. Upper	2	2
Type of family		
1. Nuclear	53	53
2. Extended nuclear	11	11
3. Joint	36	36
Educational status		
1. Illiterate	1	1
2. Primary	50	50
3. Secondary	37	37
4. Graduate	11	11
5. Postgraduate	1	1
Marital status		
1. Single	24	24
2. Married	73	73
3. Divorced	2	2
4. Widow	1	1

Years of marriage	13.72 ± 9.00 (1-40 yrs)	
1. 1-5 yrs	13	13
2. 6-10 yrs	17	17
3. > 10 yrs	44	44
Domicile		
1. Rural	44	44
2. Urban	36	36
3. Semi-urban	20	20
Past h/o psychiatric illness		
1. Yes	27	27
2. No	73	73
Family h/o psychiatric illness		
1. Yes	25	25
2. No	75	75

ent study. The mean age of patients was 36.73 ± 9.56 with most of them fall in 26 to 35 years age group (43%). There was only 1 female (1%) and 99% males among all study subjects with majority of them Hindu (81%) followed by Buddhist (13%) and Muslim (6%). Most of them were employed (75%), belong to lower socio-economic status (53%) and nuclear (53%) family, educated till primary (50%) and secondary (37%) schooling. Majority of the patients were married (73%) for more than 10 years (44%) and came from rural region (44%). Of the total patients, 27% has past history of psychiatric illness and 25% had family history of psychiatric illness (Table 2).

On 16 PF factor analysis, the patients had high scores on factors A (56%), E (67%), H (56%), I (70%), L (77%), Q1 (65%) and Q3 (52%); comparatively had low score on factors F (35%) and N (50%); while average scores on factors B (53%), C (46%), G (65%), M (52%), O (43%), Q2 (48%) and Q4 (36%). The severities of alcohol dependence syndrome on SADQ were found to be 10% mild, 38% moderate and 52% severe respectively (Table 3 and Table 4).

Table 3: Personality profile of ADS patients on 16 PF inventory.

16 PF variables	Low score (%)	Average score (%)	High score (%)
Warmth (A)	6 (6%)	38 (38%)	56 (56%)
Reasoning (B)	22 (22%)	53 (53%)	25 (25%)
Emotional Stability (C)	40 (40%)	46 (46%)	14 (14%)
Dominance (E)	1 (1%)	32 (32%)	67 (67%)
Liveliness (F)	35 (35%)	31 (31%)	4 (4%)
Rule-Consciousness (G)	20 (20%)	65 (65%)	15 (15%)
Social Boldness (H)	11 (11%)	33 (33%)	56 (56%)
Sensitivity (I)	11 (11%)	19 (19%)	70 (70%)
Vigilance (L)	10 (10%)	13 (13%)	77 (77%)
Abstractedness (M)	20 (20%)	52 (52%)	28 (28%)
Privateness (N)	50 (50%)	36 (36%)	14 (14%)
Apprehension (O)	30 (30%)	43 (43%)	27 (27%)
Openness to Change (Q1)	2 (2%)	33 (33%)	65 (65%)
Self-Reliance (Q2)	20 (20%)	48 (48%)	32 (32%)
Perfectionism (Q3)	2 (2%)	46 (46%)	52 (52%)
Tension (Q4)	29 (29%)	36 (36%)	35 (35%)

Table 4: Severity of alcohol dependence syndrome.

SADQ score	Number	Percentage
Mild	10	10
Moderate	38	38
Severe	52	52

Table 5: Correlation of personality variables with severity of SADQ scores.

16 PF variables	SADQ score			χ^2-value	p-value
	Mild	Moderate	Severe		
A					
Low score	0	2	4		
Average score	3	13	22	2.27	0.68, NS
High score	7	23	26		
B					
Low score	1	12	9		
Average score	5	20	28	5.28	0.26, NS
High score	4	6	15		
C					
Low score	2	12	26		
Average score	4	19	23	11.09	0.026, S
High score	4	7	3		
E					
Low score	0	0	1		
Average score	3	13	16	1.04	0.90, NS
High score	7	25	35		
F					
Low score	3	12	20		
Average score	2	14	15	2.10	0.71, NS
High score	5	12	17		
G					
Low score	2	7	11		
Average score	8	23	34	3.05	0.54, NS
High score	0	8	7		
H					
Low score	1	5	5		
Average score	4	11	18	0.72	0.94, NS
High score	5	22	29		
I					
Low score	1	4	6		
Average score	1	8	10	0.70	0.95, NS
High score	8	26	36		
L					
Low score	0	7	3		
Average score	4	3	6	11.72	0.019, S
High score	6	28	43		

M					
Low score	1	6	13		
Average score	5	22	25	2.47	0.64, NS
High score	4	10	14		
N					
Low score	4	18	28		
Average score	5	18	13	8.15	0.08, NS
High score	1	2	11		
O					
Low score	2	13	15		
Average score	4	19	20	4.30	0.36, NS
High score	4	6	17		
Q1					
Low score	0	1	1		
Average score	5	15	13	3.80	0.43, NS
High score	5	22	38		
Q2					
Low score	0	8	12		
Average score	7	19	22	3.89	0.42, NS
High score	3	11	18		
Q3					
Low score	0	0	2		
Average score	7	16	23	4.44	0.34, NS
High score	3	22	27		
Q4					
Low score	4	13	12		
Average score	4	15	17	4.46	0.34, NS
High score	2	10	23		

Table 6: Multiple Regression analysis considering personality factors as independent variables.

Variables	Unstandardized Coefficients		Standardized Coefficients		
	B	Std. Error	Beta	t	p-value
SADQ Score	2.827	0.888			
A	-0.088	0.121	-0.081	0.728	0.468, **NS**
B	0.024	0.105	0.025	0.228	0.820, **NS**
C	**-0.444**	**0.123**	**-0.458**	**3.626**	**0.0001, S**
E	-0.196	0.145	-0.145	1.348	0.181, **NS**
F	-0.055	0.086	-0.068	0.638	0.525, **NS**
G	-0.022	0.115	-0.019	0.189	0.851, **NS**
H	0.062	0.107	0.063	0.573	0.568, **NS**
I	0.013	0.110	0.013	0.116	0.908, **NS**
L	0.148	0.114	0.144	1.293	0.199, **NS**
M	-0.070	0.104	-0.073	0.675	0.502, **NS**
N	0.045	0.099	0.048	0.452	0.652, **NS**
O	-0.145	0.102	-0.164	1.422	0.159, **NS**
Q1	0.125	0.134	0.098	0.931	0.355, **NS**
Q2	-0.114	0.100	-0.122	1.147	0.255, **NS**
Q3	**0.284**	**0.146**	**0.230**	**1.967**	**0.045, S**
Q4	0.094	0.102	0.113	0.920	0.360, **NS**

Personality factors (16 PF) C and L were significantly associated with the severity of ADS with p-values 0.026 and 0.019 respectively, whereas other factors had no significant correlation (p > 0.05). The multiple regression analysis showed that factors C and Q3 were predictors of severity of ADS (Table 5 and Table 6).

Discussion

The present study was a hospital-based study and aimed at determining the relationship of personality traits with severity of ADS. In addition, it was also designed to find personality characteristics of alcohol dependent patients using 16 PF inventory. Review of literature reported that the scales which were mainly used to assess personality characteristics include Cloninger's Temperament and Personality Questionnaire (TPQ), Temperament and Character Inventory (TCI), NEO five-factor model and the Minnesota Multiphasic personality inventory (MMPI) [30]. To the best of our knowledge this is the first study of its kind where 16 PF inventory used to assess the personality profile of ADS patients.

In present study, 99% subjects were males and there was only one female. The reason may be that alcohol consumption by women is socially unacceptable in this region and they may not seek treatment openly in general hospital setting. Most of the patients were married,

employed, educated (primary and secondary), resided in rural areas, belonged to lower socio-economic status and nuclear family. These findings are almost similar to that of Aswal, et al. and Gauba, et al. [31,32]. While some studies reported that long term use of alcohol leads to unemployment and interpersonal relationship problem [33,34].

The patients of ADS assessed on 16 PF found to be warm, dominant, aggressive, bold, tender minded, suspicious, distrustful, experimenting and following self-image (factors with high scores). Further they were sober, dependable, forthright and unpretentious (factors with low scores). Also, they scored average on intelligence, emotional stability, superego strength, practical and imaginative issues. Mellos, et al. in his review reported that alcohol related problems are associated with traits such as sensation seeking aggressiveness, impulsivity and psychoticism [35]. Donadon and Osorio showed that alcoholic group scored lower on personality traits such as openness, agreeableness, conscientiousness, extraversion and neuroticism using Five personality factor inventory NEO revised [36]. In another study by Alvarez, et al., AUD patients suffered from more impulsive personality, have tendency to experience new emotions, apprehensive or more fearful, attributes their problems to others and may have lack of objectives [23].

The relationship between personality variables and severity of ADS in present study demonstrated significant association of Factors C (Emotional stability) and L (Vigilance) with severity. Previously Cannon, et al., reported that novelty-seeking had significant positive correlation with scores on ADS, while other TPQ dimensions were not significantly correlated [37]. Conversely, Foulds, et al., reported no correlation between average consumption per day and NS, while both percentage of abstinence days and heavy drinking days were correlated positively with NS; self-directedness was correlated negatively with percentage of abstinent days and HA was correlated negatively with daily alcohol consumption [38]. According to Soundararajan, et al., E4 (activity) of extraversion domain in NEO-PI-R correlated significantly with the baseline AUDIT score. It means people who score high on extraversion tend to be more involved with drinking [15]. As per Alvarez, et al., the temperament traits of Avoidance of Damage (AD) and Search for Novelty (SN) correspond to higher degree of AUD severity. It means people who are more impulsive, curious, pessimistic and fearful of change present greater severity of AUD. However, high scores in Persistence (P) and Reward Dependency (RD) are related to lower severity of disorder. In other words, people who were more ambitious, sociable and perfectionist had less intensity of dependence and less severe AUD. On other hand, characteristic features, Cooperation (CO), Self-Transcendence (ST) and Self-Direction (SD) are related to a lower severity of disorder by alcohol consumption and there is a lower intensity of dependency [23].

In this study, Factors C (Emotional stability) and Q3 (Perfectionism) were found to influence the severity of AUD on multivariate analysis. Donadon and Osorio reported extraversion was the statistically significant predictor of alcohol dependence [36]. According to Cloninger, gender influences the severity of alcohol consumption disorder via personality. Three of four temperamental variables (Reward Dependency, Avoidance of Damage and Search for Novelty) are influenced by gender in their relationship with severity of AUD [23]. These variations in results of present and previous studies with respect to personality profile and its correlation with severity of ADS could be attributed to differences in study population; sampling factors; characteristics of the sample; diagnostic criteria applied, or assessment procedures used.

The connection between the personality pathology and severity, as well as outcome of ADS, remains a complex and unresolved issue. When there is comorbid personality pathology then the course of alcohol use disorder is less favorable, and it is reflected in increased consumption, earlier onset of alcohol problems and more delinquent social and occupational consequences of drinking [35]. Hence, it can be concluded that personality traits are important factors for the development of addictive behavior such as alcohol dependence. So, these factors need to be addressed during intervention to diminish and/or treat this clinical condition and its impact or severity.

Conclusion

The present study suggests that personality factors such as emotional stability and vigilance might be associated with the more severity of drinking. Most of the patients with ADS scored high on personality characteristics such as warmth, dominance, social boldness, sensitivity, vigilance, openness to change and perfectionism while they scored low on factors liveliness and privateness. Personality traits emotional stability and perfectionism were found to affect the severity of alcohol dependence in present study. People with comorbid personality pathology associate with increased consumption of alcohol, chances of relapse, more severity and poor treatment outcome. It emphasizes that health care providers need to address these factors during management for better outcome and policy making in AUD patients.

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