The Dreams of Male and Female Abstinent Alcoholic's in Stage II Recovery Compared to Non Alcoholic Controls: Are the differences significant?

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Summary. Most of the research looking at addiction and the relationship with dreams has focused on newly abstinent alcoholics, or given no evidence of motivation to remain abstinent. This study compared the dreams of abstinent alcoholics in Stage II recovery from alcoholism with non-alcoholic controls. Nine female abstinent alcoholics 9 abstinent men, 11 non-alcoholic women and 9 non-alcoholic men kept dream diaries for 2 weeks. Waking personality, mood, and daily waking emotional experience were taken to ensure comparable waking personality and mood. A structured dream dairy was used to measure sleep behaviour, cognitions and self-appraisal, overall dream experience, and dream emotionality during a two week period. Results showed that male and female abstinent alcoholic's dreams were more unpleasant, contained less self-esteem, and more unpleasant emotions than non-alcoholics. Within-group differences between waking and dreaming emotion were identified with all groups reporting significant increases in fear and anger during dreams. Based upon the emotional experience of dreams, we concluded that despite being more than one year away from active alcoholism, abstinent alcoholics dream reflected disturbed dreaming. The implications of these finding are discussed.

Keywords: Alcoholism; Emotions; Continuity hypothesis; Stage II recovery from addiction

1. Introduction

Dream report content has been shown to be continuous with waking thoughts, feelings and concerns (Hall & Norby, 1972; Domhoff, 1996 & 2003). All published studies investigating dreams and addiction focus on recovery in the first few months of abstinence and provide no evidence of participants being motivated to remain abstinent. The aims of this study were to use abstinent alcoholics in Stage II recovery to compare with controls: 1) examine the continuity between waking and dreaming, 2) to investigate gender differences and, 3) to describe the emotional landscape of dreams in abstinent alcoholics compared to controls, and 4) to observe the frequency of drinking dreams. Key terms are defined and this is followed by a literature review.

1.1. Definitions of Key Terms

Addiction has been defined as "a cluster of cognitive, behavioural and physiologic symptoms that indicate that the person has impaired control over psychoactive substance use and continues to use the substance despite the adverse consequences" (p,166, DSM-III-Revised Edition, APA, 1987). This study focused on people who had self-labelled themselves as 'Alcoholics.' They all had a previously previous history of severe alcohol use, but were currently abstinent and recovering in Alcoholics Anonymous. Alcoholism is often described in terms of an 'alcoholic personality' but this has proved hard to support empirically (Sutker & Allian, 1988). However, people who have been diagnosed as 'alcoholic' have been described as over sensitive, anxious, to have low self esteem (Fields, 1992; Christo & Stutton, 1994) and to be emotionally immature (Dayton, 2007). These characteristics may be more pronounced in alcoholic women (Plant, 1997).

Recovery form addiction has been described as a process (Larsen; 1985; Nixon, 2005; Nixon & Solowoniuk, 2008). Stage I recovery is characterised by the priority of learning how to be abstinent. Stage II recovery has different goals which emerge after initial withdrawal from active addiction. Larson states that Stage II includes the following goals: improving self-esteem, changing negative thinking, and discovering emotional sobriety. So if dreams do "cut through the pretensions and deceits of waking life, and lay bare the true feelings of the individual" (p229, Hall & Norby, 1972), dream content in Stage II recovery may explicate where in the recovery process abstinent alcoholics are compared to non alcoholic controls. A brief literature review follows.

1.2. Early Dream Content Studies

Moore (1962) predicted that there would be a difference in the dreams of hospitalized alcoholics compared to non-alcoholics. He found that alcoholics often dreamt of themselves as victims. Moore (1962) tentatively stated that alcoholics' dreams contained more oral behaviour despite there

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being no evidence of drinking dreams in his findings. Hall (1966) used Moore's work as a basis for further investigation and compared four groups of dreams from hospitalised participants. These were 1) schizophrenic and an alcoholic diagnosis, 2) schizophrenic only, 3) alcoholic only, and 4) other personality problems. Like Moore, the found few significant differences apart from firstly, that alcoholics had significantly more dreams with oral incorporation, and secondly, non-alcoholic's dreams contained more references to sexual behaviour. Further comparisons of alcoholics with student 'normal' dream content (Hall & Van De Castle, 1966) revealed that alcoholic men showed an inability to form relationships with females in their dreams. He concluded that alcoholic's dreams were more feminine than 'normal' males, and that their dreams reflected a "weakened personality" (Hall, 1966; p 137)

Using larger, matched groups, Scott (1968) compared the dream reports of male and female alcoholics and identified several differences. Both sexes dreamt less about joy, happiness, or their children, and were more likely to describe themselves as victims. Alcoholics reported significantly more dreams about drinking, often associated with guilt, than the control group. Theme identification in male and female alcoholic's dreams showed male alcoholics dreamt more about death, whilst female alcoholics had more colourful dreams. Scott concluded that alcoholic's dreams depicted problems, conflicts, insecurity, and sadness. For the sake of parsimony, he interpreted drinking dreams as evidence of wish-fulfilment accompanied by alcoholic guilt and that that alcoholics were "unable to use their dreams therapeutically as do controls ... alcoholics incorporate their feelings of helplessness whilst controls are able to integrate strength into their dreams" (Scott, 1968, p.1317). This idea that dreams provide a therapeutic function has recently been supported by Hartmann (2001), and the idea that continuity between waking and dreaming is more consistent in participants with stability has been postulated by Cartwright (1974). Cartwright (1974) predicted that the 'psychologically healthy' would have greater continuity between their waking and dreaming life. This is due, in part, to the assumed internal emotional and mental equilibrium that exists in individuals with assumed psychological balance. This early literature suggests that alcoholics in early abstinence, or during hospitalization, may report dream content which is more unpleasant in terms of emotion and themes.

1.3. Studies focusing on drinking dreams

Studies have begun to focus on the reason why drinking dreams appear in alcoholism (or other substance misuse disorders). Choi (1973) compared those who experienced drinking dreams at 3 months, with those who did not and found that 80% of those who had drinking dreams were still abstinent compared to 18% of those who did not. He concluded that alcoholics would have more drinking dreams if they wanted to stay sober and that to dream of drinking was a good indicator of continued abstinence.

Contradictory findings, linked to craving during waking, were reported by Fiss (1980) who compared the dreams of alcoholics with 'high' and 'low' waking craving scores. He found that 80% of those in the 'high' craving group reported drinking dreams that contained defensiveness and conflict, compared with 30% of participants reporting drinking dreams in the 'low' craving group. For the 'Low' craving group, dreams were subjectively more pleasant despite the dreamer drinking in them. Christo and Franey (1996) found otherwise in an investigation of drug-related dreams and six month outcomes. They found significant relationships between dreams containing drug use, sleep disturbance, and waking craving. They concluded that drug dream frequency was related to greater drug use. However, the relationship between drug-dreams and craving was weak (r= .32). Colace (2004) suggests that dreams in addictive behaviour (namely opiate addiction) represent drug-withdrawal, and drug craving, which seep from waking into dream life. Therefore, drinking dreams are caused by a wish to use drugs and that waking craving is directly linked to dreams of this nature.

It is important to note the evidence that poly-drug, or opiate users are more neurologically affected (McCann, Lowe & Ricaurte, 1997; Ross, 2007) so logically may be harder to treat than alcohol users. Using heavy smokers trying to quit, Hajek and Belcher (1991) suggest that smoking dreams are 'absent minded transgressions' which reflect the unconscious inclusion into dream content of a behaviour that is second nature. Generalised to drinking dreams this suggest that there is no sinister motivation underpinning the occurrence of drinking and using dreams.

These studies contribute to understanding of dreams in addiction and add complexity to the relationship between waking and dreaming life. Dreams may be motivated by unsatisfied appetitive desires. However, whether dreams are reliable indicators of relapse remains open to debate and 'drinking dreams' may or may not be predictors (or not) of relapse into active chemical use.

1.4. The 12 Step Approach Toward Understanding Alcoholic's Dreams

There are, to our knowledge, three papers in the literature that focus upon abstinence based recovery from addiction using a 12 step philosophy. All of these have focused on early recovery from addiction/alcoholism. Denzin (1988) points out, using anecdotal reports from AA members, that drinking dreams are usually fearful, and this may reflect waking preoccupation with the fear of returning to active alcoholism, rather than a desire to return to drinking. Peters (1996) and Kibira (1994) studied the dreams of male and female abstinent alcoholics respectively. Both authors assert that dreams from addicted persons could be used to understand the unconscious processes which accompany recovery from the "disease of addiction". To support this, Peters found that as well as drinking dreams, alcoholic men made more references to recovery focused themes such as sobriety, sponsors and treatment buildings. This suggests that drinking in dreams may be accompanied by other more healthy imagery. Kibira (1994) work is particularly relevant to our aims. We have alluded to addiction, specifically in this case alcoholism, being signified by an unpleasant emotional internal environment that decreases as a result of Substance Free Time (SFT). She predicted that the dreams of abstinent alcoholic women would contain more unpleasant emotions than controls, but failed to support this hypothesis. The issue of measuring emotional aspects of dreams is discussed further.

1.5. The Measurement of Emotion in Dream Research.

Kibira (1994) and Peters (1996) used the Hall and Van de Castle (1966) content analysis system to score references

to self-reported emotion in dream reports. Hall (1966) also failed to find many marked differences in alcoholic's dreams. The measure of emotion used in these studies contains five categories: happiness, sadness, anger, confusion and fear.

Merritt. Stickgold, Pace-Schott, Williams and Hobson (1994) developed Affirmative Phenomenological Probes (APPs) to access specific emotional content in dreams. This approach can increase reported dream emotion tenfold. APPs allow direct questions to be asked about the nature of emotion experienced during dreams. Data are suitable for complex statistical analysis which increases the reliability and validity of finding (see Parker, 2008). Bernstein and Roberts's (1995) work supports the use of questionnaires as a method of data collection in dream research.
Therefore, using APPs instead of analyzing emotion using Hall and Van de Castle's (1966) five categories has empirical support.

1.6. Theoretical Assumptions: Dreams

If the view is taken that dreams serve a function, the literature so far suggests that alcoholic's dreams do not function as well as non-alcoholics. However, the literature presents alcoholics as a homogenous group, and that dreams of hospitalised alcoholics, or participants from treatment populations provide a valid description of the nature of dreams in addiction. However, it is fair to say that these studies may reflect chronic end-stage alcoholism. However, if permanent abstention from drinking is the alcoholic's goal, then relapse at the start of Stage I recovery is an expected part of the recovery process (Prochaska & DiClemente, 1982).

Furthermore, studies in Stage 1 recovery do not account for previous alcohol use which may still affect sleep architecture which suppresses REM (Rapid Eye Movement; Aserinsky and Kleitman, 1953) sleep during the beginning of the nights, causing REM rebound in the second part of the night (Hobson, 1988). Depression has been linked to sleep disturbance and alcoholism in early recovery (Espie, 1991). Mossenberg, Liljeberg, and Borg (1985) found that even after several months of SFT, sleep architecture can still be disturbed in this population. In early sobriety there may be a period of REM disturbance (Snyder & Karacan, 1985; Williams & Rundell, 1981; Gillen, Smith & Irwin, 1990), which may increase dream recall (Hartmann, 1982).

During waking, newly abstinent alcoholics have been shown to be depressed and anxious, and to have low self-esteem, all factors that have also been found to affect dream content (Gillen, et al, 1990; Christo & Sutton, 1994; Breger, Huter & Lane, 1971). The dreams of people who are depressed have been found to be barren (Langs, 1966), and more troubled (Miller, 1969). Secondary diagnosis of depression should be accounted for in dream studies using this population.

In addition, people who have recently abstained may suffer from some degree of cognitive impairment (Fein, Bachman, Fisher & Davenport, 1990) indicating that recall of events can be impaired in this population (Ryan & Butters, 1980). These factors clearly link to reporting subjectivity (i.e. dreams) and may influence the reliability of self-report data in dream research using addicted participants (Farthing, 1993). Fein et al (1990) have shown that much of the initial impairment repairs after six months SFT. Therefore in early (or stage I) recovery from alcoholism, sleep disturbance, nightmares, vivid dreams and poor dream recall may be a common occurrence.

1.7. Aims and Hypotheses

The review supports further research to understand abstinent alcoholic's dreams, particularly after a period when alcohol use has ceased. Much of the previous research depicts Stage 1 recovery (Larsen, 1985). This study focused upon men and women in Stage II recovery from addictive behaviours (alcoholism) where the current waking goal was continued abstinence and emotional recovery. This study aimed to identify whether people in second stage recovery from active alcoholism reported dreams that were comparable with non alcoholics especially in terms of dreams emotion, self appraisal and cognitive components as measured in the structured dream diary.

The following hypotheses were tested, that in comparison to non-alcoholic controls, abstinent alcoholics would: 1) report more emotionally unpleasant dreams overall, 2) make more negative attributions about the self in their dreams 3) report different cognitive activity, 4) report more unpleasant emotion as measured using the VASs, 5) report more drinking dreams, 6) female abstinent alcoholics dreams would be more unpleasant than abstinent men. Finally, 7) dream emotion would be less continuous with waking emotional experience in abstinent alcoholics compared to controls. Waking personality and mood questionnaires were completed to ensure parity between the two populations and that any dream differences were not due to depression or personality variables.

2. Method

2.1. Measurement Instruments

Profile of Mood States-Bipolar Form (POMS: Lorr & McNair, 1984/88) was used to compare mood levels on 6 bipolar factors (Agreeable-Hostile; Composed-Anxious; Elated-Depressed; Clearheaded-Confused; Confident- Unsure; Energetic- Tired). Participants were instructed to respond in relation to the previous week's mood. Personality traits within the four groups were assessed using the Eysenck Personality Questionnaire-Revised Edition (EPQ-R: Eysenck & Eysenck, 1991). The EPQ-R allowed a comparison of addictive traits in the four samples. Both tests have been widely used and scores can be compared to test norms. The structured dream diary (SDD; Parker, 2008) was the main method of data collection for comparing dreams. It contained 34-items which evaluated various aspects of the dream experience including emotional, cognitive, and self-appraisal. The SDD included VASs, closed questions and rating scales and 4 items assessing sleep behaviour. The SDD allowed participants to appraise the overall dream experience.

Emotionality was measured using bipolar visual analogue scales (VAS). The theoretical assumption was that emotionality has a circular structure based in its valence (pleasant vs. unpleasant) and that each emotional state has an opposite (e.g. happy vs. sad: Russell, 1980; Plunchik & Conte, 1997). VASs, as a method of assessing emotionality, have been shown to be sensitive to fluctuations in emotion, produce data that can be tested using robust statistical analysis and have good reliability (Bond & Lader, 1974; Wewers & Lowe, 1990). The VASs used here were 100 millimetre lines with two semantically opposed adjectives (e.g. Happy - Sad) anchored at each end. This measured shifts in emotion not increases in emotional intensity. The same VASs were used to assess both waking and dreaming affect.

Table 1. The average time of going to bed, time taken to get to sleep, waking time, total sleep time and time the SDD was completed after awakening.

	Bed Time (Time)	Time to get to sleep (min.sec)	Waking Up Time (Time)	Total Sleep Time (h.min)	Time after waking SDD completed (min.sec)
AbAlcW	11.30pm	8.33	7.42am	8.18	46.38
NoAlcW	11.30pm	8.39	8.30am	8.18	81.97
AbAlcM	11.30pm	8.78	8.00am	8.42	31.33
NoAlcM	11.00pm	7.52	7.18am	7.30	65.53

Key. AbAlcW = abstinent alcoholic women AbAlcM = abstinent alcoholic men
NoAlcW = none alcoholic women NoAlcM = none alcoholic men

2.2. Procedure

All participants were treated anonymously and were aware of the nature of the study but were not told the exact nature of comparisons. Participants in the control condition were asked to divulge their weekly alcohol consumption. The control group were required to drink equal to or less than the UK guidelines for healthy drinking (14 units for females and 21 units for males (Available from http://www.direct.gov.uk/en/HealthAndWellBeing/DG_10036434).

Participants were given standardised instructions during an initial interview where they gave demographic information, completed the EPQ-R and POMS and were given the opportunity to discuss any concerns they may have had about the study. They were asked to complete the SDD as soon after waking as possible. They were specifically asked only to record what they could remember and they all kept the SDD for 2 weeks. They did not submit dreams recalled at weekends, when increased sleep and natural awakenings may increase dream recall. If they had more than one dream each night they reported the last dream they remembered having. Females did not report dreams in the week prior to or during menstruation because pre-menstrual dreams are found to contain more aggression and anger than dream collected at other times of the menstrual cycle (Wiebe, Lamarche, Sabourin, Lortie-Lussier & De Kininck, 2007).

During the analysis comparisons were made between female abstinent alcoholics and female non-alcoholics and with male abstinent alcoholics and non alcoholics. Further comparisons involved males vs. female abstinent alcoholics. Female vs. female and male vs. male groups were matched as closely as possible for age, personality, and state mood. The dependant variables were responses to the EPQ-R, POMS, and the SDD. VAS scores were in millimetres. The independent variables were condition, gender, alcoholic diagnosis, and waking vs. dreaming emotion.

2.3. Participants

Nine female abstinent alcoholics (mean age of 31.23; range 19 - 48) and nine male abstinent alcoholics (mean age = 32.78; 23 - 46) formed the experimental groups. The control groups were comprised of eleven female non-alcoholics (mean age = 25.27; 20-35) and nine male non-alcoholics (mean age = 27.68; 21-41).

Abstinent alcoholics were recruited using snowball sampling which involved asking participants from the target population if they knew of any other recovering alcoholics who would take part. The control group and two abstinent alcoholics were students at the University of the West of England. Everyone in the abstinent group attended Alcoholics Anonymous (AA). Inclusion criteria included having a minimum of 1 year SFT and at least weekly attendance at AA. In the control group they were required to drink within UK healthy drinking guidelines (14 units for women and 21 for men). This inclusion criterion ensured recovery and emotional sobriety was the primary goal of each abstinent alcoholic and that there were no heavy, possibly alcoholic, drinkers in the control groups. In the abstinent groups, requiring a minimum of one year SFT also controlled for Stage I physical effects of stopping drinking and avoided peak anxiety and low self esteem at 9 months SFT (Sunderland, 1997).

3. Results

3.1. Waking Comparisons

3.1.1 Age and Sobriety

Between groups analysis of variance (ANOVA) showed that there were no significant differences in age between the four condition; $F(3, 32) = 1.95$, $p > .05$. Abstinent females had an average of 1.88 years substance free time and their male counterparts had been substance free for 1.89 years. There was no significant difference in length of sobriety between male and female abstinent alcoholics, $t(16) = 0.2$, $p = .98$, so any differences that were identified were due to gender rather than length of sobriety.

3.1.2 Sleep behaviour

Details about what time Participants went to bed, time taken to get to sleep, the time they woke up, total sleep time and time the SDD was completed appears in Table 1.

NoAcM went to bed earlier, $F(3, 207) = 3.87$, $p = .01$, and AalcM slept longer, $F(3, 207) = 6.87$, $p < .01$, and woke up later than NoAlcM, $F(3, 207) = 3.72$, $p = .05$. Both NonAlcM and NoAlcW filled in the SDD later after waking $F(3, 207) = 3.33$, $p < .05$. Post hoc analysis using Scheffè's method showed that non alcoholic men went to bed earlier ($p = .05$), got up earlier ($p = .05$). AbAlcM completed their SDD sooner after awakening than the other three groups ($p = .05$).

3.1.3 Waking Personality and Mood

Comparing scores on the EPQ-R, there were no significant differences for levels of extroversion ($p > .05$), social accept-

ability (Lies; $p > .05$), or psychoticism ($p > .05$). However, male and female alcoholics scored significantly higher levels on addictive traits than their male and female counterparts, $F(3, 33) = 4.78$, $p < .01$. They also had higher levels of neuroticism than non alcoholics, $F(3, 34) = 3.80$, $p < .05$. These differences were expected and showed that abstinent alcoholics still responded to the EPQR-R in ways that suggested addictive behaviour being present.

When the waking mood (POMS) was analysed no significant differences were found between abstinent alcoholics compared to controls. This confirmed that the groups were as closely matched on these variables as possible. Especially important were scores from the scales Elated-Depressed and Confident-Insecure. Both scales means for each group showed that female and male alcoholics had lower mean scores but these were not significantly different. Therefore, all groups had similar levels of confidence and there was an absence of depression in the abstinent alcoholics. Abstinent alcoholics and controls were within plus or minus one standard deviation of the test's norms stated in the test's handbooks.

3.2. Dream Comparisons

3.2.1 Dream Recall

217 dreams were analysed in total. 60 dreams were collected from abstinent women (AbAlcW), 68 from non alcoholic women (NoAlcW), 44 from non alcoholic men (NoAlcM) and 45 from abstinent alcoholic men (AbAlcM). Being an alcoholic was associated with increased dream recall, sex of participants was not, $\chi^2 = 7.01$, $p < .01$.

3.2.2 General Components of the Dream Experience

This item, included in the SDD, was used to assess the overall setting and atmosphere that accompanied each dream. 5 bipolar, 100 millimetre, visual analogue scales assessed whether the dream was vivid or unclear, lifelike or unrealistic, colourful or dull, exciting or boring, logical or illogical and mundane or bizarre. Mean results appear below in Figure 1.

There were no significant differences between groups for any of the 6 scales, indicating that all 4 groups reported dreams equally vivid, colourful, life-life, illogical and bizarre. Therefore, general components of the dream experience were statistically similar across the four groups.

3.2.3 The Overall Dream Experience – Hypothesis 1.

To test hypothesis 1, participants indicated the overall emotional tone of the dream by indicating whether the dream was very pleasant or very unpleasant. Abstinent alcoholic women's dreams were significantly more unpleasant than non alcoholic women's, $\chi^2 = 11.02$, $p < .01$. Male abstinent alcoholics dreams were also significantly more unpleasant compared to non alcoholic men, $\chi^2 = 4.57$, $p < .05$.

3.2.4 Dream Self-Esteem – Hypothesis 2.

In relation to hypothesis 2 participants were asked to express feelings of self-love vs. self-hate in their dreams. It was found that abstinent alcoholic women experience less self-love in their dreams than non alcoholic women, $\chi^2 = 20.39$, $p < .01$. Male abstinent alcoholics' dreams also contained significantly more self-hate compared to non-alcoholic men, $\chi^2 = 4.57$, $p < .05$. These results indicate differences in the degree of self-love and self-loathing during dreams between abstinent and non-alcoholic participants. This was stronger in abstinent women than abstinent men. Results here and in the previous section suggest that alcoholics do make more negative attributions about the self and experience a more unpleasant dream experience than non-alcoholics. Therefore, hypotheses 1 and 2 were accepted.

3.2.5 Dream Cognitions – Hypothesis 3.

As part of testing of hypothesis 3 results assessing cognitive differences (see Table 2) are reported as percentages for comparative purposes. The results for items asking about knowing of consequences of one's own actions and being able to take the perspective of another dream character appear in Table 2. Results relating to other elements of cognitive awareness during dreaming appear in Table 3.

Differences were found between groups in relation to cognitive activity, abstinent women reported that they were aware that their actions in a dream would have consequences for others and reported more frequent instances of being able to take the perspective of another during dreams. Abstinent men appear to be less able to achieve these activi-

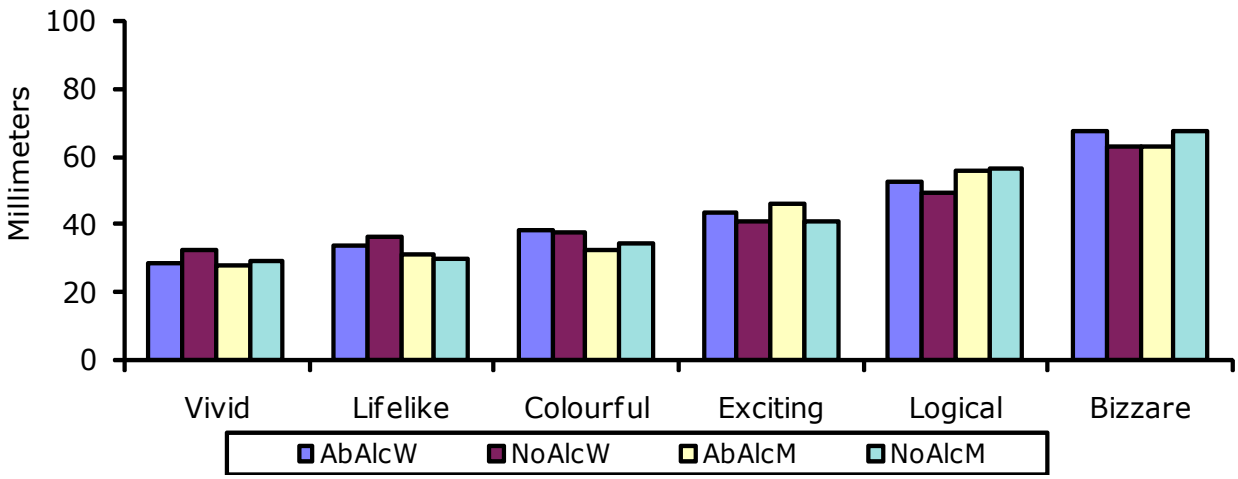

Figure 1. Average scores for measures of general dream phenomenology.

Table 2. The percentage of YES answers to regarding the ability to know consequences of actions and take the perspective of others during the dream.

	AbAlcW	NoAlcW	AbAlcM	NoAlcM
Did you know that your actions would have consequences for others?	72%	35%	36%	40%
Could you take the perspective of another in the dream?	78%	62%	56%	62%

Key. AbAlcW = abstinent alcoholic women AbAlcM = abstinent alcoholic men
NoAlcW = none alcoholic women NoAlcM = none alcoholic men

ties than participants in any other condition.

These results confirm that abstinent women judge actions, motives and the emotions of others in their dreams more than participants in other groups. Interestingly, whilst alcoholic women reported a high percentage of dreams that included these activities, both abstinent alcoholics and non alcoholic males reported fewer cognitive activities.

3.2.6 *The Emotional Experiences of Dreams Compared to Waking – Hypothesis 4*

Abstinent and non-abstinent women's waking emotion scores appear in Figure 2, their dreaming emotion scores appear in Figure 3. Abstinent and non-alcoholic males' average waking emotion scores appear in Figure 4, and their dreaming emotion scores in Figure 5.

3.2.7 *Between-Group Analyses of Waking Emotion*

Multivariate analysis of variance (MANOVA) was used to investigate whether there were any differences between the mean scores for each condition for waking emotion. Three significant differences were found between the groups for waking scores. These were on the scales Calm-Angry ($F(3, 213) = 3.44$, $p < .05$), Happy-Sad ($F(3, 213) = 3.52$, $p < .05$) and Secure-Fear ($F(3, 213) = 2.74$, $p < .05$). Posy hoc comparisons showed that abstinent women reported feeling less calm ($p < .05$), secure ($p < .05$) and happy ($p < .05$) than non alcoholic women and men. There were no significant differences in abstinent and non-alcoholic males reported waking emotions.

3.2.8 *Between-Group Analysis of Dream Emotion*

MANOVA was used to investigate whether there were any differences in dream emotion between the mean scores for each condition for the dreaming VAS. Analysis showed that all but 2 items on the VAS were significantly different. Due to word constraints only the results of a priori tests are given here. Differences in dream emotion were greatest between abstinent women and their non-alcoholic counterparts. Abstinent women reported greater level of insecurity ($p < .05$), unfriendliness ($p < .05$), aggression ($p < .05$), dependence ($p < .05$), sorrow ($p < .05$), displeasure ($p = .05$), resentment ($p < .05$), sadness ($p < .05$), and worry ($p < .05$). Both abstinent men and women felt significantly more fear ($p < .05$) and submission ($p = <0.05$) than their male and female counterparts. Thus, hypothesis 4, that abstinent alcoholics would experience more unpleasant emotions in dreams was accepted.

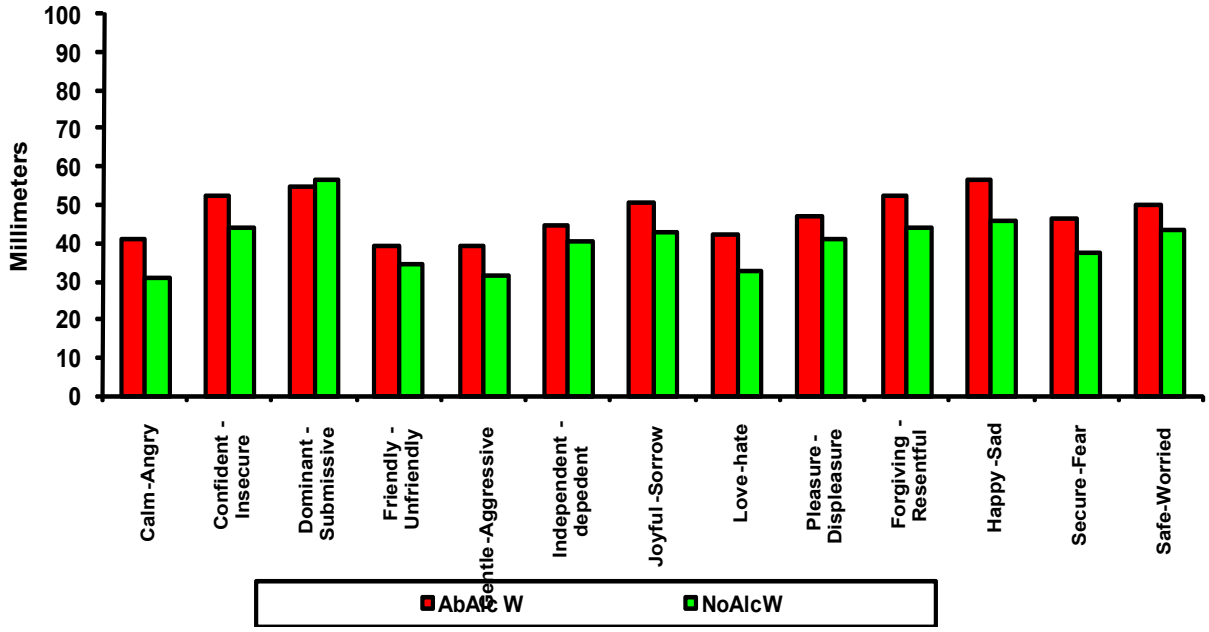

Figure 2. Comparison of abstinent and non alcoholic women's average scores for waking emotionality.

Table 3. The percentage of YES responses to elements of cognitive awareness during dreams.

In your dream did you:	AbAlcW	NoAlcW	AbAlcM	NoAlcM
Decide to perform an action	73%	65%	77%	64%
Decide not to perform an action	50%	29%	27%	13%
Reflect on an aspect of the dream	62%	53%	32%	38%
Judge actions, motives or emotions in others	83%	72%	55%	62%
Remember something	23%	37%	39%	33%

Key. AbAlcW = abstinent alcoholic women AbAlcM = abstinent alcoholic men
NoAlcW = none alcoholic women NoAlcM = none alcoholic men

3.2.9 Within-Group Comparisons of Waking and Dreaming Emotion

Differences within-groups were not predicted at the outset but further analyses were carried out after observing trends in the data. Paired subjects t tests were used to compare mean scores for waking and dreaming reports of emotion. Mean results for waking and dreaming emotion (dreaming averages appear in bold font in parentheses) are shown and significance levels are indicated.

Table 4 identifies within group differences between waking and dreaming emotion. Perhaps most relevant here are those items which showed differences in all four conditions. These items were calm to angry, friendly to unfriendly, gentle to aggressive, secure to fear and safe to worried; all means increased and showed more anger, unfriendliness, aggressiveness and fear during dreams. These items could be interpreted as changes in the 'Flight and Fright' response (James, 1884) all of which have been closely associated with limbic brain activity (Leeper, 1970).

Step wise multiple regression using the mean scores for each item for waking and dreaming was carried out. Predictor variables were gender, condition and waking vs. dream emotionality. Results showed that dreams in all four conditions could be predicted to contain more emotionality than waking (R^2 = 33%, t = 8.44, p < .001). Being an alcoholic, male or female, (R^2 = 51%, t = 6.09, p < .001) could predict the unpleasant dream emotion. But, this was especially true for female abstinent alcoholics (R^2 = 52%, t = -2.06, p < .05). The predictive ability of the models was highly significant with ANOVA 'F' ≤ 0.001.

These findings support hypothesis 1 that abstinent alcoholics would report more unpleasant emotion in their dreams than non alcoholics Furthermore, hypothesis 6 that female abstinent alcoholic's dreams are more unpleasant than male abstinent alcoholics was also accepted.

3.2.10 Drinking Dreams – Hypotheses 5.

There were no reports of drinking alcohol in the dreams of non-alcoholic participants. Of the 105 abstinent alcoholics dreams that were used in the analysis 9% (n = 9) contained drinking activity. Abstinent women reported twice as many drinking dreams (n = 6; 10%) as male abstinent alcoholics (n = 3; 4%). Drinking dreams were not a common occurrence. One item asked in a less direct way about possible ways of escaping reality such as altering one's state of mind, changing the way one felt or feeling a need to need to

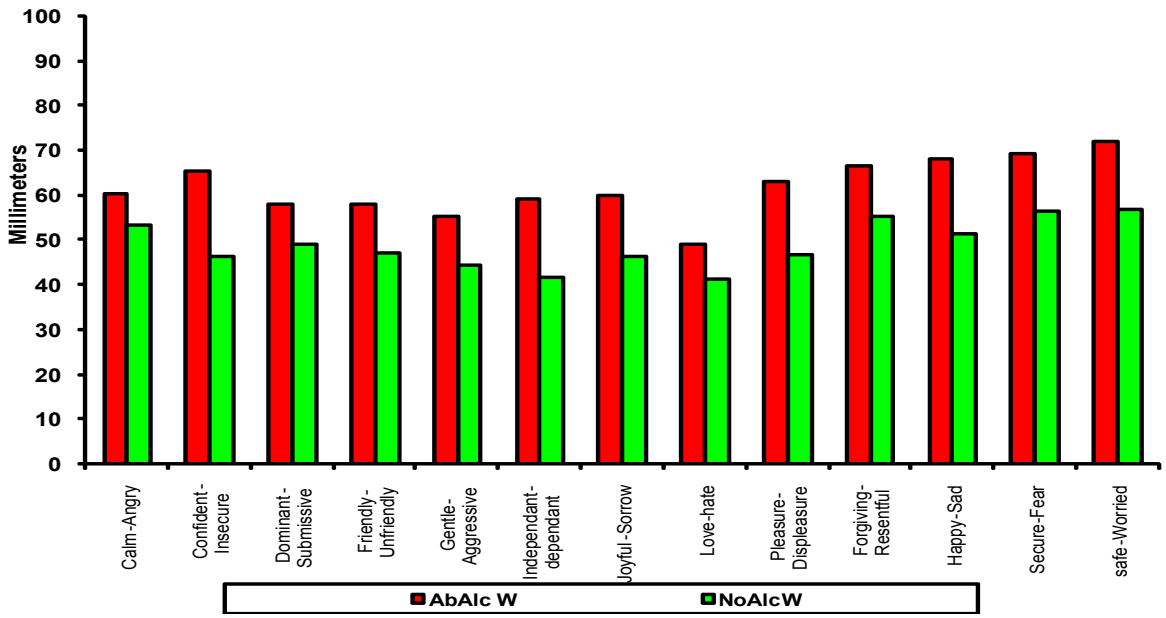

Figure 3. Comparison of abstinent and non alcoholic women's average scores for dream emotionality.

Table 4. The group mean scores (and standard deviations in parentheses) for 13 VASs used to assess within group emotional experience in dreams compared to waking for abstinent alcoholics (men and women) and controls (men and women). Higher score represent increased negative emotion.

VAS item	AbAlc W	NoAlcW	AbAlcM	NoAlcM
Calm to Angry	41.2 (60.5) **	31.1(53.2) ***	43.9(57.4) **	33.7 (52.2) **
Confident to Insecure	52.3 (65.5) **	43.9 (46.3)	44.5 (54.9)	40.2 (45.8)
Dominant to Submissive	54.5 (57.9)	56.3 (49.1) *	56.1 (60.3)	57.8 (48.0) *
Friendly to Unfriendly	39.5 (57.8) ***	34.7 (47.3) *	38.0 (51.5) **	33.2 (43.5) *
Gentle to Aggressive	39.3 (55.2) ***	31.4 (44.3) ***	36.7 (48.9) **	37.5 (52.5) **
Independent to dependant	44.6 (59.1) ***	40.5 (41.7)	43.1 (47.8)	40.2 (44.7)
Joy to Sorrow	50.6 (59.9) **	43.1 (46.4)	44.5 (46.3)	41.5 (41.8)
Love to Hate	42.1 (49.0)	32.9 (41.4) **	33.9 (49.7) ***	33.8 (44.2) **
Pleasure to displeasure	46.9 (63.1) ***	40.9 (46.7)	47.8 (53.7)	45.9 (47.6)
Resentful to Forgiving	52.3 (66.5) ***	44.1 (55.4) **	50.6 (53.6)	42.4 (54.5) **
Happy to Sad	56.2 (68.0) ***	46.1 (51.5)	50.4 (59.7)	41.3 (49.6)
Secure to Fear	60.5 (69.3) **	37.7 (56.6) ***	46.9 (68.5) ***	36.5 (54.4) **
Safe to Worried	50.1 (71.9) ***	43.7 (56.9) **	42.9 (60.0) **	40.1 (57.1) **

Note. $^{*}p < .05$ $^{**}p < .01$ $^{***}p < .001$

Key. AbAlcW = abstinent alcoholic women AbAlcM = abstinent alcoholic men
NoAlcW = none alcoholic women NoAlcM = none alcoholic men

escape. Results appear in Table 5.

Abstinent alcoholics reported more frequently the need to escape, change their state of mind, and alter the way that they felt more often compared to non-alcoholics and that this was truer for abstinent women. Hypothesis 5 was accepted that abstinent alcoholics would report more drinking dreams.

3.2.11 The Relationship Between Waking and Dreaming Emotion – Hypothesis 7

Correlation's between waking and dreaming emotion for each VAS item, for condition were completed and showed some affiliation between waking and dreaming emotion. Of the 52 correlation's that were conducted 11 (21%) were

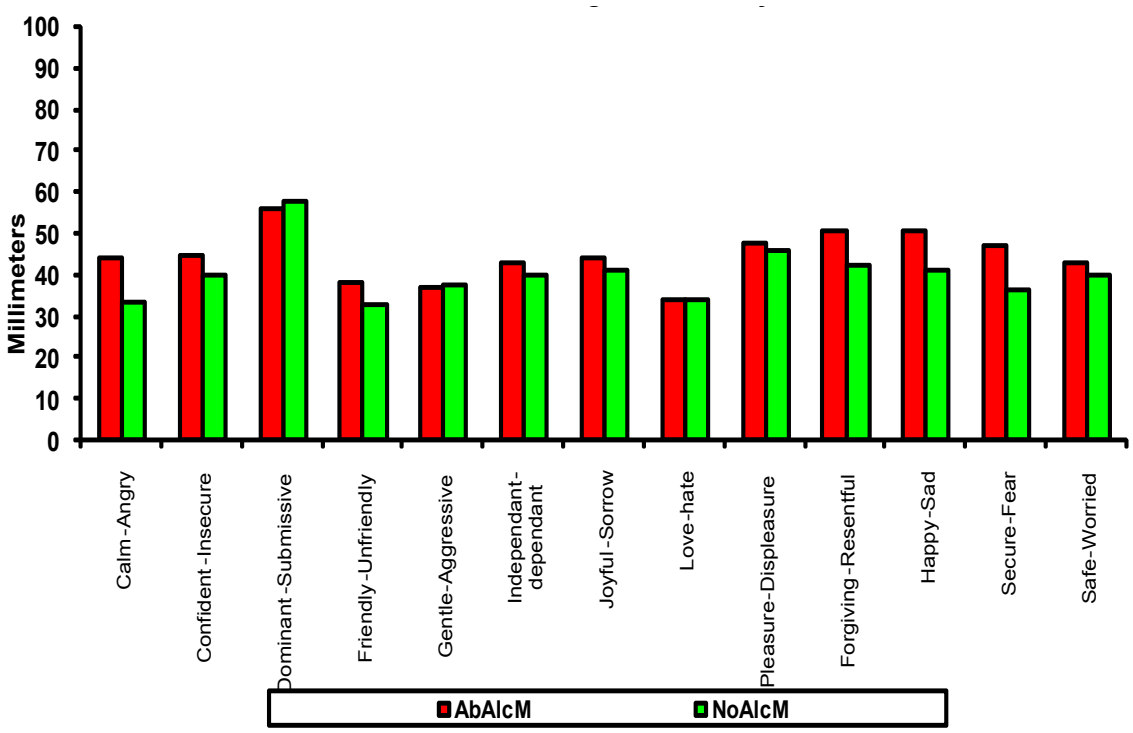

Figure 4. Comparison of abstinent and non alcoholic male's average scores for waking emotionality.

Table 5. The Percentage of Participants who Responded YES.

Did you do any of the following in your dream?	AbAlcW	NoAlcW	AbAlcM	NoAlcM
Relax	12%	12%	9%	20%
Mediate	0%	0%	2%	2%
Want to escape	48%	28%	46%	24%
Alter your state of mind	35%	3%	14%	4%
Change the way that you felt	43%	12%	14%	18%

Key. AbAlcW = abstinent alcoholic women AbAlcM = abstinent alcoholic men
NoAlcW = none alcoholic women NoAlcM = none alcoholic men

found to be significant. Male (3/13) and female (4/13) non alcoholics dreaming emotion did correlate with waking emotion more than abstinent male (2/13) and female (2/13) alcoholics. Levels of dream independence (or dependence) were significantly positively correlated across all four conditions. Two or three of these correlations may have been found due to chance. These findings lend some support to Cartwright's assertion that dream emotion is marginally more continuous in persons with no history of mental distress. However, we feel there is insufficient evidence to support hypothesis 6 and the null hypothesis is accepted.

4. Discussion

The differences between the dreams of the four groups were prolific, disputing the findings of previous works where it has been stated that abstinent and non alcoholics dreams are more similar than dissimilar (Moore, 1962; Hall, 1966; Scott, 1968), or that there are no differences in emotional content (Kibira, 1994). These findings suggest that emotion and other subjective aspects of dreams are important indicators of psychological state in dreams, more so than waking measures. Research methods must be adapted to investigate this assertion further.

Six experimental hypotheses were accepted showing that abstinent alcoholics did experience more unpleasant emotion, make more negative attributes about the self and generally have a less pleasant dream experiences than non-alcoholics. However, Cartwright's (1974) claim was only weakly supported. There is insufficient evidence that there was more continuity between waking and dreaming emotion in person's with no history of substance misuse, compared with those with an addictive behaviour. This hypothesis requires further investigation.

These findings support the emotional adaptation hypothesis formulated by Maquet et al (1997) in both abstinent alcoholic's and non alcoholic's dreams. However, it is clear that abstinent alcoholic's dreams are generally more emotional and more unpleasant. This may be because intra-psychic mechanisms have to work harder to restore waking psychological functioning in people who are undertaking the type of long-term change encountered in recovery from addic-

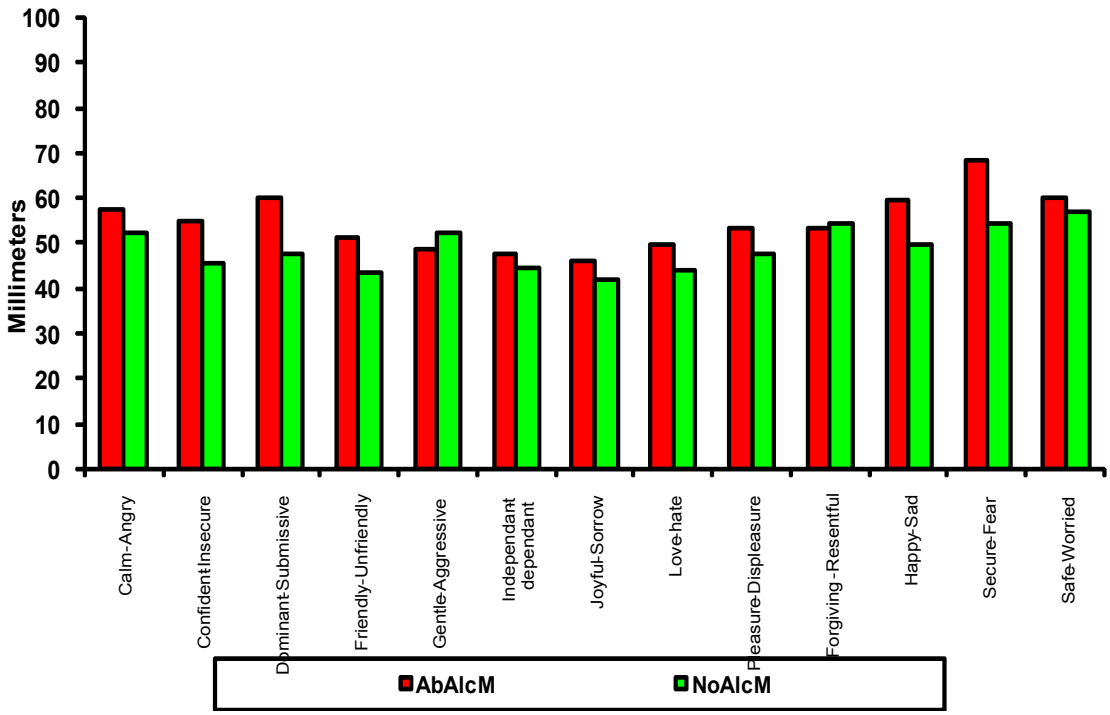

Figure 5. Comparison of abstinent and non alcoholic male's average scores for dream emotionality.

tion. A second explanation is that these findings describe permanent damage to brain function caused by severe alcohol use, and that abstinent alcoholics may experience more unpleasant dreams as a consequence of previously drinking alcoholically. Thirdly, unpleasant emotion may be suppressed during waking but rebound during REM sleep when executive commands are off-line (Maquet et al, 1996). More specifically, abstinent alcoholics may spend time during waking suppressing negative feelings, thoughts, and actions (AA Big Book, 1976). Suppressing thoughts during waking has been found to cause them to rebound in dream content (Wegner, Wenzlaff & Kozak, 2004). Fourthly, a longer period of abstinence may be needed before dream emotionality settles into a pattern reflecting non-alcoholic dream-life.

'Self-Construal Theory' (SCT; Markus & Kitayama, 1991; King & DeCicco, 2007) is helpful to understand these findings. SCT describes how an individual refers to themselves in comparison with others in their culture, or in this case, their sub-culture. A person's self-construal affects cognitions, emotional experience, and motivation (Markus & Kitayama, 1991; King & DeCicco, 2007). Abstinent alcoholics in Stage II recovery constantly strive to change, and observe their emotional life in order to make positive changes. They may therefore be predisposed to paying more attention to dream emotion as well as waking emotion, giving more salience to their internal state of being than others.

The literature suggested that for up to 3 years self-esteem is low, and anxiety is high, in those recovering from addiction during waking (Sunderland, 1997). Plant (1997) has asserted that it is harder for women to regain their self-respect than men because the nature of their behaviour during active addiction is contrary to acceptable social stereotypes of 'womanhood'. Our findings appear to suggest that for females in Stage II recovery the issues that contribute towards this construct are still pertinent in their dream content. We are therefore, led again to 'self-construal theory' (Markus & Kitayama, 1991; King & DeCicco, 2007) and can conclude that abstinent women despite having considerable SFT, still have a low opinion of themselves which is allowed expression during dreaming.

Further research is undoubtedly needed. For example, comparing abstinent alcoholics in first stage, second stage, and third stage recovery; each group having increasing years of SFT; expressly, investigating whether unpleasant emotionality during dreams decreases as SFT increases. This would reveal the length of time that psychological mechanisms take to adapt so that dream life is positively altered. Findings would also contribute to understanding of the continuity principle (Hall, 1953; Hall & Norby, 1972; Domhoff, 1996, & Schredl, 2003). Furthermore, research should be conducted using the dreams of people who have a 'significant addicted other'. We believe that people with a significant other who is in active addiction may report dreams containing references to intoxication that, like alcoholics, is related to unpleasant emotion.

Like all psychological research the study was limited in some respects. Researchers can never be sure of the effect on dream content just from asking people to take part in the study. Some of the participants reported increased recall as a result of concentrating more on their dreams than was usual. Secondly, it should be acknowledged that dream research relies heavily upon self-report, retrospective data.

It may have been that participants over reported or over estimated emotional intensity. The VASs because of their bipolar nature only identified shifts in emotional experience from pleasant to unpleasant (or visa versa) and not changes in emotional intensity. The most significant reflection is that in further studies, content analysis findings should also be undertaken to accept or refute assertions identified in the literature review. We do think that one strength of this study outweighs its limitations. The methodology used has enabled aspects of emotional experience in dreaming to be identified and assessed. This has shown important differences not seen with previous methods. This has proved highly valuable, and has shown that the dreams of abstinent and non-alcoholics are significantly different, but even more, that these differences are in many components of the dream, not just in the content of dream reports. However, there were no differences in general features such as bizarreness, colourfulness, or vividness.

These findings support previous research relating to waking gender differences during recovery from alcoholism (Plant, 1997). The differences between male and female abstinent alcoholics has led to the conclusion that male and females abstinent alcoholics dream content cannot be treated in the same way by either dream, or addiction, workers. Male alcoholics reported different sleep behaviour, their dreams were less emotionally, or cognitively extreme than their female counterparts.

The literature relating to dreams and addiction presents an image of 'addiction' that is symbolised solely by the active, problematic use of a chemical or by immediate abstinence from this behaviour; we believe this view is false. The Disease Model of Addiction (Jellinek, 1960), acknowledges that the chemically dependent person's problems start before the chemical is taken, and before it is used addictively. There is no account in any of the previous research of how a chemical is used to escape feelings of irritability, restlessness, or discontent which are known markers of the alcoholic condition (AA Big Book, 1976). The 12 steps of Alcoholics Anonymous provide a program of self-help where addiction is 'accepted' rather than 'abstained' from. The difference between 'acceptance' and 'abstinence' is the same as the difference between being highly motivated to not drink and being highly unmotivated to not pick up the first drink or drug (Colace, 2004; Berridge, 2001). This difference would be clearly observed in the self-construal of the 'recovering' alcoholics who took part in this study.

If drinking dreams are indicative of where the person is in their recovery process, then wanting to drink intermittently is arguably the most natural of states that an alcoholic may find themselves in. Drinking dreams are not predetermine indicators of relapse: how they act on may be. Rather, the occasional presence of drinking dreams which are accompanied by unpleasant emotional affect, including guilt and remorse are a common part of the recovery process (Marshall, 1995). Knudson (2003) suggests dreams are seen as indicators of either the past (retrospective), or the present moment (concurrent), but includes a further prospective function used to make positive change. Using this model, drinking dreams can be seen as indicators of needing to take prospective action, such as increased access to support, talking about these dreams in AA meetings, or with sponsors and therapists (McEwing, 1991; Marshall, 1995). Motivation to stop drinking or using other chemicals has not been assessed in the interpretation of drinking dreams. We believe that attendance at AA shows motivation to cease

using alcohol and towards positive change; far better perhaps to fulfil a wish to drink in a dream, than to act it out during waking. However, a study taking a measure of waking craving is sorely needed to unravel this relationship further.
It is possible to conclude from these findings that recovery from addiction is a process not an event marked by stopping drinking or the presence of drinking dreams. It is also possible to state that the occasional drinking dream is part of the recovery process as stipulated by Marshall (1995) and McEwing (1991), but that they are not a precipitator of relapse as Colace (2004), Christo & Franey (1996) and Fiss (1980) assert. Despite these positive comments the dreams of abstinent alcoholics in Stage II recovery are significantly more unpleasant emotionally, cognitively, and in terms of self-appraisal compared to controls. In conclusion, we may have raised more questions than we have answered.

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