The Van Dream Anxiety Scale: A Subjective Measure of Dream Anxiety in Nightmare Sufferers

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It is important to measure dream anxiety in nightmare sufferers and there is a need to provide an instrument with good clinimetric properties. The purpose of this article was to describe the Van Dream Anxiety Scale (VDAS) and to examine its internal homogeneity, test-retest reliability, and validity. The VDAS was administered to two groups of subjects, patients with nightmare disorder (NA) (N=36) and healthy controls (N=40), during an 18-month study period. To evaluate the clinimetric and psychometric properties of the VDAS, Cronbach s a and Pearson correlation analysis, paired t tests, and student's t test were performed. The thirteen questions were internally consistent. The total scores and individual responses were stable across time. The scale was also valid and could discriminate patients with nightmares from controls. The VDAS is a scale that is easy for subjects to use and for clinicians and researchers to interpret and permits the differentiation of clinical cases and controls, or anxious and nonanxious dreamers. (Sleep and Hypnosis 1999;4:204-211)

Key words: nightmare, dream anxiety, scale, validity, reliability, and internal homogeneity

INTRODUCTION

Dreaming is the most outstanding of the non-ordinary conscious states. There are many proposed functions of dreaming such as mood-regulation, adaptation, compensation, and the integration of new information into existing memory systems. The investigation of dream mechanisms and functions may help to understand complex human cognitions, emotions, and behavior. Moreover, this may contribute to the explanation of psychopathology in many neuropsychiatric disorders (1).

Nightmares are defined as a long frightening dreams involving threats to survival or security, from which the sleeper awakens. They almost always occur during rapid eye movements (REM) sleep. Nightmare is the preferred term and has been widely used in the literature to describe this condition for a long time. Synonyms of nightmare are dream anxiety attack, terrifying dream, and REM-nightmare.

Nightmares should be differentiated from sleep terrors, narcolepsy, sleep panic attacks, and breathing-related awakings. Nightmares typically occur later in the night during REM sleep and produce vivid dream imagery, complete awakings, mild autonomic arousal, and detailed recall of the event. The frightening dreams or sleep interruptions resulting from the awakings cause the individual significant distress or result in social or occupational dysfunction (2,3).

Between 10% and 50% of children ages 3-5 years have nightmares of sufficient intensity to disturb their parents. Although the actual prevalence of Nightmare Disorder is unknown in the adult population, nightmares have been reported to occur in a large percentage of the population following intensely frightening or highly emotional experiences. In the adult population, as many as 50% of individuals may report at least an occasional nightmare (2). Epidemiological data on the incidence of nightmares in adults or in subjects with psychological difficulties are scarce, and yet this information would be of great interest (4).

There are a number of possible causes of nightmares. Some nightmares can be caused by certain drugs or medications (or rapid withdrawal from them) or by physical conditions such as illness and fever. There is a strong association between recurrent nightmares and psychopathology in adults. Nightmares occur frequently as part of several psychiatric disorders (e.g. Posttraumatic Stress Disorder, Other Anxiety Disorders, Mood Disorders,

Schizophrenia, and Adjustment Disorder). The presence of nightmares is characterized by a high comorbidity of mood and anxiety disorders (for a brief review of psychopathologic correlates and epidemiology of nightmares, see Ohayon et al, 4). In major depressive disorder, nightmares often occur during the illness and dramatically decrease in the treatment period. In a recent study (5), we examined the association between repetitive and frightening dreams and suicidal tendency in patients with major depression.

There is also an association between nightmares and some personality features. Hartmann (6,7) and Levin and Raulin (8) emphasized the association of nightmares with schizotypic and borderline personalities. Some people experience frequent nightmares that seem unrelated to their waking lives. These people tend to be more creative, sensitive, trusting and emotional than average. Hartman et al (9) suggested that frequent nightmare sufferers were a group of sensitive, open persons who had features of the "schizophrenic spectrum disorders," but who also had artistic and creative tendencies and interests. Also, there is an association between dreaming and psychosis and nightmares may occur in a transition to psychosis (9). Therefore, the study of nightmares may help us to understand adult psychopathology in many psychiatric disorders including major depression, PTSD, anxiety disorders, and schizophrenia.

In our opinion, it is important to measure dream anxiety in nightmare sufferers and there is a need to provide an instrument with good clinimetric properties. The Van Dream Anxiety Scale was developed with several goals: (1) to provide a reliable and valid measure of dream anxiety; (2) to provide a scale that is easy for subjects to use and for clinicians and researchers to interpret; (3) to provide a longitudinal assessment of dream anxiety and treatment response in subjects with nightmares; and (4) to provide an examination of dream anxiety relevant to adult psychopathology. Thus, this article describes the scale and its internal homogeneity, test-retest reliability, and validity.

METHODS

The Van Dream Anxiety Scale: Development and Description

The Van Dream Anxiety Scale (VDAS) (Appendix) was developed from several sources: clinical experiences with nightmare disorder patients; a metaanalysis of literature on dream research; and a review of dream recall studies.

The VDAS assesses dream anxiety during the preceding month. There are 17 self-rated questions in the Scale. Four questions (questions 7-10) are used for clinical information only, are not tabulated in the scoring of VDAS. They are concerned of bed time, getting up time, sleep latency, and sleep duration. Thus, there is no another instrument to assess the factors relating sleep latency, sleep duration, and sleep efficiency. Twelve questions are concerned with nightmare frequency (question 1); difficulty in falling asleep after a nightmare (question 2); fear of sleeping because of anticipated nightmare (question 3); trouble

sleeping (question 4); dream recall frequency (question 6); sleepiness (question 11); morning anxiety (question 12); occupational distress (question 13); familial distress (question 14); social distress (question 15); psychological disturbances (question 16); and memory/concentration problems (question 17). These 12 questions are weighted equally on a 0-4 scale (never=0; rarely=1; sometimes=2; usually=3; and often=4). Question 5 is related to autonomic hyperactivity and consists of 12 symptoms (shortness of breathe, dizziness, exhaustion, palpitation, sweating, shivering, nausea, having stomach ache, tightness in chest, mouth dry, fear of death, and sore throat). Each of 12 symptoms is weighted on a 0-4 scale. If the total score is between 0-10, the sum score of this question is 0; between 11-20=1; between 21-30=2; 31-40=3; and 40-48=4. Thus, the thirteen question scores are summed to yield a global VDAS score, which has a range of 0-42.

Subjects

The VDAS was administered to two groups of subjects during an 18-month study period. Group 1 was comprised of 36 patients with nightmare disorder whose ages ranged between 18 and 63 years. These subjects were selected randomly from a group of 48 patients, who were admitted consecutively to four university hospital psychiatric clinics. All patients in Group 1 were diagnosed as Nightmare Disorder (ND) according to DSM IV criteria (2). The essential feature of ND according to DSM IV are as follows: (1) the repeated occurrence of frightening dreams that lead to awakings from sleep (Criterion A); (2) the individual becomes fully alert on awaking (Criterion B); (3) the frightening dreams or sleep interruptions resulting from the awakings cause the individual significant distress or result in social or occupational dysfunction (Criterion C); and (4) this disorder is not diagnosed if the nightmares occur exclusively during the course of another mental disorder or are due to the direct physiological effects of a substance or general medical condition (Criterion D). Thus, in the present study, subjects without significant distress or without social or occupational dysfunction and subjects with nightmares occuring exclusively during the course of another mental disorder or because of direct physiological effects of a substance or general medical condition were not diagnosed as ND. Patients with bad physical health, as determined by physical, neurological, and laboratory examination, and a with history of psychotic disorders and current substance abuse were also excluded. None of the patients were treated with antidepressants or benzodiazepines during the study. There was also a medication-free period (at least 2 weeks) of psychotropic drug before assessment. All patients also met the diagnostic criteria of nightmares according to ICSD (3). Minimal criteria were considered in diagnosis (Minimal criteria: A plus B plus C plus D). A moderate severity was accepted. Group 2 consisted of "good sleepers." Fourty healthy control subjects, without sleep complaints and nightmares, who were recruited for participation in the study. All subjects gave informed consent to participate in the study.

The mean ages for both groups were as follows: the patients with nightmares 34.1– 12.5 years and controls 36.1–3.8. There was no significant difference between two groups in age (student's test; t=0.97, p>0.05). Male/female ratios were as follows: the patients with nightmares 16/20 and controls 17/23. The groups was not statistically different in male/female ratio (X_=0.03, p>0.05).

All subjects completed the VDAS on the first evaluation (Time 1). All of them completed the scale a second time (Time 2), an average of 5.3 days later (range:1-7 days). The participants were also medication-free on the second evaluation.

Statistical Analyses

To evaluate the clinimetric and psychometric properties of the VDAS, the following statistical analyses were performed: internal consistency (Cronbach s a and Pearson correlation analysis); test-retest reliability at Time 1 versus Time 2 (paired t tests and Pearson correlation analysis); and validity (student's t test). Analyses were performed using SPSS for Windows v6.01.

RESULTS

The VDAS was found easy to use and understand by the patients and control subjects. Actual scores ranged from 0-42; higher scores indicate more elevated dream anxiety level. The scale requires approximately 5 min for completion and 5 min for scoring.

Internal Consistency

The VDAS showed a good level of internal consistency (Cronbach s a = 0.87). Pearson correlations indicated that the question-total correlation coefficients ranged from 0.93 (psychological disturbances; question 16) to 0.48 (dream recall frequency; question 6) (Table 1)

Test-retest Reliability

All participants completed the scale on two different occasions. Paired t tests showed no significant differences between Time 1 and Time 2 for the VDAS total and thirteen individuals scores (Table 2).

Pearson correlation analyses demonstrated stability in total and question scores. Time 1/Time 2 correlation coefficients for the VDAS total score was 0.92 (p<0.001). Individual questions had coefficients ranging from 0.96 (trouble sleeping; question 4) to 0.84 (nightmare frequency; question 1) (Table 3).

Validity

The student's t test showed that the total and the thirteen individual scores differed statistically between the patient and control groups. The total and the thirteen individual scores were significantly higher in patients with nightmares than control subjects (Table 4).

Table 1: Question-The total Van Dream Anxiety Scale (VDAS) Score Correlations*

Question	r	p
nightmare frequency (question 1)	0.83	<0.001
difficulty in fall asleep after nightmare (question 2)	0.89	<0.001
sleeping fear because of nightmare (question 3)	0.80	<0.001
trouble sleeping (question 4)	0.86	<0.001
related to autonomic hyperactivity (question 5)	0.81	<0.001
dream recall frequency (question 6)	0.48	<0.001
sleepiness (question 11)	0.55	<0.001
morning anxiety (question 12)	0.87	<0.001
occupational distress (question 13)	0.88	<0.001
familial distress (question 14)	0.89	<0.001
social distress (question 15)	0.79	<0.001
psychological disturbances (question 16)	0.93	<0.001
memory/concentration problems (question 17)	0.81	<0.001

*Pearson product-moment correlations

Table 2: Test-retest reliability at Time 1 versus Time 2 (paired t test).

Question	T1	T2	t	p
nightmare frequency (Q1)	1.6–1.4	1.7–1.3	1.92	0.06
difficulty in fall asleep after nightmare (Q2)	1.4–1.6	1.5–1.4	1.72	0.09
sleeping fear because of nightmare (Q3)	1.1–1.5	1.1–1.4	1.42	0.15
trouble sleeping (Q4)	1.2–1.6	1.2–1.5	1.16	0.25
related to autonomic hyperactivity (Q5)	0.8–1.2	0.9–1.2	1.42	0.15
dream recall frequency (Q6)	1.9–1.1	1.8–1.2	1.42	0.15
sleepiness (Q11)	1.3–1.2	1.2–1.1	0.47	0.64
morning anxiety (Q12)	1.8–1.3	1.9–1.3	0.30	0.76
occupational distress (Q13)	1.2–1.6	1.3–1.6	1.27	0.21
familial distress (Q14)	1.0–1.5	1.1–1.4	1.14	0.26
social distress (Q15)	1.8–1.3	1.8–1.2	0.26	0.66
psychological disturbances (Q16)	1.7–1.5	1.6–1.4	1.07	0.28
memory/concentration problems (Q17)	1.4–1.4	1.4–1.3	0.53	0.59

Table 3: Test-retest reliability at Time 1 versus Time 2 (Pearson correlation analysis).

Question	r	p
nightmare frequency (question 1)	0.84	<0.001
difficulty in fall asleep after nightmare (question 2)	0.95	<0.001
sleeping fear because of nightmare (question 3)	0.94	<0.001
trouble sleeping (question 4)	0.96	<0.001
related to autonomic hyperactivity (question 5)	0.95	<0.001
dream recall frequency (question 6)	0.91	<0.001
sleepiness (question 11)	0.90	<0.001
morning anxiety (question 12)	0.95	<0.001
occupational distress (question 13)	0.93	<0.001
familial distress (question 14)	0.94	<0.001
social distress (question 15)	0.90	<0.001
psychological disturbances (question 16)	0.91	<0.001
memory/concentration problems (question 17)	0.89	<0.001
Total	0.92	<0.001

Table 4: The Van Dream Anxiety Scale (VDAS) Comparisons Between Patient and Control Groups.

Question	Group 1 (No=36)	Group 2 (No=40)	t*	p
nightmare frequency (Q1)	2.8–1.1	0.6–0.5	10.64	<0.001
difficulty in fall asleep after nightmare (Q2)	2.9–1.2	0.1–0.3	12.77	<0.001
sleeping fear because of nightmare (Q3)	2.3–1.6	0.1–0.1	8.17	<0.001
trouble sleeping (Q4)	2.5–1.4	0.1–0.2	10.36	<0.001
related to autonomic hyperactivity (Q5)	1.8–1.1	0	9.7	<0.001
dream recall frequency (Q6)	2.3–1.4	1.6–0.7	2.64	<0.001
sleepiness (Q11)	1.8–1.4	0.7–0.4	4.53	<0.001
morning anxiety (Q12)	2.9–1.1	0.9–0.4	11.21	<0.001
occupational distress (Q13)	2.6–1.4	0	11.36	<0.001
familial distress (Q14)	2.1–1.5	0	8.74	<0.001
social distress (Q15)	1.6–1.4	0	7.14	<0.001
psychological disturbances (Q16)	2.9–1.1	0.6–0.5	11.47	<0.001
memory/concentration problems (Q17)	2.3–1.5	0.6–0.4	6.42	<0.001

* Student's t test

DISCUSSION

In the present study, we found that the VDAS was well accepted by patients and subjects and that it was easy to fill out and not time-consuming. The thirteen questions were internally consistent. The total scores and individual responses were stable across time. The scale was also valid and could discriminate patients with nightmares from controls.

The VDAS is relatively comprehensive and contains various nightmare features of. It consists of a question related to frequency (question 1); questions related to sleep problems resulting from nightmares (questions 2, 3, 4, and 11); a question related to dream recall frequency (question 6), a question related to morning anxiety (question 12); questions related to psychological problems (question 16 and 17); questions related to functioning (question 13, 14, and 15), and a question related to autonomic symptoms (question 5). According to DSM IV (2), repeated awakings from the major sleep period or naps with detailed recall of extended and extremely frightening dreams occur in ND. On awaking from the frightening dreams, the person rapidly becomes oriented and alert. The dream experience, or sleep disturbance resulting from the awaking, causes clinically significant distress or impairment in social, occupational, or other important areas of functioning. According to ICSD (2), episodes occur more than once per week but less than nightly and there is evidence of at least mild impairment of psychosocial functioning. Although

significant distress or impairment in social, occupational, or other important areas of functioning are not necessary in the diagnosis of nightmare according to ICSD, those are mentioned in the VDAS for establishing a comprehensive definition.

The VDAS showed a good level of internal consistency. The Cronbach's alfa of 0.87 obtained for the scale indicates a high degree of internal homogeneity (10). Psychological problems (question 16 and 17) showed the highest question-total correlation coefficient, which indicates that dream anxiety may be considered as an index of psychological disturbance. The questions relating to occupational distress (question 13); familial distress (question 14); and social distress (question 15) also showed high question-total correlation coefficients. Thus, according to DSM IV, these findings indicate that the dream experience causes clinically significant distress or impairment in social, occupational, or other important areas of functioning. Although dream recall frequency (question 6) showed the lowest question-total correlation coefficient in the scale, this score was correlated positively with the total score. Nightmare frequency (question 1) was also correlated positively with the total score. In our opinion, this is not a surprise and there are some explanations. As a general concept, anxiety is one of the trait factors in dream recall (11). Schonbar (12) first pointed to the relationship between dream recall frequency and trait anxiety. The result was confirmed by several authors but not others (for a review,

see Schredl and Montasser; reference no:11). Schredl suggests that a high trait anxiety possibly results in frequent awakings during the night, thereby enhancing the chance of recalling a dream. In an other study, Schredl and Montasser (13) tested the hypothesis the frequency of nightmares in childhood is related to trait anxiety in adulthood. They found that persons with trait anxiety had recalled dreams more often.

Overall consistency (test-retest reliability) of the VDAS was good. Paired t tests and Pearson correlation analyses showed no significant differences between the total and individual question scores in two administration. Thus, it may be suggested that the VDAS has enough stability and reliability for assessment of dream anxiety.

The VDAS is also a valid questionnaire for measurement of dream anxiety. The total and thirteen individual scores were significantly higher in nightmare patients than control subjects. The VDAS is primarily intended to measure dream anxiety and identify anxious dreamers and nonanxious dreamers, not to provide accurate clinical diagnoses. However, higher total scores indicate higher anxiety levels. At this point, the VDAS is similar to the Pittsburgh Sleep Quality Index (PSQI) (14).

Although all aspects of ND are considered in the instrument, there is a limitation of the VDAS in providing an algorithm to achieve a diagnosis of ND. In the future an algorithm to achieve a diagnosis may be provided from the responses. Ohayon et al (4) described the Sleep-Eval knowledge-based system, a nonmonotonic, level 2 expert system with a causal reasoning mode relevant to nightmares. Questions investigated nightmares based on the DSM IV. The dynamic capacity of the system enabled it to economize the interview by pre-emptively eliminating superfluous questions that might otherwise be put to a given subject.

Other limitations of the study should be noted: The description of dreams was retrospective and from subjects' report rather than collected from the laboratory after awakenings from REM sleep; although the instructions requested honestly in a dream reported, we are not sure that the part of dreams not clearly recalled were fulfilled with fantasies (15). The results should be confirmed on a larger sample and the concurrent validity should be assessed analysing the dream diaries. An other limitation of the study is that there is yet no evidence that the VDAS is clinically sensitive, i.e., responsive to treatment interventions. There is a need to demonstrate clinical convenience and sensitivity in clinical population.

The validity and reliability of the VDAS suggest that it may be used to assess dream anxious persons in psychiatric and general medical practice. The VDAS is a scale that is easy for subjects to use and for clinicians and researchers to interpret, and it permits screening to identify cases and controls, or anxious and nonanxious dreamers. The VDAS could be used to screen patients for the presence of dream anxiety or nightmares. Moreover, the VDAS could be used in epidemiological studies to examine the patients with dream anxiety. In our opinion, it could also provide a longitudinal assessment of dream anxiety and treatment response in subjects with nightmares.

As a consequence, our study showed that the VDAS was well accepted, easy to fill out and not time-consuming. We hope, as a new instrument, it would be useful in dream research, particularly in nightmare studies.

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APPENDIX

VAN DREAM ANXIETY SCALE

Name:..   Gender:....................   Age:........................
Date:..

Instructions:

The following questions relate to your dreams during the past month. These questions's aim is to examine how your dreams affect your life. Please indicate the most accurate answer for each question.

1. During the past month, how often have you had a frightening dream and awaken completely from it?

    Never.............   Rarely.............   Sometimes.............   Usually.............   Often..............

2. During the past month, how often have you had difficulty in fall asleep after awaking from a frightening dream?

    Never.............   Rarely.............   Sometimes.............   Usually.............   Often..............

3. During the past month, how often have you afraid of sleeping because of your frightening dreams?

    Never.............   Rarely.............   Sometimes.............   Usually.............   Often..............

4. During the past month, how often have you had trouble sleeping because of your frightening dreams?

    Never.............   Rarely.............   Sometimes.............   Usually.............   Often..............

5. During the past month, how often have you had the following symptoms because of your frightening dreams?

    a. Shortness of breath

    Never.............   Rarely.............   Sometimes.............   Usually.............   Often..............

    b. Dizziness

    Never.............   Rarely.............   Sometimes.............   Usually.............   Often..............

    c. Exhaustion

    Never.............   Rarely.............   Sometimes.............   Usually.............   Often..............

    d. Palpitation

    Never.............   Rarely.............   Sometimes.............   Usually.............   Often..............

    e. Sweating

    Never.............   Rarely.............   Sometimes.............   Usually.............   Often..............

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f. Shivering

Never............   Rarely............   Sometimes.............   Usually............   Often..............

g. Nausea

Never............   Rarely............   Sometimes.............   Usually............   Often..............

h. Having stomach ache

Never............   Rarely............   Sometimes.............   Usually............   Often..............

i. Tightness in chest

Never............   Rarely............   Sometimes.............   Usually............   Often..............

j. Mouth dry

Never............   Rarely............   Sometimes.............   Usually............   Often..............

k. Fear of death

Never............   Rarely............   Sometimes.............   Usually............   Often..............

l. Sore throat

Never............   Rarely............   Sometimes.............   Usually............   Often..............

6. During the past month, how often could you recall in detail your frightening dreams after awaking?

Never............   Rarely............   Sometimes.............   Usually............   Often..............

7. During the past month, when have you usually gone to bed at night?   ....

8. During the past month, how long (in minutes) has it usually take you to fall asleep each night?   ....

9. During the past month, when have you usually gotten up in the morning?   ....

10. During the past month, how many hours of actual sleep did you get at night?   ....

11. During the past month, how often have you had feel yourself sleepy during the day because of your frightening dreams?

Never............   Rarely............   Sometimes.............   Usually............   Often..............

12. During the past month, how often have you had feel yourself irritable or anxious in the morning because of your frightening dreams?

Never............   Rarely............   Sometimes.............   Usually............   Often..............

13. During the past month, how often have you had difficulties with your occupational functioning or normal routines because of your frightening dreams?

   Never............ Rarely............ Sometimes............ Usually............ Often.............

14. During the past month, how often have you had difficulties with your usual familial relationships because of your frightening dreams?

   Never............ Rarely............ Sometimes............ Usually............ Often.............

15. During the past month, how often have you had difficulties with your usual social activities or relationships with because of your frightening dreams?

   Never............ Rarely............ Sometimes............ Usually............ Often.............

16. During the past month, how often have you had disturbances with your mood or psychological status because of your frightening dreams?

   Never............ Rarely............ Sometimes............ Usually............ Often.............

17. During the past month, how often have you had memory/concentration problems or difficulties because of your frightening dreams?

   Never............ Rarely............ Sometimes............ Usually............ Often.............

Thank you for your consideration.