

# Alexithymia and Impoverished Dream Content: Evidence From Rapid Eye Movement Sleep Awakenings

JAMES D. A. PARKER, PhD, TONYA M. BAUERMAN, BSc, AND CARLYLE T. SMITH, PhD

**Objective:** Despite the repeated suggestion in the literature of an association between impoverished dream processes and alexithymia, little systematic research has been conducted. **Methods:** Eight nonclinical adults scoring in the alexithymia range and eight nonclinical adults scoring in the nonalexithymia range on a measure of alexithymia were awakened for dream reports during their second, third, and fourth rapid eye movement periods on the second of two consecutive polygraphically monitored nights in a sleep laboratory. **Results:** The alexithymic and nonalexithymic groups did not differ in the number of dreams reported or the number of words used in the description of their dreams. The two groups also did not differ in their self-reports of the emotional valence associated with their dream experiences. In contrast, the dream reports of the alexithymic group were rated as less fantastic than the dream reports of the nonalexithymic group. **Conclusions:** These findings provide additional evidence that alexithymia involves restricted imaginative processes. **Key words:** alexithymia, dreams, imaginative processes.

ANOVA = analysis of variance; BDI = Beck Depression Inventory; EEG = electroencephalogram; EMG = electromyogram; EOG = electrooculogram; REM = rapid eye movement; TAS-20 = Twenty-Item Toronto Alexithymia Scale.

## INTRODUCTION

Formulated during the early 1970s (1, 2), the personality variable of alexithymia encompasses the following salient features: 1) difficulty identifying and describing feelings, 2) difficulty distinguishing between feelings and the bodily sensations of emotional arousal, 3) constricted imaginal process, and 4) an externally oriented cognitive style. It is suggested that these particular characteristics reflect deficits in the mental representation of emotions and in the ability to regulate emotions through cognitive processes (3–5). Consistent with this position is empirical evidence that individuals with a high level of alexithymia have an impaired ability to recognize verbal and nonverbal emotional stimuli (6).

Although not treated as a core feature of the construct, impoverished or diminished dream processes are consistently linked with alexithymia by clinicians and researchers (7–9). Krystal (8), for example, reports that alexithymic patients rarely report dreams and that when they do, the descriptions are very simplistic and limited to a few sentences. He notes that working the dreams of alexithymic patients into psychotherapy is extremely difficult and rarely helpful. The paucity of

fantasy, daydreams, and night dreams in alexithymic individuals has been used as important evidence of one of the core features of alexithymia, constricted imaginal processes (5, 10).

Despite the hypothesized association between alexithymia and night dreaming (7–9), little systematic research has been conducted on this relationship (11). At present, our understanding is supported only by anecdotal retrospective reports, research using unrepresentative samples, and studies using questionable methodologies. For example, Nielsen et al. (12) recently examined the relationship between scores on the Toronto Alexithymia Scale (13, 14) and retrospective recall of dreams among male and female asthmatic patients. These researchers report a moderate negative association between the level of alexithymia and retrospective dream recall in asthmatic men. Similarly, using asthmatic patients and controlled REM sleep awakenings, Monday et al. (15) found that alexithymic participants ( $N = 4$ ) reported a large number of “white dreams” (ie, a report of dreaming without recollection of dream content). It should be noted that both the Nielsen et al. (12) and Monday et al. (15) studies were confounded by use of samples composed of patients with severe asthma who were referred to outpatient clinics for treatment. Chronic asthma has been linked to impoverished dream activity (15–17), and it is impossible to determine whether the findings reported are due to alexithymia, asthma, or a combination of both conditions. In addition, Nielsen et al. (12) relied on retrospective dream reports, a method that has been found to underestimate dream and nightmare activity by as much as 50% (18, 19).

Tantam et al. (20) also published research that compared REM sleep dreams of six patients with alexithymic features suffering from skin disorders (ie, atopic eczema, nodular prurigo, and acne excoriee) with those of six control subjects. These researchers found that the dream reports of the alexithymic group contained less participation and emotional involvement

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From the Department of Psychology, Trent University, Peterborough, Ontario, Canada.

Address reprint requests to: James D. A. Parker, PhD, Department of Psychology, Trent University, Peterborough, Ontario, Canada, K9H 7B8. Email: jparker@trentu.ca

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than the dream reports of the nonalexithymic group. However, this study had serious limitations that should be addressed. With respect to the sample, the clinical group consisted of individuals with a heterogeneous range of skin disorders, a wide range of ages (ie, 18–56 years), and comorbid psychiatric disorders (eg, depression and substance abuse). Moreover, alexithymia was not assessed in the control group, which was composed entirely of young medical and nursing students.

To date, only one controlled laboratory study has specifically examined the dream reports of alexithymic individuals (21). This study compared the dream reports of six women scoring high and five women scoring low on the Toronto Alexithymia Scale (13, 14). Although these researchers found significant differences in the number of dream reports between the high and low alexithymia groups ( $p < .05$ ), the percentage of REM awakenings that yielded dream reports among alexithymic patients (76.6%) was within levels (60–89%) reported in the sleep literature for nonclinical samples (22). Ouellet et al. (21) report that there were no significant differences in dream content between the alexithymic and nonalexithymic groups. In contrast, another study by the same research group (23) found that the proportion of negative emotions described in the dream was higher in alexithymic individuals than in nonalexithymic individuals. However, the methodology and the representativeness of the sample are problematic. It remains unclear why subjects viewed a sad film before sleep, why all subjects viewed the film (there was no control group), and why the focus was only on negative emotional responses. Also, the sample was composed entirely of women, and many of the participants had severe asthma, a condition linked with diminished dream activity (15–17).

The study reported here examined the relationship between alexithymia and dream processes by comparing REM sleep dream reports of nonclinical adults scoring high and adults scoring low on a reliable and valid measure of alexithymia.

## METHODS

### Participants

Participants consisted of 16 adults. Eight participants (four men and four women) scored in the alexithymic range on the TAS-20 (24, 25) (mean = 66.12, SD = 2.23, range = 64–69), and eight participants (four men and four women) scored in the nonalexithymic range on the same measure (mean = 31.38, SD = 3.85, range = 24–35). Cutoff scores for the TAS-20 are provided by Taylor et al. (5).

Participants were recruited from a large pool of 300 undergraduates who were asked to complete the TAS-20. Participants were

excluded from the sleep study if they reported that they were being treated for a physical or psychiatric illness, taking prescription medications, or suffered from a sleep disorder. Participants were also excluded if they had very erratic sleeping habits or if they frequently consumed excessive amounts of alcohol or caffeine. Participants were paid \$50 on completion of the sleep study.

### Measures

Alexithymia was assessed using the TAS-20 (24, 25). Subjects indicate how much they agree with statements (eg, "I am often confused about what emotions I am feeling") using a five-point Likert scale; responses range from 1 (strongly disagree) to 5 (strongly agree). A score of 61 and above is considered to be within the alexithymic range, and a score of 51 or lower is considered to be within the nonalexithymic range (5).

The BDI (26) was also used to screen subjects for depressive symptoms. Participants scoring higher than 13, the cutoff score provided by the authors of the BDI (27), were excluded.

### Procedure

Approximately 300 undergraduates were asked to complete the TAS-20. Individuals who scored in the alexithymic or nonalexithymic range were contacted and invited to participate in the present study. Those who agreed were interviewed and administered the BDI and an in-house sleep screening measure (until 16 participants were identified). Suitable candidates were then scheduled at their convenience for their overnight stays in the sleep laboratory. The time between administration of the TAS-20 and sleep recording was less than 3 weeks.

Participants were asked to report to the laboratory 1 hour before "lights out" on their scheduled dates for electrode application. Two EEG (C3/A2 and C4/A1), two EOG (horizontal eye movements), and one EMG (chin muscle) pair were used. Activity was recorded using a Neurofax 18-channel Nihon-Kohden polygraph connected to a paperless system. Sleep behavior was monitored by the experimenter on a television screen connected to an infrared camera positioned in the bedrooms.

According to standard sleep research practices, participants slept uninterrupted on night 1 to accustom themselves to the laboratory. This procedure was used to minimize the "first night effect" (28) and to allow the experimenter to make notes of the location and duration of each REM period.

Awakenings on night 2 were based on the sleep profile of night 1 and scheduled to occur after each participant had received 50% of night 1 REM time for each of the second, third, and fourth REM periods. For example, if a participant spent 20 minutes in REM sleep during the third REM period on night 1, he or she was not awakened on night 2 until at least 10 minutes had elapsed during the third REM period. This procedure was used to account for individual variability in length of REM periods during the night. Total minutes of REM sleep (across the second, third, and fourth REM periods) on night 1 did not differ between the alexithymic (mean = 77.75, SD = 19.40) and nonalexithymic (mean = 73.84, SD = 12.16) groups (29). The lack of differences between alexithymic and nonalexithymic individuals in minutes of REM sleep and percentage of REM sleep is reported elsewhere (21).

Because of the short duration of the first REM period, on night 2 participants were allowed to sleep through their first REM period. Participants were then awakened at their scheduled times (see above) during the second, third, and fourth REM periods.

Dream reports were obtained and recorded on audiotape according to a protocol similar to that used by Ogilvie et al. (30). The

experimenter knocked on the door, entered the laboratory bedroom, and recorded responses to the following questions: 1) "Can you tell me what was happening just before you woke up?"; 2) "What was happening before that, as far as you can remember?"; and 3) "Do you have anything to add?" Participants were given as much time as necessary for their oral reports. If a participant did not respond, prompting questions were posed by the experimenter (eg, "Are you sure nothing was happening?" and "Can you describe any images that you can recall?"). If a participant provided a dream report, he or she was asked to rate the emotional valence of the dream experience. If a participant did not provide a dream report, he or she was asked to rate the emotional valence of the experience before being awakened. Once this information was collected, participants were told they could go back to sleep, and the experimenter left the bedroom.

### Dream Content and Dream Affect Scoring

The transcribed dream reports were rated by consensus agreement by two raters (blinded to alexithymia scores) for overall fantasy content using a five-point Likert scale<sup>1</sup> similar to the Dream-Like Fantasy Scale (31); scores ranged from 5 ("impossible that events could occur in waking life; the dream was clearly fantastic or unrealistic") to 1 ("very high degree of likelihood that the events of the dream could occur in waking life, fantasy is absent, or events are closely tied to reality").

The following sample of a transcript was obtained from a nonalexithymic male participant. The entire dream report was given a 5 on the fantasy scale:

I was playing on a computer this time. It was a like an old fashion one, the big standup kind of arcade game. I ended up actually going into the machine. It kind of took over me, and I ended up in it; I was part of it. I don't even remember what type of game it was; it was just about going into it. I was just taken in and overwhelmed. It was almost as though I had to go in and perform a task, but I can't really remember what I was supposed to do. Apparently, I did end up resolving the task, but I can't remember clearly what they wanted me to do. I think we were walking around a mall, and one of my buddies said 'Come on, let's go check this out.' I was kind of reluctant to go, because it was only an arcade. Anyway, we ended up going in. Once we were in the arcade, they had disappeared on me. It was strange; I seemed a lot younger, like I was 7 or 8 years old, to get into something like that.

The following sample of a transcript was obtained from an alexithymic female participant. The entire dream report was given a 1 on the fantasy scale:

I was at my parents place, and they were having some type of party in the backyard. It was a garden party, and I just remember being in the backyard, with lots of flowers and stuff like that. I think I was at the end of the dream, because I think I was leaving.

Interrater reliability for the ratings of two independent raters (before consensus deliberations) was adequate ( $r = 0.82$ ,  $p < .01$ ) for the fantasy scale.

<sup>1</sup> Two alexithymic individuals did not provide a dream report during their first awakening. The mean fantasy rating of the alexithymic group for first awakening was used for these cases.

The emotional valence of the dream experience (if a dream was reported) or the experience before waking (if no dream was reported) was rated orally by the participants using a 10-point scale; responses ranged from 1 (very unpleasant) to 10 (very pleasant). This procedure was used to assess whether the bias toward experiencing negative affective states reported among alexithymics while awake (5) extends to dream experiences. The participants' oral ratings were recorded on audiotape with the dream reports and later transcribed for analysis.

### RESULTS

The percentage of all awakenings that produced dream reports in the alexithymic (92%) and nonalexithymic (100%) groups were virtually identical (Fisher exact test,  $p = .489$ ). Across the 48 dream reports, a fairly high association was found between word count and fantasy ratings ( $r = 0.68$ ), whereas emotional valence was found not to be associated with word count ( $r = 0.13$ ) or fantasy ratings ( $r = 0.12$ ).

A series of group (alexithymic vs. nonalexithymic) by REM period (second vs. third vs. fourth) repeated-measures ANOVAs were conducted with word count, emotional valence rating, and overall fantasy rating as the dependent variables. Means and standard deviations for word counts, emotional valence ratings, and fantasy ratings of the dream reports (arranged by group and REM period) are presented in Table 1.

The ANOVA with word count as the dependent variable revealed a significant effect for REM period ( $F(2,28) = 5.50$ ,  $p = .009$ ,  $\omega^2 = 0.36$ ), with word count increasing across the night for all participants. The main effect for group ( $F(1,14) = 2.53$ ,  $p = .134$ ,  $\omega^2 = 0.09$ ) and the interaction between REM period and group ( $F(2,28) = 1.01$ ,  $p = .376$ ,  $\omega^2 < 0.01$ ) were not significant.

The ANOVA with fantasy rating as the dependent variable produced a significant main effect for REM period ( $F(2,28) = 3.92$ ,  $p = .031$ ,  $\omega^2 = 0.27$ ), with fantasy rating increasing across the night for all participants. The main effect for group was also significant ( $F(1,14) = 12.13$ ,  $p = .004$ ,  $\omega^2 = 0.41$ ), with the dream reports of the alexithymic group rated as significantly less fantastic than the dream reports of the nonalexithymic group. The interaction between REM period and group ( $F(2,28) = 1.65$ ,  $p = .210$ ,  $\omega^2 = 0.08$ ) was not significant.<sup>2</sup> To further investigate the difference in

<sup>2</sup> Given the strong association between fantasy rating and word count, and a main effect for the alexithymic group with word length as the dependent variable that approached significance, it is possible that differences in dream length might explain some of the group effect for fantasy rating. Therefore, a group by REM period repeated-measures analysis of covariance was also conducted with fantasy rating as the dependent variable and total word count (across the three awakenings) as the covariate. Overall, results were virtually

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**TABLE 1. Means and Standard Deviations for Word Count, Emotional Valence Rating, and Fantasy Rating (by Group and Dream Report)**

Measure	Alexithymic (N = 8)		Nonalexithymic (N = 8)		Total	
	Mean	(SD)	Mean	(SD)	Mean	(SD)
Word count						
Dream 1	80.12	(91.25)	228.86	(228.09)	154.50	(184.57)
Dream 2	236.37	(175.00)	269.37	(187.29)	252.88	(175.93)
Dream 3	236.75	(134.42)	395.25	(233.95)	316.00	(201.67)
Mean	184.42	(116.58)	297.83	(164.37)	241.12	(149.60)
Emotional valence rating						
Dream 1	4.75	(1.67)	6.00	(1.41)	5.37	(1.62)
Dream 2	5.87	(1.35)	5.75	(1.48)	5.81	(1.38)
Dream 3	5.75	(1.83)	5.25	(1.98)	5.50	(1.86)
Mean	5.46	(0.75)	5.67	(0.69)	5.56	(0.71)
Fantasy rating						
Dream 1	1.16	(0.34)	2.38	(1.41)	1.77	(1.17)
Dream 2	1.88	(1.36)	2.38	(1.06)	2.12	(1.20)
Dream 3	1.88	(0.83)	3.75	(1.28)	2.81	(1.42)
Mean	1.64	(0.46)	2.83	(0.85)	2.23	(0.91)

fantasy ratings between alexithymic and nonalexithymic groups across the night, planned contrasts were conducted. Dream reports of the alexithymic group were rated as less fantastic than those of the nonalexithymic group at the first ( $F(1,14) = 5.57, p = .033$ ) and the third ( $F(1,14) = 12.02, p = .004$ ) awakening.

The ANOVA for emotional valence produced no significant main effects for REM period ( $F(2,28) = 0.25, p = .780, \omega^2 = 0.10$ ) or group ( $F(1,14) = 0.33, p = .574, \omega^2 = 0.04$ ). The interaction between REM period and group ( $F(2,28) = 1.04, p = .365, \omega^2 < 0.01$ ) was also not significant.

### DISCUSSION

The present study examined the association between alexithymia and dreaming by comparing REM-sleep dream reports from alexithymic and nonalexithymic individuals. The two groups did not differ in the number of dreams reported or in the number of words used to describe the dreams. These findings indicate that alexithymic individuals dream as frequently as nonalexithymic individuals. Supporting the methodology used in the present study, the length and fantasy ratings of dream reports increased across REM periods, regardless of alexithymia group. This finding is consistent with the notion that as REM periods increase in duration across the night, dream ex-

periences become more elaborate, fantastic, and bizarre (32).

Consistent with the view that alexithymia involves restricted imaginal processes, the present study found major qualitative differences in the dream reports of the alexithymic and nonalexithymic participants. Dream reports of alexithymic individuals were rated as less fantastic than those of nonalexithymic individuals. Moreover, alexithymic and nonalexithymic individuals did not differ significantly in the number of words used to describe their dreams, suggesting that the alexithymic individuals may have provided more elaborate descriptions of less meaningful or superficial details of their dreams. Results of the present study support the validity of the alexithymia construct, specifically the dimensions of 1) constricted imaginal process, as evidenced by a paucity of fantasy, and 2) a cognitive style that is concrete and externally orientated (5, 10). These results also support Krystal's (8) clinical impression that alexithymia is associated with dreams that are concrete and tied to reality.

Our finding of impoverished dreams in alexithymic individuals is consistent with findings from a number of case studies (5). As previously mentioned, in waking life alexithymic individuals are imaginatively constricted and possess a cognitive style that is concrete and externally orientated. According to the activation-synthesis model of dreaming (33), dreams result from the random activation of memory stores that the dreamer synthesizes into a complex dream plot. These memory stores can result from experience or can be created by imagination or fantasy. If alexithymic individuals have constricted imaginative abilities, it may be speculated that they have less fantastic experiences

and imaginative abilities available for activation during the dream process. Similarly, the externally oriented cognitive style of alexithymic individuals may result in the synthesis of dream plots that are more concrete or realistic rather than bizarre or fantastic.

The methodological differences between the present study and previous studies must be emphasized. Krystal (8) and Nielsen et al. (12) relied on retrospective reports, a method of questionable validity (18, 19). The laboratory setting allowed for REM sleep awakenings, a method that was successful in yielding dream reports in virtually all awakenings. It is likely that the ability to recall dream experiences (on rising naturally in the morning) is independent of actually having a dream during sleep. For example, many individuals who rarely recall their dreams provide detailed accounts after being awakened from REM sleep (32).

Our finding that the alexithymic and nonalexithymic groups did not differ in the type of affect associated with the dream experience is inconsistent with the results reported by Ouellet et al. (23). Perhaps the inconsistent findings are due to differences in the assessment of negative affect: In the Ouellet et al. study, negative affect was assessed by raters; in our study, it was assessed using self-reports from the dreamers. In another study by Ouellet et al. (21), participants were given a "lexicon" of 149 emotions to describe their dreams; the researchers found no difference on this measure between their high and low alexithymia groups. Together these findings suggest that alexithymic individuals do not believe that their dreams are any more or less pleasant than nonalexithymic individuals.

The present investigation has several limitations. The study was conducted using a relatively small sample of undergraduate students; thus, the results have limited generalizability. Specifically, our participants were screened indirectly (eg, on the basis of medication use) and directly (eg, by means of the BDI) for psychopathologic disorders; therefore, they must be considered as a relatively healthy group of undergraduates. Use of a more heterogeneous group of participants may have led to different findings. Undergraduate students are a homogenous group and generally are preoccupied with similar concerns (eg, assignments and exams) that likely extend to their dream experiences. In the present study, in fact, several participants incorporated the university setting into their dreams. In addition, we also treated alexithymia in the current investigation as a categorical, rather than a continuous, variable. As a result, we were unable to examine the relationship between the specific facets of the alexithymia construct and dream processes. Because some

of our findings were inconsistent with those reported in the literature, we emphasize the need to replicate our findings.

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