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Dissociation and alexithymia in a Romanian sample of substance abuse patients

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Abstract

Previous studies found a relationship between substance use, dissociative experiences, and alexithymia, but the topic was not approached in a Romanian sample. This cross-sectional study aimed to examine the levels of dissociative experiences and alexithymia comparing a group of controls without addictions to three addictive groups (tobacco, cannabis, and alcohol).

The results indicated that alcohol abusers have a significantly higher level of alexithymia than cannabis abusers, smoker abusers, and controls. We also detected significant differences in alcoholic patients and the other groups on difficulty identifying feelings and externally oriented thinking from Toronto Alexithymia Scale-20 subscales, but not on difficulty describing feelings. There was no significant effect of substance type on dissociation measured with Dissociative Experiences Scale-II. This study partially addressed the void in the literature by revealing some psychological features of Romanian patients with substance abuse disorders.

Keywords

Alexithymia, dissociative experiences, substance abuse

History

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Background

Several previous studies have investigated the relation between substance use, alexithymia, and dissociative experiences (Curran & Morgan, 2000; Saxe et al., 2002) and they found important links between these variables (Dorard et al., 2008; Haan et al., 2013; Thorberg et al., 2009).

Addiction is not applied as a diagnostic term in DSM-5 (American Psychiatric Association, 2013) substance use disorders classification. Abuse is not separated from dependence concerning substances in DSM-5, beside DSM-IV-TR (American Psychiatric Association, 2000), where dependence and abuse have different diagnostic criteria. Substance abuse was defined by recurrent substance use despite the resulting failure to fulfill major role obligations at work, school or home, recurrent substance use in physically hazardous situations, legal problems related to recurrent substance use, and the continuation of the substance use despite the persistent social or interpersonal problems caused and exacerbated by the effects of the substance (American Psychiatric Association, 2000). Toxic manifestations of cannabis consumption include increased motor activity, shaking, ataxy, eye conjunctivity congestion, abnormal pupil dilation, visual hallucinations, and unpleasant delusions (Patton et al., 2002). These symptoms rarely emerge; given the fact that marijuana is not an addiction drug (the

consumption does not lead to physical dependence and there are no withdrawal symptom when the consumption is ceased) (Aharonovich et al., 2005), psychological addiction appears among a certain type of users (Aharonovich et al., 2005, Rogers, 2011). The effect of alcohol on the brain is more or less paradoxical: in specific situations acts as inhibitor, in other situations as arousing (Rogers, 2011). In very high concentrations, it acts more and more as a depressant, leading to sedation, stupor, and coma (Swift & Davidson, 1998). Nicotine produces the whole range of physical and behavioral effects addiction characteristic. These effects include the activation of the brain's reward system, which creates physical and behavioral effects, craving that leads to chronic consumption, tolerance and physical dependence, and the discontinuity withdrawal (Hatsukami et al., 2008; Rogers, 2011).

Considering that science recognizes the psychopathological mechanisms of alcohol and cannabis users (Lyvers et al., 2013; Troisi et al., 1998) and less among smokers, the study realized by Dunn et al. (1993) points out strong connections between the emergence of dissociative phenomena (41.5% of the participants had a higher than 15 score in Dissociative Experiences Scale) and chemical addiction. Also on the outset of interpersonal conflicts in drug addicts we can find the presence of a difficulty in describing and verbalize one's feelings and emotions (alexithymia) as was found in some studies that examined the link between alcohol consumption and emotional problems (Haan et al., 2013; Thorberg et al., 2009). This can be a cause of the initiation of the consumption or the

result of its presence; also, alcoholism is linked to be the result of emotions expressed in a dissociative manner (Evren et al., 2008). Several studies had found that people with a history of trauma are prone to develop substance use disorders, with alexithymic features and dissociations as comorbidities (Dalbudak et al., 2010; Evren et al., 2013).

The term “alexithymia” includes four cognitive and affective dimensions, particularly the difficulty to identify and describe feelings subjectively, lack of distinction between feelings and emotional arousal bodily sensations, narrowly imaginative ability and scanty dreams and fantasies, and an externally oriented cognitive style (Marchesi et al., 2014). The etiology of alexithymia implies multiple factors like hereditary constitutional variations into brain space and early familial and social environment deficiencies (Taylor et al., 1999).

Eid and Boucher (2012) synthesized the characteristics of the alexithymic individuals. They have poor social support networks (Eid & Boucher, 2012; Hesse & Floyd, 2011), an insecure, anxious or avoidant attachment style (Eid & Boucher, 2012; Mallinckrodt & Wei, 2005; Troisi et al., 2001), and cold and distant relationship behavior (Eid & Boucher, 2012; Grynberg et al., 2010). Alexithymia can correlate with a various number of psychological disorders like panic disorder, depression (Bonnaire et al., 2009, 2013; Ogrodniczuk et al., 2004), nervous anorexia, depersonalization (Berardis et al., 2009), and trait anxiety (Evren et al., 2008). Being considered a risk factor for substance abuse, alexithymia was found to be present among substance users in various studies (Dorard et al., 2008) and is the main cause of many sexual dysfunctions (Grabe et al., 2004; Taylor et al., 1999). Further, higher levels of alexithymia in women were associated with self-harm (Norman & Borrill, 2015), with Psychopathic Index in subjects with a substance use disorder (Gori et al., 2014), and with exercise addiction in subjects attending various gyms in the city (Manfredi & Gambarini, 2015).

According to DSM- 5 (American Psychiatric Association, 2013), dissociative disorders are characterized by a disruption or discontinuity into integration/normal functioning of consciousness, memory, identity, perception, body representation, motor, and behavioral control. Various studies and theories show the connection among the experience of traumatic events in childhood and the presence of dissociative phenomena like amnesia, depersonalization, and derealization in people whom lived such episodes (Simeon et al., 2001; Scaer, 2001). Also dissociative experiences are frequently met in people who suffer from depression (Maaranen et al., 2008). Other studies sustain the hypothesis that there are certain personality features which facilitate dissociative experiences, particularly disorganized attachment and structural division of consciousness (Vermetten et al., 2007), hysteria (Kluft & Foote, 1999), the predisposition to behavioral inhibitions, affected-avoidant temper, and immature defensiveness (Simeon et al., 2002). Harm-avoidant temperament, immature defenses and a cognitive schema characterized by overconnection and disconnection were the most prevalent features in patients with depersonalization disorder and were related to the severity of the dissociation (Simeon et al., 2002).

Overview of this study

Previous research pointed that psychopathological mechanisms of abusive drug users lead to dissociation, depersonalization (Curran & Morgan, 2000; Saxe et al., 2002; Tutkun et al., 1998), and emotional problems (Haan et al., 2013; Taylor et al., 1990; Taylor et al., 1999; Thorberg et al., 2009). The present comparative study aims to examine the possible differences between alcohol abusers, marijuana abusers, smokers, and controls, concerning the dissociative experiences and alexithymia in a Romanian sample.

Dorard et al. (2008) studying the affective life of teenage cannabis users did not found an increased level of alexithymia in cannabis users, but they found a link on the subscale measuring the difficulty to identify the internal emotional experience. Analyzing the self-destructive behavior in patients with dissociative disorders, Saxe et al. (2002) found that behaviors like substance abuse are frequently encountered in people with dissociation. Further, drugs like ketamine lead to dissociation, even if it is used for recreational purposes (Curran & Morgan, 2000). Furthermore, recent findings suggest that alcohol addiction is predicted by dissociation, alexithymia, and trauma (Craparo et al., 2014).

Therefore, the comparison of a substance abuse population (alcoholics, marijuana users, smokers, and controls) on alexithymia and dissociative experiences has not been studied previously in a Romanian sample. We assumed that the alcohol abusers might have a significantly higher level of alexithymia and dissociative experiences than cannabis abusers, smoker abusers, and controls.

Method

Participants

Participants were substance use disorder patients from addiction treatment centers. Cannabis abusers group was recruited from “The National Anti-Drug Agency” of Iași, The Drug Addiction Clinic and Acute Clinics (Men and Women) from The Socola Psychiatric Institute of Iași. Alcohol abusers group was recruited from “Christian Association of Alcoholics in Recovery” (ACAR) and “Anonymous Alcoholics” of Iași, and the smokers are university students. There were 131 participants, 94 males (71,7%), and 37 females (28,3%) aged 18–67 years, including 22 cannabis abusers ($M = 26.09$ years, $SD = 4.67$), 32 alcohol abusers ($M = 48.53$ years, $SD = 11.37$), 31 tobacco abusers ($M = 24,58$ years, $SD = 7.33$), and 46 university students as controls ($M = 27.13$ years, $SD = 8.82$). The Ethics Committee of the Faculty of Psychology and Educational Sciences, at the “Alexandru Ioan Cuza” University of Iasi approved the study. Participation was entirely voluntary after the participants gave their informed consent.

Instruments

Dissociative Experiences Scale-II (DES-II; Carlson & Putnam, 1993) consists of 28 items constructed to measure dissociative experiences, lack of integration of “normal” thoughts, experiences and feelings into consciousness and current memory. The answer is by encircling a percentage ranging from 0% to 100% at 10% intervals. The total score is

greater as the individual lives more dissociative experiences. There are three main factors of dissociation: *amnesia* factor which measures memory loss; *depersonalization/derealization* factor which measures the sense of unreality of the self; and *absorption* factor which includes being so preoccupied by something that the person is distracted from what is going on around her. In the current study, Cronbach's alpha was 0.93.

Toronto Alexithymia Scale (TAS-20; Bagby et al., 1994) is a 20-item self-report instrument. It has three subscales, Difficulty Describing Feelings (DDF), Difficulty Identifying Feeling (DIF), and Externally Oriented Thinking (EOT), which measure the tendency of individuals to focus their attention externally. Items are rated using a 5-point Likert scale, 1 meaning strong disagreement with the item and 5 meaning strong agreement. The internal consistency of the scale in the current study was adequate: $\alpha = 0.80$.

Index of Drug Involvement (IDI; Faul & Hudson, 1997) was constructed for the measurement of the degree and magnitude of drug use-related problems. The index measures the degree to which substance abuse problems are present or absent, on the respondent's perception, reflecting the intensity of these problems. The scale's 25 items were selected on the basis of emotions and behaviors associated to prolonged drug use on the basis of literature's report. The answers are registered on a 7-point Likert scale, 1 meaning never and 7 meaning that the person always has the problem described by the item. In our Romanian sample, the Cronbach coefficient alpha was 0.98.

Index of Alcohol Involvement (IAI; MacNeil, 1991) was constructed for the measurement of the degree and magnitude of alcohol abuse-related problems. The index measures the degree to which alcohol use problems are present or absent, on the respondent's perception, reflecting the intensity of these problems. The answers are registered on a 7-point Likert scale, 1 meaning never and 7 meaning that the person always has the problem described by the item. The internal consistency of the scale in the current study was adequate: $\alpha = 0.99$.

Nicotine Dependence Syndrome Scale (NDSS; Shiffman et al., 2003) was created and developed to measure nicotine dependence. The scale has 19 items which measure dependence on the basis of five factors: desire (craving and relapse, subjective compulsion to smoke), priority (the preference to smoke despite other reinforcements), tolerance (reduced sensitivity of smoking effects), continuity (the regularity of smoking rate), and stereotypy (the invariance of smoking). The answers are registered on a 5-point Likert scale, 1 meaning not true and 5 meaning that the item's description is extremely true for the respondent. The internal consistency of the scale in the current study was adequate: $\alpha = 0.75$.

Statistical analyses

Data were analyzed using the SPSS 20.0 (IBM Corp. Released 2011. IBM SPSS Statistics for Windows, Version 20.0. Armonk, NY, USA). We used the Shapiro–Wilk test for goodness-of-fit to assess the normality of the distribution of the dependent variables measured with DES, TAS, and their subscales. As the measurement variables were not normally distributed, they were transformed using a two-step approach

(Templeton, 2011). The group of cannabis abusers has a significantly higher level of drug abuse measured with IDI ($M = 136.7$, $SE = 5.64$) than all other groups, $p < .001$; the group of alcohol abusers has a significantly higher level of addiction in this area measured with IAI ($M = 163.7$, $SE = 4.51$) than all other groups, $p < .001$; and the group of tobacco abusers has a significantly higher level of nicotine dependence measured with NDSS ($M = 58.6$, $SE = 2.56$) than all other groups, $p < .01$. In the current sample, 34% of the alcohol abusers suffered from both alcohol use disorder and mental illnesses, like anxiety, depression, and paranoid schizophrenia. Also, 68% of these patients reported they have experienced a traumatic event.

The dependent variables were significantly correlated $r = .18$, $p < .05$; therefore, multivariate analysis of variance (MANCOVA) was used to test the effects of drug consumption on the level of dissociation and alexithymia simultaneously. The participant's age covaried, but the gender was not entered in the subsequent analyses.

An alpha level of 0.05 was used for the statistical tests.

Results

Bivariate correlations, means, and standard deviations of the dependent variables in each comparison group are presented in Table 1. The MANCOVA showed that the combination of the two dependent variables is influenced by the type of substance abuse, Wilks's $\lambda = .79$, $F(6, 248) = 2.45$, $p < .02$, partial $\eta^2 = .05$. Univariate analysis of variance was used to test the effects of the type of substance abuse on each of the separate dependent variables (dissociation and alexithymia). An ANOVA revealed a significant effect of the type of substance abuse on alexithymia $F(3, 130) = 8.61$, $p < .001$, partial $\eta^2 = .17$, but not on dissociation $F(3, 130) = .89$, $p > .44$. Hochberg's GT2 correction was used as the sample sizes are very different, and found that the alcohol abusers have a significantly higher level of alexithymia ($M = 65.78$, $SE = 1.76$) than cannabis abusers participants ($M = 45.13$, $SE = 2.12$), tobacco abusers ($M = 47.08$, $SE = 1.82$), and controls ($M = 46.93$, $SE = 1.47$), for all $p < .001$. This difference was significant and similar for DIF subscale $F(3, 130) = 7.54$, $p < .001$, and EOT subscale $F(3, 130) = 8.62$, $p < .001$, but not for DDF subscale $F(3, 130) = .62$, $p > .60$, *n.s.* As determined by TAS-20 cutoff scores, 56 participants (42, 7%) had either borderline alexithymia or alexithymia (TAS-20 score ≥ 52) and 75 participants (57, 3%) had no alexithymia (TAS-20 score < 52). Of the alcohol users, 78% were borderline alexithymic or alexithymic; of the cannabis users, 27% were borderline alexithymic or alexithymic; of the tobacco users, 29% were borderline alexithymic or alexithymic; and of the controls, 34% were borderline alexithymic or alexithymic.

Correlations among the variables were then examined (see Table 1) and found that in the control group, DES II total dissociation score, as well as the depersonalization subscale score, and absorption subscale score were significantly positively correlated with TAS-20 total alexithymia score, DDF, and DIF subscales score. In the tobacco abusers group, amnesia subscale score was significantly

Table 1. Means, standard deviations, and bivariate correlations of the variables in each comparison group.

Control group (N = 46)										
Measure	M	SD	1	2	3	4	5	6	7	8
1. DES-II	47.2	37.1	1	.68**	.67**	.90**	.41**	.36*	.54**	-.04
2. Amnesia	5.6	6.3		1	.47**	.51**	.01	.07	.12	-.16
3. Depersonalization	5.6	7.8			1	.59**	.33*	.34*	.32*	.01
4. Absorption	17.1	12.7				1	.46**	.41**	.64**	-.12
5. TAS-20	46.9	9.6					1	.84**	.82**	.48**
6. DDF	12.8	4.2						1	.69**	.12
7. DIF	14.6	5.3							1	.02
8. EOT	19.2	4.0								1
Tobacco abuse group (N = 31)										
1. DES-II	50.1	26.6	1	.74**	.74**	.87**	.36	.33	.31	.27
2. Amnesia	4.1	4.6		1	.62**	.70**	.38*	.37*	.28	.17
3. Depersonalization	6.6	7.4			1	.60**	.26	.23	.24	.10
4. Absorption	14.9	9.4				1	.29	.31	.23	.15
5. TAS-20	46.6	8.4					1	.82**	.84**	.40*
6. DDF	12.6	3.2						1	.79**	.14
7. DIF	15.0	5.0							1	.15
8. EOT	18.2	3.7								1
Alcohol abuse group (N = 32)										
1. DES-II	42.5	34.7	1	.86**	.77**	.88**	-.27	-.32	-.23	.01
2. Amnesia	7.3	9.5		1	.83**	.77**	-.14	-.21	-.17	.17
3. Depersonalization	3.6	6.0			1	.74**	-.20	-.27	-.27	.23
4. Absorption	12.8	10.0				1	-.37*	-.45**	-.34	.07
5. TAS-20	56.7	10.0					1	.84**	.89**	.52**
6. DDF	13.9	3.6						1	.66**	.26
7. DIF	20.0	5.9							1	.24
8. EOT	22.7	2.9								1
Cannabis abuse group (N = 22)										
1. DES-II	37.0	28.0	1	.62**	.72**	.86**	.40	.43*	.36	.16
2. Amnesia	3.5	5.2		1	.53*	.42*	.24	.12	.12	.38
3. Depersonalization	3.7	4.3			1	.62**	.07	.11	.02	.06
4. Absorption	11.9	8.9				1	.28	.41	.28	.01
5. TAS-20	45.1	11.9					1	.85**	.85**	.75**
6. DDF	12.6	3.9						1	.64**	.49*
7. DIF	13.5	5.4							1	.42
8. EOT	18.5	4.2								1

Note. DES-II = Dissociative Experiences Scale II; TAS-20 = Toronto Alexithymia Scale; DDF = Difficulty Describing Feelings; DIF = Difficulty Identifying Feeling; EOT = Externally Oriented Thinking.

* $p < .05$, ** $p < .01$.

positively correlated with TAS-20 total score, and DDF subscale score. In the alcohol abusers group, absorption subscale score was negatively related to TAS-20 total score, and DDF subscale score. In the cannabis abusers group DES-II total score was significantly positively correlated with DDF subscale score.

Discussion

We assumed that the alcohol abusers might have a significantly higher level of alexithymia and dissociative experiences than cannabis abusers, tobacco abusers, and controls. Our hypothesis was confirmed with respect to alexithymia, but not with respect to dissociative experiences. Alcoholic patients have a significant higher level of alexithymia than cannabis, tobacco abusers, and controls, which is in partial consistent with Marchesi et al. (2014), which suggested that patients groups with substance use disorders and psychiatric disorder reported higher alexithymia than healthy controls, and SUD patients reported higher DDF than controls. We only detected significant differences in alcoholics and the other groups on DIF and EOT subscales, but not on DDF. These findings suggest the specificity of the studied sample, where alcohol

consumption is more widely spread and accepted in social circumstances than cannabis use and other drugs. Marchesi et al. (2014) suggest that DDF scores are explained also by the presence of dissociation which supports our findings of low dissociation with DDF; and higher DIF and EOT. Further, the present study observed markedly in alcohol abusers a frequency of traumatic events (68% of the participants) and comorbid disorders (34% of the participants of this group) including depression, anxiety, and paranoid schizophrenia. This is consistent with prior work showing that trauma and alexithymia are encountered in alcoholics (Dalbudak et al., 2010).

We did not obtain any significant effect of substance type on dissociation measured with DES-II and this is not consistent with Saxe et al. (2002), who found that self-destructive behaviors like substance abuse are prevalent among patients with dissociative symptoms. One explanation of this finding is that the sociocultural context of the Romanian space where the stigma of a psychological illness is very strong and it could lead the participants to an inaccurate self-report of their experiences. Another explanation could be the context of the hospital space where the dependence group filled in the instruments, which could

lead to a defensive attitude toward the scales items out of fear not to be framed in a nosological category.

One last explanation of our finding is the fact that most of the people in Romania are religious persons. According to Eli and Orit (2001), in spiritual people occur the reassignment phenomena in trauma cases, with dissociative symptoms like self-fragmentation, depersonalization, derealization, and amnesia. This association is based upon the constituents of the religious view to which the person belongs, it is normal that the self-administered screening shows a small frequency of these experiences.

Our results about the percentage of alexithymic individuals with alcohol abuse are consistent with Haan et al. (2013), which suggest that in alcohol abuse alexithymia is highly present. In contrast, Lyvers et al. (2013) and Troisi et al. (1998) found that risky cannabis use is positively associated with alexithymia and other comorbid psychiatric disorders. Also, Dorard et al. (2008) found that in cannabis abuse population affective dimensions were higher and the difficulty identifying feelings subscale, except alexithymia overall scores.

In the control group, we found that DES-II, depersonalization, and absorption factors positively correlated with alexithymia, DDF, and DIF subscales. These results are in line with previous findings showing that in general non-clinical population dissociation is highly associated with alexithymia (Evren et al., 2008; Grabe et al., 2004; Maaranen et al., 2005) and that only a small proportion of the general population has high rates of dissociative symptoms (Maaranen et al., 2008). Absorption subscale on alcoholics was negatively correlated with TAS-20 and DDF, which is inconsistent with Evren's findings (2008) on male alcohol-dependent patients who have interrelated DIF and dissociation.

A potential limitation of the study is the lack of group homogeneity (very different age categories of the participants from each comparison group). Even if our participants were patients recruited from addiction treatment centers and they were diagnosed with dependence on one of the drugs, many marijuana smokers also smoke tobacco and many alcoholics are also smokers. Additional limitations to this study might be the group equivalency and that we did not take into account the recent findings that alexithymia is not a stable personality trait Hann et al. (2012), because it decreases after detoxification.

Conclusions

In sum, the present study aimed to examine the differences between cannabis users, alcoholics, and controls concerning alexithymia and dissociative tendencies. There is much research evidence that alexithymia is highly prevalent in alcohol use disorders (Thorberg et al., 2009) and our findings sustain this assumption.

The most significant correlation was on the alcoholics group where alexithymia was highly encountered (78%); in all the other groups, this trait was not a significant percent (27% of cannabis users, 29% of smokers and 34% of controls). We did not found any significant effect of substance type on the level of dissociation. We supposed that these results are due to the cultural characteristics of the studied sample, like religiosity and mental illness stigma.

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References

- Aharonovich, E., Liu, X., Samet, S., Nunes, E., Waxman, R., & Hasin, D. (2005). Postdischarge cannabis use and its relationship to cocaine, alcohol and heroin use: A prospective study. *The American Journal of Psychiatry*, 162(8), 1507–1514.
- American Psychiatric Association. (2000). *Diagnostic and Statistical Manual of Mental Disorders* (4th ed., Text. Rev.). Washington, DC: American Psychiatric Publishing.
- American Psychiatric Association. (2013). *Diagnostic and Statistical Manual of Mental Disorders* (5th ed.). Washington, DC: American Psychiatric Publishing.
- Bagby, R. M., Parker, J. D. A., & Taylor, G. J. (1994). The twenty-item Toronto Alexithymia Scale-I. Item selection and cross-validation of the factor structure. *Journal of Psychosomatic Research*, 38, 23–32.
- Berardis, D., Serroni, N., Campanella, D., Carano, A., Gambi, F., Valchera, A., Conti, C., Pede, G., Caltabiano, M., Pizzorno, A. M., Cotellessa, C., Salerno, R. M., & Ferro, F. M. (2009). Alexithymia and its relationship with dissociative experiences, body dissatisfaction and eating disturbances in a non-clinical female sample. *Cognitive Therapy and Research*, 33, 471–479.
- Bonnaire, C., Bungener, C., & Varescon, I. (2013). Alexithymia and gambling: A risk factor for all gamblers? *Journal of Gambling Studies*, 29, 83–96.
- Bonnaire, C., Bungener, C., & Varescon, I. (2009). Subtypes of French pathological gamblers: Comparison of sensation seeking, alexithymia and depression scores. *Journal of Gambling Studies*, 25, 455–471.
- Carlson, E. B., & Putnam, F. W. (1993). An update on the dissociative experiences scale. *Dissociation*, 6, 16–27.
- Craparo, G., Ardino, V., Gori, A., & Caretti, V. (2014). The relationships between early trauma, dissociation, and alexithymia in alcohol addiction. *Psychiatry Investing*, 11(3), 330–335. doi:10.4306/pi.2014.11.3.330
- Curran, H. V., & Morgan, C. (2000). Cognitive, dissociative and psychotogenic effects of ketamine in recreational users on the night of drug use and 3 days later. *Addiction*, 95(4), 575–590.
- Dalbudak, E., Evren, C., Çetin, T., Durkaia, M., & Cetin, R. (2010). History of trauma and relationship with alexithymia, temperament and character dimensions in male alcohol dependent. *Düşünen Adam Psikiyatri ve Nörolojik Bilimler Dergisi*, 23, 1–12.
- Dorard, G., Berthoz, S., Phan, O., Corcos, M., & Bungener, C. (2008). Affect dysregulation in cannabis abusers. A study in adolescents and young adults. *European Child & Adolescent Psychiatry*, 17, 274–282.
- Dunn, G. E., Paolo, A. M., & Ryan, J. J. (1993). Dissociative symptoms in a substance abuse population. *The American Journal of Psychiatry*, 150(7), 1043–1047.
- Eid, P., & Boucher, S. (2012). Alexithymia and dyadic adjustment in intimate relationships: Analyses using the actor partner interdependence model. *Journal of Social and Clinical Psychology*, 31(10), 1095–1111.
- Eli, S., & Orit, N. (2001). An ethnographic study of former dissociative identity disorder patients. *Imagination, Cognition and Personality*, 20(4), 315–346.
- Evren, C., Cinar, O., Evren, B., Ulku, M., Karabulut, V., & Umut, G. (2013). The mediator roles of trait anxiety, hostility, and impulsivity in the association between childhood trauma and dissociation in male substance-dependent inpatients. *Comprehensive Psychiatry*, 54, 158–166.
- Evren, C., Sar, V., Evren, B., Semiz, U., Dalbudak, E., & Cakmak, D. (2008). Dissociation and alexithymia among men with alcoholism. *Psychiatry and Clinical Neurosciences*, 62, 40–47.
- Faul, A., & Hudson, W. (1997). The index of drug involvement: A partial validation. *Social Work*, 42(6), 565–572.

- Gori, A., Craparo, G., Sareri, G. I., Caretti, V., Giannini, M., & Meringolo, P. (2014). Antisocial and psychopathic personalities in a sample of addicted subjects: Differences in psychological resources, symptoms, alexithymia and impulsivity. *Comprehensive Psychiatry*, 55(7), 1580–1586. doi:10.1016/j.comppsy.2014.05.023
- Grabe, H. J., Spitzer, C., & Freyberger, H. J. (2004). Alexithymia and personality in relation to dimensions of psychopathology. *The American Journal of Psychiatry*, 161(7), 1299–1301.
- Grynberg, D., Luminet, O., Corneille, O., Grèzes, J., & Berthoz, S. (2010). Alexithymia in the interpersonal domain: A general deficit of empathy? *Personality and Individual Differences*, 49, 845–850. doi:10.1016/j.paid.2010.07.013
- Hann, H., Joosten, E., Wijdeveld, T., Boswinkel, P., Van der Palen, J., & De Jong, C. (2012). Alexithymia is not a stable personality trait in patients with substance use disorders. *Psychiatry Research*, 198(1), 123–129.
- Haan, H., Joosten, E., Haan, L., Schellekens, A., Buitelaar, J., Van der Palen, J., & De Jong, C. (2013). A family history of alcoholism relates to alexithymia in substance use disorder patients. *Comprehensive Psychiatry*, 54, 911–917.
- Hatsukami, D. K., Stead, L. F., & Parkash, G. C. (2008). Tobacco addiction. *The Lancet*, 371(9629), 2027–2038.
- Hesse, C., & Floyd, K. (2011). Affection mediates the impact of alexithymia on relationships. *Personality and Individual Differences*, 50(4), 451–456.
- Kluft, R. P., & Foote, B. (1999). Dissociative identity disorder: Recent developments. *American Journal of Psychotherapy*, 53(3), 283–288.
- Lyvers, M., Jamieson, R., & Thorberg, F. A. (2013). Risky cannabis use is associated with alexithymia, frontal lobe dysfunction, and impulsivity in young adult cannabis users. *Journal of Psychoactive Drugs*, 45(5), 394–403.
- Maaranen, P., Tanskanen, H., A., Haatainen, K., Honkalampi, K., Koivumaa-Honkanen, H., Hintikka, J., Viinamäki, H. (2005). The relationship between psychological and somatoform dissociation in the general population. *The Journal of Nervous and Mental Disease*, 193, 690–692.
- Maaranen, P., Tanskanen, A., Hintikka, J., Honkalampi, K., Haatainen, K., Koivumaa-Honkanen, H., & Viinamäki, H. (2008). The course of dissociation in the general population: a 3-year follow-up study. *Comprehensive Psychiatry*, 49, 269–274.
- MacNeil, G. (1991). A short-form scale to measure alcohol abuse. *Research on Social Work Practice*, 1, 68–75.
- Mallinckrodt, B., & Wei, M. (2005). Attachment, social competencies, social support, and psychological distress. *Journal of Counseling Psychology*, 52, 358–367.
- Manfredi, P., & Gambarini, A. (2015). Exercise addiction and alexithymia. *Journal of Psychology and Behavioral Science*, 3(1), 61–70. doi:10.15640/jpbs.v3n1a7
- Marchesi, C., Ossola, P., Tonna, M., & Panfilis, K. (2014). The TAS-20 more likely measures negative affects rather than alexithymia itself in patients with major depression, panic disorder, eating disorders and substance use disorders. *Comprehensive Psychiatry*, 55, 972–978.
- Norman, H., & Borrill, J. (2015). The relationship between self-harm and alexithymia. *Scandinavian Journal of Psychology*, 56, 405–419. doi:10.1111/sjop.12217
- Ogrodniczuk, J. S., Piper, W. E., & Joyce, A. S. (2004). Alexithymia as a predictor of residual symptoms in depressed patients who respond to short-term psychotherapy. *American Journal of Psychotherapy*, 58(2), 150–161.
- Patton, G. C., Coffey, C., Carlin, J. B., Degenhardt, L., Lynskey, M., & Hall, W. (2002). Cannabis use and mental health in young people: Cohort study. *British Medical Journal*, 325(7374), 1195–1198.
- Rogers, K. (2011). *Substance Use and Abuse*. New York: Britannica Educational Publishing.
- Saxe, N. G., Chawla, N., & Van der Kolk, B. (2002). Self-destructive behavior in patients with dissociative disorders. *Suicide and Life-Threatening Behavior*, 32(3), 313–320. The American Association of Suicidology.
- Scaer, R. C. (2001). *The Body Bears the Burden. Trauma, Dissociation and Disease*. New York: The Haworth Medical Press Publishing.
- Shiffman, S., Waters, A., & Hickcox, M. (2003). The nicotine dependence syndrome scale: A multidimensional measure of nicotine dependence. *Nicotine & Tobacco Research*, 6(2), 327–348.
- Simeon, D., Guralnik, O., Knutelska, M., & Schmeidler, J. (2002). Personality factors associated with dissociation: Temperament, defenses and cognitive schemata. *The American Journal of Psychiatry*, 159(3), 489–491.
- Simeon, D., Guralnik, O., Schmeidler, J., Sirof, B., & Knutelska, M. (2001). The role of childhood interpersonal trauma in depersonalization disorder. *The American Journal of Psychiatry*, 158(7), 1027–1033.
- Swift, R., & Davidson, D. (1998). Alcohol hangover: Mechanisms and mediators. *Alcohol Health and Research World*, 22(1), 54–60.
- Taylor, G. J., Bagby, R. M., & Parker, J. D. A. (1999). *Disorders of Affect Regulation. Alexithymia in Medical and Psychiatric Illness*. Cambridge: Cambridge University Press Publishing.
- Taylor, G. J., Parker, J. D. A., & Bagby, R. M. (1990). A preliminary investigation of alexithymia in men with psychoactive substance dependence. *The American Journal of Psychiatry*, 147(9), 1228–1230.
- Templeton, G. F. (2011). A two-step approach for transforming continuous variables to normal: Implications and recommendations for IS Research. *Communications of the Association for Information Systems*, 28, 1. Retrieved from <http://aisel.aisnet.org/cais/vol28/iss1/4>
- Thorberg, F. A., Young, R. M., Sullivan, K. A., et al. (2009). Alexithymia and alcohol use disorders: A critical review. *Addictive Behaviors*, 34(3), 237–245.
- Troisi, A., D'Argenio, A., Peracchio, F., Petti, P. (2001). Insecure attachment and alexithymia in young men with mood symptoms. *The Journal of Nervous and Mental Disease*, 189, 311–316. doi:10.1097/00005053-200105000-00007
- Troisi, A., Pasini, A., Seracco, M., & Spalletta, G. (1998). Psychiatric symptoms in male cannabis users not using other illicit drugs. *Addiction*, 93(4), 487–492.
- Tutkun, H., Sar, V., Yargic, L. I., Ozpulat, T., Yanik, M., & Kiziltan, E. (1998). Frequency of dissociative disorders among psychiatric inpatients in a Turkish University Clinic. *The American Journal of Psychiatry*, 155(6), 800–805.
- Vermetten, E., Dorahy, M. J., & Spiegel, D. (2007). *Traumatic Dissociation. Neurobiology and Treatment*. Washington, DC: American Psychiatric Publishing.