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Absolute and relative stability of alexithymia in alcoholic inpatients undergoing alcohol withdrawal: Relationship to depression and anxiety

Philippe de Timary [a,b,*], Alain Luts [a,b], Denis Hers [a,c], Olivier Luminet [a,d]

[a] Université Catholique de Louvain (UCL), Louvain-la-Neuve, Belgium
[b] Department of Adult Psychiatry, Cliniques Universitaires Saint Luc, Brussels, Belgium
[c] Department of Psychiatry, Clinique Europe Saint Michel, Brussels, Belgium
[d] Department of Psychology and Belgian National Fund for Scientific Research, Louvain-la-Neuve, Belgium

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Abstract

To evaluate whether alexithymia in alcohol-dependent patients is a personality trait or a state-dependent phenomenon related to depression and anxiety, we evaluated absolute stability (the extent to which alexithymia scores change over time) and relative stability (the extent to which relative differences among individuals remain the same over time) of alexithymia during alcohol withdrawal. Seventy alcohol-dependent inpatients were assessed for alexithymia, depression and anxiety with the 20-item Toronto Alexithymia Scale, the Beck Depression Inventory and the State-Trait Anxiety Inventory at the onset of withdrawal, after 2 days and 2 weeks. Paired *t*-tests and correlational analyses were performed to evaluate absolute and relative stability of alexithymia and hierarchical regression analyses to assess whether alexithymia was related to anxiety and depression. Alexithymia decreased significantly from onset to end of withdrawal, but two of its three subfactors remained stable. Alexithymia scores at onset correlated significantly with scores at end, after partialling out the effects of depression and anxiety. In conclusion, the relative stability of alexithymia contrasting with large decreases in depression and anxiety during alcohol withdrawal supports the view that alexithymia is a stable personality trait rather than a state-dependent phenomenon.

Keywords: Alcohol dependence; Personality; Longitudinal; Vulnerability

1. Introduction

Alexithymia, which results in poor emotional regulation and stress-management abilities, has sometimes been considered as a vulnerability factor for medical and psychiatric illnesses (Taylor and Bagby, 2004). The prevalence of alexithymia among alcoholic patients (40 to 60%) (Haviland et al., 1988c, 1994; Taylor et al., 1990; Cecero and Holmstrom, 1997; Taieb et al., 2002) is much larger than in the normal population (10 to 20%) (Loas et al., 1995, 1996; Taieb et al., 2002). Furthermore, two longitudinal studies (Ziolkowski et al., 1995; Loas et al., 1997a) have shown that high alexithymia scores at onset of withdrawal were predictors of relapse 12 to 15 months afterwards. These observations suggest that

* Corresponding author. Unité Intégrée d'Hépathologie, Department of Adult Psychiatry, UCL2160, Avenue Hippocrate 10, B-1200, Brussels, Belgium. Tel.: +32 27642038; fax: +32 27648921.
E-mail address: Philippe.detimary@clin.ucl.ac.be (P. de Timary).

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alexithymia might be a vulnerability factor for the development, the maintenance and the relapse of alcoholism.

However, other authors, based on cross-sectional studies, have rather suggested that alexithymia might be a state phenomenon, secondary to the depressive and anxious symptoms frequently observed in alcoholic patients (Haviland et al., 1988b, 1991, 1994). A necessary condition for alexithymia to be a vulnerability factor is that it is a stable personality construct. If so, therapeutic interventions targeting deficits in the processing of emotions may ameliorate alcoholism. In our clinical experience with alcoholic patients, relapse is frequently triggered by the emergence of a specific emotion. Part of our approach to intervention is dedicated to improving the patient's abilities to recognize these emotions and helping them to find new solutions to deal with emotions that differ from responding by the use of alcoholic beverages. We suspect that this approach is even more relevant in alexithymic patients. Distinguishing whether alexithymia is a state or a trait phenomenon in this population is therefore of clinical relevance.

While they are under the influence of alcohol, alcoholic patients usually present with symptoms of depression and anxiety that will most often disappear after withdrawal (Schuckit, 1994). Furthermore, alcohol drinking and the onset of alcohol withdrawal are both followed by a physiologic stress reaction (Adinoff et al., 2005). Alcohol withdrawal is therefore an interesting condition for testing the stability of alexithymia, because it is attended by large decreases in the level of psychological distress and physiological stress.

To date, two studies have examined the stability of alexithymia in a population of substance-dependent patients and have reported conflicting results. On the one hand, Pinard et al. (1996) studied 48 substance-dependent patients that completed the Toronto Alexithymia Scale-20 (TAS-20), which is currently the most commonly used scale of alexithymia, the Beck Depression Inventory (BDI) and the Hopkins Symptoms Checklist (HSCL-58), in the first week of detoxification and 4 to 6 weeks afterwards. While depressive symptomatology significantly decreased after the detoxification program, alexithymia mean scores showed no significant change, supporting the view that alexithymia is a stable trait. On the other hand, Haviland et al. (1988a) followed a sample of 55 newly abstinent alcoholic inpatients that completed both the TAS (a former version of the Toronto Alexithymia Scale) and the BDI in the first week and at the end of their third week of sobriety. Whereas depression scores significantly decreased at follow-up, mean alexithymia scores remained stable. However, these authors tested the stability of alexithymia by evaluating whether the patients remained within the same categories, determined by cutoff scores. The authors contested the stability of the construct as only 23 of the 55 patients (42%) remained in the same alexithymia category at follow-up: 40% moved down, 18% moved up. Whereas 54% and 25% of patients at the onset of withdrawal were, respectively, in the upper and lower category of alexithymia, most of them moved to the intermediary category at the end (51%). Based on these findings, the authors concluded that alexithymia was a state-dependent phenomenon.

Both studies have several limitations. The first and main limitation relates to the type of analysis performed on the data to assess the question of stability. To understand the limitations, it is necessary to distinguish between at least two forms of stability: absolute stability and relative stability (Santor et al., 1997; Roberts and Del Vecchio, 2000). *Absolute stability* refers to the extent to which scores change over time, whereas *relative stability* indicates the extent to which the relative differences among individuals remain the same over time (Santor et al., 1997). It is important, however, that studies investigating the issue of alexithymia stability consider both absolute and relative stability.

For instance, in a recent study by Luminet et al. (2001) on 46 psychiatric outpatients diagnosed with major depression, alexithymia scores decreased following the antidepressant treatment (absolute change) whereas relative differences among individuals remained the same (relative stability).

To understand the other limitations of the earlier studies, one should be reminded that the duration of withdrawal largely depends on the nature of the substance that causes the addiction; the withdrawal being much longer (3–5 weeks) in the case of benzodiazepines than in the case of alcohol (7 to 10 days) (Kosten and O'Connor, 2003). With alcohol, the peak of the withdrawal effects, with a variety of stress symptoms such as anxiety, tachycardia, sweating, and tremor, is usually observed after 48 to 72 h.

The second limitation is that in both studies the participants were diagnosed with mixed dependence (alcohol plus heroin and/or cocaine and/or benzodiazepines). It is likely that the changes observed during withdrawal were influenced by the nature of the substance and by whether withdrawal was complete or not.

The third and final limitation is that in both studies, the initial measurements of alexithymia and depression

were performed within the first week of abstinence between day 1 and day 7. All patients were therefore not at the same stage of withdrawal. As suggested above, alcohol drinking and the onset of alcohol withdrawal may be considered as distinct states of physiological stress.

The present study was carefully designed to overcome these three limitations. To deal with the first limitation, we measured concomitantly the absolute and relative stability of alexithymia. To answer to the second limitation, we selected a population of patients that responded specifically to the DSM-IV criteria of alcohol dependence and excluded patients with mixed dependence. Furthermore, to test the effects of distinct stress conditions and answer to the third limitation, we compared measurements on the date of admission, when the patients were still under the effect of alcohol, and after 48 h, when the peak effect of withdrawal was to be expected, with measurements performed at the end of withdrawal, when the patients were no longer under stress conditions nor under the effect of benzodiazepines that we used for withdrawal.

The aim of our study was to test the absolute and relative stability of alexithymia over the period of alcohol withdrawal, and compare alexithymia and its factors to changes in depression and anxiety. For alexithymia to be considered as a potent vulnerability factor, we would need to observe at least a relative stability of the construct. Conversely, if we observed a relative instability of alexithymia and that alexithymia is related to depression and anxiety, the construct would more likely be a state-dependent phenomenon in this population of patients.

2. Methods

2.1. Subjects and procedure

The study was accepted by the ethical committee of our hospitals and the patients signed an informed consent form. The sample consisted of a consecutive series of 45 male and 25 female applicants to our inpatient alcoholism treatment units, namely, "Unité Intégrée d'Hépatologie" in the St Luc University Hospital (described in Ogez and de Timary, 2005) and the psychiatric ward of Clinique Europe St Michel, Brussels, Belgium. Only patients that presented with a diagnosis of alcohol dependence as the primary axis I diagnosis according to DSM-IV criteria, clinically evaluated by psychiatrists (PdT, and DH) and that had drunk on the date of application or the day before were incorporated into the study. Subjects with other substance dependence or abuse were excluded. The subjects were tested three times: T1: within 5 h following their admission; T2: on day 2; T3: on days 14–18. Those who had relapsed during their stay were excluded. Their ages ranged from 28 to 63 years with a mean of 47.4± 9.31 years. All of them were French speaking.

Among these patients; 4% had accomplished their studies until the end of primary school, 45% until the end of secondary school and 51% had a university degree. As regards their marital status, 41% were singles and 59% lived in a couple. 26% were professionally active; 30% of patients presented with a comorbid major depression disorder, and 10% presented with a comorbid anxious disorder. They completed the questionnaires autonomously but were sometimes helped at T1 in an individual setting to ensure completion.

2.2. Measures

Alexithymia was assessed with the TAS-20 (Bagby et al., 1994), which has been translated and validated in French (Loas et al., 1995, 1996, 1997b). It is currently the most widely used measure of the alexithymia construct. Depression was assessed with the French translation of the 13-item version of the Beck Depression Inventory(BDI). The BDI is reliable and valid and thought to be a good measure of depression severity in alcohol-dependent patients, both in English- and French-speaking populations (Clark et al., 1985, 1993; Lemperière et al., 1984). To measure anxiety, we used the 20-item state portion of the State-Trait Anxiety Inventory (STAI-S), a reliable and valid self-evaluation (Spielberger, 1983) that has been validated in French (Bruchon-Schweitzer and Paulhan, 1993).

2.3. Statistical analyses

The following specific issues regarding the stability of alexithymia during an acute withdrawal phase were addressed: (1) testing the absolute and relative stability of alexithymia in contexts in which large changes in depression and anxiety are expected; (2) assessing the degree to which the relative stability in alexithymia scores is related to severity of depression and anxiety symptoms; (3) and measuring the degree to which changes in alexithymia scores can be attributed directly to changes in depression and anxiety scores.

The first issue was addressed using paired *t*-tests to assess absolute change in TAS-20, BDI and STAI scores at the three times of measurement (arrival, day 2, day 14–18). This analysis was supplemented by calculating effect sizes (Cohen's *d*, (Cohen, 1988), with d=(mean pre− mean post)/S.D. pre) to determine the magnitude of

changes. Pearson correlations and intraclass correlations were used to assess the relative stability of TAS-20, BDI and STAI scores across time (i.e., arrival, day 2, days 14–18). The association between TAS-20, BDI and STAI scores at arrival, day 2, and days 14–18 was also assessed using Pearson correlations.

The second issue was first examined using Pearson moment correlations between alexithymia, depression and anxiety. Then, we computed hierarchical regression analyses, as was done in the study by Santor et al. (1997). Given that measures of alexithymia have been shown to have moderate to strong correlations with measures of depression and anxiety in cross-sectional designs (i.e., within but not across time) (Haviland et al., 1988a,c, 1991), the relative stability among individuals' differences in alexithymia from baseline to follow-up may be attributable to individual differences in depression and anxiety severity at admission, day 2 or days 14–18. To this end, we built a regression model in which follow-up (T3) alexithymia scores served as the criterion variable. The predictor variables, in order of entry, were: (1) a "block" containing T1, T2 and T3 depression scores; (2) T1, T2 and T3 anxiety scores; and (3) T1 and T2 alexithymia scores. Showing that variance in follow-up (T3) alexithymia scores can be predicted by baseline and day 2 alexithymia scores beyond the effects due to baseline and follow-up depression and anxiety scores would demonstrate that the relative stability of alexithymia scores cannot be accounted for by mood changes (depression and anxiety severity).

The third issue was also examined using hierarchical regression analysis. While absolute changes in depression, anxiety, and alexithymia scores might be adequately detected using paired *t*-tests, it is unclear from this type of analysis to what extent changes in alexithymia scores can be accounted for by changes in depression and anxiety severity. To assess this potential effect, we built a regression model in which change scores in alexithymia (i.e., arrival minus day 14–18 TAS-20 scores) served as the criterion variable, and change scores in depression (i.e., arrival minus days 14–18 BDI scores) and in anxiety (i.e., arrival minus days 14–18 STAI-S scores) served as the predictor variable. All analyses were performed using the Macintosh version of the Statistical Package for Social Sciences (SPSS) 12.

3. Results

3.1. Gender differences

Gender differences were examined for alexithymia, severity of depression and anxiety, and various sociodemographic indicators (age, marital and parental status, living milieu, education level, profession and professional status, medical and psychiatric history, family history of drinking alcohol, and age at onset of drinking habits). None of these comparisons were found to be significant ($P<0.05$). Analyses were also computed separately for males and females to examine whether different patterns of results were found. Unless reported, results were similar for both genders and are thus reported for the whole sample.

3.2. Absolute stability

Next, we assessed *absolute change scores* for depression and anxiety severity and alexithymia.

For depression, an overall main effect, F (2,69)= 39.598, $P<0.0001$ was observed. This was explained by a decrease from T1 ($M=15.13$, S.D.=6.42) to T2 ($M=12.76$, S.D.=6.97), $t=3.96$, $P<0.0001$, $d=0.37$, and from T2 to T3 ($M=9.39$, S.D.=7.07), $t=8.41$, $P<0.0001$, $d=0.48$.

An overall main effect was also observed for anxiety, F (2,69)=28.22, $P<0.0001$. Similar to depression, it was explained by a decrease from T1 ($M=54.30$, S.D.=14.86) to T2 ($M=48.20$, S.D.=16.11), $t=3.97$, $P<0.0001$, $d=0.41$, and from T2 to T3 ($M=40.13$, S.D.=15.31), $t=4.03$, $P<0.0001$, $d=0.50$.

When total alexithymia score was considered, an overall main effect was found, F (2,69)=9.03, $P<0.0001$. At this time, no change was observed from T1 ($M=57.14$, S.D.=10.76) to T2 ($M=56.86$, S.D.= 11.29), $t=0.24$, ns, $d=0.03$. However, a difference was observed from T1 to T3 ($M=53.01$, S.D.=10.53), $t=4.07$, $P<0.0001$, $d=0.38$, and from T2 to T3, $t=3.66$, $P<0.0001$, $d=0.34$. Considering cutoff scores for being alexithymic (TAS-20 $\geq$ 61) and for being nonalexithymic (TAS-20 $\geq$ 51) (Taylor et al., 1997), 32.4, 35.2 and 22.9% of the patients may be considered as alexithymics and 25.4, 36.6, and 45.7% of patients may be considered as nonalexithymics at T1, T2 and T3, respectively.

At the factorial level, the main effect was only observed for "difficulty identifying feelings", F (2,69)=13.12, $P<0.0001$. When examining changes from each time of measurement, a similar pattern to that for the total alexithymia score was found for "difficulty identifying feelings", with no change from T1 ($M=22.11$, S.D.=5.77) to T2 ($M=21.17$, S.D.=6.34), $t=1.13$, $d=0.16$, but significant decreases from T1 to T3 ($M=18.99$, S.D.=5.68), $t=5.20$, $P<0.0001$, $d=0.54$, and from T2 to T3, $t(69)=$ 3.65, $P<0.001$, $d=0.34$. Conversely, no change was observed for "difficulty describing feelings" that remained

stable from T1 (M=16.80, S.D.=4.18) to T2 (M=16.77, S.D.=3.81) and T3 (M=16.01, S.D.=4.30). Importantly, a gender difference was observed for this factor, with an overall main effect for females that was explained by significant differences between T1 (M=17.32, S.D.=4.78) and T3 (M=15.20, S.D.=3.84) and between T2 (M=16.76, S.D.=4.25) and T3. In the male group, however, no overall significant effect was found, with almost identical values at the three times of measurement (T1, M=16.39, S.D.=3.86; T2, M=16.64, S.D.=3.59; T3, M=16.45, S.D.=4.56). The main effect was also not significant for "externally oriented thinking", with no change from T1 (M=18.17, S.D.=4.30), to T2 (M=18.68, S.D.=4.48) and T3 (M=18.03, S.D.=4.37).

Overall, these results suggest absolute changes across each time of measurement for depression and anxiety and absolute changes for total alexithymia scores from T2 to T3, but absolute stability from T1 to T2. At the factorial level, only "difficulty identifying feelings" followed this pattern, while absolute stability was found across all times of measurements for the other two factors. Most of the significant results were small effect sizes according to Cohen (1988). Only the change in anxiety from T2 to T3 and in "difficulty identifying feelings" from T1 to T3 reached a medium effect size.

3.3. Relative stability

To assess evidence of *relative stability*, we computed Pearson moment correlations between depression, anxiety, and alexithymia across the three times of measurement (see Tables 1 and 2). Results showed that, for depression, the correlations across time were high. A similar result was observed for anxiety between T1 and T2, but the other correlations were lower.

Table 1
Pearson moment correlations for depression and anxiety across times

	BDI-T1	BDI-T2	BDI-T3	STAI-T1	STAI-T2	STAI-T3
BDI-T1	–	**0.72**	**0.65**	0.63	0.47	0.46
BDI-T2		–	**0.70**	0.58	0.74	0.47
BDI-T3			–	0.34	0.40	0.73
STAI-T1				–	**0.67**	**0.34**
STAI-T2					–	**0.43**
STAI-T3						–

Notes:
T1 = measure at admission to the hospital. T2 = measure taken after 2 days. T3 = measure taken after 14–18 days. BDI = Beck Depression Inventory. STAI = State-Trait Anxiety Inventory, state version. Bold data: Pearson moment correlations within scores of a similar mood (depression or anxiety) across different times.
All correlations significant at $P<0.005$.

Table 2
Pearson moment correlations for total alexithymia across times

	TAS-20-T1	TAS-20-T2	TAS-20-T3
TAS-20-T1	–	0.59	0.68
TAS-20-T2		–	0.71
TAS-20-T3			–

Notes:
T1 = measure at admission to the hospital. T2 = measure taken after 2 days. T3 = measure taken after 14–18 days. TAS-20 = Toronto Alexithymia Scale.
All correlations significant at $P<0.0001$.

As regards the total alexithymia score, results evidenced highly significant correlations. High correlations were also found at the factor score level (range: 0.47 to 0.68) (see Table 3). It is also interesting to note that overall factors 1 and 2 were highly interrelated, while the correlations between factor 3 and the other two factors were of low magnitude and in general non-significant (13 out of 18).

3.3.1. Estimating the relative stability of alexithymia controlling for changes in depression and anxiety

As mentioned above, we used hierarchical regression analyses to examine the extent to which stability in alexithymia scores may be accounted for by individual differences in depression and anxiety severity. The criterion variable was T3 TAS-20 scores, and the predictor variables were BDI scores at T1, T2 and T3, STAI scores at T1, T2 and T3, and TAS-20 scores at T1 and T2. Results in Table 4 show that a statistically significant amount of variance (R^2 adj.=0.13) in T3 TAS-20 scores was predicted from the block including depression severity. This effect was only explained by a positive relation with depression measured at T3. The block of variables measuring anxiety did not contribute to the prediction. TAS-20 scores at T3, however, were predicted by TAS-20 scores at T1 and T2, beyond the variance explained by depression and anxiety severity, R^2_{chg}=0.45, $F_{chg}(2,59)$=36.33, $P<0.0001$. These results provide strong evidence for relative stability in alexithymia.

Analyses at the factor level confirmed that the measure of alexithymia at T3 was explained by measures of alexithymia at T1 and T2 beyond the variance for depression and anxiety (R^2_{chg} from 34.7 for "difficulty identifying feelings" to 45.5 for "externally oriented thinking"). Anxiety never made a significant contribution and depression made a contribution (Adj. R^2=0.21) only for "difficulty identifying feelings", while this block was not significant for the prediction of "difficulty describing feelings" and "externally oriented thinking".

Table 3
Pearson moment correlations for alexithymia factors across times

	TAS-F1-T1	TAS-F1-T2	TAS-F1-T3	TAS-F2-T1	TAS-F2-T2	TAS-F2-T3	TAS-F3-T1	TAS-F3-T2	TAS-F3-T3
TAS-F1-T1	–	**0.55******	**0.61******	0.59****	0.40***	0.47****	0.19	0.22	0.18
TAS-F1-T2		–	**0.66******	0.28*	0.53****	0.33**	0.11	0.33**	0.17
TAS-F1-T3			–	0.36**	0.55****	0.57****	0.06	0.15	0.12
TAS-F2-T1				–	**0.59******	**0.65******	0.23	0.29*	0.24*
TAS-F2-T2					–	**0.68******	0.08	0.27*	0.22
TAS-F2-T3						–	0.11	0.29*	0.18
TAS-F3-T1							–	**0.47******	**0.57******
TAS-F3-T2								–	**0.58******
TAS-F3-T3									–

Notes:
TAS-F1 = "difficulty identifying feelings" factor, TAS-F2 = "difficulty describing feelings" factor, TAS-F3 = "externally oriented thinking" factor.
*$P<0.05$. **$P<0.01$. ***$P<0.001$. ****$P<0.0001$. Bold data: Pearson moment correlations for a similar alexithymia factor across different times.

3.3.2. Modeling changes in alexithymia and depression/anxiety

For this analysis, change scores for the TAS-20 from T1 to T3 served as the criterion variable and change scores in BDI and STAI from T1 to T3 served as the predictor variables. Only 1.6% of the variance in change scores (Adj. R^2) for the TAS-20 was accounted for by the variance in change scores for the BDI, which was statistically non-significant, F (1,67)=2.09, ns, and only 0.2%, ns, was accounted for by change scores for the STAI. These results suggest that changes in TAS-20 scores cannot be attributed to changes in BDI and STAI scores.

Table 4
Hierarchical regression analysis predicting TAS-20 total score at T3 from depression severity, anxiety severity and alexithymia at T1 and T2

Factors	Final β	R^2	R^2_{adj}	R^2_{chg}	df	F_{chg}
Step 1: depression		0.17	0.13	–	3,64	4.36**
BDI-T1	−0.10					
BDI-T2	−0.08					
BDI-T3	0.31*					
Step 2: anxiety		0.19	0.11	0.02	3,61	0.46
STAI-T1	−0.01					
STAI-T2	−0.03					
STAI-T3	−0.06					
Step 3: alexithymia		0.64	0.59	0.44	2,59	36.33***
TAS-20-T1	0.36**					
TAS-20-T2	0.50***					

Notes.
Depression is measured by the Beck Depression Inventory (BDI, Beck, 1978), Anxiety is measured by the State-Trait Anxiety Inventory (STAI, state version, Spielberger, 1983), and alexithymia is measured by the Toronto Alexithymia Scale (TAS-20, Bagby et al., 1994).
T1 = measure at admission at to hospital. T2 = measure taken after 2 days. T3 = measure taken after 14–18 days.
*$P<0.05$. **$P<0.01$. ***$P<0.001$.

These results were confirmed at the factor level. Depression explained between 0 and 6% of the variance, and anxiety explained between 0 and 0.1% of changes in the three alexithymia factors.

4. Discussion

The observations of correlations between alexithymia and negative affects in cross-sectional studies led some authors to conclude that alexithymia was secondary to depression and anxiety in substance-dependent patients (Haviland et al., 1988b, 1991). However, the issue of whether alexithymia is a vulnerability factor and deserves to be treated or a reaction to changes in negative affect may only be addressed in longitudinal studies, which evaluate the stability of the construct. Furthermore, the type of conclusions obtained from longitudinal studies, whether alexithymia is stable or not, largely depends on the type of analysis performed on the data.

Haviland et al. (1988a), in a mixed population of substance-dependent patients, failed to observe changes in absolute alexithymia scores but suggested that alexithymia was not stable, based on the observation that many patients passed from alexithymic to nonalexithymic groups based on categorization around discrete cutoff scores. In keeping with these observations, Honkalampi et al. (2001a,b), in a large 12-month follow-up study in the general population, also observed an overall stability of the absolute scores of alexithymia but changes across cutoff scores in some subjects that were paralleled by changes in BDI scores. These parallel changes were also observed in a longitudinal study in patients presenting with major depression at onset (Honkalampi et al., 2000). However, a categorical analysis of alexithymia may give a false impression of instability, as baseline scores lying close to boundaries have to undergo only minor variations to change

category. Considering alexithymia as a category, our data show a significant decrease in the fraction of patients considered as alexithymic. It is however best in our view, to analyze alexithymia as a continuous dimension and to evaluate its stability by assessing whether individual scores relative to others remain the same over an interval, in the context of acute symptoms.

Considering alexithymia as a continuous dimension, Roberts and Del Vecchio (2000) have suggested a distinction between various forms of stability: absolute stability, mean-level stability, rank-order stability and relative stability. According to these authors, absolute stability is obtained when the scores of every single subject remain the same across time and situations. This level of stability is, of course, seldom achieved. More often, the scores possess arithmetical properties conferring on them partial stability despite variations. First, when variations are small or when variations at an individual level compensate for one another, the mean of the group remains stable across time. This type of stability should be called mean-level stability but is also commonly referred to as absolute stability, as in the present article. Second, when the individual's position among the population remains the same despite a variation of scores across time, a situation of rank-order stability is obtained. Third, it is also conceivable that the relative differences among individuals remain the same across time, a situation referred to as relative stability (see Mikolajczak and Luminet, 2006 for details). In an attempt to address the issue of stability, the present study evaluated absolute (i.e. mean level) and relative stability of alexithymia during alcohol withdrawal, in a population of patients that strictly corresponded to the DSM-IV criteria for alcohol dependence. The patients' testing during withdrawal provided conditions for large improvement of depression and anxiety symptoms as previously reported (Haviland et al., 1988a; Schuckit, 1994). The decrease was already significant after 2 days and even more significant at the end of withdrawal. This is an important condition, as the magnitude of changes in distress needs to be large in order to test alexithymia stability in a valid way.

We also observed an absolute decrease in alexithymia mean levels. This decrease was explained by a decrease of the "difficulty identifying feelings" factor, whereas we observed an absolute stability of the other two factors. In dependent patients, Pinard et al. (1996) also observed an absolute stability for alexithymia during withdrawal. However, they did not study relative stability, and nearly half of the patients they studied were dependent on substances other than alcohol with possibly diverging durations of withdrawal. We have also obtained support for a relative stability of alexithymia and its three factors. We first observed a positive and highly significant correlation between alexithymia scores at the onset, at the peak and after withdrawal, although patients passed through conditions characterized by distinct levels of stress and distress. An even greater argument for the relative stability was provided by the hierarchical regression analyses that have shown that the variance in alexithymia scores at the end of withdrawal can be predicted from alexithymia scores at the onset and peak of withdrawal, over the effects contributed by scores of depression and anxiety at the three times of measurement. Our observations therefore support the view that alexithymia is a stable personality trait in alcohol-dependent patients, even though absolute stability was not obtained for the "difficulty identifying feelings" factor.

Our observations that support a relative stability of alexithymia are consistent with those of previous studies, using a similar statistical rationale, in various populations submitted to different stress conditions: i.e., in a population of university students undergoing an increase in psychological distress, when taking an exam (Mikolajczak and Luminet, 2006) and in a large student population that was not submitted to stress (Picardi et al., 2005); in depressed patients 6 to 8 weeks after they underwent treatment with antidepressant medication (Luminet et al., 2001). In the latter group, although improvement in depression was attended by an absolute decrease in alexithymia, they had observed a relative stability. Our study provides even stronger arguments for the stability of alexithymia as, under conditions of large changes in distress, we observed a relative stability but also an absolute stability for two factors of the TAS-20 ("difficulty describing feelings" and "externally-oriented thinking"). It is, however, interesting to note a gender difference for "difficulty describing feelings" with absolute changes observed for females and absolute stability for males.

The observation of an absolute decrease of the "difficulty identifying feelings" factor and of a modest correlation with the BDI scores suggests that this factor is partially related to mood variations. This raises the question as to whether the "difficulty identifying feelings" factor might act as a coping mechanism against negative affect in periods of alcohol consumption and withdrawal (Corcos and Speranza, 2003). In a 5-year follow-up study of a population of depressed patients, Saarijärvi et al. (2006) also observed a relative stability for alexithymia and a correlation between BDI scores and "difficulty identifying feelings". However, they also had observed a link between the BDI and "difficulty

describing feelings". Therefore, it cannot be excluded that both factors are partially defense mechanisms against depression and that in our study, which had a much shorter time frame than that of Saarijärvi et al. (2006), the "describe" factor decreased more slowly than depression. Whatever the case, these studies combine to support the view of a relative stability of alexithymia, which has the status of a personality trait, but indicate that some factors may also be related to depression.

However, there are two limitations to the present study. The first is that the TAS-20 is a self-rating questionnaire. Thus, one cannot exclude that alexithymic patients present with difficulties in correctly rating their emotional abilities. It would be of interest to repeat this type of study with non-self-report measures. The other limitation is that the time frame is short and that changes in alexithymia may occur with a delay compared with changes in depression and anxiety.

If confirmed by other studies with larger subsets of patients, these observations of alexithymia being a personality trait rather than a state-dependent phenomenon in alcoholic patients would suggest that alexithymia might be a vulnerability factor for alcohol dependence. Specific therapeutic interventions, dedicated to improving the ability to identify and describe subjective feelings, developing more imaginative capacities and establishing conscious relationships between some overwhelming emotions and the occurrence of episodes of alcohol craving and relapse, might be clinically relevant in alcoholic alexithymic patients. Our clinical experience strongly supports that hypothesis. Craving episodes are indeed often associated with the emergence of positive or negative emotions.

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