Alexithymia and emotionality of dreams

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Summary. Findings have been mixed regarding aspects of dreaming in alexithymia. The present study explored the relationship of alexithymia and its facets to frequency and emotional intensity of remembered dreams in a young adult sample. A sample of 109 men and women aged 18-30 years was recruited from two universities and the general Australian community. Participants completed an online survey assessing frequency of dream recall and nightmares, as well as typical emotional intensity of dreams. Validated measures assessed alexithymia, alcohol use, and negative moods. Multivariate alexithymia X gender analysis of covariance controlling for alcohol use and negative moods indicated that the alexithymia group (n = 47) scored significantly higher on typical emotional intensity of dreams compared to controls (n = 62), with no other group differences. Further, the core difficulty identifying feelings (DIF) facet of alexithymia was significantly positively correlated with typical emotional intensity of dreams, and was the only significant predictor of dream emotionality in a regression model that accounted for potential confounding variables. Results appear to be consistent with the psychoanalytic notion that suppressed or repressed emotions are likely to emerge in dreams, given that alexithymia has been linked to emotional suppression.

Keywords: Alexithymia; emotion; dreaming; alcohol; repression

1. Introduction

Alexithymia is a personality trait defined by difficulties identifying and describing feelings and an externally oriented thinking style (Bagby et al., 2020). Much evidence suggests that alexithymia is a risk factor for problematic alcohol use (Cruise & Becerra, 2018; Thorberg et al., 2009) as well as depression and anxiety (McGillivray et al., 2017). In relation to the "Big Five" personality dimensions (Costa & McCrae, 1992), alexithymia is positively associated with neuroticism and negatively associated with extraversion (Luminet et al., 1999; Zimmerman et al., 2005). The heritability of alexithymia is estimated to be 30% (Jorgenson et al., 2007); developmental influences have thus been invoked, such as poor child-caregiver relationships leading to persistent deficits of processing and labelling emotions (Lyvers et al., 2019a: Thorberg et al., 2011a). Other evidence suggests that alexithymia is associated with emotional suppression as an emotion regulation strategy (Laloyaux et al., 2015).

As alexithymia is defined by deficient emotional self-awareness and concrete thinking, low levels of dream recall and dream emotionality might be expected to be characteristic of alexithymia, and had been predicted in previous work. Nonetheless, the relevant findings have been mixed. A sleep lab study by Parker et al. (2000), using a small sample (n = 8 for both groups), found that when alexithymic and non-alexithymic participants were awakened from REM sleep, there were no differences in dream recall or emotionality of dreams between groups; however, the alexithymic group's dreams tended to be less imaginative. Lumley and Bazydlo (2000) reported that in a large nonclinical sample, the externally oriented thinking (EOT) facet of alexithymia was associated with poorer retrospective dream recall, whereas the difficulties identifying and describing feelings (DIF and DDF) facets were associated with more disturbing and bizarre dream content. Nielson et al. (2011) found that alexithymia was associated with lower retrospective dream recall but greater nightmare distress for both clinical and nonclinical samples, and Formica et al. (2013) reported similar findings in Italian undergraduates. Obrębska and Rohoza (2021) reported that alexithymia showed a negative relationship with retrospective dream recall, whereas stress was associated with both nightmare frequency and alexithymia. By contrast Montebarocci and Giovagnoli (2019) found no relationship between alexithymia and retrospective dream recall or nightmare frequency in a small (n = 30) nonclinical sample; alexithymia was however associated with reports of dreams as typically boring or meaningless. Differences between samples, study methodologies (e.g., sleep lab vs. retrospective self-reports), and lack of control of other relevant factors may account for such disparate findings, thus further research is warranted.

The present study examined the relationship of alexithymia and its facets to dream recall frequency, nightmare frequency, and typical emotional intensity of dreaming in a nonclinical young adult sample while controlling for other factors that have been reported to influence dreaming. Given that alexithymia in community samples is commonly associated with higher levels of alcohol use and negative moods such as depression, anxiety, and stress (e.g., Lyvers et al., 2019b) - variables which can affect aspects of dreaming (Montebarocci & Giovagnoli, 2019; Steinig et al., 2011) – these were assessed in the planned alexithymia group comparison as control variables. Gender was included as a second inde-

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Submitted for publication: May 2022
Accepted for publication: October 2022
DOI: 10.11588/ijodr.2023.1.89134

pendent variable given that some previous studies have reported gender differences in alexithymia (e.g., Mattila et al., 2006), though gender differences are not always found for this trait. In addition to the group comparison, facets of alexithymia - DIF, DDF, and EOT – were also assessed in relation to dream variables, given a previous report of differential relationships of these to aspects of dreaming (Lumley & Bazydlo, 2000). Based on the definition of the alexithymia construct and the limited evidence to date cited earlier, alexithymia and/or some of its facets were expected to be associated with lower levels of retrospective dream recall and emotional intensity of dreams. However, given evidence of emotional suppression as an emotion regulation strategy in alexithymia (Laloyaux et al., 2015), an alternative possibility was considered that alexithymia might be associated with a release of emotions during dreaming that were suppressed during waking. A recent study (Lyvers et al., 2020) found that alexithymia was associated with stronger self-reported emotional responses to music, suggesting that music may be able to release suppressed emotions in those with alexithymia. Could dreaming have a similar effect, due to the absence of conscious emotion regulation strategies during the REM state?

2. Method

2.1. Participants

The sample of 109 participants included 43 current students recruited via campus email from two universities in southeast Queensland, Australia, and 66 community young adults recruited from states other than Queensland via the online survey hosting company Qualtrics. The sample ranged in age from 18 to 30 years (M = 24.34, SD = 3.74) and consisted of 62 women and 47 men. Highest completed education level varied, with 5 participants who did not complete high school (4.6%), 24 (22%) who had completed high school, 27 (24.8%) who had a diploma or trade certificate, 39 (35.8%) who had completed an undergraduate degree, and 14 (12.8%) who had completed a postgraduate degree.

2.2. Materials

Demographics and Dream Questions. Information was requested on participants' age, sex, country of origin, English proficiency, student status, highest level of education completed, and exclusion criteria of frequent illicit drug use, current medication for a psychiatric or neurological condition, or history of head injury. Three additional items assessed dreaming. The item "How often do you remember your dreams in the morning when you first wake up?" had Likert scale response options ranging from 1 (*Never*) to 5 (*Always*), as did "How often do you experience nightmares?" The item "How emotionally intense would you rate your typical dream experiences?" had response options ranging from 1 (*Not at all*) to 5 (*Extremely*). These questions were adapted from the Mannheim Dream questionnaire (MADRE; Schredl et al., 2014).

Toronto Alexithymia Scale (TAS-20; Bagby et al., 1994). The TAS-20 is the most widely used measure of alexithymia and was used in previous research cited earlier on the relationship of alexithymia to dreaming. It consists of 20 items rated on a five-point Likert scale ranging from 1 (*Strongly Disagree*) to 5 (*Strongly Agree*). Items encompass three facets of alexithymia corresponding to three subscales: difficulty identifying feelings (DIF; e.g., "When I am upset, I don't know if I am sad, frightened, or angry"), difficulty describing feelings (DDF; e.g., "It is difficult for me to find the right words for my feelings"), and externally oriented thinking (EOT; e.g., "I prefer to just let things happen rather than to understand why they turned out that way"). Five negatively worded items are reverse scored. The total alexithymia score is the sum of responses to all 20 items, with possible total scores ranging from 20 to 100; definite or high alexithymia is indicated by a score of 61 or higher. The TAS-20 showed acceptable internal consistency in the present sample (α = .79).

Depression Anxiety Stress Scales 21 (DASS-21; Lovibond & Lovibond, 1995). The DASS-21 is a 21-item self-report instrument comprised of items assessing symptoms of depression (e.g., "I felt I had nothing to look forward to"), anxiety (e.g., "I was aware of dryness of my mouth"), and stress (e.g., "I found myself getting upset rather easily"). Respondents rate items according to the degree to which they had experienced each symptom over the past week, using a four-point Likert scale ranging from 0 (*did not apply to me at all*) to 3 (*applied to me very much, or most of the time*). To obtain scale scores, the scores for all items within each scale are summed; scores on all three scales can be summed to provide an overall index of negative moods. Total scores can range from 0 to 63, with higher scores reflecting more negative affect. Internal consistency of the total DASS-21 was high in the present sample (α = .95).

Alcohol Use Disorders Identification Test (AUDIT; Saunders et al., 1993). The AUDIT consists of 10 items assessing alcohol consumption (e.g., "How often do you have a drink containing alcohol?"), alcohol-related problems (e.g., "How often during the last year have you had a feeling of guilt or remorse after drinking?"), and signs of alcohol dependence (e.g., "How often during the last year have you found that you were not able to stop drinking once you had started?"). Items 1 to 8 are rated on a five-point Likert scale ranging from 0 (*Never*) to 4 (*Daily or almost daily*), whereas items 9 and 10 are rated on a three-point Likert scale ranging from 0 (*No*) to 2 (*Yes, during the last year*). In the present sample the AUDIT showed acceptable internal consistency (α = .87).

2.3. Procedure

Approval was obtained for the current study from the ethics committees of two universities in southeast Queensland, Australia, prior to data collection. Students at both universities were recruited via email announcement, providing a link to the online survey and offering the incentive of either a credit point toward an undergraduate psychology subject or the chance to win a $50 gift voucher via random draw. Community participants from states other than Queensland were recruited via the online survey hosting company Qualtrics, which offered a points-based incentive. The inclusion criteria were specified as aged 18-30 years, English proficient, Australian residence, not on current medication for a psychiatric or neurological disorder, no previous traumatic head injury, and no current illicit drug use more than once per month. Prospective participants were informed that the study was an investigation of personality in relation to mood and alcohol use, and that their responses would remain anonymous, with no identifying information linked to their responses. Total time required to complete the survey

Table 1. Correlations among study variables.

Variable	*1*	*2*	*3*	*4*	*5*	*6*	*7*	*8*
1. Dream recall	---							
p	---							
2. Nightmares	.146	---						
p	.131	---						
3. Emotionality	.491	.189	---					
p	< .001	.049	---					
4. DIF	.203	.127	.350	---				
p	.034	.187	< .001	---				
5. DDF	.060	.026	.172	.763	---			
p	.537	.790	.073	< .001	---			
6. EOT	.108	-.018	.056	.368	.387	---		
p	.263	.849	.561	< .001	< .001	---		
7. DASS	.203	.188	.345	.629	.420	.300	---	
p	.034	.051	< .001	< .001	< .001	.002	---	
8. AUDIT	.097	-.013	.309	.339	.253	.227	.488	---
p	.316	.894	.001	< .001	.008	.018	< .001	---

Note: DIF = Difficulty Identifying Feelings. DDF = Difficulty Describing Feelings. EOT = Externally Oriented Thinking. DASS-21 = Depression Anxiety Stress Scales 21. AUDIT = Alcohol Use Disorders Identification Test.

was approximately 20 minutes, with the order of measures uniquely randomized per participant. On completion, a screen shot of the final "thank you" page entitled participants to receive their incentive. Data were then downloaded as a Statistical Package for Social Sciences (SPSS) data file to be analyzed via SPSS version 26.

3. Results

To explore whether the three facets of alexithymia measured by the TAS-20 showed differential relationships to the dream variables, as in some previous reports (Formica et al., 2013; Lumley & Bazydlo, 2000), Pearson correlations were conducted. These can be seen in Table 1. As shown in the table, the only alexithymia facet to show significant associations with dream variables was DIF, which was significantly positively correlated with dream recall frequency and typical emotional intensity of dreams. DDF approached significance for the latter variable, whereas EOT did not. All three facets showed significant positive correlations with the AUDIT index of risky alcohol use and the DASS-21 index of negative moods, as expected based on previous work and justifying the inclusion of these variables as covariates in the planned multivariate analysis of covariance (MANCOVA). Negative mood showed significant positive correlations with dream recall frequency and typical emotional intensity of dreams, and showed a marginally significant positive correlation with nightmare frequency. Negative mood was also significantly positively correlated with risky alcohol use, and the latter variable was significantly positively correlated with typical emotional intensity of dreams.

The planned alexithymia group comparison was then conducted in line with the between-groups approach used in previous research on alexithymia in relation to dreaming as cited earlier. In the present online sample of young Australian adults, there were 47 participants who met the criterion for alexithymia based on the established total TAS-20 cut-off score, whereas 62 did not. Means and standard deviations of all measures for each group are presented in Table 2, which also indicates significant alexithymia group differences. Chi-square test indicated that alexithymia was not significantly associated with student vs. nonstudent status, p = .66, however there was a marginally higher proportion of males with alexithymia (25; 53%) than females (22; 35%), p = .06. An alexithymia X gender multivariate analysis of covariance (MANCOVA) was thus conducted on dream recall frequency, nightmare frequency, and typical emotional intensity of dreams, controlling for potential influences of alcohol use and negative moods as covariates. There was an overall significant multivariate effect of alexithymia group according to Pillai's Trace, $F(3, 101) = 2.91$, p = .038, but no effect of gender, p = .11, and no interaction, p = .61. Univariate tests of between-subjects effects of the dream-related variables, indicated that only typical emotional intensity of dreams significantly differed between the alexithymia group (M = 3.23, SD = .81) and the control group (M = 2.50, SD = .94), $F(1, 103) = 8.16$, p = .005, partial eta squared = .07, observed power = .81; no other group difference approached significance, except

Table 2. Means and standard deviations of study variables for alexithymic and non-alexithymic samples. Significant group differences in alexithymia X gender MANCOVA are denoted.

Variable	Alexithymic (n = 47) [M (SD)]		Non-Alexithymic (n = 62) [M (SD)]
DASS-21	34.83 (15.27)	**	17.48 (14.88)
AUDIT	10.30 (6.80)	**	7.08 (4.60)
Dream recall frequency	3.19 (.83)		2.85 (.85)
Dream emotionality	3.23 (.81)	**	2.50 (.94)
Nightmare frequency	2.64 (.92)		2.35 (.87)

Note. **p < .01. TAS-20 = Toronto Alexithymia Scale 20. DASS-21 = Depression Anxiety Stress Scales 21. AUDIT = Alcohol Use Disorders Identification Test.

for the covariates, which showed the expected significant group differences (see Table 2).

Finally, regression was used to assess the abilities of alexithmia facets (DIF, DDF, EOT) to account for unique variance in dream variables while controlling for age, gender, alcohol use, and negative moods. In the regression on dream emotionality, the regression model was significant, $r^2 = .23$, $F(7, 101) = 4.36$, $p < .001$, with DIF the only significant predictor, $\beta = .37$, $p = .02$. In the regression on dream recall, the model was not significant, $r^2 = .10$, $F(7, 101) = 1.62$, $p = .14$; however DIF was the only variable to approach significance, $\beta = .33$, $p = .06$. The regression model on nightmare frequency was not significant, $r^2 = .09$, $F(7,101) = 1.49$, $p = .18$; none of the alexithymia facets approached significance, all $p > .27$, although gender approached significance ($\beta = .20$, $p = .06$) suggesting that females tended to report more frequent nightmares than males.

4. Discussion

In the present study, alexithymia group status (based on established TAS-20 cutoff scores) was associated with significantly higher ratings of typical emotional intensity of dreams, whereas there was no significant group difference on dream recall or nightmare frequency according to an alexithymia X gender MANCOVA controlling for the influences of alcohol use and negative mood. Further, the DIF facet of alexithymia was significantly positively correlated with typical emotional intensity of dreams, and the DDF facet showed a similar relationship that fell just short of significance. A regression model accounting for variables of age, gender, alcohol use, and negative moods indicated that the DIF facet of alexithymia was a significant, moderately strong positive predictor of dream emotionality, whereas the DDF and EOT facets were nonsignificant. Taken at face value, present results may imply that when normal waking restraints on thoughts and emotions are absent during REM sleep, alexithymic individuals – especially those with high levels of DIF, arguably the core facet of alexithymia - tend to experience more emotionally intense dreams, though not necessarily more nightmares, than do those with low or no alexithymia. Alternatively, perhaps those with alexithymia and high DIF simply experience typical emotions during dreaming but report them as more intense due to the poverty of such conscious feelings during waking. In either case the findings seem consistent with the psychoanalytic notion that suppressed or repressed thoughts and feelings tend to emerge during dreaming (Freud, 1992). For example, Malinowksi (2015) reported that waking thought suppression was associated with increased emotionality of dreams. Another potentially relevant previous finding was the report of Thorberg et al. (2011b) that in an alcohol-dependent sample, those with alexithymia had stronger expectations that alcohol increases the intensity of emotions. In alcohol intoxication, as in REM sleep (Muzur et al., 2002), prefrontal cortical processes that normally mediate inhibitory regulation of emotions and impulses become temporarily impaired, accounting for alcohol's disinhibitory effects on emotional and impulsive behavior (Lyvers, 2000). In the present group comparison, which controlled for alcohol intake and negative moods via covariate analysis, the alexithymia group reported having more emotionally intense dreams compared to controls - perhaps like the alexithymic alcohol-dependent clients who reported stronger beliefs in alcohol's ability to intensify emotions in Thorberg et al.'s study. This idea would seem to merit further investigation as it ties in with evidence of emotional suppression as an emotion regulation strategy associated with alexithymia (Laloyaux et al., 2015). The present findings also point to the importance of assessing facets of alexithymia separately, as in this sample only the core DIF facet showed significant relationships with dream emotionality as assessed by correlation and regression.

The present findings seem at odds with earlier reports of lower retrospective dream recall and/or meaningful dream content but more nightmares in alexithymia (Formica et al., 2013; Lumley & Bazydlo, 2000; Neilsen et al., 2011; Obrębska & Rohoza, 2021), or no relationship of such dream variables with alexithymia (Montebarocci & Giovagnoli, 2019; Parker et al., 2000). Such mixed findings are difficult to reconcile but may reflect differences in samples, methodologies, and control for other relevant factors. The present study had limitations including the sample size (though power was sufficient for present purposes) and use of self-report measures of the variables of interest. In particular, the use of a self-report index of alexithymia (TAS-20) can be questioned given that this construct is defined by deficient emotional self-awareness. On the other hand, the widely used TAS-20 has reportedly shown convergence with clinician ratings of alexithymia (Bagby et al., 2020; Ogrodniczuk et al., 2018; Thorberg et al., 2010).

Another potential concern is that the present online sample of young adults included a considerably higher proportion of participants whose TAS-20 scores met the established criterion for definite or high alexithymia compared to Australian population estimates (McGillivray et al., 2016). Other recent work using online samples of young adults has similarly noted an unexpectedly high proportion of participants scoring as alexithymic on the TAS-20, which was attributed to alexithymic individuals spending more time on the internet (Lyvers et al., 2021) given the reported association of alexithymia with excessive internet use and internet addiction (Mahapatra & Sharma, 2018). In the current context, the unexpectedly high proportion of participants scoring as alexithymic could be considered a strength of the present study as roughly comparable group sizes were achieved for group comparisons via MANCOVA; however the sample cannot be regarded as representative of the general Australian population. A definite strength of the present study was that the comparison of alexithymia groups controlled for alcohol use and negative moods as covariates, as these variables are known to be significantly elevated in alexithymia and can also influence aspects of dreaming as noted earlier – and were significantly related to dream variables in the present study as well. Perhaps future studies of the relationship between alexithymia and dreaming will generate more consistent results when efforts are made to control for these and other potentially confounding variables that have been linked to both alexithymia and aspects of dreaming, such as those investigated in the present study. Assessment of facets of alexithymia is also recommended in future research on these issues, as alexithymia facets may show differential relationships with dream variables. Given the present findings, the potential role of emotional suppression in the association of alexithymia with emotional intensity of dreams appears to be a topic worthy of investigation in future research.

Acknowledgements

This research was funded by Bond University Research Grant BD39.

Data Accessibility Statement

The data for this study are available from the corresponding author on request.

Declaration of competing interest

The authors have no competing interests relevant to the content of this article.

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