



Relationship of Personality Trait Impulsivity with Clinical Variables in Male Alcohol-Dependent Inpatients

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ÖZET:

Yatarak tedavi gören erkek alkol bağımlılarında dürtüsellik kişilik özelliği ile klinik değişkenlerin korelasyonu

Amaç: Bu çalışmanın amacı, yatarak tedavi gören erkek alkol bağımlılarında kişilik özelliği dürtüsellik farklı psikopatolojiler ve alkolle ilişkili sorunların şiddeti ile ilişkisini değerlendirmektir.

Yöntem: Mizaç ve Karakter Envanterinin "Dürtüsellik" alt ölçeği, Durumluk ve Sürekli Anksiyete Envanteri, Beck Depresyon Envanteri, Toronto Alexitimi Ölçeği, Disosiyatif Yaşantılar Ölçeği, Belirti Tarama Listesi ve Michigan Alkolizm Tarama Testi yatarak tedavi gören 176 erkek alkol bağımlısı hastaya uygulanmıştır.

Bulgular: Dürtüsellik kişilik özelliği ortalama puanı erken başlangıçlı alkol bağımlılığı, özkiyim girişimi öyküsü, depresyon, durumsal anksiyete, sürekli anksiyete, aleksitimi ve disosiyasyon takson üyeliği olanlarda daha yüksekti. Dürtüsellik kişilik özelliği alkol kullanmaya başlanılan yaş ile düşük düzeyde negatif ilişki gösterirken, depresyon ve disosiyasyon puanları ile düşük düzeyde doğrusal ilişki ve çalışmada kullanılan diğer ölçekler ile orta düzeyde doğrusal ilişki göstermiştir. Yaş, eğitim süresi ve düzenli alkol kullanmaya başlama yaşı ile ise anlamlı korelasyon saptanmamıştır. Sürekli anksiyete ve alkolle ilişkili sorunların şiddeti depresyon modelinde dürtüsellik belirleyen yegane değişkenler olmuştur.

Sonuç: Dürtüsellik erken başlangıçlı alkolizm, özkiyim girişimi ve geniş psikopatoloji boyutları ile ilişkili olabilir de, dürtüsellik belirleyicileri sadece sürekli anksiyete ve alkolle ilişkili sorunların şiddeti olmuştur. Bu bir kesitsel çalışma olduğundan, dürtüsellik ile sürekli anksiyete ve alkolle ilişkili sorunların şiddeti arasındaki nedensel ilişkiye açıklık getirmemekte ve daha ileri değerlendirme gerektirmektedir.

Anahtar sözcükler: Alkol, anksiyete, depresyon, dürtüsellik, psikopatoloji

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ABSTRACT:

Relationship of personality trait impulsivity with clinical variables in male alcohol-dependent inpatients

Objective: The aim of this study was to evaluate the correlation of personality trait impulsivity with different psychopathologies and severity of alcohol-related problems among male alcohol dependent inpatients.

Method: The following tests were administered to 176 male alcohol dependent inpatients: "Impulsiveness" subscale of the Temperament and Character Inventory, State-Trait Anxiety Inventory, Beck Depression Inventory, Toronto Alexithymia Scale, Dissociative Experiences Scale, Symptom Checklist-Revised, and Michigan Alcoholism Screening Test.

Results: Mean score of personality trait impulsivity was higher among those with early onset alcoholism, suicide attempt history, depression, state anxiety, trait anxiety, alexithymia, and dissociative taxon membership. Personality trait impulsivity showed mild negative correlation with age at first alcohol use, mild positive correlations with depression and dissociation scores and moderate correlations with other scales used in the present study. No significant correlations were found with age, duration of education, and duration of regular alcohol use. The severity of trait anxiety and problems related to alcohol use were the only predictors of impulsivity in regression model.

Conclusions: Although personality trait impulsivity might be related to early onset alcoholism, suicide attempt history, and a broad range of psychopathology, only trait anxiety and severity of alcohol-related problems predicted impulsiveness. Since this was a study in cross-sectional design, the question of causal relationship between impulsivity and trait anxiety or problems related to alcohol use still remains unanswered and need further research.

Key words: Alcohol, anxiety, depression, impulsiveness, psychopathology

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INTRODUCTION

Impulsivity is an important clinical problem in psychiatry (1). Among psychiatric diagnoses, impulsivity is more common in subjects with conduct disorders, attention deficit hyperactivity disorder, disorders of personality, substance and alcohol abuse, psychotic

disorders, bipolar disorders, eating disorders and dementia compared to healthy control groups (2). The manifestation of impulsivity in these different syndromes may be different, and this has led to conflicting definitions (1). Being a measurable feature of behavior, impulsivity is defined as the failure to resist a drive or stimulus or as a personality dimension as the inability to resist the desire

to harm one's self or others (2).

Impulsivity has been consistently associated with alcohol or substance use and related problems (2-5). Moreover, in a review of Acton (2003), it was argued that impulsivity is a temperamental risk factor for substance use (6). Personality trait impulsivity is higher among drug dependents than alcohol dependents (7) and higher among polysubstance dependents than those dependent to single substance (8). Also alcohol-dependent patients are more impulsive than controls (9). It is suggested that impulsivity may be a fundamental mechanism in both the onset of excessive substance use (10) and relapse to substance use (11). Impulsivity may also serve as a moderator on the relationship between alcohol-use behavior and alcohol-use outcomes, such as alcohol use-related problems (12-14). A recent study suggested that the paradigm related to delay of reward may be a factor associated with the use of alcohol and the incapacity to control inhibition as dependence develops (15).

High relative co-morbidity is observed between alcohol use disorders and Axis I and Axis II psychiatric disorders from the impulse control spectrum; i.e. antisocial personality disorder (16). Indeed self-report measures of impulsivity were higher in alcohol dependents with cluster-B personality disorder than in those without personality disorder (17). Also, impulsivity was found to be a characteristic of alcohol-dependent men with early onset alcoholism (Type-II) like features, rather than late-onset alcoholism (3,18). Dom et al. (18) even suggested further identification of alcoholism subtypes based on dimensions of impulsivity.

The existing literature suggests that impulsivity may be a multidimensional construct and individual differences may exist across the different dimensions of impulsiveness, which may be related to different patterns and severities of substance use (10). Some instruments are specifically focused on the impulsivity construct (10); others are part of a more global personality assessment that includes subscales that may correspond to impulsive personality traits (19). Individuals who score high on the "impulsiveness" subscale of the Temperament and Character Inventory tend to be excitable, dramatic, impressionistic, and moody individuals who make decisions quickly on incomplete information and control their impulses poorly. Typically, these persons act on their momentary instincts and instinctive premonitions. Hence,

they have to revise their decisions and opinions frequently when unanticipated events or information develop (19,20). This personality trait impulsivity may mediate the effects of alcohol on aggression (21), might contribute significantly to the risk of suicide attempts in alcohol-dependent patients (22) and may interrupt with their outpatient or inpatient treatment (23-24).

Trait impulsivity is associated with increased risk of adverse life events in illicit drug users (25). It has also been suggested that individuals with high impulsivity frequently experience negative emotional states such as irritability, anxiety, and dysphoria, and that substance use may be an attempt to alleviate the internal negative emotions (23). Impulsivity appears to be a distinct personality factor that may contribute to the onset of other psychopathologies (2,26). Personality traits related to impulsive behavior was not directly related to alcohol abuse but rather associated with the elevated levels of psychopathology found in a subtype of alcohol abusers (27). One of these psychopathologies might be dissociation, which was related with high impulsivity in psychiatric populations (28-30). Also alexithymia, defined as difficulty in identifying and describing feelings, was linked to both impulsivity and alcohol dependency in several studies (31,32). Thus, careful measurement of impulsivity, as a stable personality trait, and related factors is therefore of significant importance to clinicians interested in substance use disorders (3).

We have some information from earlier research about the relations between impulsivity and other disorders, but we do not know much about these relations when dealing with "subthreshold" populations. This is important because in previous study those with subthreshold personality disorders showed similar clinical correlates as those with personality disorders in alcohol dependents (33). In comparison to the limited view provided by using only symptomatology that meets criteria for a diagnosis, the use of continuous measures of psychiatric symptomatology and psychological abnormality yields a much more accurate picture of psychiatric illness co-occurring with alcoholism (34-36). Thus, we think it would be helpful to provide data that evaluates the relationship between personality trait impulsivity and clinical variables with non-pathologic and pathological range of these measures. To our knowledge, this is the first study to evaluate the clinical correlates of personality trait

impulsivity among male alcohol dependent inpatients.

METHOD

Setting

The study was conducted in Bakirkoy State Hospital for Psychiatric and Neurological Diseases, Alcohol and Drug Research, Treatment and Training Center (AMATEM) in Istanbul between December 2005 and July 2006. AMATEM is a specialized center for substance use disorders with 80 inpatient beds, and accepts patients from all over Turkey. The detoxification processes of alcohol- and drug dependent inpatients are carried out in different parts of AMATEM. The Ethical Committee of the hospital approved the study. Patient's written informed consent was obtained after the study protocol was thoroughly explained.

Sample

In the present study only alcohol dependents were evaluated and drug dependent patients were not included in the study. This was done to achieve homogeneity of the study sample. Two hundred consecutively admitted alcohol-dependent inpatients without history of any other substance use disorder were considered for participation in the study. All participants fit the DSM-IV diagnostic criteria for alcohol dependence. Five patients were excluded due to illiteracy and three patients due to cognitive deficits. Although none of the patients refused to participate in the study, 16 patients were excluded because they left some parts of the scales unfilled, did not give the forms back or left the treatment program prematurely; i.e. before filling the forms. A total of 176 alcohol-dependent inpatients participated in the study. Interviews with the study group were conducted after detoxification period, i.e. 4-6 weeks after the last day of alcohol use.

Instruments

Other than the semi-structured socio-demographic data form designed for this study, which included a detailed suicide attempt history, following measures were used:

- Diagnosis of alcohol dependence was based on the clinical examination, a screening interview based on a Turkish version of the Structured Clinical Interview for DSM-IV, axis I (SCID-I) (37,38). Only alcohol and drug use disorder modules of SCID-I were used. Interviewer was psychiatrist (CE) and he was appropriately trained and certificated in the administration of the SCID-I.
- The Temperament and Character Inventory (TCI) evaluates four higher order temperament and three higher order character traits dimensionally (19,39). Novelty Seeking is a multifaceted higher order temperament trait consisting of four lower order traits including "Impulsiveness" (40). Impulsiveness subscale of novelty seeking was used to measure impulsiveness. This subscale of TCI was used because first of all there was no other scale to measure impulsivity in Turkish and also it was not used for this purpose before. Cronbach's alpha was 0.69 in the present study.
- The prevalence of alexithymia was screened using the 20-item version of the Toronto Alexithymia Scale (TAS-20) (41,42), Turkish version (43). Three dimensions of TAS-20 are: (I) difficulty in identifying feelings (DIF); (II) difficulty in describing feelings (DDF); (III) externally orientated thinking (EOT). The total scores of the TAS-20 were categorized according to the recommendations of Kose et al. (43); thus a score ≥ 61 indicated alexithymia and < 61 no alexithymia. Cronbach's alpha was 0.76 in the present study.
- Psychopathologic symptoms were assessed with 90-item Symptom Checklist-Revised (SCL-90-R), a self-rating inventory (44). The global severity index (GSI) was considered as a measure of overall psychopathology. Turkish version of SCL-90-R was used (45). Cronbach's alpha was 0.98 in the present study.
- Symptoms and severity of depression were evaluated by using the Beck Depression Inventory (BDI) (46), Turkish version (47). Scores 17 and above shows depression probability. The Cronbach's alpha was 0.90 for BDI in the present study.
- As a measure of state and trait anxieties, the state and trait form of Spielberger's State-Trait Anxiety Inventory (STAI) (48) was used. The STAI is a forty-

item self-report instrument designed to assess state and trait anxiety. For both state and trait anxiety, scores 44 and above shows anxiety probability. The Cronbach's alpha was 0.91 for State Anxiety and 0.87 for Trait Anxiety in the present study.

- Dissociative symptoms were assessed using the 28-item self-report Dissociative Experiences Scale (49). The DES is not a diagnostic tool but serves as a screening device for chronic dissociative disorders. Responders are asked to rate various dissociative experiences that are occurring in their daily life when they are not under the influence of alcohol or drugs. The Turkish version of the scale has reliability and validity as high as its original form (50,51). Cronbach's alpha was 0.95 in the present study. There is also a taxon form of the scale (DES-T) derived from eight of the original items. Taxometric analysis of these items yields a high probability that an individual is in one of two discrete categories; normal or suffering from pathological dissociation (52). Cronbach's alpha was 0.86 for DES-T in the present study.
- The severity of dependence was assessed by using the Michigan Alcoholism Screening Test (MAST) (53), which was developed as a "rapid and effective screening for lifetime alcohol-related problems and alcoholism" for a variety of populations. Turkish version of the MAST is valid and reliable for screening severity of alcohol dependency (54). The Cronbach's alpha was 0.74 in the present study.

Analysis

The statistical package SPSS 11.5 for Windows was used for all the analyses. Frequency and percentage was used for sociodemographic variables. We used Mann-Whitney U test to compare the groups on continuous variables. Correlation analysis (Pearson, bivariate) between impulsiveness score and demographic variables and other scale scores were performed. Predictors of impulsiveness were evaluated using stepwise linear regression analysis. Age, duration of regular alcohol use, GSI of SCL-90, BDI, STAI-I (State anxiety), STAI-II (Trait anxiety), MAST, TAS-20 and DES-T were taken as independent variables in the first step of this analysis model. For all statistical analysis level of significance was set at $p = 0.05$.

RESULTS

A total of 176 consecutive alcohol-dependent male inpatients were included in the statistical analyses. The mean age of the participants was 43.1 (SD = 8.3, range = 23-70). 101 (57.4%) subjects were married, whereas 55 (29.6%) were divorced and 23 (13.1%) were single. 87 (49.4%) subjects were employed, whereas 57 (32.4%) subjects were unemployed and 32 (18.2%) were retired. Fifty four (30.7%) had graduated from primary school, 33 from secondary school, 51 from high school, and 38 were university graduates (Table 1).

Table 1: Sociodemographic variables

		n	%
Current age (mean±SD)	43.1±8.3		
Marital status	Married	101	57.4
	Divorced	55	29.6
	Single	23	13.1
Employment status	Employed	87	49.4
	Unemployed	57	32.4
	Retired	32	18.2
Educational status	Primary school	54	30.7
	High school	84	47.7
	University graduates	38	21.6

The mean of the impulsivity score was 4.2 (SD = 2.3, range = 0-10). Early onset alcoholism (EOA) defined as onset of alcohol abuse at the ages below 25 and late onset alcoholism (LOA) at age of 25 and above. Those with EOA (n = 74, 42%) had higher impulsivity scores (4.69 ± 2.31) than those with LOA (n = 102, 58%) (3.78 ± 2.17) ($z = -2.84$, $p = 0.004$). Those with suicide attempt history (n = 37) had higher impulsivity scores (4.8 ± 2.3) than those without suicide attempt history (n = 139) (4.0 ± 2.2) ($z = -2.41$, $p = 0.016$). According to the cut-off point 86 (48.9%) had depression and 90 (51.1%) had no depression. Those with depression had higher impulsivity scores (4.71 ± 2.17) than those without depression (3.64 ± 2.26) ($z = -3.23$, $p = 0.001$). According to the cut-off points 74 (42.0%) had state anxiety and 102 (58.0%) had no state anxiety, whereas 130 (73.9%) had trait anxiety and 46 (26.1%) had no trait anxiety. Those with state anxiety had higher impulsivity scores (4.93 ± 2.15) than those without state anxiety (3.61 ± 2.20) ($z = -3.90$, $p < 0.001$). Similarly those with trait anxiety had higher impulsivity scores (4.60 ± 2.23) than those without trait anxiety (2.94 ± 1.94).

Table 2: Mean impulsivity scores among alcohol dependent men according to the clinical variables

Scale scores (n=176)	Impulsivity score					
	Scale score positive		Scale score negative		z	p
	mean	SD	mean	SD		
Early onset alcoholism (EOA) (n= 74, 42.0%)	4.69	2.31	3.78	2.17	-2.84	0.004
Suicide attempt history (n= 37, 21.0%)	4.84	2.30	3.99	2.24	-2.41	0.016
Depression (n= 86, 48.9%)	4.71	2.17	3.64	2.26	-3.23	0.001
State Anxiety (n= 74, 42.0%)	4.93	2.15	3.61	2.20	-3.90	<0.001
Trait Anxiety (n= 130, 73.9%)	4.60	2.23	2.94	1.94	-4.43	< 0.001
Alexithymia (n= 53, 30.1%)	4.81	1.97	3.89	2.34	-2.93	0.003
Dissociative taxon members (n= 58, 33.0%)	4.86	1.96	3.82	2.34	-2.84	0.004

($z = -4.43$, $p < 0.001$). According to the cut-off point 53 (30.1%) had alexithymia and 123 (69.9%) had no alexithymia. Those with alexithymia ($n = 53$) had higher impulsivity scores (4.8 ± 2.0) than those without alexithymia ($n = 123$) (3.9 ± 2.3) ($z = -2.93$, $p = 0.003$). Fifty eight (33.0%) patients were dissociative taxon members (dissociative group) according to Bayesian probability, whereas 118 (67.0%) patients were taxon negative (non-dissociative group). Dissociative taxon members ($n = 58$) had higher impulsivity scores (4.9 ± 2.0) than those taxon negative ($n = 118$) (3.8 ± 2.3) ($z = -2.84$, $p = 0.004$) (Table 2).

Personality trait impulsivity showed mild negative correlation with age at first alcohol use, mild positive correlations with depression and dissociation scores, whereas showed moderate correlations with other scales used in the present study. No significant correlations were found with age, duration of education and age at regular

variables, severity of trait anxiety and problems related with alcohol use were the only predictors of impulsivity in regression model (Table 4).

Table 3: Correlations between impulsiveness and other scales

	Impulsiveness	
	r	p
Age	-0.14	0.07
Duration of education	0.08	0.27
Age at first alcohol use	-0.24	0.001*
Age of regular alcohol use	-0.11	0.13
SCL-90 global severity index	0.31	<0.001*
Beck Depression Inventory	0.19	0.013*
STAI-I (State anxiety)	0.31	<0.001*
STAI-II (Trait anxiety)	0.33	<0.001*
MAST	0.28	<0.001*
TAS-20	0.30	<0.001*
DES-T	0.19	0.01*

*Statistically significant STAI : State-Trait Anxiety Inventory, MAST : Michigan Alcoholism Screening Test

Table 4: Determinants when taking impulsiveness score as a dependent variable in stepwise linear regression

	Unstandardized Coefficients		Standardized Coefficients	t	p
	B	Std. Error	Beta		
(Constant)	-0.295	0.900		-0.328	0.743
STAI – II (Trait anxiety)	0.065	0.019	0.264	3.464	0.001
MAST	0.041	0.017	0.179	2.343	0.020

Dependent Variable: impulsivity, $F = 13.85$, $p < 0.001$, $d.f. = 1, 174$, Adjusted $R^2 = .13$

STAI: State-Trait Anxiety Inventory, MAST: Michigan Alcoholism Screening Test

Age, duration of regular alcohol use, GSI of SCL-90, Beck Depression Inventory, STAI-I (State anxiety), STAI-II (Trait anxiety), MAST, TAS-20 and DES-T were independent variables

alcohol use (Table 3). Stepwise Linear Regression Model was performed when impulsivity score was taken as dependent variable and age, duration of regular alcohol use, GSI of SCL-90, BDI, STAI-I (State anxiety), STAI-II (Trait anxiety), MAST, TAS-20 and DES-T were taken as independent variables. Among these independent

DISCUSSION

Consistent with previous studies (1,2,27), the main finding of the present study was that personality trait impulsivity had mild to moderate correlations with severity of general psychopathology, depression, anxiety,

dissociation and alexithymia among male alcohol dependents. These relationships were found both with continuous measures of psychiatric symptomatology and with symptomatology that meets criteria for a diagnosis, such as present and absent, i.e., dissociative taxon members and alexithymic group had higher “impulsiveness” scores than those are not. In previous studies high comorbidity of impulsivity in different psychopathologies was related to dissociation (2,28-30). Also alexithymia was linked to impulsivity (31). Since trait impulsivity is associated with increased risk of adverse life events in substance users (25), it was suggested that alcohol use might be an attempt to alleviate the internal negative emotions among impulsive individuals (23). Other than alcohol, both dissociative reactions (55) and alexithymia (56) are other strategies that have been put forward as a coping mechanism to alleviate painful emotions. Consistent with these findings, severity of trait anxiety and problems related with alcohol use were the predictors of impulsivity in present study, which might suggest that not only alcohol use, alexithymia or dissociation, impulsivity may also be related with negative emotions, although causal direction of this relationship is unclear among alcohol dependent inpatients.

Some studies considered alexithymia as a state reaction, secondary to depression or anxiety in alcohol dependents (57). Nevertheless the latest study evaluating the stability of alexithymia in alcohol-dependent patients suggested that alexithymia is a stable personality trait rather than a state-dependent phenomenon (58). Finding positive correlation between personality trait impulsivity and alexithymia in present study does not suggest whether this relationship is with trait or state alexithymia. But since alexithymia did not predict personality trait impulsivity when controlled for anxiety and depression, this might suggest that this positive relationship was with state alexithymia.

Findings of the present study supports the previous studies that suggested impulsivity to be a characteristic of alcohol-dependent men with early onset alcoholism (3,18); i.e. higher mean score of impulsivity in patients with early onset alcoholism and positive correlation of impulsivity with age at first alcohol use. The findings from a population-based case-control study suggested that impulsivity and age of first alcoholic drink are associated

strongly with alcohol and drug problems. Additionally, impulsivity seems to contribute to a premature exposure to alcohol by hastening the age of first alcoholic drink (59). Impulsivity is also related with the risk of maladaptive behaviours such as suicide attempts in alcohol-dependent patients (22). In a previous study, patients with both impulsive and non-impulsive suicide attempt were more likely to have a higher scores on a personality measure of impulsiveness than those patients without a suicide attempt (60). Findings of the present study is consistent with these results.

Impulsivity trait has been regarded as a factor that may contribute to the onset of other psychopathologies (2,26), whereas impulsivity as a state reaction may be a result of severe psychopathology (27). Whiteside and Lynam (2003) suggested that personality traits related to impulsive behavior was not directly related to alcohol abuse but rather associated with the elevated levels of psychopathology found in a subtype of alcohol abusers (27). Cross-sectional design of present study limits us from reaching conclusions about causal relationships (2,61). There is no unambiguous support for the “disinhibition” hypothesis (62). Results of previous study suggested that the alcohol dependent individuals were more impulsive than both the currently abstinent alcoholics (formerly dependent) and the controls, suggesting a direct relationship with alcohol use and impulsivity (9). The question of whether if these patients are drinking alcohol to reduce impulsivity or abusing alcohol causes impulsivity by disinhibiting effect is left unanswered. Nevertheless, with the clinical point of view, impulsivity is not only a predictor of substance abuse but it is also a negative predictor for treatment retention (63). Indeed, not only the personality trait impulsivity (17), but also severity of psychopathology (64), dissociation (65) and alexithymia (66) may all have negative impact on the course of alcohol dependency. Moeller et al. (61) found that impulsivity was significantly correlated with severity of self-reported cocaine use and severity of cocaine withdrawal. Simons and Carey (67) reported significant direct relationships between impulsivity and marijuana-related problems. Similarly cocaine dependent patients with higher levels of impulsivity exhibited greater alcohol and employment related problems (23). In present study, other than trait anxiety, severity of alcohol-related problems measured with MAST was the only predictor of

impulsivity. This supports the previous studies, which have indicated that impulsivity moderates the relationship between alcohol use and use-related problems (12-14).

The present study has several limitations. One of the limitations was that all the patients were male. Also the study group was restricted to a treatment seeking population, and therefore it is not possible to generalize the findings to female patients and non-treatment groups. All measures used in this study were self-reported. Although the study was conducted after detoxification, patients might still have had some cognitive problems to express themselves correctly. Also, because the current study utilized a cross-sectional research design, it is not possible to make conclusive statements about the temporal order between the measures of impulsivity and psychopathology. Finally, the present study did not include a control group for comparison. In previous studies the alcohol-dependent patients were higher on impulsivity than the normal controls (9,68), although measures of impulsivity was

higher among drug dependents, particularly among polysubstance users, than alcohol dependents in some studies (7,69). Despite these limitations, results of the present study suggested that severity of impulsiveness trait should be considered when planning alcohol dependency treatment, since these patients have different clinical characteristics and different needs.

Although only trait anxiety and severity of alcohol-related problems were the predictors, impulsiveness seems to be related with broad range of current psychopathology, early onset alcoholism and suicide attempt history. Thus, active screening for impulsiveness as a stable personality trait in treatment-seeking alcohol-abusing populations is recommended to improve treatment planning and the course of the dependence (24). Further studies concerning the relationships among the stable personality trait of impulsiveness and alcohol dependents may also help inform treatment decisions that can be tailored to the needs of individual clients (70).

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