

Regular Article

Nightmares and dissociative experiences: The key role of childhood traumatic events

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Abstract

In order to examine the co-occurrence of nightmares with dissociative experiences in the adolescent population and to demonstrate the impact of childhood traumatic events in this association, 292 undergraduate students were interviewed for childhood traumatic events. The Van Dream Anxiety Scale (VDAS) and Dissociative Experiences Scale (DES) were also administered to the subjects. For nightmares a 7.5% prevalence of 'often' and a 58.2% prevalence of 'sometimes' was found for college students. Nightmare prevalence was higher in women than in men. The rate of childhood traumatic experiences was higher in nightmare sufferers than in those who did not have nightmares. The subjects who had undergone physical and sexual abuse had higher VDAS global scores and item scores. When the DES scores of the subjects with nightmares were compared with that of those who had never reported nightmares, the subjects with nightmares had significantly higher scores on DES. The DES scores were also negatively correlated with duration of nightmares in subjects who had childhood traumatic experiences. These findings suggest that the subjects with childhood traumatic events failed to psychologically integrate their traumatic experiences and used dissociation as a coping strategy.

Key words

childhood abuse, dissociation, dissociative experiences, dream anxiety, nightmares.

INTRODUCTION

Recently, the central position of dissociation has been focused on the fundamental pathogenetic mechanism of many psychiatric disorders such as dissociative disorders, somatoform disorders and, more recently, acute stress disorder and post-traumatic stress disorder. The role of trauma in precipitating acute dissociative states or chronic dissociative conditions had been suggested for a long time. Moreover, recent research has documented a strong relationship between childhood traumatic events and the development of dissociative symptomatology.^{1,2} During the developmental course, children and young adolescents particularly are prone to dissociative experiences and use dissociation as a defense mechanism.³

Nightmares are long frightening dreams involving threats to survival or security, from which the sleeper awakens. Nightmares are different to sleep terrors, narcolepsy, sleep panic attacks, and other awakenings. They typically occur later in the night during rapid eye movement (REM) sleep and produce vivid dream imagery, complete awakenings, autonomic arousal, and detailed recall of the event. Nightmares may cause psychological distress and social or occupational dysfunction. Lifetime prevalence for a nightmare experience in the general population is unknown but may well approach 100%.⁴ Age is clearly a mediating factor; people in all age groups, from children to adults and the elderly, have nightmares with a prevalence of 30–68%, respectively.⁵ In contrast, there is a significant increase in the prevalence of nightmares during the developmental course from childhood to adult life. *Diagnostic and Statistical Manual of Mental Disorders* (4th edn; DSM-IV)⁶ diagnostic criteria for nightmare disorder are (i) 'repeated awakening from the major sleep period or naps with detailed recall of extended and extremely frightening dreams, usually involving

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threats to survival, security, or self-esteem; the awakening generally occurs during the second half of the sleep period' (criterion A); (ii) 'on awakening from the frightening dreams, the person rapidly becomes oriented and alert (in contrast to the confusion and disorientation seen in sleep terror and some forms of epilepsy)' (criterion B); (iii) 'the dream experience, or sleep disturbance resulting from the awakening, causes clinically significant distress or impairment in social, occupational, or other important areas of functioning' (criterion C); and (iv) 'do not occur exclusively in the course of another mental disorder and are not due to the direct physiological effects of a substance or a general medical population' (criterion D).

Nightmares may be associated with psychopathology, in particular, in young adults and adults. Recurrent nightmares are characterized by a high comorbidity of mood and anxiety disorder. In major depressive disorder, nightmares often occur during the illness and dramatically decrease in the treatment period. In a recent study we found a significant association between repetitive and frightening dreams and suicidal tendency in patients with major depression.⁷ Nightmares were also found to be associated with personality disorders,⁸ schizotypy,⁹ alexithymia¹⁰ and drug and alcohol dependence.¹¹ Recurrent frightening anxiety dreams also occur in most post-traumatic stress disorder (PTSD) patients. The relationship between recurrent nightmares and PTSD is also causal. Disturbed dreaming may, in fact, be the hallmark of delayed PTSD; the content of disturbing dreams (e.g. reliving combat), as well as associated sleep disruptions (e.g. nocturnal awakenings, fear of sleep), may reinforce the illness.⁴ The association of dream disturbances with flashbacks related to the trauma and the fact that Vietnam veterans with disturbed dreaming suffered from a more severe form of PTSD are congruent with the suggestion that disturbed dreaming may be at the core of the PTSD.¹² Recurrent traumatic dreams also occur in acute stress disorder patients. Thus, it may be suggested that nightmares appear to be an effective copy mechanism in trauma victims.

There may be an association between nightmares and dissociative states or experiences. In our opinion, childhood traumatic events may play a key role in this association. In the present study we examined the relationship of nightmares to dissociative experiences in an adolescent population. We also demonstrated the causal role of childhood traumatic events in this association and tested whether the severity of dream anxiety is correlated with dissociative experiences in subjects with and without traumatic events.

METHOD

Subjects

The 292 undergraduate students from the Yüzüncü Yil University at Van City participated in the study. All students were volunteers and were recruited through local announcement for the study. The group was composed of 207 male and 85 female students. The mean age was 20.4 ± 2.3 years. All subjects gave written informed consent prior to their participation in the study. Subjects with organic mental disorders, mental retardation, alcohol and substance abuse, psychotic disorders, and mood disorders were not included in the study. Social and demographic characteristics consisted of residential places (village/town/city), marital status (married/divorced/widowed), and perceived family economic status (good/fair/poor). Because nightmares may also be related to recent events and present mental status, we excluded the subjects who had been diagnosed with any DSM-IV axis I disorder previously and who had experienced a similar event during the past 2 years.

Instruments

Self-administered questionnaire

A self-administered questionnaire was developed to investigate some clinical characteristics for nightmares. At the beginning of administration, all subjects were informed of the difference between nightmares and night terrors, and were given a brief description of what to consider as a nightmare. A nightmare was defined as 'a dream that frightens the dreamer', and a dream was identified as happening while a person is asleep and which contains visual imagery and portrays a story or action. This procedure was similar to two recent studies.^{7,13} In this questionnaire, subjects were asked the frequency of their nightmares (never/sometimes/often). They were also asked the duration of nightmares, treatment admission for their nightmares, use of drugs, use of unprescribed drugs, efficacy of treatments, and alcohol use and smoking. The questionnaire also contained sociodemographic characteristics and sleep habits in the sample.

Structured interview

The subjects were also interviewed for childhood traumatic events including childhood physical or sexual abuse, maternal loss, and maternal separation. Characteristics of childhood physical and sexual abuse were obtained from a structured life-events interview. As part of our structured interview, subjects were queried

about their childhood relationships with parents, relatives and others. We defined physical abuse as threatened, attempted, or actual infliction of physical harm and defined sexual abuse as threatened, attempted, or actual infliction of sexual harm. Severity of physical and sexual abuse was categorized into three levels: mild, moderate, and severe. Mild abuse was characterized as the subjects' experience or fear of being pushed, grabbed, or shoved; kicked, bitten, or punched; spanked; choked or burned; hit by an object or individual; physically attacked in any other way; or fear of witnessing other people experience any type of abuse, with a frequency of a few times or less, or being spanked more than a few times. Moderate abuse was defined as the subjects' experience or fear of all types of mild abuse (apart from being spanked) with a frequency of more than a few times, or of being the victim of sexual exposure a few times or less. We defined severe abuse as the subjects' experience or fear of: being choked or burned; being physically attacked in any other way; being the victim of sexual exposure more than a few times; or that someone would sexually assault them, be sexual with them against their will, or kill someone they loved, at any frequency. The methodology was similar to a previous study.¹⁴ All subjects whose abuse was described as mild, moderate or severe were included in the study.

Van Dream Anxiety Scale

The Van Dream Anxiety Scale (VDAS) was developed by Agargun *et al.* in 1999.¹⁵ It establishes a reliable and valid measure of dream anxiety. It is a scale that is easy for subjects to use and for clinicians and researchers to provide a longitudinal assessment of dream anxiety and treatment response in subjects with nightmares and to provide an examination of dream anxiety relevant to adult psychopathology. The questions in the scale were internally consistent. The scale had a good level of internal consistency (Cronbach's $\alpha=0.87$). Global scores and individual responses were stable across time.

The VDAS consists of 17 self-rated questions. Four questions (questions 7–10) are used for clinical information only and are not tabulated in the scoring VDAS. These questions are concerned with bedtime, getting up time, sleep latency, and sleep duration, respectively. Twelve questions are concerned with nightmare frequency (q.1), difficulty in falling asleep after a nightmare (q.2), fear of sleeping because of anticipated nightmare (q.3), trouble sleeping (q.4), dream recall frequency (q.6), daytime sleepiness (q.11), daytime anxiety (q.12), occupational distress (q.13), familial distress (q.14), social distress (q.15);

psychological problems (q.16), and memory/concentration problems (q.17). The items 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 such as palpitation, breathing difficulty, dizziness, dry mouth, sore throat and scored on a 0–4 scale. The 13 question scores are summed to yield a global VDAS score, which ranges from 0 to 52. The VDAS was administered to all subjects during the study period.

Dissociative Experiences Scale

The Dissociative Experiences Scale (DES) was administered to all subjects. The DES was developed by Bernstein and Putnam.¹⁶ The DES is a 28-item self-report instrument that can be completed in 10 min and scored in less than 5 min. It is easy to understand and the questions are framed in a normative way that does not stigmatize the respondent for positive responses. The respondent then slashes the line, which is anchored at 0% on the left and 100% on the right, to show how often he or she has this experience. The overall DES score is obtained by adding up the 28 item scores and dividing by 28; this yields an overall score ranging from 0 to 100. The scale contains a variety of dissociative experiences, many of which are normal experiences. The DES has very good validity and reliability, and good overall psychometric properties. The Turkish version of the scale has reliability and validity¹⁷ as high as its original form.

Statistical analyses

Spearman correlation analysis was performed to establish the correlation between the VDAS and the DES scores. The proportions of the groups were compared using the χ^2 test or Fisher's exact test, as appropriate. Comparisons of sociodemographic and clinical characteristics and the scale scores used Mann–Whitney *U*-test and ANOVA. Bonferroni post hoc test was used for comparisons of nightmare groups. The STATISTICAL PACKAGE FOR THE SOCIAL SCIENCES (SPSS), release 10 was used for data analyses.

RESULTS

The sample consisted of 207 male (70.9%) and 85 female (29.1%) students. The male students had a higher mean age than the female students (20.7 ± 2.5 vs 19.6 ± 1.7 ; $t=3.44$, $P<0.05$). Fifty-nine (20.2%) of the subjects were from villages; 87 (29.8%) were from town; 142 (48.6%) were from the city; and four unknown. Only eight (2.7%) of the subjects were mar-

ried. Eight (2.8%) subjects reported good economic status, 206 (71.5%) reported fair economic status and 74 (25.7%) reported poor economic status.

In total 102 (34.9%) subjects reported traumatic events in their childhood. Of these, 25 (8.7%) subjects reported maternal loss; 27 (9.4%) subjects reported maternal separation; 35 (12.2%) reported repetitive physical abuse; and 15 (5.3%) reported sexual abuse in childhood.

Frequency of nightmares, DES scores, and childhood traumatic events in the subjects are shown in Table 1. As shown in Table 1, female subjects had a higher rate of 'often' nightmares than male subjects. The mean DES scores were 18.6 ± 14.6 for the subjects who never reported nightmares, 26.3 ± 15.4 for the subjects who reported nightmares as happening sometimes, and 31.6 ± 22.1 for the subjects who reported nightmares as happening often. An ANOVA revealed a significant variation in DES scores across the groups ($F=10.03$, $d.f.=2,288$, $P<0.001$). Post hoc comparisons of the three groups with Bonferroni test and pair-wise contrasts revealed significant differences between the groups with and without nightmares ($P<0.05$). The subjects with nightmares had significantly ($P<0.05$) higher scores on DES than those without nightmares. As shown in Table 1, 24 (24%) of the subjects with no nightmares, 46 (27%) of the subjects who reported nightmares sometimes, and 11 (55%) of the subjects who reported nightmares often, reported at least one childhood traumatic event. By χ^2 procedure, the rate of childhood traumatic experiences was significantly higher in the often nightmares group versus the sometimes and never nightmares group ($\chi^2=4.80$, $d.f.=2$, $P=0.20$). The rate of physical abuse was also signifi-

cantly higher in the often nightmares group (35%) versus sometimes (11%) and never nightmares group (9%) ($\chi^2=9.71$, $d.f.=2$, $P=0.008$).

Table 2 shows DES and VDAS scores of the subjects. As seen in Table 2, those who had a history of physical or sexual abuse had higher mean DES scores than the control subjects. These subjects also had higher scores in most of VDAS items and in the global score than the control subjects.

As shown in Table 3, according to Spearman correlation analysis the DES scores of the subjects who experienced childhood traumatic events were significantly correlated with most VDAS items (except nightmare frequency and difficulty in falling asleep after a nightmare). There was also a significant negative correlation between DES scores and duration of nightmares in the subjects.

DISCUSSION

In the present study we examined association of nightmares with dissociative experiences and the causal role of childhood physical, psychological, and sexual traumas in this association. We also tested whether the severity of dream anxiety was correlated with dissociative experiences in subjects with and without traumatic events. To our knowledge, this is the first systematic study to investigate the relationship between nightmares and dissociative experiences by considering the role of childhood traumatic events in an adolescent population. The sample consisted of 16–21-year-old subjects and was relatively large.

We found a 7.5% prevalence of nightmares happening 'often' and a 58.2% prevalence of nightmares happening 'sometimes' in college students. These findings replicated previous data.⁵ We also found that female students had higher rate of 'often' nightmares than male students. Nightmare prevalence is particularly high for girls.^{18,19} One recent cross-sectional study found an association between nightmares and the female gender that first appeared at age 14.²⁰

In the present study we demonstrated that the subjects with a history of physical abuse and with a history of sexual abuse had higher DES score than the others. The subjects who had experienced at least one childhood traumatic event also had a higher mean DES score than those who had not. Various studies have demonstrated a strong association between traumatic events and dissociative symptomatology.²¹ The relationship between traumatic events in childhood and high DES scores is well known. Two recent studies that examined the psychological profiles of patients with high scores on the DES found that the scale scores were highly correlated with reported childhood histo-

Table 1. Nightmare frequency, DES scores, and childhood traumatic events

| | Nightmares | | |
|----------------------------------|----------------------------|---------------------------------|-----------------------------|
| | 'Often' (<i>n</i> =22) | 'Sometimes' (<i>n</i> =170) | 'Never' (<i>n</i> =100) |
| Male/female [†] | 11/11 | 116/54 | 80/20 |
| DES ^{‡§} | 31.6 ± 22 | 26.3 ± 15.4 | 18.6 ± 14.6 |
| Maternal loss [¶] | 1 (4.5%) | 15 (8.8%) | 9 (9%) |
| Maternal separation [¶] | 4 (18%) | 17 (10%) | 6 (6%) |
| Physical abuse ^{††} | 7 (35%) | 19 (11%) | 9 (9%) |
| Sexual abuse [¶] | 2 (10%) | 7 (4.2%) | 6 (6%) |

[†] $\chi^2=9.25$; $d.f.=2$; $P=0.01$.

[‡] $F=10.03$, $d.f.=2,288$, $P<0.001$.

[§] Post hoc Bonferroni test and pairwise contrasts; $P<0.05$.

[¶] Not significant.

^{††} $\chi^2=9.71$; $d.f.=2$; $P=0.008$.

DES, Dissociative Experiences Scale.

Table 2. Childhood traumatic events, DES scores and VDAS scores

| | Maternal loss (<i>n</i> =25) | Maternal separation (<i>n</i> =27) | Physical abuse (<i>n</i> =35) | Sexual abuse (<i>n</i> =15) | At least one event (<i>n</i> =102) |
|------------------------------|----------------------------------|--|-----------------------------------|---------------------------------|--|
| DES | 27.9±15.8 [†] | 26.9±17.6 [†] | 36.6±21.4 [‡] | 38.8±23.5 [‡] | 25.3±17.9 |
| Nightmare frequency | 0.9±0.8 | 1.4±1.1 [‡] | 1.4±1.2 [‡] | 1.4±1.2 [‡] | 0.8±0.7 |
| Difficulty in falling asleep | 0.8±0.9 | 1.7±1.4 [§] | 1.5±1.5 [§] | 1.2±1.3 [‡] | 0.6±0.8 |
| Fear of sleeping | 0.6±1.1 [†] | 0.7±0.9 [†] | 1.1±1.2 [§] | 1.4±1.5 [§] | 0.9±1.3 |
| Trouble sleeping | 0.3±0.6 [†] | 0.6±0.9 [†] | 1.1±1.1 [§] | 1.2±1.3 [§] | 0.5±0.6 |
| Autonomic hyperactivity | 1.8±1.2 [¶] | 0.4±0.6 [†] | 0.6±0.9 [†] | 0.8±1.1 [†] | 0.6±0.8 |
| Dream recall frequency | 1.2±1.2 [†] | 1.3±1.1 [†] | 1.7±1.4 [†] | 2.3±1.2 [†] | 1.6±1.3 |
| Daytime sleepiness | 1.5±1.3 [†] | 1.1±1.2 [†] | 1.6±1.4 [†] | 2.2±1.2 [‡] | 1.3±1.5 |
| Daytime anxiety | 0.9±1.1 [†] | 1.3±1.3 [‡] | 1.6±1.3 [§] | 1.8±1.5 [§] | 0.8±0.4 |
| Occupational distress | 0.6±0.9 [†] | 0.5±0.9 [†] | 1.3±1.4 [‡] | 1.1±1.4 [‡] | 0.7±0.6 |
| Familial distress | 0.7±0.9 [†] | 0.4±0.9 [†] | 0.7±1.1 [†] | 1.0±1.3 [‡] | 0.5±0.9 |
| Social distress | 0.7±1.1 [†] | 0.8±1.3 [†] | 0.8±1.1 [†] | 1.2±1.5 [‡] | 0.8±0.9 |
| Psychological problems | 1.2±1.4 [†] | 1.2±1.3 [†] | 1.1±1.5 [†] | 1.8±1.4 [‡] | 1.1±1.2 |
| Memory problems | 1.0±1.1 [‡] | 0.7±0.9 [†] | 1.4±1.4 [‡] | 1.8±1.6 [§] | 0.9±1.1 |
| Global score | 11.2±10.7 [†] | 12.2±10.7 [†] | 16.4±12.8 [‡] | 19.2±13.3 [§] | 10.9±11.9 [‡] |

[†] Not significant.

[‡] Mann–Whitney *U*-test; *P*<0.05.

[§] Mann–Whitney *U*-test; *P*<0.01.

[¶] Mann–Whitney *U*-test; *P*<0.001.

DES, Dissociative Experiences Scale; VDAS, Van Dream Anxiety Scale.

Table 3. Spearman correlation analysis of DES scores with VDAS item and global scores in subjects with childhood traumatic events

| | <i>r</i> | <i>P</i> |
|---|----------|----------|
| Nightmare frequency | 0.18 | NS |
| Difficulty in falling asleep after a nightmare | 0.14 | NS |
| Fear of sleeping because of anticipated nightmare | 0.26 | <0.05 |
| Trouble sleeping | 0.24 | <0.01 |
| Dream recall frequency | 0.48 | <0.01 |
| Daytime sleepiness | 0.33 | <0.01 |
| Daytime anxiety | 0.32 | <0.01 |
| Occupational distress | 0.34 | <0.01 |
| Familial distress | 0.43 | <0.001 |
| Social distress | 0.42 | <0.001 |
| Psychological problems | 0.46 | <0.001 |
| Memory/concentration problems | 0.42 | <0.001 |
| Global | 0.41 | <0.001 |
| Duration of nightmares | -0.39 | <0.05 |

NS, not significant.

ries of trauma.^{22,23} In another recent study of high DES it was found that the main predictors of dissociation were familial loss in childhood, intrafamilial sexual abuse, and extrafamilial sexual abuse.²⁴

In the present study, two important results were useful in understanding the relationship between nightmares and childhood events. First, we found that the rate of childhood traumatic experiences (in general) and the rate of physical abuse (in particular) was higher in the 'often' nightmare sufferers than in the 'sometimes' nightmare sufferers and those without nightmares. Second, we demonstrated that subjects who had experienced physical abuse and sexual abuse had higher VDAS global and item scores. In general, subjects with childhood traumatic experiences had higher VDAS scores than the others. The results indicate a strong association between nightmares and childhood traumatic experiences. The association between traumatic dreams and traumatic events is well described and there is also a paradigm for nightmares.²⁵ However, numerous studies focused on traumatic nightmares and PTSD nightmares. van der Kolk *et al.* found that the chronic traumatic nightmares of men who had been in combat were different from the life-long nightmares of veterans with no combat experience in that they tended to occur earlier in the sleep cycle, were more likely to be replicas of actual events, and were more commonly accompanied by gross body movements.²⁶ Traumatic nightmares may arise out of varying stages of sleep and are not confined to REM sleep alone. Sleep disturbances and disturbed dreaming are among the hallmarks of the long-term effects

of traumatic events.^{12,26} The relationship between dreaming disorders and flashbacks related to trauma is more severe form of PTSD.²⁷ In the present study we showed that subjects with reported childhood histories of trauma were not different from other subjects for dream recall frequency, but they did have a higher nightmare frequency. This finding confirms a suggestion that dream recall decreased in subjects with trauma. In a recent study examining sleep and dreaming in PTSD, a dramatic decrease in dream recall was found in the subjects.¹² The authors conclude that a successful adjustment to traumatic life events includes a protective dampening of the recall of all dreams in comparison to control subjects even many years later. A decrease in dream recall that minimizes the probability of anxiety dreams and nightmares appears to be an effective coping mechanism in trauma victims.¹²

In the present study, when we compared DES scores of the subjects with nightmares with those who never reported nightmares, they had significantly higher scores on DES than those without nightmares. We also found that DES scores negatively correlated with duration of nightmares in subjects with childhood traumatic experiences. These findings suggest that the subjects with reported childhood histories of trauma have failed to psychologically integrate their traumatic experiences and use dissociation as a way of dealing with strong affects. In contrast, as Gabel stated 10 years ago, dreams may possibly be thought of as dissociative phenomena of a particular type that reflect a monitoring of and reaction to internal and external conditions within the dreamer.²⁸ It may be suggested that dreams, particularly those that focus on an emotionally disturbing event, are necessary to emotional adaptation in childhood traumatic events and nightmares have an adaptive function in this process. In a recent study Cartwright *et al.* asked 'was the processing and recall of specific dream content necessary to waking emotional adaptation?'²⁹ They suggested that dreaming patterns occurred depending on waking personality variables such as differences in defense styles. Their findings were supportive of there being individual differences in an ability to form dreams that connect present affect related to a disturbing event to other images. A high level of this ability is predictive of improvement in waking functioning.

There may be neuroanatomic similarity between dissociative/traumatic conditions and nightmares. As suggested by Bremner *et al.*, abnormalities of hippocampal and orbitofrontal cortical functions were found in stress disorders.³⁰ The amygdala is involved in several types of emotional memory, including conditioned fear and failure of extinction. The symptoms of patients with a history of childhood abuse are similar to the

conditioned fear responses and failure of extinction that can be modeled in the laboratory. Altered amygdala function plays a prominent role in the symptoms of patients with a history of childhood trauma. Altered orbitofrontal cortical function plays a role in victims of childhood abuse. These structures are important in delayed recall of childhood traumatic events. In contrast, Maquet and Franck found that during REM sleep there is specific activation of the amygdaloid complexes, which have a role in emotional information processing, and verified that this brain state coincides with dream experiences by waking the subjects for a report.³¹ Nofzinger *et al.* reported activation during REM sleep of a wide region of midline limbic and paralimbic structures, while there is deactivation of the prefrontal cortex.³² Thus, neuroanatomic functions in traumatic events are similar to traumatic dreams, particularly amygdala and frontoorbital structures.

In summary, there is a relationship between nightmares and dissociative experiences. Childhood traumatic events may play a key role in this association. It is critically important to pay attention to the role of dissociation in coping with traumatic events; nightmares are one of the adaptive coping strategies in trauma. As suggested by Hartmann, nightmares are most useful dreams.²⁵

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