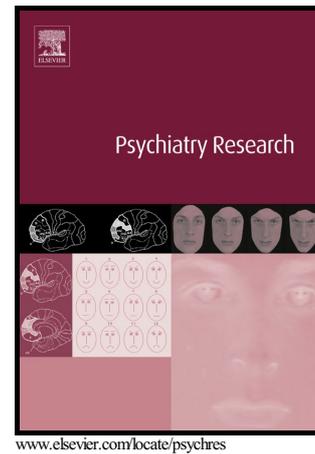


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Self-defining memories in recently detoxified alcohol-dependent patients

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Abstract

Patients with alcohol dependence have been shown to be impaired in recalling specific autobiographical events, yet little is known on how changes in the memory of these events may impact their self-representation. In this study, we examined Self-Defining Memories (SDMs), a specific type of autobiographical memory that plays a key role in the construction of personal identity, in 25 patients with alcohol dependence, abstinent from alcohol from 10 days to 6 months, compared to 28 control subjects. We observed that SDMs in patients were significantly less specific and included more reference to alcohol than those of controls. Patients also reported more SDMs with negative emotional valence and higher emotional intensity. These results suggest that recently abstinent alcohol-dependent patients may be

prone to define themselves by negative events referring to alcohol consumption, which may contribute to an unfavourable perception of their self and subsequently of their ability to remain abstinent. These findings should be taken into account to optimize psychological approaches in the treatment of alcohol-dependence.

Keywords: Self-defining memories, alcohol dependence, autobiographical memory, self

1. INTRODUCTION

Excessive alcohol consumption induces impairments in a wide range of cognitive domains, including executive functions, visuospatial processes, and memory (Pitel et al., 2009, Beatty et al., 1996). Episodic memory disorders in alcohol dependent patients have been identified with many psychometric tasks such as the Wechsler Memory Scale (Glenn and Parsons, 1992) or lists of words (Hildebrandt et al., 2004) and stories (Fama et al., 2009). These disorders concern both encoding and retrieval processes without an apparent relationship with executive dysfunction (Pitel et al., 2007; Le Berre et al., 2010). Memory processes that specifically participate to the construction of personal identity, such as autobiographical memory, have been shown to be altered in alcohol dependent individuals (Fitzgerald and Shifley-Grove, 1999; D'Argembeau et al., 2006; Whiteley et al., 2009; Nandrino et al., 2014; Poncin et al. 2015). Autobiographical memories are transitory mental constructions generated from an autobiographical knowledge base, where knowledge is held at different levels of specificity (Conway and Pleydell-Pearce, 2000; Conway, 2001). To date, studies that explored autobiographical memory in alcohol dependence used traditional autobiographical memory enquiries such as the Autobiographical Memory Test (AMT: Williams and Broadbent, 1986). Fitzgerald and Shifley-Grove (1999) examined AM's temporal distribution as retrieved in response to cue words. The authors showed that, alcohol-dependent patients compared to

controls recall fewer memories from their recent years and more from their early adulthood, in association with difficulties in accessing event-specific autobiographical knowledge. D'Argembeau and colleagues (2006) showed that nonamnesic alcohol-dependent patients report categorical and general memories more frequently and more easily than specific ones, which may contribute to the development and maintenance of alcohol dependence, as well as to the relapses after detoxification (Whiteley et al., 2009).

Recent models of autobiographical memory, by explicitly referring to the self, offer a new conceptual frame that underlines the close reciprocal relationships between personal identity and a particular type of memories named Self-Defining Memories (SDMs) (Blagov and Singer, 2004). In these models, SDMs have been distinguished from other autobiographical memory processes to delineate those associated with the senses of personal identity and continuity in one's individual history (Conway, Singer, Tagini, 2004). As defined by Singer and Salovey (1993), SDMs are vivid, emotionally intense, and repetitively recalled memories, linked to other thematically similar memories, and focused on enduring concerns or unresolved conflicts. In several disorders, SDMs have been related to an altered sense of identity. The self-meaning making reflects the ability of individuals to update their self-concept and personal goals by integrating these important experiences in the self. According to Blagov and Singer (2004), this process allows individuals to stand back from a past event and to realize how this event has modified their personality or the way they see themselves, others or the world. For instance, in post-traumatic stress disorder (PTSD), the severity of symptoms have been found to be correlated to the extent to which a traumatic memory forms a central component of personal identity, a turning point in the life story and a reference point for everyday inferences (Sutherland and Bryant, 2005; Berntsen and Rubin, 2008). Also, meaning-making of SDMs differs in individuals who suffer of loss and complicated grief, from those without complicated grief, by a larger number of SDMs involving the deceased

person and by more redemption sequences (Maccallum and Bryant, 2008). Assessment of SDMs in patients with schizophrenia showed lower levels of self-event connections and meaning-making in both illness-related and more general SDMs than in controls. Almost 30% of the freely-recalled SDMs reflected illness themes that were characterized by higher redemption and contamination effects than other SDMs (Berna et al., 2011; Raffard et al., 2009, 2010).

Although alcohol consumption may deeply impact individual histories, with unemployment (Mullahy & Sindelar (1996), exhaustion of social networks (Mowbray et al. 2014) or marital dissolution (Cranford, 2014), and thus one's self-representation, SDMs have not yet been examined in patients suffering from alcohol dependence. In this study, we investigated the way patients with a diagnosis of alcohol dependence and abstinent for a period of several days integrate these memories into their self with regard to their illness. Based on data showing impairment in recalling specific or detailed memories in alcohol-dependent patients (D'Argembeau et al., 2006; Whiteley et al., 2009; Williams et al., 1997; Nandrino et al., 2014), we hypothesized that SDMs in such patients would display lower level of specificity or attributed meaning than in control subjects. Also, we expected that SDMs in alcohol-dependent patients would contain more reference to their illness, as in schizophrenia (Berna et al., 2011), and post-traumatic stress disorder (Berntsen and Rubin, 2008; Sutherland and Bryant, 2005). Alcohol could vehicle a problematic self-understanding. Indeed, patients who would consider memories related to alcohol consumption as self-defining or who would not be able to extract a sense of meaning upon the event, could be at higher risk for relapse. Finally, we aimed to characterize the emotional responses of patients during SDMs retrieval.

2. MATERIAL AND METHOD

2.1. Participants

Twenty five patients (8 women and 17 men) with a diagnosis of alcohol dependence according to the DSM-IV-TR criteria (A.P.A., 2000), and 28 control subjects (12 women and 16 men) matched on education and age, were included. Characteristics of patients and controls are presented in Table 1. Sixteen patients received an antidepressant treatment. Thirteen were on benzodiazepines, with a mean dose of 27.5 mg of diazepam. The diagnosis of alcohol dependence in patients and the absence of any psychiatric condition, including substance-related disorders, in healthy subject were assessed using the Mini International Neuropsychiatric Interview (M.I.N.I, French version 5.0) (Sheehan et al., 1998). All patients had recently followed an alcohol rehabilitation programme and were tested after at least ten days and maximum 6 months after alcohol withdrawal. This period has been chosen to limit our study to the early period following alcohol withdrawal, since abstinence during this period represents both a main concern for patients and a great issue for caregivers. To assess the severity of alcohol dependence, we used the revised 25-item Alcohol Dependence Scale (ADS; Horn and Skinner, 1984). According to Skinner and Allen (1982), a score of 1–13 represents a low level of alcohol dependence, 14–21 an intermediate level, 22–30 a substantial level, and 31–47 a severe level. To assess the patients' history of dependence, we asked questions inspired by the Diagnostic Interview for Genetic Studies questionnaire (DIGS; Nurnberger et al., 1994) and adapted to the present study: « How old were you the first time you had a drink of alcohol? » (age of first drink), « When did you take your last drink? » (length of consumption and length of abstinence), « How old were you when you felt you should cut down on your drinking the first time? » (age of awareness).

Severity of depression symptoms was rated using the Beck Depression Inventory – Second edition (BDI-II; Beck, Steer, Brown, 1996), and the level of anxiety was assessed by the State-Trait Anxiety Inventory (STAI) (Spielberger, 1984). We excluded from the study all patients with any current medical or psychiatric comorbidity, as well as all control subjects

with a history of alcoholism in first degree relatives. None of the participants had a history of neurological disorders or hereditary neurological illnesses. All participants were native French speakers. Participants were interviewed individually in a quiet standardized environment. All procedures were clearly detailed to the subjects by means of both oral and written information. In particular, participants were told that they would have to write down important personal memories and to fill out written questionnaires. They were also informed that any identity or personal information will be coded to ensure confidentiality of the collected data. This research was conducted in accordance with the Helsinki Declaration and was approved by the local ethics committee. All participants gave their written informed consent before inclusion in the study.

2.2. Self-Defining Memories

SDMs were collected with the Self-defining questionnaire (Singer and Moffitt, 1991), introduced by an oral definition of an SDM. To be considered as an SDM, recollected events have to belong to one's personal memory and to display specific attributes: 1) the temporal distance between the event and present time should be at least 1 year, 2) the event should be important for the subject and vividly represented, 3) it should help oneself and others to explain who one is as an individual with its own characteristics, 4) it should be related to an important and enduring theme, issue, conflict, or concern from one's life and linked to other events sharing the same theme, 5) it could be either a positive or a negative event; the only important aspect is that it generates strong feelings, 6) it should be an event that subjects have many times thought of. While listening to this definition, subjects had a sheet of paper in front of them summing up the main points. Subsequently, participants were asked to describe five SDM events, including a caption for each of them, their age at their occurrence, who they were with, what happened, and how they and other people responded to the event. They were

asked to write down a title or sentence to summarize each of the events, and a description of them with enough details to help an imagined friend to visualize the scene of the event and to feel what the subject or other felt. Thereafter, participants had to rate on a 7-point rating scale (from 3=very negative to 3=very positive, 0=neutral) their emotional response while remembering the event. Finally, they had to estimate the delay between the event and the present time (in years and months).

The content of an SDM was evaluated using the classification proposed by Thorne and McLean (2001). Contents were distinguished in seven categories, depending of the content of the recalled event: life-threatening, recreation, relationships, achievement/mastery, guilt/shame, drug/alcohol abuse, and not classifiable. For example, life-threatening events refer to situations where the subject has been exposed to a deadly accident, assault, or severe illness. As other studies on SDMs in patient's population, we decided to add a specific category for events related to some aspect of the illness, i.e. with a content referring to alcohol consumption. A memory was coded as specific (score=1) if the described event happened at a particular place and time and lasted less than a day (Williams and Broadbent, 1986). Non-specific (score=0) SDMs included categorical (repeated similar events) and extended (events that are longer than a day) memories. Narrative integrative meaning of SDMs were coded in light of the assessment of what the event taught the participant about himself or herself, someone else, or life in general (Singer and Blagov, 2000). An event was considered to be integrated if the individual stepped back from the event narration and added a statement or comment giving significance or meaning to the event. In contrast, if the narration was purely descriptive, it was considered as non-integrative. SDMs were also coded for the presence or absence of tension, which is defined as an explicit reference to a discomfort, disagreement, or unease during the narration of the event (Thorne et al., 2004). The valence (i.e., positive, neutral, or negative) and emotional intensity (i.e., absolute value of the rating) of the affective

response to each event was also obtained. Subsequently, redemption and contamination were coded as present (1) or absent (0). A redemptive event in the story had to contain an explicit and clear transformation from a decidedly negative-affect state to a decidedly positive-affect one (McAdams, 2001). The negative state of the event had to be clear and explicit and had to change into a decidedly positive situation or produce a positive outcome of some kind. A contaminative event in the memory narrative had to contain an explicit transformation from a demonstrably positive affective state to a demonstrably negative affective state. We used the number of memories associated with redemption and contamination.

Each SDM was independently scored by two raters (C.C-L.; D.R-C.) for specificity, meaning-making, and content, according to the criteria proposed by Singer and Blagov (2000–2001) and Thorne and McLean (2001). In the few cases where the two ratings differed, the final rating was discussed and agreed by the two raters. The kappa interrater reliability coefficient was 0.97 for specificity, 0.98 for integrative meaning, 0.95 for content, 0.74 for both redemption and contamination, and .98 for tension coding.

2.3. Statistical analysis

Data were analyzed using the SPSS software (version 17.0 for Windows). Alcohol-dependent patients were compared to controls participants for socio-demographic variables, symptom severity, and SDMs scores, using independent t-tests, thematic contents were analyzed with chi-square tests. In order to examine the hypotheses related to specificity, affect, tension and integrative meaning, a Multivariate analysis of variance (MANOVA) was conducted with group as the independent variable and memory specificity, emotional valence, and integrative meaning as the dependent variables. The relationships between socio-demographic or clinical assessments, and the SDMs scores were examined by Pearson's correlation tests. We used Mann–Whitney U tests for analyzing patient subgroups.

3. RESULTS

Socio-demographic and clinical characteristics of participants are presented in Table 1.

Patients differed from control participants for the rates of SDMs contents referring to alcohol (respectively 17.6% vs 0.7 %; $\chi^2=13.15$, $p<0.001$) (Fig. 1). At least one SDM containing a reference to alcohol was present in 52 % of alcohol-dependent patient.

A MANOVA was performed to compare specificity, emotional valence, and integration between the two groups (Wilks' Lambda=.77), $F(3, 49)=5.19$, $p=0.003$.

Alcohol-dependent patients reported significantly fewer specific SDMs than controls participants (respectively, $M=1.60$, $SD=1.4$ vs $M=2.75$, $SD=1.9$; $t_{51}=-2.49$, $p=0.016$). However, they did not differ significantly from controls for SDMs integrative meaning (respectively, $M=1.76$, $SD=1.3$ vs $M=2.1$, $SD=1.6$; $t_{51}=-0.85$, $p=0.401$) or tension (respectively, $M=2.52$, $SD=1.2$ vs $M=1.93$, $SD=1.5$; $t_{51}=1.57$, $p=0.12$). As predicted, in alcohol dependent patients compared to control participants, SDMs had on average more negative valence (respectively $M=-.26$, $SD=1.4$ vs $M=.78$, $SD=1.2$; $t_{51}=-2.87$, $p=0.006$) and the intensity of negative emotional responses was significantly higher (respectively, $M=2.9$, $SD=3.1$ vs $M=1.75$, $SD=1.3$; $t_{51}=3.09$, $p=0.003$), whereas that of positive emotional responses was significantly lower (respectively, $M=1.9$, $SD=1.2$ vs $M=3.0$, $SD=1.4$; $t_{51}=-2.83$, $p=0.006$) (Fig. 2). About a quarter (23.2%) of SDMs in patients occur during the period of awareness of their alcohol problems (age of awareness ± 2 years).

It was interesting to note that alcohol-dependent patients compared to control participants exhibited more redemptive events (respectively $M=12.9\%$ vs $M=5.4\%$) and contaminative events (respectively $M=14.8\%$ vs $M=2.9\%$) even if differences did not reach statistical significance (respectively $t_{51}=1.50$, $p=0.14$; $t_{51}=1.58$, $p=0.12$).

To ensure that our results are not due to the short withdrawal period, we divided our patients' group in short-term abstinent patients (less than 21 days of withdrawal) and longer term abstinent patients and found no significant difference on the main SDM characteristics ($U_s > 33.5$, $p > 0.14$).

Due to the presence of benzodiazepines in part of the patients, and their possible effects on the SDMs' characteristics, we compared the characteristics of patients with and without benzodiazepines and found no significant difference ($U_s > 66$, $p > 0.54$).

Correlation analyses carried out in the patient group showed a significant relation between the number of SDMs with alcohol content and the age of awareness ($r=-.55$, $p=0.004$), as well as the age of the first care ($r=-.41$, $p=0.042$) and with the intensity of positive emotional response ($r=-0.43$, $p=0.031$). There was no correlation between depression, anxiety state with the characteristics of SDM ($p_s > 0.37$ for depression and $p_s > 0.12$ for anxiety state), but a correlation was found between anxiety trait and specificity ($r=0.41$, $p=0.045$), tension ($r=0.446$, $p=0.03$) and redemption ($r=-0.420$, $p=0.04$). A MANCOVA was then conducted, including anxiety-trait without significant change on our results (Wilks' Lambda=.79), $F(5, 46)=2.44$, $p=0.04$).

However, no significant correlation was found between SDMs scores and the severity of alcohol dependence in patients and IQ in both groups.

4. DISCUSSION

In this study, we compared the characteristics of SDMs in patients with recent alcohol withdrawal to those of control subjects. Our main finding was that SDMs in patients were significantly less specific and contained more reference to alcohol than those of controls, thus confirming previous studies that showed low memory specificity in alcohol dependence (e.g., D'Argembeau et al., 2006). The reduced specificity may be interpreted as a cognitive strategy to block or disrupt access to autobiographical details that enhance the distress associated with alcohol dependence. For Singer and Salovey (1993), over-general retrieval may serve as a defensive function that limits awareness of aversive memories. Coping styles can influence the course of drinking problems. The use of negative coping styles (e.g., avoidance) has been found to be associated with greater levels of alcohol consumption (Moussas et al., 2006). Such avoidance tendency functions would be used to protect the person against recalling details of upsetting memories. However, a defect of executive processes has been consistently reported in alcohol dependence and may be responsible for the overall reduction of specific recollection exhibited by patients (Noël et al., 2012). The reduced frequency of specific memories and increased frequency of categorical or extended memories observed in alcohol dependent patients may result from deficiencies in frontal lobe function that are associated with alcoholism (Moselhy et al., 2001; D'Argembeau et al., 2006). As suggested by Della Sala et al. (1993), alterations in executive functions might impact both the storage and retrieval of personal information. Nevertheless, such impairment cannot explain alone the results observed in our patients, since the other main SDMs characteristics were not significantly different between the two groups.

We also found that alcohol-dependent patients reported more SDMs with negative emotional valence than controls and with higher emotional intensity. Alcohol-dependent patients may have a limited access to the memory of positive events or be prone to interpret them as negative ones. Our results contrast with previous data showing that people with recent alcohol

withdrawal focus more on their positive past experiences when asked to recall autobiographical memory (D'Argembeau et al. 2006), which suggests that alcohol-dependent patients would use these strategies to avoid thinking on current difficulties and/or to seek encouragement in pursuing a detoxification process. A turning point may thus exist at the early phase of detoxification in alcohol-dependent patients that could correspond to the key-moment when the subjects begin to feel able to refrain from alcohol consumption, with therefore a change towards positive emotional functioning. In contrast, negative valence of SDMs in newly detoxified alcohol-dependent patients may reflect high levels of stress, with substantial difficulties to limit its impact on emotional responses, resulting in more negative evaluations of previous experiences (Sutin and Robins 2005). There was also a correlation between the intensity of negative emotional responses and the reported alcohol content. This correlation is likely to be related to the unpleasant memory vividness. Furthermore, in our results, negative memories of alcohol consumption are mostly related to the period from 35 to 40 years of age, the period of awareness of the problems associated with alcohol dependence. During this period, the chronic evolution of illness leads to an accumulation of personal and family problems, as well as social isolation (Moussas et al., 2006). Patients with alcohol-related negative memories seem to be more aware of the impact of alcohol in their lives. The correlation between alcohol content and the first care can be considered in the same way. Furthermore patients with chronic addiction struggle to find a sense of identity and a meaning in recovery (Singer 1997, 2001, 2006). Patients could then develop a maladaptive script that leads them to re-engage in alcohol abuse as a rigid response to extreme feelings of anxiety and hopelessness (Singer and Bonalume, 2010). For patients prone to negative scripts of alcohol abuse, the path to better quality of life may lie through the exploration and discovery of different narratives and new meanings (Singer et al., 2013b). We speculate that alcohol-

dependent patients continue to create discrepancy with their self for past behaviours, which maintains an unfavourable view of their current self.

Another aspect to take into account to interpret the differences in emotional responses between groups is the possible impact of the patient current mood states. Our alcohol-dependent patients had more depressive and anxiety symptoms, as revealed by the BDI and STAI, than healthy controls, which could contribute to the differences in the emotional responses associated to SDMs, in accordance with other studies showing the influence of mood on specific memories (Maccallum et al., 2000; McBride and Cappeliez, 2004). Depressive symptoms are common during alcohol withdrawal (Andersohn and Kiefer, 2004). The occurrence of depressive symptoms in alcohol dependence patients may exacerbate their autobiographical memory impairments, as suggested by significant correlations between BDI scores and the proportions of specific memories in this population (D'Argembeau et al., 2006). However, none of the clinical measurements was significantly correlated to SDMs emotional response intensity. But, we found correlations between anxiety trait and SDMs characteristics. A MANCOVA was used to control for anxiety trait, without significant change in the results. Emotional responses to memories may be not solely due to current mood or anxiety state, nor to the only features of the recalled experience, but may be influenced by other factors such as the trait-related emotional functioning associated with personality.

In our study, participants had more production of redemptive and contaminative events than control subjects. Despite the difference was not significant, probably due to the limited number of participants, this result may indicate ongoing adjustments. McAdams et al. (1997) identified redemption and contamination sequences in the life stories of adults. It has been

proposed that redemptive sequences reflect a healthy adjustment and adapted personal development, while contaminative memories are linked to negative feelings and neuroticism (McKay et al., 2012). For Dunlop and Tracy (2013), patients with recent alcohol withdrawal whose narratives included self-redemption were substantially more likely to maintain sobriety in the following months than those without ones. The occurrence of a self-redemptive narrative may thus indicate an evolving psychological process that would favour prolonged behavioural change regarding alcohol dependence. Indeed, in their longitudinal analysis, newly detoxified patients who perceived a sense of self-redemption in the wake of their recent sobriety demonstrated improved health months later.

Also for contaminative event, as suggested by Singer et al. (2013b), contaminated scripts in alcohol-dependent patients are a problematic vehicle of self-understanding and meaning dating back to first adolescent exposure to alcohol.

One of the limitations of our study is that the mean age of onset of alcohol consumption was before 15 years-old, and the length of alcohol dependence was more than 30 years, which indicates that the consumption periods were rather long in our patients. As well, the quantity of daily alcohol consumption per patient before withdrawal was seven times higher than recommended thresholds. Then, our results are representative for only patients with a chronic and severe form of alcohol dependence. A second limitation is the absence of executive functioning measure whose importance was demonstrated in the autobiographical memory. A third limitation of our study is the restricted evaluation window with regard to the time course of the changes in neuropsychological profiles of alcoholic subjects after withdrawal (Bartsch et al., 2007; Noël et al., 2012). Mlinarics et al. (2009) showed that in some cognitive domains (executive functions and semantic fluency), the performance is related to the duration of the abstinent period, which may suggest the recovery of these functions. Similar results were found for episodic memory in alcoholic patients at alcohol treatment entry (Pitel et al., 2007a)

and after 3 weeks of treatment (Noel et al., 2012). Finally, it would also be objected that some patients were receiving benzodiazepine medication, raising the question of whether this treatment may have contributed to the pattern of results. Although this hypothesis cannot be totally excluded, it cannot account for the whole pattern of results. Future studies on SDMs should seek to obtain larger samples, composed of alcohol-dependent patients that are abstinent for periods ranging from several days to several years.

In conclusion, the role of SDM in alcohol dependence is of interest for both theoretical and applied perspectives. SDMs can be used as predictor of relapse and for specific psychotherapy. It is likely that recent episodes of alcohol abuse, leading to critical self-judgment and lack of self-acceptance minimize the ability to embrace a redemptive script of sobriety and emotional equanimity (McAdams, 2006; Parry and Doan, 1994). Treatment strategies, such as specific cognitive therapy may help to correct the maladaptive perceptions of the self and to develop alternate self representations that may promote recovery (Maccallum and Bryant, 2008). The therapy would also help patients to explore and discover new life narratives. The narrative identity provides individuals an overall sense of unity and purpose in their lives. Narrative identity generates autobiographical memories, some of which, because of their relevance to long-term goals and enduring conflicts, evolve into SDMs (Singer et al., 2013a). SDMs lead to the creation of narrative scripts that schematize repetitive action-outcome-emotional response sequences. Their accumulation will form an overall life story. Singer et al. (2013a) suggest that narrative therapy would allow patients to develop other meanings, understandings, and novel responses. Thus, for alcohol dependent patients, the first difficulty would be to recognize their disease in their life narratives (Saunders et al., 2006; Poncin et al., 2015). A key question for future research is to identify reasons of the lack of SDMs specificity. Complementary investigations should therefore

verify the importance of different dimensions of executive functions on SDMs characteristics. Moreover, studies with longer delay after withdrawal may help to explore the stability of the self related to alcohol experiences and the evolution over time with regard to other alcohol experiences or specific therapy.

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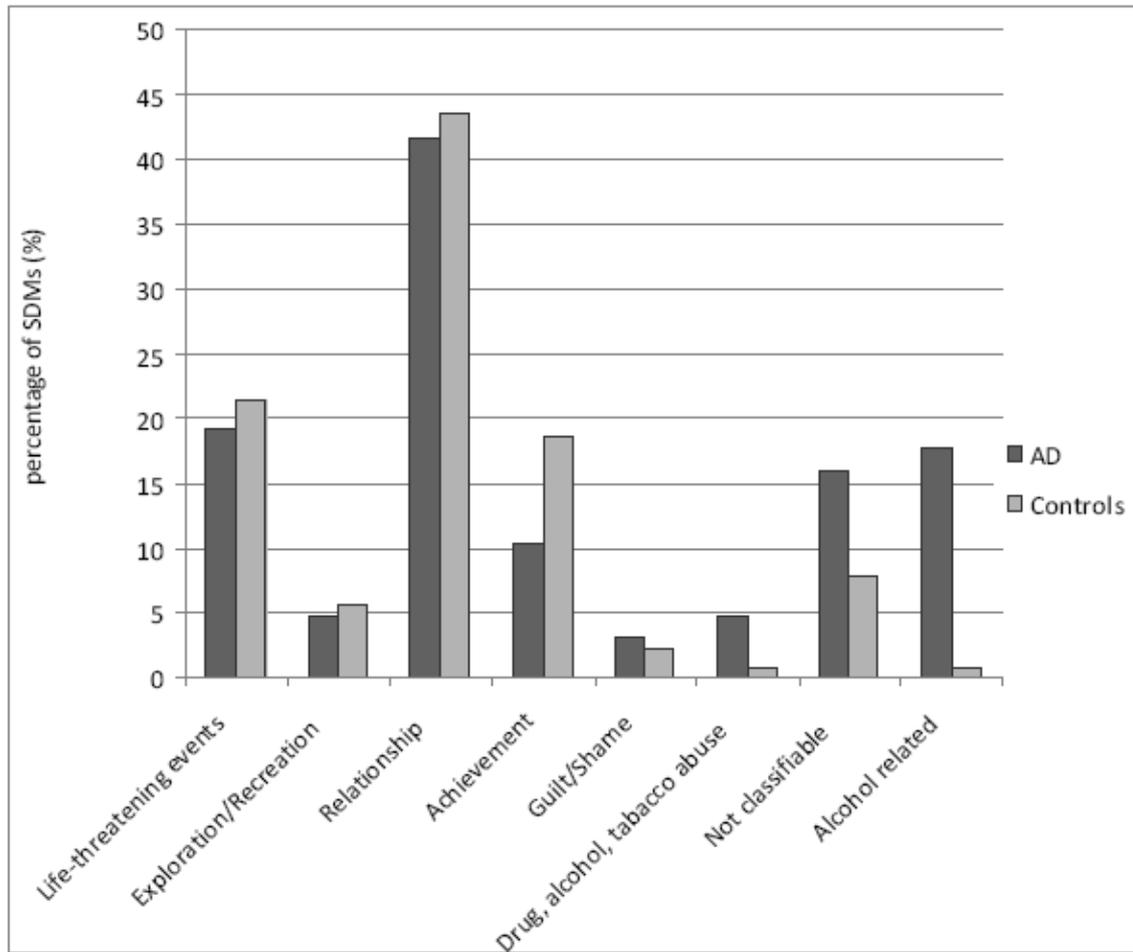


Figure 1. Percentage of SDMs contents for alcohol-dependent patients (AD) and control participants

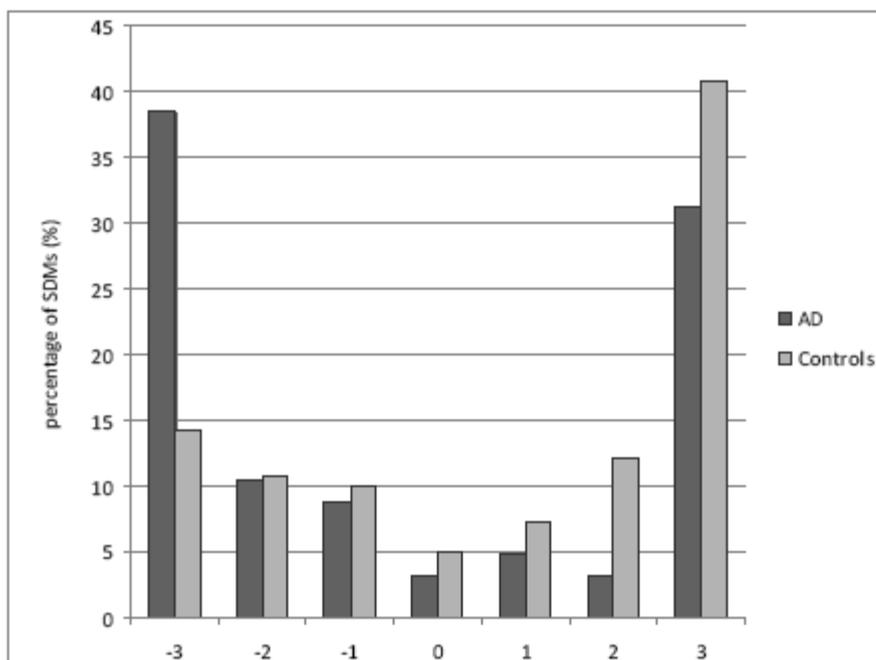


Figure 2. The intensity of affective responses for alcohol-dependent patients (AD) and control participants

Table 1 Demographic, clinical characteristics and alcohol use history of alcohol-dependent patients and control participants

	Alcohol-dependent patients (<i>n</i> = 25)		Control participants (<i>n</i> = 28)		<i>t</i>	<i>p</i>
	<i>M</i>	(<i>SD</i>)	<i>M</i>	(<i>SD</i>)		
Age (years)	44.6	(7.0)	41.9	(8.7)	1.24	0.22
Education (years of education)	10.9	(2.2)	11.8	(2.1)	-1.48	0.15
Mill-Hill (IQ)	81.8	(15.2)	87.9	(14.9)	-1.48	0.14
BDI	19.1	(9.2)	5.1	(4.2)	6.38	<0.001
STAI						
- State anxiety	40.2	(14.1)	27.1	(5.9)	4.52	<0.001

- Trait anxiety	48.0	(10.6)	31.1	(6.1)	7.21	<0.001
Smoking status (n smoker)	24		13		5.55	<0.001
ADS	18.8	(6.7)				
Age of first drink (years)	14	(3.3)	-			
Length of consumption (years)	30	(8.0)	-			
Consummation averages (drinks per day)	20	(17.0)	-			
Age of awareness (years)	38	(8.1)	-			
Length of abstinence (days)	23	(31.7)	-			

Note.

IQ=Intelligence Quotient

STAI=State-Trait Anxiety Inventory

BDI=Beck Depression Inventory

ADS=Alcohol Dependence Scale

Highlights

- The study is the first to assess Self Defining Memories (SDMs) in alcohol-dependent patients
- SDMs of patients were significantly less specific memories
- SDMs of patients contained more reference to alcohol
- The presence of alcohol in their memories would be rather a good prognostic factor