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Alexithymia and Alcohol Use Disorders: A Critical Review

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Abstract

All human beings experience emotion. However a number of individuals have difficulties recognizing, processing and regulating their emotions. This set of emotional “deficits” is classified as alexithymia. The prevalence rate of alexithymia in alcohol use disorders is between 45 to 67%. The objective of this paper is to review the published research on alexithymia and alcohol use, assess the methodological quality of this evidence, and draw the findings together to present a critical update on the relationship between alexithymia and alcohol use disorders. Yet, few research studies have comprehensively investigated alexithymia in alcohol use disorders, and a number of key issues still remain to be addressed in exploring the veracity of the link between alexithymia and alcohol use. For example, limited evidence exists regarding the association between alexithymia, alcohol consumption and severity of alcohol dependence. Furthermore, there is no current knowledge about the predictive utility of alexithymia in relation to more well researched and established psychological drinking constructs. Although alexithymia is often considered a risk factor for the development of alcohol use disorders, there is little evidence to support this notion. Given that alexithymia may have the potential to interfere with treatment outcomes, a better understanding of the role of alexithymia in alcohol use is needed.

Keywords: Alexithymia; Alcohol use disorder; Alcoholism; Affect regulation deficit; Critical review

1. Introduction

Alexithymia is a multifaceted construct that was first described by Sifneos (1973) as difficulty identifying and communicating feelings, differentiating feelings and somatic sensations of emotional arousal, a diminution of fantasy and imagination and an externally oriented cognitive style (Nemiah, Freyberger, & Sifneos, 1976). Alexithymia is a cross-cultural phenomenon and has been identified in studies across 18 different ethnic and racial groups (Parker, Shaughnessy, Wood, Majeski, & Eastabrook, 2005; Taylor, Bagby, & Parker, 2003). Between 45-67% of alcohol dependent individuals have been identified as alexithymic (Evren, Kose et al., 2008; Loas, Fremaux, Otmani, Lecercle, & Delahousse, 1997; Sauvage & Loas, 2006; Uzun, Ates, Cansever & Ozsahin, 2003). Some evidence suggests that alexithymia may have an adverse impact on the treatment of alcohol use disorders (Loas et al., 1997; Ziolkowski, Gruss, & Rybakowski, 1995), and given the substantial cost of such disorders worldwide (Lowinson, Ruiz, Millman, & Langrod, 2005), this relationship warrants closer attention. There is a limited amount of empirical evidence exploring the relationship between alexithymia and alcohol use, which is surprising as alexithymia has been hypothesised to be a risk factor in the genesis of alcohol use disorders (De Rick & Vanheule, 2006; de Timary, Luts, Hers, & Luminet, 2008; Taylor, Bagby, & Parker, 1997). Because people with alexithymia often feel uncomfortable in social situations (Uzun et al., 2003; Wise, Mann, & Shay, 1992), some researchers have proposed that alexithymic individuals use alcohol as a coping mechanism for stress or to improve interpersonal functioning (Kauhanen, Julkunen, & Salonen, 1992; Rybakowski, Ziolkowski, Zasadzka, & Brzezinski, 1988). However few of these specific hypotheses have been empirically validated.

A number of key issues need to be addressed in examining the veracity of the link between alexithymia and alcohol dependence. First, the relationship between alexithymia and alcohol consumption as well as severity of alcohol problems requires examination. Second,

various dimensions of alexithymia are potentially associated with differential risk in relation to alcohol use or response to alcohol and these relationships are worthy of inspection. Third, the predictive utility of alexithymia in terms of predicting relapse rates or response to treatment requires review. Because there has been no published critical review on alexithymia and alcohol use disorders to date, the aim of this paper is to conduct such a review.

2. Methods

For identification of the relevant studies a combination of key words was used: 'alexithymia', 'alexithymic features', 'alexithymic', 'alcohol use disorder', 'alcohol misuse disorder', 'alcohol dependence', 'alcohol misuse', 'alcohol abuse', 'alcohol use', 'alcohol', 'alcoholism', 'binge drinking', 'alcohol intoxication', 'alcohol abstinence' and 'alcohol problem'. Between October 2006 and August 2008 the following electronic databases were searched, varying the search strategies to accommodate each database: Web of Science (from 1992 to 2008), PsycInfo (from 1973 to 2008) and PubMed (from 1973 to 2008). All obtained research articles on alexithymia and alcohol use disorders in the English language were retained and searched for relevant citations. Conference abstracts and dissertations were excluded. The studies included were assessed on the relationship between alexithymia, alcohol consumption and alcohol dependence, methodological quality, risk factors and the measurement of other psychological drinking constructs to provide construct validation. Using these search strategies 24 studies were found. Table 1 provides a description of all the studies in terms of sample size, sample type and methodology, and shows the relationships that were found between alexithymia and other psychological drinking constructs and vulnerability factors such as alcohol expectancies. Table 1 highlights variation in the tools used to measure alexithymia, with the majority of studies being cross-sectional and undertaken in male samples. The assessment of alcohol use has mainly been on the basis of

diagnosis rather than/or in addition to levels of frequency and quantity of drinking, which would have provided a more standardised measure of problem severity. Three studies examining comorbidity of alcohol use disorders and mental illness were identified, but not included in Table 1 given the primary focus on alcohol. There has been a trend away from use of the Schalling Sifneos Personality Scale (SSPS) (Apfel & Sifneos, 1979) because newer, more psychometrically sound measures of alexithymia have been developed. Given this trend the focus is on studies published after 1990.

3. Early Studies on Alexithymia and Alcohol Dependence

Early evidence supporting the relationship between alexithymia and alcohol use disorders was gathered using the Schalling-Sifneos Personality Scale (SSPS) (Apfel & Sifneos, 1979). The SSPS is a self-report measure that consists of 20 items with lower scores indicating higher levels of alexithymia (Linden, Wen, & Paulhus, 1995; Taylor & Bagby, 1988). The measure has face validity, but suffers from lack of concurrent validity and low internal consistency, probably due to a lack of psychometric evaluation during scale development (Parker, Taylor, Bagby, & Thomas, 1991; Taylor & Bagby, 1988; Taylor et al., 1997). A prevalence rate of 78% was reported using the SSPS in an alcohol misusing population (Rybakowski et al., 1988). This appears to be an overestimation, as the majority of later studies using stronger psychometric self-report measures have indicated rates of 45-67 % (Evren, Kose et al., 2008; Loas et al., 1997; Sauvage & Loas, 2006; Uzun et al., 2003; van Rossum, Laheij, de Doelder, de Jong, & Jansen, 2004).

Apfel and Sifneos (1979) stated that “We have found in extensive use in our psychiatry clinic (150 forms completed) that the results are erratic” (p. 184). However, a non-significant correlation between the SSPS and Beth Israel Questionnaire scores (an observer measure of alexithymia) in psychiatric patients was also found (Apfel & Sifneos, 1979).

Nevertheless, the SSPS has been widely used (Taylor & Bagby, 1988) and was revised in 1986 to improve the psychometric properties of the instrument (Sifneos, 1986). The reliability and validity of the revised version, SSPS-R, showed little improvement over the SSPS (Bagby, Taylor, & Ryan, 1986; Linden et al., 1995).

In spite of these limitations early evidence yielded some interesting information about the relationship between alexithymia, risk factors and alcohol dependence. Those with a family history of alcoholism (FHA) showed stronger alexithymic features than low and moderate risk individuals (Finn, Martin, & Pihl, 1987). Abstinent, depressed alcoholics have shown higher levels of alexithymia compared to alcoholics with lower levels of depression (Haviland, MacMurray, & Cummings, 1988). FHA and alexithymia have also been associated with clinical and biochemical features of alcohol dependence (Rybakowski & Ziolkowski, 1990). However, Rybakowski, Ziolkowski, Zasadzka, and Brzezinski (1988) found no difference in alcohol dependence severity between those with and without alexithymia as defined by the SSPS. These early studies created interest for continued research, but due to their cross-sectional designs, measurement issues, gender bias and lack of internal validity (see Table 1), less weight will be placed on these studies and their data when compared with more recent research. Thus, caution should be exercised when interpreting the results of these early studies due to the psychometric flaws of the SPSS. Later work has been primarily undertaken using psychometric self-report instruments with stronger validation data such as the Toronto Alexithymia Scale (TAS-20) (Bagby, Parker, & Taylor, 1994; Bagby, Taylor, & Parker, 1994; Parker et al., 2005; Parker, Taylor, & Bagby, 2003) and the Bermond Vorst Alexithymia Questionnaire (BVAQ) (Vorst & Bermond, 2001).

4. Studies on Alexithymia and Alcohol Dependence after 1990

The broad purpose of this review is to examine the relationship between alexithymia and alcohol dependence. The first point highlighted by this review is that there is a lack of fundamental research assessing the relationship between alexithymia and alcohol use; the majority of research investigating alexithymia has done so in relation to factors such as attachment, personality traits, mood, affect intolerance and suicidal ideation in alcohol dependent samples. The studies that were reviewed further were therefore grouped into categories, addressing alexithymia in relation to alcohol consumption, severity of alcohol problems, risk for alcohol dependence, attrition rates for alcohol treatment and comorbid medical problems. The goal was to understand how alexithymia is associated with alcohol consumption and severity, as well as in relation to more established risk factors for alcohol dependence.

4.1 Alexithymia and Alcohol Consumption

An informative population study undertaken with a sample of 2297 males reported data on alcohol consumption in relation to alexithymia status (Kauhanen et al., 1992). This investigation collected extensive retrospective data on alcohol consumption for a previous 12 month period from a community sample in Finland. The data included the frequency of alcohol use, quantity per drinking session, type of alcoholic drinks, amount consumed, frequency of intoxication, after-effects of excessive drinking, alcohol related disorders and job related stress factors. The data were validated by assessing glutamyltransferase (GGT) and mean red blood cell volume (MCV) by the use of a blood sample. Participants with biochemically verified abstinence (over the last 12 months) were considered abstainers. Age and education levels were included as covariates in the statistical analyses.

The findings indicated that “binge drinking” and unpleasant after-effects of intoxication were more common among individuals with higher levels of alexithymia. Higher alcohol consumption, higher frequency and heavier intake of alcohol across alcohol types were also associated with alexithymia. A barely significant correlation (.06, $p < .05$) between alexithymia and alcohol related disorders (hypertension, ulcers, gastrointestinal disorders, pancreas, neurological disorders and cardiomyopathy) were reported. The authors (Kauhanen et al., 1992) pointed out that this could be associated with a lack of statistical power, or that a short time of heavy drinking may have been inadequate to influence somatic illness. Alternatively, aetiological factors other than alcohol can also contribute to the onset and development of physical illnesses (Kauhanen et al., 1992). Previous research has indicated higher prevalence rates of alexithymia in populations with alcohol related disorders such as hypertension (Lyshova, Provotorov, & Chernov, 2002), and the majority of gastrointestinal symptoms in alcoholics have been associated with alexithymia (van Rossum et al., 2004). There was no significant relationship between job related stress factors and alcohol consumption, although alcohol consumption has been attributed to the alleviation of stress in those with alexithymia (Rybakowski et al., 1988). Overall, this study was a sound methodological investigation with a large male community sample that complemented early alexithymia research indicating a strong relationship between alcohol consumption and alexithymia. Inclusion of female participants’ in future studies to determine any potential gender differences, would be useful, as would a prospective and multidimensional investigation of alexithymia in relation to alcohol consumption in individuals with alcohol use disorders. This cross-sectional association between alexithymia and alcohol consumption has not been replicated. Junghanns et al. (2005) reported alcohol consumption data (the mean amount of alcohol consumed), but this study did not investigate the relationship between alexithymia and consumption (see Table 1). In summary, there is a lack of basic information

regarding the relationship of alexithymia with frequency and quantity of drinking in alcohol dependent populations.

4.2 Alexithymia and Severity of Alcohol Problems

A cross-sectional investigation by Cecero and Holmstrom (1997) found a moderate positive association ($r = .36, p < .01$) between TAS-20 total score and Michigan Alcoholism Screening Test (MAST) scores (Selzer, 1971). Similarly, Uzun, Ates, Cansever, and Ozsahin (2003) found a strong positive correlation ($r = .63, p < .0001$) between TAS-20 and MAST scores and a positive correlation between duration of alcohol use and the TAS-20, with 48.2 % of male alcoholics exceeding the clinical cut-off score of 60 on the TAS-20.

Alexithymic alcoholics had a significantly younger age of onset, longer duration of abuse and significantly higher MAST scores compared to non-alexithymics, indicating more severe alcohol problems in those with alexithymia. Methodological strengths of the study included alcohol dependence being assessed by the Structured Clinical Interview for DSM-IV (SCID-1) (First, Spitzer, & Williams, 1997) and the MAST (Selzer, 1971), and a comparison between severity groups on clinical sociodemographic data and alexithymia status. Weaknesses included absence of control for the influence of potential confounds including anxiety, depression and education level in the analyses, and no investigation of the different dimensions of alexithymia in relation to MAST scores. The data were also cross-sectional.

A sound prospective methodological investigation found positive significant association between 'difficulties identifying and describing feelings' and severity of alcohol problems before and after treatment (Cleland, Magura, Foote, Rosenblum, & Kosanke, 2005). Furthermore, those with higher levels of alexithymia suffered more severe alcohol problems, even after controlling for baseline level of alcohol consumption. An investigation with a main focus on the relationship between alexithymia and abstinence in male alcoholics (Ziolkowski

et al., 1995) did not find any significant differences in age of onset, duration of dependence, age and education level between those with and without alexithymia. Similarly, a study examining alexithymia and dissociation reported no differences in age, education level, duration of alcohol use or MAST scores between alexithymic and non-alexithymic alcoholics (Evren, Sar et al., 2008). These inconsistencies may be associated with potential differences in exclusion criteria utilized. Uzun et al. (2003) excluded individuals with comorbidity of other psychological disorders, polydrug abuse, physical illness and organic brain syndrome, yet it is unknown whether Ziolkowski et al. (1995) did the same. Evren, Sar, Evren, Semiz, Dalbudak, and Cakmak (2008) excluded individuals with other forms of substance use and cognitive deficits, yet the type of cognitive deficit was not reported. Other differences between the studies are likely to be related to measurement, such as the use of different versions of the TAS or differences in the measurement of alcohol dependence, with the Uzun et al. (2003) and Evren et al. (2008) studies using the SCID-1 (First et al., 1997) and the MAST (Selzer, 1971), whereas the Ziolkowski et al. (1995) study diagnosed participants with alcohol dependence according to DSM-III-R criteria. The sample sizes of two studies (Uzun et al., 2003; Ziolkowski et al., 1995) were small. However the third study utilised a large male sample of 176 inpatients (Evren, Sar, et al., 2008). Currently there is mixed evidence to suggest an association between alexithymia and alcohol dependence, and scarce empirical support for a theoretical hypothesis suggesting that alexithymia is a risk factor in the genesis of alcohol use disorders (De Rick & Vanheule, 2006; de Timary et al., 2008; Taylor et al., 1997).

4.3 Alexithymia and Risk for Alcohol Problems

More than 70 risk factors have been associated with substance use (Swadi, 1999) and findings suggest that adolescents exhibiting anxiety, depressive mood and antisocial

behaviour (including ADHD) are more prone to develop substance problems (Cicchetti & Rogosch, 1999; Loeber, Stouthamer-Loeber, & White, 1999; Swadi, 1999). Broad psychosocial risk factors associated with alcohol use include mental health problems (including antisocial personality disorder), a dysfunctional family environment and family history of alcoholism (Chassin, Curran, Hussong, & Colder, 1996; Poikolainen, 2000; Swadi, 1999; Yoshino, Fukuhara, & Kato, 2000). More specific risk factors involve cognitions related to alcohol, including alcohol expectancies (Young, Connor, Ricciardelli, & Saunders, 2006) related to learning about reinforcement in the context of psychosocial risk. Drinking behaviour is associated with alcohol expectancies and these expectancies are reinforced by alcohol consumption (Connor, Young, Williams, & Ricciardelli, 2000) such that individuals with positive alcohol expectancies drink higher quantities of alcohol and are more likely to show signs of alcohol dependence (Young & Oei, 1996). A study by Junghanns et al. (2005) using the TAS-20 (Bagby, Parker et al., 1994; Bagby, Taylor et al., 1994) investigated the alcohol expectancy domain of 'Tension reduction and affect regulation' in relation to alexithymia. Results indicated that higher self-reports of drinking desire, tension and nicotine craving were associated with 'difficulties identifying and describing feelings' (see Table 1). The alcohol expectancy domain of 'Enhancement of social contacts' was included in the investigation, but not examined in relation to alexithymia. This is unfortunate since alcohol is considered to assist in alleviating stressful situations and enhance interpersonal functioning in those with alexithymia (Finn et al., 1987). As the main focus of this study was on salivary cortisol secretion, cue exposure to alcohol cues and relapse, it will be revisited in the attrition section below. However, given the lack of knowledge about alexithymia and alcohol related reinforcement, this was an important initial investigation. Thus, a more extensive examination of other alcohol expectancies domains in relation to alexithymia appears warranted (Connor et al., 2000; Young & Knight, 1989; Young & Oei, 1996).

Several authors have proposed that insecure attachment and alexithymia are broad risk factors for the development of alcohol dependence (Haviland, Warren, & Riggs, 2000; Taylor et al., 1997; Vungkhanching, Sher, Jackson, & Parra, 2004). Contemporary attachment theory considers addiction an attachment disorder (Flores, 2004) and evidence indicates that insecure attachment is associated with harmful drinking patterns (Brennan & Shaver, 1995; Burge et al., 1997; Cooper, Shaver, & Collins, 1998; Ognibene & Collins, 1998) and alcohol dependence, with alexithymic individuals possibly using alcohol as a coping mechanism for emotional self-regulation (De Rick & Vanheule, 2007b; McNally, Palfai, Levine, & Moore, 2003; Thorberg & Lyvers, 2006a; Vungkhanching et al., 2004). Evidence also suggests that depression and alcohol dependence co-occur frequently (Swendsen & Merikangas, 2000; Thorberg & Lyvers, 2006b) and the course of these disorders appears to be complicated by each other (Ostacher, 2007). Individuals with depression have less positive outcomes from alcohol treatment (Driessen et al., 2001; Hasin et al., 2002) and recent prospective research indicated that depression is a negative factor for abstinence from alcohol (Kodl et al., 2008).

Alexithymia has been examined in relation to mood induction (Cox, Blount, & Rozak, 1998). Alexithymic alcoholics reported higher levels of negative affect at baseline compared to alcoholics with borderline scores and non-alexithymic alcoholics. There was no significant difference in the experience of positive affect between those with and without alexithymia. When assessing intensity and direction simultaneously, no difference in response to mood induction was reported. On the other hand, when measuring intensity alone alexithymic individuals were significantly more emotionally reactive than the other groups. Accordingly, the authors proposed that those with alexithymia have an ability to label the valence of their emotions and experience negative affect with higher intensity than non-alexithymic individuals, in contrast to previous research suggesting that alexithymics have an inability to recognise and express emotions (Cox et al., 1998). Thus, this study counters the other work on

alexithymia and alcohol use previously presented in this review. One explanation for these discrepancies could be the specific alexithymia scale used, as previous research (De Gucht, Fischler, & Heiser, 2004a, 2004b) reported moderate positive correlations between the TAS-20 and negative affect mainly due to the ‘difficulties identifying feelings’ factor and to a lesser extent to the “difficulties describing feelings’ factor. Given these previous findings, it is unfortunate that Cox et al. (1998) did not investigate deficits in emotional labelling, expression and understanding in relation to the different facets of alexithymia.

Other studies have examined alexithymia by the use of the Bermond Vorst Alexithymia Questionnaire (BVAQ) (Vorst & Bermond, 2001). The BVAQ yields a total alexithymia score as well as measuring five dimensions of alexithymia, ‘verbalising’, ‘emotionalising’, ‘fantasising’, ‘identifying’ and ‘analysing’. The BVAQ has shown adequate internal consistency and validity (Berthoz, Ouhayoun, Perez-Diaz, Consoli, & Jouvent, 2000; Vorst & Bermond, 2001) and recent research has developed a cut-off score in an attempt to improve the validity of the BVAQ-20B (Vorst & Bermond, 2001) in an alcohol dependent sample (Sauvage & Loas, 2006).

DeRick and Vanheule (2006) examined alexithymia, attachment and parental bonding and reported that avoidant attachment and lack of warmth from the father predicted ‘cognitive’ alexithymia (conceptualised as a cluster of the ‘identifying’, ‘verbalising’ and ‘analysing’ dimensions), and alcohol dependent individuals with insecure attachment reported higher levels of ‘difficulties communicating their feelings’ compared to a more securely attached group (De Rick & Vanheule, 2007b). De Rick and Vanheule (2007a) also investigated alexithymia and personality disorder traits, finding a positive association with antisocial, schizoid and avoidant personality traits. A negative relationship with schizotypal traits was evident in this alcohol dependent population. These associations were not replicated in the non-alcoholic control group after matching for gender, age and education level.

Together these three studies aid the understanding of the relationship of alexithymia with other personality characteristics. Given that these studies utilised the same sample, they will be reviewed collectively (De Rick & Vanheule, 2006; De Rick & Vanheule, 2007a, 2007b). The participants in the studies were admitted to an inpatient clinic for alcohol disorder treatment, and alcohol misuse was assessed by the European Addiction Severity Index (EuropASI), a semi-structured interview, 8-20 days after admission. However, it is unclear whether subjects had been diagnosed with an alcohol use disorder. Other self-report questionnaires were not administered until three weeks into the treatment program to maximise data validity. There was no control group in the first two studies (De Rick & Vanheule, 2006; De Rick & Vanheule, 2007b), but there was a matched control group for the third study (De Rick & Vanheule, 2007a). Key psychometric data for the measures has been reported across publications and were mostly satisfactory. The internal consistency for the subscales of the BVAQ in the alcohol sample yielded Cronbach alphas of $> .70$, except for the 'emotionalising' scale with a Cronbach alpha value of $.54$. The authors (De Rick & Vanheule, 2007a) also point out that a psychometric study of the EuropASI in a Dutch population found alpha levels between $.68$ and $.80$, yet the internal consistency for the alcohol scale was low ($.46$) (De Rick & Vanheule, 2007a; Dejong, Willems, Schippers, & Hendriks, 1995), potentially limiting the reliability of the alcohol data collected. Other methodological weaknesses included the examination of a number of variables in the same alcoholic sample that may have yielded a representation bias, indicating a need to replicate these findings in other alcohol dependent samples.

Two-thirds of individuals at high risk for suicidal ideation measured with the Beck Scale for Suicidal Ideation were alexithymic (Beck, Kovacs, & Weissman, 1979; Sakuraba, Kubo, Komoda, & Yamana, 2005). However, there were no significant differences between alcoholics at high or low risk for suicidal ideation on the four factors of alexithymia ('TAS-

Global', 'TAS-Feelings', 'TAS-Daydreaming' and 'TAS-External Thinking') as measured by the TAS-26 (Taylor, Bagby, & Ryan, 1985). The authors speculated that individuals with alcohol dependence and high suicidal ideation are characterised by 'difficulties describing their feelings' and may potentially be at risk for suicide attempt. Yet, the data presented do not strongly support this conclusion. Sakuraba, Kubo, Komoda, and Yamana (2005) did not find a significant difference in 'TAS-Feelings' between high or low risk alcoholics for suicidal ideation. However, a significant difference between alcoholics with suicidal ideation compared to controls without suicidal ideation was reported. Unfortunately, means were not reported, but an inspection of the data table indicated a very small difference in scores between groups.

A two fold investigation was undertaken by Haviland, Hendryx, Cummings, and Shaw (1991) examining the state dependency of alexithymia and the appropriateness of measuring alexithymia as a multifaceted construct in a recently detoxified alcoholic population. The findings indicated that somatic and cognitive-affective depressive symptoms were associated with the combined 'TAS-Feelings' factor including an inability to 'distinguish feelings from physical sensations' and 'difficulties describing feelings'. The findings suggest that alexithymia can be a situational response to depression, as well as multifaceted construct with three unrelated dimensions ('TAS-Feelings', 'TAS-Daydreaming' and 'TAS-External Thinking'). Haviland et al. (1991) conducted a prospective follow-up study with a subsample that yielded a positive correlation between change in the 'TAS-feelings' factor and the cognitive-affective depressive factor, indicating a state relationship between these variables. A further analysis suggested that a potential bidirectional relationship was still not clarified, and the relationship may be spurious and influenced by another unknown variable such as anxiety (Haviland et al., 1991). However in spite of this bidirectional association between 'TAS-feelings' and depression, more recent factor analytic research has indicated that

alexithymia and depression are distinct constructs (Marchesi, Brusamonti, & Maggini, 2000; Mueller, Buehner, & Ellgring, 2003). Methodological weaknesses for the Haviland et al. (1991) studies included factor analyses undertaken with small sample sizes in Study 1, use of a correlational analysis in interpreting causality between variables, and Study 2 used an even smaller sample size compared to Study 1 (see Table 1) (Haviland et al., 1991). The majority of the sample also reported polydrug abuse (71.5%) in addition to alcohol dependence. There was no description of biochemical validation of drug use self-report.

Loas, Otmani, Lecercle, and Jouvent (2000) examined alexithymia, emotional and perceptual dependency, depression and the Embedded Figures Test in an alcoholic sample, a community sample and a student sample. The student sample did not complete the Embedded Figures Test. The Embedded Figures Test measures the identification of simple figures embedded within complex geometric figures. Witkin, Oltman, and Raskin (1971) proposed that an incapacity to locate a point within a more complex setting is called 'field dependence', which is an inability of being able to analyse and structure an internal or external experience (Loas et al., 2000; Witkin et al., 1971). The findings indicated that 'externally oriented thinking' was associated with lack of social self-confidence and lower Embedded Figures Test scores in alcohol dependent individuals. The former finding is in accordance with the proposition that alexithymics typically feel uncomfortable in social situations (Uzun et al., 2003; Wise et al., 1992). By comparison, 'difficulties identifying and describing feelings' were associated with lack of social self-confidence in the controls, but 'externally oriented thinking' was not associated with Embedded Figures Test scores. The authors concluded that alcohol dependent individuals may be characterized by a cognitive style consisting of 'externally oriented thinking', lack of emotional self confidence and field dependence that they also considered may be a trait in this population (Loas et al., 2000), indicating that those with alcohol dependence may lack the ability to process information in an analytical way. A

methodological weakness with the Loas et al. (2000) study is that there was no report of the period of abstinence before the measures were administered. In addition, undertaking exploratory and confirmatory factor analyses in small samples (see Table 1) may have yielded problems with reliability as a sample size of 50 is considered “very poor”, 100 is “poor” and 200 is “fair” for analyses of this type (Comrey & Lee, 1992; Tabachnick & Fidell, 2007). Accordingly, Loas et al. (2000) proposed that a lack of statistical power may have resulted in a number of negative findings in their data. Thus a replication in a representative large alcohol dependent sample is required. A recent cross-sectional study (Evren, Kose et al., 2008) investigated alexithymia in relation to Cloninger’s model of personality (Cloninger, Svrakic & Przybeck, 1993). This study found that higher levels of harm avoidance and self-transcendence and lower levels of self-directedness were predictors of alexithymia. The authors concluded that facets of Cloninger’s model may explain and account towards the prediction of alexithymia. While alcohol use was measured and there was an earlier age of onset of alcohol related problems for those with alexithymia, the relationship between alcohol problem severity and alexithymia was not investigated further.

Notwithstanding the methodological issues that have been raised so far in relation to the studies reviewed, some of which will be discussed in more detail next, the trend emerging from the literature suggests that alexithymia is associated with other risk factors for alcohol dependence, but there is scarce evidence for alexithymia as a risk factor for alcohol use disorders. There are still numerous questions unanswered.

4.4 Alexithymia and Attrition Rates from Alcohol Treatment

Clinical levels of alexithymia can predict relapse in alcohol dependent outpatients (Loas et al., 1997; Ziolkowski et al., 1995). A cross-sectional investigation found that individuals with alexithymia reported significantly shorter periods of abstinence compared to

those without alexithymia (Ziolkowski et al., 1995). There was a significant difference in 'TAS-Global', 'TAS-Feelings', 'TAS-Daydreaming' and 'TAS-External Thinking' scores, with significantly lower levels of alexithymia in long abstainers (12-108 months) compared to short abstainers (1-12 months). Statistical analysis showed a significant difference between groups with 33% being alexithymic in the long-term group vs. 63% in the short-term group. The evidence also indicated that being married was associated with longer period of abstinence. Stepwise multiple linear regression analysis indicated that the overall TAS score accounted for 20% of the variation (Ziolkowski et al., 1995) in abstinence.

In a prospective follow-up study, Loas, Fremaux, Otmani, Lecercle, and Delahousse (1997) investigated whether alexithymia predicted attrition rates at 15-month follow-up in alcohol abusers and alcohol dependent individuals. Loas et al. (1997) found that individuals who relapsed reported higher levels of 'TAS-Global' and 'TAS-Feelings' compared to abstinent individuals, even after controlling for the influence of depression. The 'TAS-20 Feelings' factor accounted for 17.7% of the variance in the dependent variable (abstinence), indicating that alexithymia can predict higher risk for relapse in individuals with alcohol use disorders. Thus, it is possible that alexithymia may interfere with the successful treatment of alcohol use disorders. By contrast a prospective study, with a main focus on salivary cortisol secretion under cue exposure to alcohol cues and attrition rates, found a relationship between higher levels of tension, the urge to drink and smoke and the 'TAS Feelings' factors, but did not find differences in levels of alexithymia between abstainers and nonabstainers by the use of Spearman's correlations (Junghanns et al., 2005). This investigation conducted a thorough assessment of abstinence, including alcohol timeline followback (TFLB) (Sobell & Sobell, 1996), breathalysation (BAL), mean corpuscular volume of the erythrocytes (MCVE), gamma glutamyl transferase (GGT) and carbohydrate deficient transferrin (CDT) estimation (Allen, Sillamaukee, & Anton, 1999). Relapse was defined as the consumption of one drink after

discharge from the hospital, and the interview data were confirmed by a third individual (Junghanns et al., 2005).

The mixed findings may, at least in part, be explained by the methodological differences. The findings from the Ziolkowski et al. (1995) and Loas et al. (1997) studies are interesting, but several limitations question the validity of the data. The first study was of a cross-sectional nature and the second study was an extended replication with a prospective design. Neither of these studies reported data relating to the measurement of abstinence. A lack of data on quantity and frequency of alcohol use was apparent, and no investigation has been conducted with respect to other drinking constructs (see Table 1). Participants were outpatients and biochemical verification of consumption was not obtained. Although the Junghanns et al. (2005) study utilised a considerably smaller sample and 11 of 32 individuals failed to participate in the follow-up, more weight is still put on this study due to higher methodological sophistication. In summary, although two of the three studies to date confirm alexithymia as a marker of relapse, a third smaller, but more sophisticated study did not support this claim.

4.5 Alexithymia and Comorbid Medical Problems in Alcohol Dependence

A recent cross-sectional investigation of alcoholics conducted by van Rossum et al. (2004) reported that the majority of gastrointestinal symptoms in alcoholics were associated with alexithymia. The alexithymia prevalence rates were 54% for total TAS score, 51% for 'difficulties identifying feelings', 69% for 'difficulties describing feelings' and 36% for 'externally oriented thinking'. The results also indicated that participants who were dependent on cannabis or opiates reported higher levels of 'difficulties identifying feelings'. Methodological limitations included a cross-sectional design and a lack of information regarding relapse measures. In addition, polydrug abuse was reported to occur in the sample,

but there was no information regarding diagnosis of other substance use disorders, limiting the generalizability to those with alcohol dependence alone. The study confirmed the relationship between alexithymia and gastrointestinal symptoms in a polydrug abusing alcoholic population. In light of the recent findings, there is some evidence to suggest a relationship between alexithymia and psychosomatic illness, yet gastrointestinal symptoms could also be a consequence of alcohol dependence (Porcelli et al., 2004; Porcelli, Taylor, Bagby, & De Carne, 1999). The developmental sequence of these symptoms is thus to be clarified.

5. Effect Sizes

The majority of studies reviewed in this paper did not report effect sizes for the relationships investigated and it is thus difficult to evaluate the strength of the relationships observed. The only exception is de Timary et al. (2008) who investigated the absolute and relative stability of alexithymia over time, after controlling for changes in anxiety and depression in a sample of alcohol dependent individuals undergoing alcohol withdrawal. The findings indicated small to moderate effect sizes for absolute changes from admission to days 14-18 and day 2 to days 14-18 in TAS-20 total score and 'difficulties identifying feelings'. No changes in 'difficulties describing feelings' and 'externally oriented thinking' were reported. Gender analyses indicated absolute stability for 'difficulties describing feelings' in males, and absolute changes in females. This evidence supports the possibility that alexithymia may be a stable personality trait in alcohol dependent samples. However measurement was only undertaken for a 2 week period, thus further prospective research should be conducted over a more extensive time period (de Timary et al., 2008).

6. Research Agenda

There are a number of key issues that need to be addressed in examining the nature and extent of the link between alexithymia and alcohol problems. First there is a need to examine the multifaceted nature of alexithymia in relation to alcohol consumption. Only one cross-sectional study has investigated this relationship, indicating a strong association between alexithymia and alcohol consumption (Kauhanen et al., 1992). That investigation had a strong methodology, but the findings should be replicated in large representative alcohol dependent samples. Second, research should fully explore alexithymia in relation to severity of alcohol problems, as only four studies have been conducted to date yielding inconclusive results (Cleland et al., 2005; Evren et al., 2008; Uzun et al., 2003; Ziolkowski et al., 1995). Future research should focus on elucidating the relationship between alexithymia and severity of alcohol dependence, taking the multidimensional nature of alexithymia into account, and establish if alexithymia is just associated with alcohol use disorders or is an independent risk. Previous cross-sectional research in alcohol dependent samples has reported moderate to large correlations between negative affect and alexithymia (Evren, Sar et al., 2008), suggesting that it may be important to control for the influence of negative affect in future alcohol research. To date only five studies in the current review has included anxiety, depression or both as a covariate with a recent prospective study (de Timary et al., 2008) suggesting that the association between alexithymia and alcohol is significant even after controlling for the influence of changes in mood. Third, future studies should include a broader set of factors that may influence the co-occurrence of alexithymia and alcohol dependence, such as cognitions related to alcohol related reinforcement. Thus, future research should focus on exploring different alcohol expectancy domains in association to alexithymia, as there is currently no knowledge of what drives higher alcohol consumption in those with alexithymia and why alexithymics may find alcohol highly rewarding. Perhaps alcohol makes alexithymics more

disinhibited in social situations or gives them access to an emotional repertoire, as it has been suggested that those with alexithymia feel uncomfortable in social settings (Uzun et al., 2003). Other risk factors for alcohol misuse have been investigated in relation to alexithymia including attachment and personality disorder traits (Dammen, Arnesen, Ekeberg, & Friis, 2004; De Rick & Vanheule, 2006; De Rick & Vanheule, 2007a, 2007b). These three studies had a moderate level of methodological sophistication, but were undertaken using the same sample, possibly yielding a representation bias. Another study examined alexithymia and emotional and perceptual dependency (Loas et al., 2000), but a lack of data on period of abstinence and a small sample size weakened the conclusions. Other evidence has examined alexithymia in relation to depression (Haviland et al., 1991) and suicidal ideation (Sakuraba et al., 2005) and Speranza et al. (2004) have proposed that depression may be the path that link alcohol dependence with alexithymia. A study examining comorbid posttraumatic stress disorder found no association between alexithymia and alcohol dependence (Simpson, Jakupcak & Luterek, 2006). The issue of generalisability across different comorbidities also requires investigation. Future research should examine risk factors for alcohol problems, include alcohol related cognitions, and investigate the predictive utility of alexithymia in relation to more well established constructs in prospective designs to explore how these factors influence the co-occurrence of alexithymia and alcohol use disorders. The boundary conditions of these relationships regarding comorbidity should be investigated. Fourth, alexithymia may be an important overlooked factor in attrition, although evidence on the association between alexithymia and abstinence is inconclusive. To date only three studies have been conducted investigating alexithymia and attrition, with two studies indicating support for alexithymia as a negative factor of abstinence in alcohol use disorders (Loas et al., 1997; Ziolkowski et al., 1995), however the study with the strongest methodology found no differences in level of alexithymia between abstainers and nonabstainers (Junghanns et al.,

2005). There is evidence from a single study reporting better treatment outcome for those with alexithymia and an alcohol use disorder from cognitive behavioural therapy (CBT), than motivational enhancement therapy, potentially because of the stronger skills acquisition emphasis in CBT (Rosenblum et al., 2005). Thus, future studies should use longitudinal designs, report relapse measures and utilize larger samples to more precisely establish the role of alexithymia in attrition response.

7. Conclusions

This review has summarised the available literature on alexithymia and alcohol dependence, pointed out methodological limitations and identified areas for future research. Research studies have shown high prevalence rates of alexithymia in alcohol dependent populations, yet there is only preliminary evidence to indicate relationships between alexithymia, alcohol consumption and severity of alcohol problems, and limited evidence examining the different dimensions of alexithymia in relation to alcohol dependence. Hence the notion that alexithymia is a vulnerability factor in the development and maintenance of alcohol use disorders is premature. Despite limited support for a relationship between alexithymia and alcohol dependence, several studies have examined alexithymia in association with other risk factors for alcohol use including attachment, depression, personality disorder traits, emotional and perceptual dependency and suicidal ideation. In conclusion there is some, albeit weak evidence that alexithymia and alcohol dependence are related, and scarce evidence on the relationship between alexithymia and other psychological drinking related constructs. Given the high prevalence rates of alexithymia in this population, further research regarding the relationships between alexithymia and alcohol consumption, severity of dependence, abstinence and psychological drinking constructs including the

potential role of alexithymia as a risk factor for alcohol use disorders and as a marker of treatment response, are clearly warranted.

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