Reprinted from the German Journal of Psychiatry · http://www.gjpsy.uni-goettingen.de · ISSN 1433-1055

Antisocial Personality Disorder and its Correlate in the Michigan Alcoholism Screening Test

Hubertus Himmerich[1], Matthias J. Müller[2], Ion Anghelescu[3], Christoph Klawe[2], Armin Scheurich[2], Armin Szegedi[3]

[1]Max Planck Institute of Psychiatry, Kraepelinstraße 2-10, D-80804 Munich, Germany
[2] Department of Psychiatry, University of Mainz, Untere Zahlbacher Straße 8, D-55131 Mainz, Germany
[3] Department of Psychiatry, Charité, University of Berlin, Campus Benjamin Franklin, Eschenallee 3, 14050 Berlin, Germany

Corresponding author: Dr. H. Himmerich; Max Planck Institute of Psychiatry, Kraepelinstraße 2 – 10, 80804 Munich, Germany, E-mail: himmerich@mpipsykl.mpg.de

Abstract

Abstract…. Antisocial personality disorder (ASPD) often co-occurs with alcohol dependence. We assessed traits of personality disorders and severity of alcohol dependence in a sample of 191 patients with alcohol dependence or abuse (DSM-IV) using the Structured Clinical Interview for DSM (SCID-II) and the Michigan Alcoholism Screening Test (MAST). In a previously reported principle component analysis of a German version of the MAST we found an interpretable five factor solution with simple structure. Factor II resembled anti-social behavior. In the present study, we found an association between the extent of severity of alcoholism as measured by the MAST and the number of fulfilled criteria for ASPD ($p = 0.008$). The score of MAST factor II correlated positively and significantly with the total number of fulfilled criteria for ASPD ($p < 0.001$). Therefore, factor II seems to be associated with traits of ASPD. But this association does not seem to be specific, because the MAST factor II score also correlated significantly with the scores of paranoid ($p < 0.001$) and borderline ($p = 0.001$) PD (German J Psychiatry 2004, 7 (2):14-19).

Keywords: MAST, SCID, personality disorder, ASPD, alcohol dependence

Received: 12.1.2004 (revised version: 17.3.2004)
Published: 28.5.2004

Introduction

The essential feature of antisocial personality disorder (ASPD) is a pervasive pattern of disregard for, and violation of the rights of others, that begins in childhood or early adolescence and continues into adulthood. This pattern has also been referred to as psychopathy or sociopathy. The condition was first described by Pinel in 1801 (Pinel, 1801) and termed mania without delusions ("manie sans délire") characterised by emotional instability and social drift.

The diagnosis of ASPD is still controversial. The diagnostic criteria have changed with every new edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM). The diagnosis was substantially changed with DSM-III when the American Psychiatric Association decided to distinguish between child or youth and adult characteristics. In the DSM-III-R, the focus was on violence and a list of violent acts (fighting, cruelty to others, cruelty to animals).

According to DSM-IV, clinical features of ASPD include failure to conform to social norms, deceitfulness, manipulative behaviour, impulsiveness, failure to plan ahead, irritability, aggressiveness, recklessness disregarding the safety of self or others, consistent irresponsibility and lack of remorse after having hurt, mistreated, or stolen from another person.

Psychiatric disorders occur more often among alcoholics than among the general population. The psychiatric disor-

ders most frequently associated with alcohol dependence are mood disorders and ASPD (Modesto-Lowe and Kranzler, 1999).

Epidemiological studies and laboratory research consistently link alcohol use with antisocial behaviour. Alcoholics are more likely to have another psychiatric disorder compared with their non-alcoholic counterparts, and ASPD, mania, and other drug dependence rank among those disorders most strongly associated with alcohol and drug dependence (Buchholz, 1999). And vice versa, as a group, people with ASPD have higher rates of alcohol dependence and more alcohol-related problems than people without ASPD (Moeller and Dougherty, 2001). An early history of antisocial behaviour was shown to be a risk factors and a strong and consistent predictor of alcohol abuse and dependence (Grant et al., 2001).

A multivariate genetic analysis conducted by Jang et al. showed that a subset of traits delineating components of antisocial personality (grandiosity, attention-seeking, failure to adopt social norms, interpersonal violence and juvenile antisocial behaviours) are influenced by genetic factors in common to alcohol misuse, and it was concluded, that liability to alcohol misuse is related to genetic factors common a specific subset of antisocial personality traits (Jang et al., 2000).
Three hypotheses have been proposed to explain the co-occurrence between antisocial personality and alcoholism. Firstly, it could be an artificial finding due to common items in diagnostic manuals widely used, such as the DSM or the International Classification of Diseases (ICD). Secondly, antisocial personality and alcoholism could share common etiologic factors, and determine a real co-morbidity. Finally, common genetic factors of these two disorders may exist, with the observation of a co-transmission of both disorders more often than expected by chance alone, meaning the existence of co-aggregation (Limosin et al., 2000).

The MAST is a self-report questionnaire, which was developed by Selzer in 1971 (Selzer, 1971) in order to detect problems associated with excessive consumption of alcohol. The high reliability and validity of this instrument were shown in different populations (Teitelbaum et al., 2000; Nanakorn et al., 1998; Zung, 1984; Rumpf et al., 2001).

Previously we reported a factor analysis of a German version of the MAST in patients with alcohol dependence or alcohol abuse (DSM-IV). In a principal component analysis, 7 factors were extracted. In order to make the factor analysis more comparable to published results of the American MAST original version, we used the 5 principal components with highest eigenvalues in a following orthogonal Varimax rotation. A predominantly simple structure of the 5 factors resulted. This factor structure was interpretable, the components could be described as (I) seeking for therapy, (II) antisocial behavior, (III) loss of control, (IV) recognition of the alcohol problem by the social surrounding field, and (V) liver damage (Himmerich et al., 2002).

Methods

Patients

We conducted MAST and SKID-II in 191 consecutively admitted patients (147 male and 44 female patients) with alcohol dependence or alcohol abuse (DSM-IV) to investigate the relationship between severity of alcohol dependence as measured by the MAST and the number of fulfilled criteria of ASPD and other PDs in the SKID-II. The study was performed in the Department of Psychiatry, University of Mainz. All participating patients gave their written informed consent. The study was approved by the ethic committee of the Landesärztekammer Rheinland-Pfalz. Mean age of the patients was 44 $\pm$ 9.9 (SD) years (range: 22 - 69).

Assessment

The MAST was performed as a self-rating instrument. A German translation was used. MAST factors contained the items as shown in Table 1 according to Himmerich et al. (2002). The answer options to these questions are "yes" or "no". This binary response format contains certain psychometric difficulties, as it does not allow one to investigate linearity and may distort item intercorrelations. Therefore, we used the weighted MAST score with weights of 2 or 5 for every question. The SKID-II was performed by six trained interviewers.

Statistics

Descriptive statistics (mean, minimum, maximum and standard deviation) were calculated for age and weighted scores of the total MAST and the MAST factors and the scores of the SKID-II disorders. Correlations between the weighted total MAST score, the weighted factor scores and scores of the SKID-II PDs were performed using Spearman correlation coefficients. Differences in the total MAST score and the antisocial factor score of the MAST were calculated with the Mann-Whitney-U-Test. All statistical tests were calculated using SPSS 9.0. Due to multiple testing the level of significance was set at an adjusted p-value of $p \leq 0.001$.

Table 1. MAST factor items according to Himmerich et al. (2002)

Factor I : **Seeking for Therapy**	**Factor II :** **Anti-Social Behaviour**	**Factor III :** **Loss of Control**	**Factor IV :** **Recognition of the Alcohol Problem by the Social Surrounding Field**	**Factor V :** **Liver Damage**
Have you ever attended a meeting of Alcoholics Anonymous?	Have you gotten into physical fights when drinking?	Do you feel you are a normal drinker?	Have you ever awakened the morning after some drinking the night before and found that you could not remember a part of the evening?	Have you ever been told you have liver trouble?
Has your wife, husband (or other family members) ever gone to anyone for help about your drinking?	Have you ever lost friends because of your drinking?	Can you stop drinking without a struggle after one or two drinks?	Does your wife, husband, a parent, or other near relative ever worry or complain about your drinking?	Have you ever been told you have liver cirrhosis?
After heavy drinking have you ever had delirium tremens or severe shaking, or heard voices or seen things that really were not there?	Have you ever gotten into trouble at work or school because of drinking?	Do you ever feel guilty about your drinking?	Do friends or relatives think you are a normal drinker?	
Have you ever gone to anyone for help about your drinking?	Have you ever lost a job because of drinking?	Are you able to stop drinking when you want to?	Has your wife, husband (or other family members) ever gone to anyone for help about your drinking?	
Have you ever been in a hospital because of drinking?	Have you ever neglected your obligations, your family, or your work for two or more days in a row because you were drinking?	Do you drink before noon fairly often?		
Have you ever been a patient in a psychiatric hospital or on a psychiatric ward of a general hospital where drinking was part of the problem that resulted in hospitalization?	Have you ever been arrested for drunk driving, driving while intoxicated, or driving under the influence of alcoholic beverages?			
Have you ever been seen at a psychiatric or mental health clinic or gone to any doctor, social worker, or clergyman for help with any emotional problem, where drinking was part of the problem?	Have you ever been arrested, or taken into custody, even for a few hours, because of other drunk behavior?			

Figure 1. MAST factor II scores in patients with and without ASPD. The score of the MAST "antisocial factor" was significantly higher in the ASPD group (Mann-Whitney U-Test, p < 0.001).

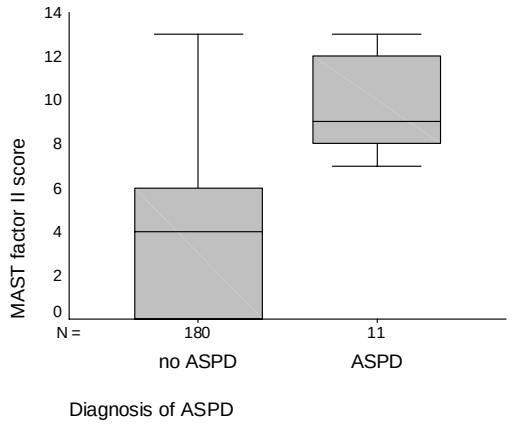

Table 2. Descriptive Statistics: Weighted MAST scores and SKID-II scores of each personality disorder (PD)

	N	Mean	SD	Range
MAST total	191	28.73	12.17	0 - 51
MAST factor I	191	12.57	7.57	0 - 23
MAST factor II	191	4.20	3.84	0 - 13
MAST factor III	191	6.15	2.19	0 - 8
MAST factor IV	191	5.45	1.97	0 - 7
MAST factor V	191	0.36	0.59	0 - 2
Anxious PD	191	0.86	1.50	0 - 7
Dependent PD	191	0.97	1.40	0 - 6
Obsessive-Compulsive PD	191	1.46	1.58	0 - 7
Passive-Agressive PD	191	0.84	1.24	0 - 6
Depressive PD	191	1.53	1.90	0 - 7
Paranoid PD	191	1.22	1.37	0 - 7
Schizotypal PD	191	0.93	1.17	0 - 6
Schizoid PD	191	0.75	1.20	0 - 6
Histrionic PD	191	0.57	0.95	0 - 6
Narcissistic PD	191	0.47	0.97	0 - 5
Borderline PD	191	1.60	1.87	0 - 9
ASPD youth	191	0.83	1.49	0 - 8
ASPD adult	191	0.98	1.34	0 - 6
ASPD total	191	1.81	2.54	0 – 14

Results

The descriptive statistics of the test results are shown in Table 2. The mean total weighted MAST score was 28.73 $\pm$ 12.17 (SD). The mean number of fulfilled total ASPD criteria was 1.81 $\pm$ 2.54 (SD), the mean number of youth ASPD criteria was 0.83 $\pm$ 1.49 (SD) and the mean number of adult ASPD criteria was 0.98 $\pm$ 1.34 (SD).

The total number of fulfilled criteria for ASPD in the SKID-II correlated positively with the total weighted MAST-score ($r = 0.19$; $p = 0.008$; Table 3), but the adjusted level of significance of $p \leq 0.001$ was not reached. Differentiating between ASPD criteria of childhood and youth and adulthood, childhood ASPD criteria did not correlate significantly with the total weighted MAST score ($p = 0.085$). The number of fulfilled adulthood criteria of ASPD showed a distinct trend to correlate positively with the total MAST score ($r = 0.20$; $p = 0.006$).

The weighted score of factor II "antisocial behaviour" of the five-factor-model of the MAST correlated significantly with the total number of fulfilled criteria for ASPD ($r = 0,32$; $p < 0.001$), the number of fulfilled childhood ASPD criteria ($r = 0.23$; $p = 0.001$) and the number of fulfilled adulthood criteria of ASPD ($r = 0.33$; $p < 0.001$) in the SKID-II.

MAST factor II scores also correlated significantly with the scores of paranoid PD ($r = 0.27$; $p < 0.001$) and borderline PD ($r = 0.24$; $p = 0.001$).

Of the 191 patients 11 (5.8%) fulfilled the criteria for ASPD, 180 did not. Comparing both groups (with and without ASPD) with regard to the weighted total MAST score and the weighted scores of the different MAST factor models, we found a clear trend regarding the total MAST score ($p = 0.002$), which was higher in patients with ASPD. The score of the MAST "antisocial factor" of the five-factor-model was significantly higher in the ASPD group (Mann-Whitney U-Test, $p < 0.001$; for details see Figure 1).

Discussion

In the present study, we sought to investigate the relationship between the severity of alcoholism as measured by the MAST and the severity of ASPD as measured by the number of DSM-IV criteria fulfilled in the SKID-II interview. We also tried to validate the previously evaluated "antisocial" MAST factor II by comparing its score with the number of fulfilled ASPD criteria. We found a non-significant association between the extend of severity of alcoholism as measured by the MAST and the number of fulfilled criteria for ASPD. The score of MAST factor II correlated positively and significantly with the total number of fulfilled criteria for ASPD.

The total number of fulfilled criteria for ASPD in the SKID-II correlated positively with the total weighted MAST score, but the correlation was low and non-significant. Patients with ASPD also showed a trend towards higher total MAST scores, but the level of significance was not reached. We conclude, that in patients with alcohol dependence or alcohol abuse there may be an association between the extend of severity of alcoholism as measured by the MAST and the number of fulfilled criteria for ASPD as measured by SKID-II; this would be in accordance with the theories of co-occurrence between antisocial personality and alcoholism (Limosin et al., 2000).

The score of the antisocial factor of the five-factor-model of the MAST correlated significantly with the total number of fulfilled criteria for ASPD and the number of fulfilled youth and adult criteria of ASPD in the SKID-II. In tendency, the correlation of the scores of the antisocial factors with the number of fulfilled SKID-II criteria was higher than the correlation of the total MAST scores with the number of fulfilled ASPD criteria. From these findings we conclude,

Table 3. Spearman´s rho correlation coefficients between weighted MAST-summation total and -factor score and fulfilled SKID-II criteria of personality disorders (shaded fields: significant correlation to a p ≤ 0.001 level)

		total MAST score	MAST score factor-I	MAST score factor-II	MAST score factor-III	MAST score factor-IV	MAST score factor-V
Anxious (avoi-	r	-0.038	-0.094	0.088	0.001	0.014	-0.076
dant) PD	p	0.602	0.196	0.225	0.990	0.852	0.295
Dependent PD	r	0.134	0.085	0.132	0.097	0.150	-0.001
	p	0.065	0.245	0.069	0.184	0.038	0.993
Obsessive-	r	-0.050	-0.049	-0.075	-0.026	0.043	-0.055
Compulsive PD	p	0.494	0.504	0.305	0.723	0.559	0.452
Passive-	r	0.024	-0.060	0.153	0.047	-0.018	-0.048
Aggressive PD	p	0.743	0.411	0.034	0.517	0.809	0.509
Depressive PD	r	-0.023	-0.068	0.036	0.030	0.040	-0.110
	p	0.748	0.351	0.622	0.682	0.581	0.131
Paranoid PD	r	0.086	-0.008	0.269	0.029	0.008	-0.003
	p	0.238	0.914	0.000	0.691	0.909	0.964
Schizotypal PD	r	0.033	-0.045	0.187	-0.036	0.054	0.107
	p	0.648	0.533	0.010	0.619	0.456	0.141
Schizoid PD	r	-0.143	-0.177	0.035	-0.142	-0.157	-0.077
	p	0.048	0.014	0.627	0.051	0.030	0.288
Histrionic PD	r	0.041	0.077	0.014	-0.008	-0.042	-0.120
	p	0.578	0.289	0.849	0.913	0.562	0.099
Narcissistic PD	r	0.018	-0.030	0.115	0.004	0.001	-0.063
	p	0.806	0.676	0.113	0.960	0.987	0.386
Borderline PD	r	0.072	-0.029	0.240	0.102	0.077	-0.198
	p	0.322	0.695	0.001	0.161	0.291	0.006
ASPD youth	r	0.125	0.010	0.233	0.121	0.067	0.001
	p	0.085	0.893	0.001	0.094	0.355	0.989
ASPD adult	r	0.197	0.044	0.332	0.176	0.172	0.029
	p	0.006	0.549	0.000	0.015	0.018	0.686
ASPD total	r	0.193	0.042	0.328	0.171	0.158	0.000
	p	0.008	0.566	0.000	0.018	0.029	1.000

that the questions of the MAST "antisocial" factor are more strongly associated with the criteria of ASPD than the total MAST. Eleven of 191 patients fulfilled the criteria for ASPD. Between these groups we found a significant difference of the score of the antisocial MAST factor. So we postulate the MAST factor II to give a hint for ASPD.

But obviously, the antisocial MAST factor is not a specific correlate of ASPD, because its score also correlated significantly with the scores of paranoid and borderline PD. This finding is very interesting from a clinical aspect, because ASPD, borderline PD, and paranoid PD are reported to be linked to more severe symptomatology of alcoholism and other clinical problems (Morgenstern et al., 1997).

Factor II contains questions about alcohol-related violence. Holcomb and Adams (1985) found in a study regarding personality variables involved in alcohol-related violence, that the violent groups in this study were more paranoid than the non-violent groups, which is in accordance with our findings. Not only the relation between violence and paranoid personality traits is in accordance with previous findings in substance-dependent patients, also an association of borderline PD and violence is reported. A study of Hernández-Avila et al. (2000) investigated the relationship between a PD diagnosis and criminal behaviour among drug- and alcohol-dependent patients. As expected, patients with a diagnosis of ASPD were more likely to report having committed a variety of crimes, including violent crimes. But also individuals with more PD diagnoses or a diagnosis of borderline PD reported a greater number of pretreatment violent crimes. Therefore, the studies of Holcomb and Adams and Hernández-Avila et al. support our finding of an association of an antisocial factor with the traits of paranoid PD, borderline PD and ASPD. In contrast, other MAST factors and the total MAST score did not correlate with any PD traits.

So if a patient with alcohol abuse or dependence answers with "yes" in the questions of the antisocial MAST-factor regarding fights when drinking, loosing a job, trouble at school, loosing a friend, neglecting obligations or family, being arrested because of drunk behavior or for drunk driving personality diagnostic should be focussed particularly on paranoid, borderline and antisocial PD.

To conclude, we found a tendency of association between the extent of severity of alcoholism as measured by the MAST and the number of fulfilled criteria for ASPD as measured by SKID-II. The score of the MAST factor II "antisocial behaviour" of the five-factor-model correlated positively and significantly with the total number of fulfilled criteria for ASPD. Therefore, factor II seems to be associated with traits of ASPD. But this association does not seem to be specific, because the MAST factor II score also correlated significantly with the scores of paranoid and borderline PD.

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