The Lucid Dreaming Ability and Parasympathetic Functioning

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The thesis of the present inquiry is that superiority in parasympathetic functioning, especially in women, will be related to lucid dreaming. The hypothesis is based on several lines of evidence. First, age leads to a progressive decrease in sympathetic reactivity and an increase in parasympathetic reactivity (Gelhorn & Loofburrow, 1963). Correspondingly, Gackenbach (in press) reports that among adults, older women were more likely to report experiencing lucidity of dreams. Sympathetic functioning as evidenced by the release of adrenaline has been associated with feelings of anxiety (Cohen & Silverman, 1959). The data on anxiety for women is consistent with the hypothesis whereas for men data are mixed. Specifically, adult women who frequently have lucid dreams reported less covert and overt anxiety (Gackenbach, in press) and less social anxiety (Gackenbach, et al., 1983) while men reported less overt anxiety (Gackenbach, in press) but more social anxiety (Gackenbach, et al., 1983). Finally, the lack of neuroticism has also been related to parasympathetic functioning (Lester, 1980) and the lucid dreaming quality (Gackenbach, in press).

Method

Subjects. Of the 724 individuals contacted, 389 agreed to take part in this project. One hundred and ninety—nine subjects returned questionnaires, 81 males and 102 females.

Instruments. Dream Log (Gackenbach, in press)--Subjects were asked to keep a daily log of their dreams. Twenty-four aspects of each dream were evaluated by the dreamer, including the amount of recall per dream and the type of dream.

Lucid Dreaming Questionnaire (Gackenbach, in press)--The LDQ is a series of questions developed from information already known about lucid dreams. An explanation of lucid dreaming with a question about the subject'& history with this dream experience was included. Subjects were asked to indicate the frequency with which they dream lucidly and to provide a lucid dream so that it would be verified that they understood the concept of dream lucidity. The key for identifying a dream as lucid was the inclusion of some kind of recognition phrase in the dream transcript (i.e., "then I realized it was only a dream"). Self-report of frequency of dream recall was also obtained on a likert—type scale. Average number of dreams per day recorded in the dream log correlated significantly ($r = .25$, $p < .02$) with self-reported recall reports obtained from the questionnaire.

Social Desirability Scale (Crown & Marlowe, 1964)--This 33-item true/false questionnaire was designed to measure need for social approval.

Sympathetic-Parasympathetic Test (Plutchick & Conte, 1974)--This test is an 18-item scale designed to measure autonomic nervous system balance by the subjective report of peripheral sensations. Sample items include: (1) Usually my hands are A. cool B. warm and (2) When I get very angry I feel like A. blowing my top B. weeping.

Procedure. Potential research participants were obtained from individuals who had read about lucid dreaming. They were asked to participate in a two-part mall survey on dream lucidity. With the initial letter of inquiry, potential subjects were sent an informed consent, a brief demographic information questionnaire, and the LDQ.

Within two months of receiving their first packet, those who expressed an interest were sent the second packet which contained the dream log, the social desirability scale (SOC), and the sympathetic-parasympathetic test (S—P). General instructions, an informed consent form, a postpaid return envelope, and an explanatory cover letter were also included. Other instruments administered but not reported on here included measures of intelligence, creativity, spatial abilities and several personality traits. There were two major portions of this phase of the research project. The first was completing various questionnaires, some of which were self-timed, and the second was keeping a dream log for 7 to 10 days.

Results and Discussion

Of the subjects who returned the second packet of materials at least partially completed (n = 183), 135 respondents were selected for inclusion in the analysis based on the respondents' demonstration of understanding of the concept of lucidity through their lucid dream transcript. The frequency with which these subjects experienced lucidity was ascertained in two ways. In the first part of the study subjects reported on the LDQ their perception of how frequently they have had lucid dreams during the last six months. The number of lucid dreams recorded on the dream log provided the second estimate of lucidity frequency and was significantly correlated with self—reported lucidity frequency ($r = .42$, $p < .0001$). Two estimates of frequency of dream recall were also obtained and used as controls in subsequent analyses: self—reported frequency of dreaming and total number of dreams recorded in the dream logs.

The S-P scale was scored in two ways. All 18 items were scored, as was Plutchick and Conte's (1974) original intent, and seven items identified by Lester (1981) as most clearly representing sympathetic-parasympathetic peripheral functions in the autonomic system, constituted a subscale score. High scores indicated a prevalence of parasympathetic functioning. These two scores were correlated separately for each sex with the lucidity estimates. Dream recall, as noted, and social desirability were control

variables in these partial correlations. The latter was introduced because some items on the S-P scale are highly susceptible to cultural expectations. The partial correlation coefficients are presented in Table 1.

Table 1
Partial Correlation Between Sympathetic-Parasympathetic Scale Scores and Lucidity Frequency Estimates as Function of Sex

	Estimated Frequency of Lucidity	
Sympathetic-Parasympathetic Scale	Self-Report	Dream Log
Lester Subscale	.24** .15	.18 .04
Full Scale	.26* 19	.20* .05

Note: High scores indicate frequent lucid dreams and parasympathetic functioning. The top row of correlation coefficients are for women while the bottom row are for men. *p< .08 **p < .05

As predicted, parasympathetic functioning was significantly positively associated with the frequency of lucid dreaming for women but not for men when both social desirability and dream recall frequency were controlled. The magnitude of these partial correlations was slightly less for frequency based on dream logs than for self-reported lucidity.

Related to this sex difference in sympathetic-parasympathetic dominance, as associated with the lucidity, Broverman, et al. (1968), argue for sympathetic dominance in women and the opposite in men, with the latter accounting for the male superiority in complex information-processing skills. In other work women who frequently report lucid dreams have evidenced skills and characteristics typically associated with men. For instance, Gackenbach and Snyder (in press) have shown that women who frequently experience lucid dreams, regardless of their handedness, have greater unilateral cerebral speech organization than do women who never or infrequently experience such dreams. Also, they report that women who frequently have lucid dreams also score field independent, masculine, and -are more skilled on a three-dimensional mental-rotation task.

Consequently, consistent with the Broverman, et al. position, frequently lucid women, like the men in their sample, have evidenced superiority in various complex information-processing skills implying a parasympathetic dominance.

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Original source: *Lucidity Letter Back Issues*, Vol. 3, No. 4, December, 1984, page 101.