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Acknowledgement

I have always been interested in dreams but never really understood the parasomnias. This thesis presented an opportunity to widen my understandings of sleep disorders. While researching this paper I was surprised at the unveiling of the connections within my life. Memories of early childhood nightmares and safe haven within my parent’s bed returned. Remembered stories about a childhood friends sleepwalking became vivid. A psychological knowledge foundation to substantiate the practitioner base that I have concerning Flower Essences became invaluable in working with clients, who found the flower essences to be a gentle helper for their children suffering with severe nightmares and night terrors. And finally, an understanding once again, of the brilliance of the Adlerian theory of social interest and its mitigating properties to psychopathological suffering. This paper is dedicated to the little ones whose terror in the night is heard.
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Abstract
This literature review examines articles regarding the parasomnias; nightmares, night terrors and sleepwalking. The defining characteristics of each parasomnia, correlations between the parasomnias and comorbidity with other psychiatric diagnoses are evaluated. Findings indicate that while there is a substantial genetic influence in early experience of these sleep disorders, late adolescent onset or early adult onset is more correlated to additional psychopathology. The parasomnias as a whole are mostly comorbid with anxiety. Stress and life events played a major role in the event of each of the parasomnias. Night terrors are by far the most devastating of the parasomnias with the highest indications for psychopathology and behavioral violence. The general assumption is that the parasomnias are usually harmless but research defines a different picture. Self medication is often involved in an attempt to cope. Numerous case reports of self injury, injury to others, death and even murders while experiencing parasomnias behoove the therapeutic community to understand their potentially serious nature.
Parasomnias; Nightmares, Night Terrors, Sleepwalking and the Connections to Psychopathology

Introduction

Definition

Parasomnias are characterized by physical phenomena which occur during the sleep wake cycle. The *Diagnostic and Statistical Manual of Mental Disorders* (4th ed. text revision, American Psychiatric Association, 2000) characterizes Parasomnias as; Nightmare Disorder (formerly dream anxiety disorder), Sleep Terror Disorder (referred to as night terrors within the context of this paper), Sleepwalking Disorder which includes confusional arousals and nocturnal eating/drinking and Parasomnia Not Otherwise Specified which includes REM sleep behavior disorder, sleep paralysis, and others not due to general medical conditions or substance abuse.

The correlation of sleep disorders between the DSM-IV-TR and the International Statistical Classification of Disease and Related Health problems (10th revision), International Classification of Sleep Disorders (ICSD) is somewhat different (American Psychiatric Association, 2000). The DSM-IV-TR definition of Nightmare Disorder correlates to the ICSD definition, and the DSM-IV-TR definition of Sleep Terror Disorder correlates with the ICSD definition. The main discrepancy between the DSM-IV-TR and the ICSD lies within the Sleepwalking Disorder diagnosis. In the DSM-IV-TR Sleepwalking Disorder includes Confusional Arousals and Nocturnal Eating/Drinking Syndrome. The ICSD considers Confusional Arousals and Nocturnal Eating (Drinking) Syndrome separate diagnoses.
This paper is based on the DSM-IV-TR descriptions of parasomnias and focuses on the probabilities of connections to psychopathology within the presence of the parasomnias; Nightmares, Night Terrors and Sleepwalking.

Sleep

A discussion of sleep is vital to the understanding of the parasomnias because they are defined by the stages of sleep. Sleep consists of several stages that form a cycle. This cycle repeats at intervals of 90-100 minutes throughout the sleep period. Sleep is further divided into two distinct states, REM (rapid eye movement) and NREM (non rapid eye movement). Within NREM sleep are 4 stages with REM sleep a stage onto its own. Sleep is a very active state with brain activity more varied than it is during the normal waking state.

“The types of brain waves present at the time (based on amplitudes and frequencies) determine the stage of sleep” (Dream Views, 2001, ¶ 1). There are three fundamental measures for defining stages of sleep. They are; the electroencephalogram (EEG) which measures gross brain wave activity, the electromyogram (EMG) which measures muscle tone and the electro-oculogram (EOG) which measures eye movement. “…the EEG reading is the most important measure in differentiating between the stages, while the EMG and EOG are most important in differentiating rapid eye movement (REM) sleep from other stages” (Hall, 1998, ¶ 2).

The EEG measures beta, alpha, theta and delta waves in amplitude and frequency, while also articulating the sleep spindles and K complexes. Beta waves are the highest in frequency, lowest in amplitude and are not consistent in patterns. Beta waves occur when the brain is quite active as in normal wakefulness and in REM sleep. Alpha waves are slower, increase in amplitude with more consistent patterning and are connected to states of relaxation. Theta waves are even slower in frequency and greater in amplitude. Delta waves are the slowest and highest
amplitude brain waves, these brain waves are the least like beta waves. Sleep spindles are sudden increases in wave frequency, while K complexes are a sudden increase in wave amplitude.

*NREM Sleep.*

Stage one sleep of the NREM lasts only a few minutes and is characterized by mostly theta waves with some alpha. “During this stage, many people experience sudden muscle contractions preceded by a sensation of falling” (Stages of Sleep, 2001, ¶ 2). Stage two sleep of NREM is characterized by theta waves and is defined by the appearance of spindles and K complexes. Stage three sleep of the NREM state is called delta sleep or deep sleep and is characterized by theta waves and less than 50% delta waves. Stage four sleep of the NREM state is also called delta sleep or deep sleep and is characterized by more than 50% delta brain waves and the remaining waves theta. At this time in the cycle of sleep the stages revert and stage three is experienced once again followed by stage two. Some authors report stage one skipped (Hall, 1998) while others allude to it being re-experienced (Dream Views, 2001; Sleep: Understanding the Basics, 2005).

*REM Sleep.*

After the stages have reversed, REM sleep is experienced. REM sleep is characterized by beta waves, the same brain waves in wakefulness, as measured by EEG. EOG measures frequent bursts of rapid eye movement which is characteristic only to this stage and the EMG measures occasional muscular twitches, but for the most part, muscles are virtually paralyzed. The first REM in the first cycle of sleep may last 10 minutes while the last REM in a night’s sleep may exceed 60 minutes (Sleep: Understanding the Basics, 2005).

The physiology of the REM state is important because of its defining characteristics. Erections are an established occurrence in REM sleep and can be diagnosed organic or
psychological if dysfunction is present, within this stage of sleep. In females, vaginal blood flow increases with clitoral enlargement and transudation occurs (Rapid eye movement sleep, 2007). “The release of certain neurotransmitters the monoamines (norepinephrine, serotonin and histamine) is completely shut down during REM. This causes REM Antonia, a state in which motor neurons are not stimulated and thus the body’s muscles don’t move” (Rapid eye movement sleep, 2007, ¶3). Prior thinking was that lack of REM sleep would lead to insanity but this has since been disproved. What has been discovered is that lack of REM sleep can improve clinical depression. The intervention of drug therapy that reduces REM sleep is a method of alleviating depression (Sleepdex).

A theory known as the Ontogenetic Hypothesis of REM sleep believes that REM sleep may provide neural stimulation needed for a developing brain and promotes formation of mature neural connections and proper nervous system development (Rapid eye movement sleep, 2007). This theory seems supported as REM sleep needs decrease with age, while infants spend almost 50% of their time in REM sleep (Sleepdex).

**Parasomnias**

*Nightmares*

“The essential feature of Nightmare Disorder is the repeated occurrence of frightening dreams that lead to awakenings from sleep (Criterion A). The individual becomes fully alert on awakening (Criterion B). The frightening dreams or sleep interruptions resulting from the awakenings cause the individual significant distress or result in social or occupational dysfunction (Criterion C). 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 (e.g., a drug of abuse or a medication) or a general medical condition (Criterion D)” (American Psychiatric Association, 2000, p. 631).

Polysomnographic testing demonstrates the occurrence of nightmares during the REM sleep cycles, mostly in the second half of the night when REM sleep is extended (Hublin,
Parasomnias

Kaprio, Partinen, & Koskenvuo, 1999) but nightmares may occur any time during the night within the REM stage of the sleep cycle (Kales, Soldatos, Caldwell, Charney, Kales, Markel, Cadieux, 1980). Nightmares have demonstrations of only slight autonomic fluctuations (American Psychiatric Association, 2000), limited vocalization, limited motility and vivid recall (Vela-Bueno, Soldatos, & Julius, 1987). Nightmares are distressing dreams that usually awaken the sleeper. They can be anxiety and fear provoking occurrences that terminate upon awakening from sleep, with recall for the event (American Psychiatric Association, 2000; Hublin et al., 1999; Kales, Soldatos, Caldwell, Charney et al., 1980). “Sleepers experiencing nightmares are easily aroused and usually recall the content which is usually more lengthy and detailed than in night terror” (Murray, 1990, p. 115). Nightmares can involve sensations such as hearing noise, smelling smells or feeling physical pain. Distinguishing characteristics of the nightmare are that nightmares occur during REM sleep and that there is vivid recall for the episode. Fear is a major component of nightmares, with fear of attack at 73%, fear of falling at 73%, fear of death at 60% and 30% for choking or suffocating as cited in (Kales, Soldatos, Caldwell, Charney et al., 1980).

Nightmares in childhood are linked to development phases and maturation of the brain. Children often have trouble distinguishing reality from fantasy which is thought to be a contributing factor for the nightmare. Nightmares in children are often common from preschool through early school years with genetic influence high and influence of developmental factors high. Genetic influences for nightmares is attributable to about 45% of childhood nightmares and 37% of adult nightmares, as evidenced by a twin study of 1,298 monozygotic and 2,419 dizygotic twin pairs (Hublin et al., 1999). Onset of nightmares in late adolescence or adulthood, which exhibit chronic patterns of persistence, have mostly psychological factors influencing their development implicating psychopathology for these people (Kales, Soldatos, Caldwell, Charney
et al., 1980). Kales (Kales, Soldatos, Caldwell, Charney et al., 1980) reports that onset of nightmares after age 18 resulted in higher scores on an MMPI in all areas except mania, compared with subjects who had an earlier age of onset. Nightmares have also been associated with febrile illness, especially in children, and with delirium in adults, particularly in the elderly and the chronically ill (Vela-Bueno, et al., 1987).

Nightmare reporting is more prevalent in females (Belicki, 1992; Hublin et al., 1999; Kales, Soldatos, Caldwell, Charney et al., 1980; Ohayon, Morselli, & Guilleminault, 1997) than in males, both in childhood where 10% more often females report than males (Hublin et al., 1999) and as adults where 25% more females report than males. Ohayon et al. (1997) shows incidence of nightmare reporting two times greater for women than men and that nightmares were significantly associated with being female. The general assumption is that societal expectations play a factor in the reporting.

Partinen’s 1994 study (as cited in Hublin et al., 1999) estimates the prevalence of nightmares within the adult and children populations. Partinen estimates prevalence in children at 5-30% for always or often and 30-90% for sometimes. In adults the estimate is 1-5% for always and 60% for sometimes. Of those who experienced nightmares in childhood, 80% of males and 90% of females report nightmares as adults (Hublin et al., 1999). As adults, the incidence of nightmares occurring as an initial experience are 26% for females and 13% for males (Hublin et al., 1999). The daytime impact of the nightmare is seen as strong affect during the day (Kales, Soldatos, Caldwell, Charney et al., 1980; Ohayon et al., 1997) with complaints of impaired attention spans, memory and concentration problems, greater irritability, anxiety and feelings of depression (Levin & Fireman, 2002; Ohayon et al., 1997). These symptoms have the
propensity to impact occupation and interpersonal relationship functioning and thus are of concern to the therapeutic community.

Carrie Bearden (Bearden, 1994) suggests that there are three types of nightmares. The chronic lifelong nightmares that are phenomena of personality, the traumatic nightmares related to Posttraumatic Stress Disorder and the drug induced nightmare. Chronic lifelong nightmares are associated with pathological personality traits and occur in REM sleep. PTSD nightmares are the recurrent replaying of experiences of a traumatic event which differentiates them from lifelong nightmare suffers. PTSD nightmares do occur in REM sleep but also in stage two sleep. A drug induced nightmare is caused by the use and sometimes the cessation of a drug. “The drugs most widely known to evoke nightmares in patients are the beta blockers and Reserpine used to treat hypertension, cholinesterase inhibitors which increase acetylcholine levels and L-Dopa, used in the treatment of Parkinson’s Disease” (Bearden, 1994, p. 146). Withdrawal from certain depressant drugs such as barbiturates, alcohol and benzodiazepines can also cause nightmares because the removal of these increases the REM sleep period.

Kales and his colleagues (Kales, Soldatos, Caldwell, Charney et al., 1980) distinguish some very clear pathological personality traits for nightmare sufferers (based on subjects experiencing at least 12 nightmares per year). They compared the results of nightmare sufferers with a sex and age matched ratio control group and found that nightmare suffers had higher means on all eight clinical scales with the highest being psychopathic deviate at 48%, schizophrenia 41% and hysteria 38%. These traits would manifest as distrustfulness (diffuse and generalized, instead of fixed persecutory beliefs or paranoia), alienation, estrangement, oversensitive and overreacting to what is perceived as mistreatment, egocentric, and having a
potential for dissociative episodes. They lack persistence in the pursuit of goals, have difficulty with primary relationships, and tend to withdraw emotionally.

“We consider morbid nightmares to be episodic releases of intense emotions in individuals with long term schizoid adjustments and chronic difficulties in dealing with interpersonal resentments and fears of hostility from others. When the individual cannot adapt to the excessive fear and hostility resulting from conflictual and antagonistic object relations by sufficiently discharging them during the daytimes, the fear and hostility may be expressed during sleep in the form of the nightmare. Thus the nightmare would serve as a vehicle not only for discharging such unreleased fears of hostility but also for extinguishing unfinished anger and generally negative emotionality. When this distressing emotionality is finally expressed in the nightmare, it becomes anxiety-provoking and produces more fear because of its punitive consequences” (Kales, Soldatos, Caldwell, Charney et al., 1980, p.1200).

Agargun (Agargun, Kara, Ozer, Selvi, Kiran, & Kiran, 2003) believes that nightmares are an attempt to psychologically integrate traumatic experiences. Gabel’s theory is that “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” (Gabel, 1989, p. 1). Gabel supports his hypothesis with examples of hypnosis where one part of the personality is monitoring another. Gabel bases his arguments on research in which subjects were selected that were considered good hypnotic responders. He believes further confirmation lies in the brains of commissurotomy (treatment for severe epilepsy) patients who after surgery seem able to use the right and left hemisphere independently. Crisp (Crisp, 1996) has a similar theory concerning dissociation and night terrors.

Hartmann (Hartmann et al., 1987) did extensive interviews to determine whether nightmares began at any particular time in connection to a traumatic event or family dysfunction. He was unable to find supporting evidence for a linkage between trauma and nightmares. Rather, he found some very specific personality constructs that he has called thin boundaries and thick boundaries. Hartmann (Hartmann et al., 1987) conducted an extensive
study that revealed what he called thin boundaries to describe nightmare sufferers. Personality functioning aspects of these nightmare sufferers included; open, vulnerable, defenseless and artistic, as the definition to thin boundaries.

He also found that nightmare sufferers stood out occupationally from a control group. Nightmare sufferers were more; unemployed or partially employed, part time students, those that were employed were more employed in the arts (musicians, painters, poets). Their personal relationships were more changeable and unsettled, and their sexual identities were somewhat fluid. Often they saw themselves as “different”, “more sensitive”, “more artistic” or “more easily hurt”. Adolescent years were more difficult with periods of depression, suicide attempts, and difficult relationships. Family histories “…had a higher incidence of nightmares and of serious psychological problems and a trend toward a higher incidence of psychiatric hospitalization…” (Hartmann et al., 1987, p. 52).

The MMPI administered found significant pathology. On the Rorschach, nightmare sufferers were found as creative, complex, and unusual in their thinking, with anxiety, immaturity, fantasies of violence, vulnerability, primitive fantasies, fears of falling apart and paranoid fantasies. Hartmann (et al. 1987) found males to have more pathologic features than the females.

In summary, Hartmann considered a problem in ego structure or an unusual ego structure to be the basis of the vulnerability. After finding this interesting connection between nightmares and thin boundaries Hartmann (Hartmann, 1989), did a study to further the understanding of thin and thick boundaries. He interviewed 981 subjects and categorized them into the following groups; unselected students, naval officers, art students, music students, frequent nightmares (self selected), frequent nightmares (lab study) and ASD members. He found that the thick
groups were mostly male, while the thin group was predominately female. People that have thick boundaries were able to maintain boundaries in all aspects of their mental lives. Hartman believes that thin boundaries may even extend to the physiological functions within nightmares. Hartman found “…nightmare sufferers and groups of art students scored usually “thin”, whereas a group of naval officers had usually “thick” boundaries. Thinness also correlated with frequency of dream recall. In 1991 Hartman (Hartmann, Elkin, & Garg, 1991) confirmed the connection between frequency of dream recall and thinness of boundaries. He also found that “dreams of the thin subjects were rated significantly more vivid, more emotional, and with more interaction between characters, compared to dreams of the ‘thick’ subjects” (Hartmann, Elkin, & Garg, 1991, p. 1).

In 1979, Hartmann and Russ (Hartmann, Russ, 1979) suggested that nightmares (specifically D nightmares that occur during REM late in the night) could be a potential indicator for a biological vulnerability to schizophrenia, although the subjects were not necessarily clinically ill. In 1981, Hartmann et al., found “…these nightmare sufferers unusually vulnerable, with a potential for mental illness-especially schizophrenia-as well as a potential for artistic achievement” (Hartmann, Russ, Van Der Kolk, Falke, & Oldfield, 1981, p. 1). After the new information on thick and thin boundaries, Hartmann found in his 1987 study that “where there is classifiable pathologic disorder by DSM-111 criteria, it is most often schizotypal personality disorder. Rather than nosologic congruence with schizophrenia, our data are more descriptively in accord with a dimension of personality functioning” (Hartmann et al., 1987, p. 56).

Levin and Daly (Levin & Daly, 1998) reported on a case study where they noticed that a schizophrenia patient while under observation, had two psychotic relapses that were immediately preceded by intense and vivid nightmares which led them to speculate on the connections. Levin
desired to explore the relationship between schizotypy and nightmares so he conducted a study with 30 subjects. He found “…frequent nightmare subjects demonstrated greater deviance on psychometric scales of schizotypy, and reported significantly greater schizotypal symptomatology on a structured clinical interview than controls did. He believed that these results “…may be a useful conjoint behavioral indicator for the early detection of schizophrenia-spectrum psychopathology” (Levin, 1998, p. 206). This was exciting in that interventions to address thin boundaries at an early age may create foundations of support for vulnerabilities to schizophrenia spectrum psychopathology. Levin and Fireman (2002) hypothesized that nightmare prevalence would be an indicator for schizotypy constructs. They found the results for indication to be based closer on distress than on frequency/prevalence.

Anxiety and depression are tied to nightmare distress (Levin & Fireman, 2002) and to frequency (Kales, Soldatos, Caldwell, Charney, et al., 1980). Ohayon et al., (1997) found a high comorbidity of mood and anxiety disorders in their study, specifically among women. In their study of insomniacs, 18.3% had incidence of nightmares. Within this nightmare group 80% had anxiety symptoms and 33% related depression symptoms. Kales (Kales, Soldatos, Caldwell, Charney et al., 1980) found his nightmare sufferers had positive histories for insomnia at 43%.

Stress was indicated as a factor in nightmares (Kales, Soldatos, Caldwell, Charney et al., 1980; Ohayon et al., 1997; Picchioni, Goeltzenleucher, Green, Convento, Crittenden, Hallgren, Hicks, 2002). Reported mental stress increased frequency of nightmares up to 90% (Picchioni et al., 2002) while the increased frequency being associated with stress was confirmed (Kales, Soldatos, Caldwell, Charney et al., 1980). Stressful events or major life events preceding nightmare onset was documented in three studies (Kales, Soldatos, Caldwell, Charney et al., 1980; Ohayon et al., 1997; Picchioni et al., 2002). Kales (Kales, Soldatos, Caldwell, Charney et
al., 1980) found 60% of their subjects reporting occurrence of a major life event preceding onset of nightmares. Picchioni et al. (2002) compared frequency and intensity of nightmares (within measurements of low, medium and high) against daily stressors and life stressors. Their findings indicate that even slight nuances in daily stressors are associated with nightmares and that there are clear and significant connections between stress and nightmares.

Another interesting finding for Picchioni et al. (2002) was the interactions of an additional two variables, social support and coping, with nightmares. The higher the levels of social support, the lower the levels of intensity and frequency of nightmares, while the lower the levels of social support, the higher the levels of intensity and frequency, thereby coming to the conclusion that social support buffers the effects of stress. This is extremely interesting in light of the study done by Kales (Kales, Constantin, Soldatos, Caldwell, Charney et al., 1980) that highlighted personality patterns for nightmare sufferers as having chronic difficulties in dealing with interpersonal resentments, fears of hostility from others, distrustful, alienated and estranged, with chronic schizoid patterns of adjustment. These personality patterns may predispose against social support, thereby eradicating the very buffer needed to cope with stress. Levin and Fireman (2001) support the idea of predisposing personality variables in experiencing distress in nightmares with; degree of sensitivity to environmental threats and emotional regulation strategies.

Picchioni et al. (2002) found that coping and nightmares are positively related. Levin and Fireman (2001) also make the connection between waking coping abilities and nightmare suffering. The higher the waking coping abilities, the less the night time suffering associated with nightmares. Picchioni et al. (2002) contend that adaptive coping skills may be one of the functions of nightmares. Thus, an interesting aspect of nightmares was revealed. Nightmares
Parasomnias

may be a function used to help alleviate stress, by providing coping mechanisms such as; repeated exposure, problem solving or rehearsal for potential solutions (Picchioni et al., 2002). It is only when a stressor is not dealt actively with during the daytime that it might be incorporated into sleep, wherein it may become a nightmare.

Frequency of nightmares was influenced by fatigue 33% and a change in sleep environment 13% (Kales, Soldatos, Caldwell, Charney et al., 1980). The change in sleep environment is a particularly interesting variable in light of studies conducted within sleep treatment centers. The most interesting revelations about frequency are embedded in a study by Levin, Fireman (2002). Conclusions were that nightmare frequency and distress are not significantly correlated and therefore should be treated separately, as it is not the frequency that is the critical variable in higher psychological disturbances but the reported distress associated with the nightmare. Belicki (1992) is in agreement with Levin and Fireman (2001) that it is not the frequency that determines undue suffering but the distress. Belicki says this differentiation is very important because it is not the frequency that brings people to treatment but the experienced distress. Levin and Fireman suggest “...it is not the incidence of nightmares which is associated with poorer waking psychological functioning, especially anxiety and depression states, but the reported distress associated with the nightmare experience which is the critical variable in predicting higher psychological disturbance” (Levin & Fireman, 2002, p. 205). Levin and Fireman (2002) believe that nightmare complaints may be subjective and affected by conditioned expectancies and predisposing personality variables, such as coping strategies, emotional regulation strategies and sensitivity. Hublin et al. (1998), Kales, Soldatos, Caldwell, Charney, et al., (1980) and Ohayon et al. (1997) all reported on frequency of nightmares but the variable of distress was not embedded in their studies.
Methodology.

There may be significant recall bias for recollection reporting on childhood nightmare events. Retrospective measures (Belicki, 1992) for reporting could be a probable bias which was addressed by Levin et al. (2001) with the use of dream logs to be immediately filled out upon waking. Data may be influenced by unexpressed trauma or abuse, (Levin & Fireman, 2002) personality traits, performance pressure, cultural norms, other conditioned expectations and/or interpretation of the definition of nightmare.

Hublin’s et al. (1999) study did not find a higher incidence of psychopathology but the criterion for psychopathology was much more stringent than studies that did find higher incidences of psychopathology (Kales, Soldatos, Caldwell, Charney et al., 1980; Levin & Fireman, 2002; Ohayon et al., 1997). Hublin et al., (1999) criterion consisted of psychiatric hospitalization with a diagnosis and/or the use of long term anti-psychotic medications. As this does not follow the DSM definition of a nightmare, the relevance of his study is diminished in the aspect of correlation of parasomnias to psychopathology.

Hublin et al.’s (1999) study was a large Finnish study and Ohayon et al.’s (1997) was a large study conducted on a French population. Care must be taken as the results of these studies are applied to other cultures and other countries, as there may be cultural biases that are not readily evident. Belicki’s (1992) study was a convenience sampling of 540 psychology students in a university and Picchioni et al.’s (2002) study was of 412 psychology students. While these studies are relatively large, they lack randomness and representation of the general population and even of a university population, as they were all psychology students. With the personality constructs demonstrated in thin boundaries and the occupational bent of nightmare sufferers,
representation of nightmare sufferers within psychology classes may be skewed.

Kales (Kales, Soldatos, Caldwell, Charney et al., 1980) conducted a study on thirty people that were recruited with an advertisement run by the Sleep Research and Treatment Center, looking for subjects with at least twelve nightmares per year or once per month. Imbedded in this study was the variable of frequency. Spanning the studies were differences in what demarcator would be used for dysfunctional nighttime behavior. Levin and Fireman (2002) attempted to clarify this by addressing the criteria to be a least once per week. Picchioni et al. (2002) used a continuum measuring never, sometimes, often and frequently. Belicki’s (1992) study attempts to address the variable of frequency to nightmare suffering and yet the method for accomplishing this is never adequately explained.

These studies have a wide range of approaches; advertisements (Kales, Soldatos, Caldwell, Charney et al., 1980), telephone (Ohayon et al., 1997) and questionnaires (Hublin et al., 1999). Belicki (1992) does not share how the subjects were obtained in her study although they were all from introductory psychology classes. Picchioni et al. (2002) subjects were introductory psychology students that completed a survey for course credit and Levin et al. (2001) subjects were university undergraduates that received credit for their participation.

The variable of distress was not consistently addressed over the breadth of these studies. In the studies of Belicki, (1992), Levin et al. (2001) and Picchioni et al. (2002) the variable of distress was distinguished from frequency. Hublin et al. (1998), Kales, Soldatos, Caldwell, Charney, et al. (1980), and Ohayon et al. (1997) do not take into account distress as a variable. The measures of frequency and distress become even more interesting as the Adlerian perspective is explored towards the end of this paper.
Clinical Implications.

Insight oriented therapies are the therapeutic interventions most indicated for the intrapsychic conflicts that are a part of nightmares (Kales, Soldatos, Caldwell, Charney, et al., 1980). Nightmares are considered an important symptom that is being overlooked in the therapeutic community (Ohayon et al., 1997). This may be due, in part, to the link and acceptance of childhood sleep problems. Because of predominate personality patterns of nightmare sufferers, specifically distrustfulness and alienation, a solid therapeutic relationship is vital to mitigate premature termination.

Subjects with nightmares had greater suicidal ideations and more emotional problems within their families than a matched control group (Kales, Soldatos, Caldwell, Charney et al., 1980). There is concern that the lower incidence of reporting among males sets them at higher risks for suicide and untreated emotional problems (Kales, Soldatos, Caldwell, Charney et al., 1980). Kales (Kales, Soldatos, Caldwell, Charney et al., 1980,) suggest that one of the reasons men do not report nightmares is due to protection of the masculine image. Diligence to the presence of depression and anxiety by the therapeutic community is warranted.

Further Research.

The variable of distress was very interesting. Could it be that this is a variable that is integral to the higher reporting of nightmares by females than males? May there be some facet of distress that is experienced differently between a male and a female? Could it be based on the differences in societal expectations between males and females? Further research would be interesting.
Levin and Fireman (2002) attempted to control for the idea that nightmares may represent childhood trauma or abuse with specific questions about the type of nightmares being studied. Could childhood trauma or abuse be a psychological factor out of waking consciousness that has the ability to trigger a nightmare? Agargun (Agargun, Kara, Ozer, Selvi, Kiran, & Kiran, 2003) believes that childhood trauma is associated with nightmares and that there is a positive relationship between nightmares and dissociative experiences with dissociation used to distance oneself from strong affect. The new information concerning dissociation within one’s psyche concerning different aspects of one’s personality is exciting. This idea is explored further in a study on dissociation covered within the night terror section of this paper.

Night Terrors

“The essential feature of Sleep Terror Disorder is the repeated occurrence of sleep terrors, that is, abrupt awakenings from sleep usually beginning with a panicky scream or cry (Criterion A). Sleep terrors usually begin during the first third of the major sleep episode and last 1-10 minutes. The episodes are accompanied by autonomic arousal and behavioral manifestations of intense fear (Criterion B). During an episode, the individual is difficult to awaken or comfort (Criterion C). If the individual awakens after the sleep terror, no dream is recalled, or only fragmentary, single images are recalled. On awakening the following morning, the individual has amnesia for the event (Criterion D). The sleep terror episodes must cause clinically significant distress or impairment in social, occupational, or other important areas of functioning (Criterion E). Sleep Terror Disorder should not be diagnosed if the recurrent events are due to the direct physiological effects of a substance (e.g., a drug of abuse, a medication) or a general medical condition (Criterion F). Sleep terrors are also called “night terrors” or “pavor nocturnus” (American Psychiatric Association, 2000, p. 634-635).

Night terrors are known as pavor nocturnus in children and incubus in adults. Night terrors occur more frequently in childhood where they are thought to be a manifestation of a delay in the maturation of the central nervous system (as cited in Kales, Soldatos, Bixler, et al., 1980). There is anecdotal evidence that children experience night terrors differently than adults. Night terrors in children are thought to “last much longer (15-20 minutes); the child is more disoriented, more difficult to bring back to reality and generally has a greater degree of amnesia.
for the attack” (as cited in Fisher, Kahn, Edwards, & Davis, 1973, p. 92). “Although night
Terrors and sleepwalking in childhood seem to be related primarily to genetic and developmental
factors their persistence and especially their onset in adulthood are found to be related more to
psychological factors” (J.D. Kales, Kales, Soldatos, Caldwell, Charney et al., 1980, p. 1).

Night terrors are brief in duration, mostly occurring during the early part of the night
(J.D. Kales et al., 1980) whereas nightmares are frightening arousals that usually occur towards
morning (C. Fisher et al., 1973). The amount of delta sleep preceding a night terror is directly
correlated with the intensity of the night terror (C. Fisher et al., 1973). Zandra and Nielsen
(Zadra & Nielsen, 1998) found that night terrors correlate with more delta power in central and
frontal areas of the brain than in a control group. Night terrors mostly occur within NREM stage
3 and 4 and are considered a disorder of arousal (Fisher et al., 1973; J.D. Kales et al., 1980;
Kales, Soldatos, Bixler et al., 1980; Schenck, Milner, Hurwitz, Bundlie, & Mahowald, 1989) of
the most severe type (Fisher, Kahn, Edwards, Davis, & Fine, 1974). More than two-thirds of
night terrors occur during the first NREM period in the initial hour and one-half of sleep (Fisher
et al., 1973; J.D. Kales et al., 1980; Ohayon, Guilleminault, & Priest, 1999) and are usually
ushered in with loud vocalizations (J.D. Kales et al., 1980) and intense terror (Fisher et al., 1973;
Ohayon et al., 1997). The loud vocalizations are called sleep utterances and as stated, almost
invariably usher in a night terror. Sleep utterances include talking, screaming, cries for help,
moans and groans and are usually very intense. There is almost always complete amnesia for the
sleep utterances that usher in a night terror (Fisher et al., 1973; 1974). In contrast, there are
varying degrees of amnesia for the night terror experience. Fisher et al. (1973) found 50-60%
recall for the night terror, with interviews conducted right upon awakening, which is supported
by findings in Fisher et al. (1973). J.D. Kales et al. (1980) finds estimates of recall at 42%, and
Schenck et al. (1989) reports substantial recall. The recall information is new evidence that contradicts earlier studies which found nearly total amnesia for the experience. The evaluation of recall must be approached cautiously as there could be variables not taken into account. The 50-60% recall was obtained in laboratory settings with an interviewer present upon subject awakening from the night terror. The results were immediately transcribed, sometimes as the subject was falling asleep mid-sentence. In a normal home environment, it could very well be that a subject would have nearly total amnesia for the event.

Fisher et al. (1973) found that night terrors exhibit autonomic discharges. These can occur instantaneously in the form of a doubling, and sometimes tripling, of heart rate (experienced between 15-60 seconds of onset), as a great increase in respiratory amplitude and/or as marked decrease in skin resistance which was confirmed by a later study (Fisher et al., 1974). Even with the dramatic heart and respiratory discharges and the intense terror and panic, clinical EEG’s found normal values preceding and following night terrors (much to the clinician’s relief).

Night terrors are more severe than sleepwalking or nightmare episodes in terms of psychological disturbance and physiological measurements of heart rate and respiration (Kales, Soldatos, Bixler, Ladda et al., 1980). In contrast, one-half of nightmares have an absence of physiological symptoms even when the nightmare is reported as severe. The other half of nightmares exhibits a very gradual increase in heart and respiratory rates prior to arousal (Fisher et al., 1974). There are reported higher incidences of nightmares within the night terror and sleepwalking populations (J.D. Kales et al., 1980). While the REM nightmare develops in sleep, the night terror takes place in a dissociated state and is far more severe than the nightmare, but much less frequent (Fisher et al., 1973).
Nightmares can be accompanied by a feeling of paralysis due to loss of muscle tone which is typical of REM sleep (Fisher et al., 1974). In contrast, the night terror has a dramatic instantaneous increase of autonomic discharge (Fisher et al., 1973) which can manifest in somnambulism or great motility as one is hurled out of bed (Fisher et al., 1974). Another dramatic contrast between the nightmare and night terror is the attempt of the nightmare to respond to and master experiences while the night terror seems to be more of a manifestation of the failure of mastery (Fisher et al., 1973). “The night terror is not a dream but a symptom emerging from stage 3-4 sleep, associated with a rift in the ego’s capacity to control anxiety” (Fisher, Kahn, Edwards, & Davis, 1973, p. 76). “The full blown stage four night terror is a fight flight episode combining sleep talking and other sleep utterances, sleep walking and hallucinated or delusional mental content associated with terror. However, it must be emphasized that many stage four night terrors, both severe and mild are not somnambulistic” (Fisher, Kahn, Edwards, & Davis, 1973, p. 82).

During night terrors and sleepwalking episodes Fisher et al. (1974) found incidences of violent acts, Schenck et al. (1989) found bruises, broken bones, lacerations and intent to try to protect self with a weapon. J.D. Kales et al. (1980) found 55% of those with current night terrors have a history of violent behavior during an episode with high incidents of injury or the possibility of injury and current sleepwalkers at 28% for the same.

Night Terrors are thought to occur within 2.2% of the general population (Ohayon et al., 1999). Fisher et al. (1973) find night terrors more common in males, which is supported by Schenck et al. (1989) and Crisp (Crisp, 1996) but no gender differences were observed by Ohayon et al. (1999). Kales, Soldatos, Bixler et al. (1980) and J.D. Kales et al. (1980) find a common genetic substrate for sleepwalkers and night terror subjects with sleepwalking more
prevalent and a less severe manifestation than night terrors. This common genetic and
neurophysiological substrate is expressed by the prevalence of sleepwalkers with night terrors
and night terror subjects that also manifest sleepwalking (J.D. Kales et al., 1980; Kales, Soldatos,
Bixler et al., 1980). J.D. Kales et al. (1980) believes that sleep talking may be of the same
substrata.

Heritability, while probably a predisposing component, must be balanced with
developmental and environmental factors, (Kales, Soldatos, Bixler et al., 1980) especially with
childhood onset. Kales, Soldatos, Bixler et al. (1980) found a ten times greater occurrence of
sleepwalking and/or night terrors in first degree relatives than in the general population. This is
supported by Gau and Soong (1999) findings of increased familial occurrence, with 38% of their
subjects having an immediate relative positive for sleepwalking and/or night terrors.
Predisposing factors affecting the presence of night terrors are stress and sleep deprivation (J.D.
Kales et al., 1980). As evidenced with nightmares, stress is an integral force within the
experience of night terrors and sleepwalking. Ohayon et al. (1999) found high rates of stress
(events and mental stress) within the parasomnia subjects, as compared with those in the control
group. J.D. Kales et al. (1980) reports that 52% of current sleep walkers and 55% of current
night terror subjects report a major life event before onset of their disorders and 92% of current
night terror subjects and 80% of current sleepwalkers report that mental stress increased the
frequency of their episodes.

Fisher et al. (1974) conducted a study of 12 adults with 750 transcriptions of the mental
content of their night terrors. His findings support some major themes surrounding mental
content of night terrors. Fears of being crushed, enclosed, abandoned, choking, dying, being
harmed, and falling were the most common. The night terror was likened to an acute, but reversible, paranoid episode.

Fisher et al. (1974) finds that there is 50-60% recall of night terror mental content. With recall established, the question remains where does the mentation originate? Does mental content cause the night terror is it endogenous, psychogenic material or is it exogenous, an arousal response to physiological manifestations? Normal heart rate for night terror subjects is lower during NREM sleep than for nightmare sufferers in the same period (Fisher et al., 1973) which may suggest physiologic states that initiate terror. Fisher et al. (1973) found that a buzzer sounded during sleep could result in the experience of a night terror by a subject. 83% of NREM buzzers resulted in night terrors as severe as spontaneous ones. When this same protocol was applied to REM sleep, only 23% resulted in any type of arousals (mild) with no nightmares.

Night terror subjects in NREM sleep seem to have a low threshold to arousal as evidenced by dramatically increased heart rates, with an inefficacy to assimilate sensory input, as evidenced by responses to the buzzer. There is no gradual buildup of physiologic manifestations, as in the nightmare, only an explosive onset. Within a night terror population, one-third of the arousals that originate in stage four ends in a night terror experience (Fisher et al., 1974). It seems that night terrors can be triggered by ongoing mentation that touches an intense conflict area or by an external stimulus such as a buzzer which activates an anxiety state.

In the quest to understand night terrors, the idea of dissociation surfaces regularly. Crisp (Crisp, 1996) found that night terror subjects had high anxiety scores while sleepwalkers had high hysteria. What night terror subjects and sleepwalkers had in common were the questions most often responded to within the hysteria scale. These questions had to do with the characteristics of; “…enjoying acting, dramatic situations, being the centre of attention, prone to
posing and pretending, and also in the case of night terrors, being excessively emotional” (Crisp, 1996, p. 602). Crisp’s observations were that few of these characteristics were displayed within wakefulness by the subjects reporting them. Crisp postulates that the night terror subjects and the sleepwalkers were aware of “…an inner self not expressed in their normal wakefulness” (p.602). Crisp contends that this may be a form of dissociation and that during slow wave sleep this aspect of the personality may come forth “…blocking full awareness and allowing internal and substantially buried psychological concerns to hold sway” (p. 603).

Could night terrors be a dissociative mechanism used in response to trauma? With the assumption that waking dissociative experiences would be a reliable measure of the dissociative process during sleep, Hartman and Sedgwick (2001) confirmed a diagnosis of sleepwalking and night terrors polysomnographically and clinically on 22 subjects, finding that only six of them had severe trauma history. Subjects were administered the DIS-Q for measurement of dissociative phenomena during their waking lives. Although Harman and Sedgwick’s (2001) conclusions were inconclusive the small percentage of nightmare sufferers and sleepwalkers that report major trauma is enlightening. Predictions had indicated that major trauma among this sleep disordered population would be higher. Hartman and Sedgwick, (2001) found high levels of anxiety, phobia and depression in the trauma group with night terrors and sleepwalking. The night terror subjects and sleepwalkers without trauma had high anxiety, less depression and less hysteria. Anxiety is highly correlated with night terror subjects and sleepwalkers.

What was interesting were some of Hartman and Sedgwick (2001) observations of sleep trauma with the major trauma group. Although it was a minority of adults positive for major psychological trauma, the symptoms in major psychological trauma expressed themselves a bit differently. The anomalies of the major psychological night terror trauma group were; an
addition of nightmares and the nightmares/sleepwalking/night terrors all exhibiting behavior as if fleeing from attack. There was mostly recall for all arousal experiences. Although more recall surrounding night terrors and sleepwalking is shown in the studies of Fisher et al. (1974) and J.D. Kales et al. (1980), Hartman and Sedgwick, (2001) hypothesizes that this manifestation by the trauma group may be another subgroup of parasomnias. Hartman and Sedgwick’s (2001) study finds high comorbidity for nightmares, night terrors and sleepwalking, with the use of all three parasomnias to re-enact a fleeing from attack, with mostly recall is more reminiscent of PTSD symptomology.

Gau and Soong (1999) compared twenty-one adolescent students, aged 13-15, diagnosed with sleep terrors and/or sleepwalking, with a control group of thirty, looking for comorbidity of other psychiatric disorders. Findings indicate that 85% of the sleep disordered subjects had at least one additional psychiatric disorder and additional sleep problems, compared to 26.7% for the control group. The personality characteristics that identified this sleep disordered population, as confirmed by parents were; more nervous, bad tempered, neurotic and pessimistic. The sleep disordered population experienced more suicidal ideations, more sleep talking, more nightmares and more use of cigarettes and alcohol. Findings indicate night terrors and sleepwalking have high comorbidity with anxiety and phobic disorders.

Ohayon et al. (1999) found night terrors to often be associated with psychopathology, with one half of the night terror group likely to have a current mental health diagnosis in contrast with one-fifth of the sleepwalking group likely to have a current mental health diagnosis. For night terror subjects, 18.4% have major depressive disorder with only 3.3% major depressive disorder for sleepwalkers. Mood disorder occurs 19% of the time within the night terror population in contrast to 5.7% of the time in the sleepwalking population. Anxiety is positive for
15.9% of night terror sufferers and 4.8% positive for sleepwalkers. An additional variable of hospitalization within the last 12 months measured 19.2% for night terror subjects and 20.4% for sleepwalkers. The non-parasomnia control group measured at 13.8% for hospitalizations within the last 12 months. Llorente et al., (Llorente, Currier, Norman, & Mellman, 1992) found that all their patients had evidence of psychopathology but suggested that night terrors were not a symptom of psychiatric disorder because the conditions tended to not overlap. Instead they believe that “overlapping factors may exist that predispose some adults to both night terrors and psychopathology. These could include psychological conflict and/or CNS-based dysfunction that could manifest in a tendency to arouse from slow wave sleep and also affect daytime states” (p.394).

J.D. Kales et al. (1980) found that both sleepwalkers and night terror groups had high levels of psychopathology but that it was higher for the night terror group. In addition, the later the onset of night terrors in life, the higher the frequency of night terror events. Night terrors persist longer in life than sleepwalking which is substantiated by Ohayon et al. (1999). MMPI personality profile for night terrors was that of defensiveness, fighting behaviors, fright, with inhibition of outward expressions of aggression, predominance of anxiety, depression, obsessive compulsive tendencies and phobicness. Night terror patients were also characterized by Crisp et al., (Crisp, Matthews, Oakey, & Crutchfield, 1990) as having high anxiety. Findings indicate that 85% of night terrors have a neurosis or personality disorder (J.D. Kales et al., 1980) and 72% of sleep walkers have a psychiatric diagnosis most often of a personality disorder (Kales, Soldatos, Caldwell, Kales et al., 1980). The manifestation of the physical characteristics of the night terror with the fright displayed fits the MMPI data which predicts patterns of reacting with fear.
Schenck et al. (1989) findings do not support the findings of J.D. Kales et al. (1980) or Kales, Soldatos, Caldwell, Kales et al., (1980) in relation to high percentages of night terrors subjects and sleepwalkers with psychopathology. Schenck et al. (1989) estimates that more than one-half of the night terror subjects and sleepwalkers did not have an Axis I disorder and two-thirds did not have personality disorder in his study. Schenck et al. (1989) testing was comparable with the other two for clinical approaches to diagnosing and the use of the MMPI. Emphasis for Schenck et. al. (1989) was on polysomnographic testing with a hypothesis that a substantial subgroup may have underlying physiologic complications, indicating the need for chemical interventions. The subjects within this study had a chief complaint of serious nocturnal injury.

Methodology.

The Hartman and Sedgwick (2001) study brought up an interesting point. Could it be that dissociating would mean that data obtained by taking histories may be unreliable because of the dissociation factor that might prevent revelation of trauma history?

Ohayon et al. (1997) study was done on a large population; 4,972 people, between the ages of 15 and 100. This study was done via telephone interview which creates some real problems for a sleep disordered population. Although mental recall for night terrors is higher than originally thought (Fisher et al., 1974) those studies were done in treatment center settings, with interviews upon awakening by an interviewer and may not reflect the recall for those in a home setting. Thus a telephone survey may not reveal accurate information from people experiencing full or partial amnesia for a sleep event. Some night terrors in this study were correlated with choking and obstructed breathing, which are suggestive of other sleep disorders. Without a face to face diagnostic interview by professionals error may be higher than acceptable.
This study could not confirm other studies high correlations with psychopathology, but this study did not administer an MMPI nor did it use clinical evaluation for a diagnosis.

Night terrors are often difficult to distinguish from Sleep Choking Syndrome and Nocturnal Panic Attacks. Sleep Choking Syndrome (sleep apnea is a symptom) “... is characterized by sudden awakenings with the feeling of being unable to breathe, is accompanied by an intense anxiety and often a sense of dying. Unlike persons with night terrors, subjects suffering from sleep choking syndrome are immediately fully awake and their fears recede rapidly. Nocturnal panic attacks are normally characterized by various physiologic signs, such as change in heartbeat and breathing, whereas night terrors occur suddenly without forewarning” (Ohayon, et al., 1999, p. 275).

Clinical Implications.

Schenck et al. (1989) makes an argument for extensive polysomnographic testing for night terrors and sleepwalking because of the many different sleep disorders and possible interventions. Gau and Soong (1999) ruled out clients due to physical illness and other sleep disorders and confirm that careful attention needs to be given when diagnosing for night terrors and sleepwalking. Schenck et al. (1989) does not support psychotherapy as the choice of intervention as proposed by Hartman and Sedgwick (2001). This could be due in part to the seriousness of past injury and the potential for future injury of Schenck’s sleep injury clients. Schenck et al. (1989) believes that because one half of the subjects in his study did not have an Axis I disorder and two-thirds did not have a personality disorder there must be a predisposing unexplained physiologic base. Therefore, Schenck et al. (1989) preference for intervention was self-hypnosis that was taught to 22 subjects with substantial benefit to 14 and Clonazepam
intervention for 28 subjects with rapid and sustained relief for most. Schenck et al. (1989) does recommend yearly drug holidays to monitor the effectiveness of chemical interventions.

Hartman and Sedgwick (2001) were concerned that the only drugs that might be effective were the benzodiazepines and they are addictive which would cause an already distressed population more problems. Fisher et al. (1973) postulates that Diazepan will affect an 80-90% decrease in the occurrence of night terrors by eliminating stage three and four of the sleep process. While this is effective in the short-term, it does have liabilities in that severe occurrences of night terrors will eventually break through. Concerns arise about the quality of sleep with the elimination of stages 3 and 4, and the benefits of chemical intervention without psychotherapeutic intervention.

J.D. Kales et al. (1980) does not recommend benzodiazepine for children but it may be used along with hypnotics for adults, concurrent with psychotherapy. Changing the environment to prevent injury during sleepwalking and night terrors is an important recommendation for a population that has high percentages of injury and potential injury. It seems the sleep of night terror sufferers may be interrupted by arousals of all types sometimes twice as often as compared with a group of nightmare sufferers. The lack of quality sleep may impact occupational and interpersonal relationships.

Due to the “…inhibition of outward expression of aggression, intense fears of failure, and a strong tendency towards internalization of their emotions” Kales, Cadieux, Soldatos and Kales regarded psychotherapy as the treatment of choice. They “…postulated that the incompletely expressed emotionality during the day generates fear, anxiety, depression, and phobias that confine and psychologically immobilize the subject” believing that the “…internalization of these emotional states to be responsible for the precipitation of night terrors” (J. D. Kales,
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Cadieux, Soldatos, & Kales, 1982, p. 405). Night terror subjects report more medical consultations than sleepwalkers or nightmare subjects, and more hospitalizations than those without a parasomnia (Ohayon, et al., 1999).

This population is at risk for alcohol dependence (Crisp, 1996). If night terrors or sleepwalking begins in middle age or older, underlying organic disorders must be ruled out. Polysomnographic testing is the best choice in determining the diagnosis of night terrors.

Further research.

The overall consensus is that night terrors are more severe than sleepwalking episodes in terms of parameters such as psychological disturbance and physiological measurements of heart rate and respiration (Kales, Soldatos, Bixler, et al., 1980) and the potential for injury (J.D. Kales et al., 1980). While the findings of comorbidity of additional psychopathology by Schenck et al. (1989) were substantially less than findings of comorbidity of psychopathology in other studies, the majority of subjects within the study done by Schenck et al. (1989) presented with serious sleep related injury and were referred to the clinic by other professionals. Could the movement (injury) of Schenck’s subjects be an example of physical movement possibly alleviating psychological stress, thereby reducing incidence of comorbid psychopathology? Is the physical movement of a sleepwalker a mind body connection that dissipates the physiological response thereby helping the psychological state? It has been determined that the sleepwalking population has much less additional psychopathology than the night terror group. Additional research would be valuable in this area, as there is prototype evidence showing links to lessening of depression via movement.
Sleepwalking

“The essential feature of Sleepwalking Disorder is repeated episodes of complex motor behavior initiated during sleep, including rising from bed and walking about. Sleepwalking episodes begin during slow-wave sleep and therefore most often occur during the first third of the night (Criterion A). During episodes the individual has reduced alertness and responsiveness, a blank stare, and relative unresponsiveness to communication with others or efforts to be awakened by others (Criterion B). If awakened during the episode (or on awakening the following morning), the individual has limited recall for the events of the episode (Criterion C). After the episode, there may initially be a brief period of confusion or difficult orienting, followed by full recovery of cognitive function and appropriate behavior (Criterion D). The sleepwalking must cause clinically significant distress or impairment in social, occupational, or other important areas of functioning (Criterion E). Sleepwalking Disorder should not be diagnosed if the behavior is due to the direct physiological effects of a substance (e.g., a drug of abuse, a medication) or a general medical condition (Criterion)” (American Psychiatric Association, 2000, p. 639).

Sleepwalking can involve a variety of behaviors. In the DSM, confusional arousals (also known as sleep drunkenness) are categorized under sleepwalking. Confusional arousals consist of mental confusion, disorientation, and motor uncoordination upon waking, either at night or in the morning (Ohayon, Guilleminault, & Priest, 1999). Confusional arousals are considered mild and may consist of the sleeper sitting up in bed, looking about and laying down once again. Confusional arousals are often associated with shift work which upsets the circadian rhythm (Ohayon, Guilleminault, & Priest, 1999). Eating is included under sleepwalking in the DSM but is a separate category in the ICSD, where it is diagnosed as Nocturnal Eating (drinking) Syndrome.

Sleepwalking occurs in NREM sleep and is considered a disorder of impaired arousal (Kales, Soldatos, Bixler et al., 1980; Kales, Soldatos, Caldwell, Kales et al., 1980) typically out of stages three and four of sleep. Sleepwalking typically occurs out of the first three hours of sleep and is evidenced by slow, poorly coordinated movements, in an automatic manner. It takes effort to awaken a sleepwalker and awareness returns only gradually, with usually amnesia for
the event. “As well as the sleepwalker being incompletely aware of the environment, it is in general not readily possible to deflect the person from the ongoing behavior, which appears to be essentially preprogrammed and having to “run itself out”” (Broughton, Billings, Cartwright, Doucette, et al., 1994, p. 262). Contrary to the cartoon portrayal of sleepwalking as one moving about with arms straight out and eyes closed, a sleepwalker has his/her eyes open (although he/she does not fully incorporate environmental stimuli) and appears physically appropriate for the task which they are about to engage in.

Typical sleepwalking episodes consist of getting out of bed and engaging in relatively routine activities. These activities may include but are not limited to; cleaning, dressing, using the bathroom, eating. Cases of operating machinery, driving vehicles, and murder have also been attributed to sleepwalking (American Psychiatric Association, 2000). Injury is of a concern in sleepwalkers because of reduced levels of alertness. When sleepwalking is comorbid with sleep terrors, the fight/flight defense is activated and the threat of injury is exponential to the sleepwalker and to others.

Serious violence during sleepwalking episodes has been widely documented. These have included strangling, stabbing, jumping through windows and car accidents. In 1983, a 14 year old boy during a sleepwalking incident seriously stabbed his five year old cousin. He had been under duress the previous day with his peers. It was decided that the angst and frustration he had been dealing with came forth during sleep without the mitigating logic that is available during awake states. He was acquitted of the crime, as it was attributable to sleepwalking. In 1878, a 28 year old male smashed his 18 month old child against a wall, believing that he was killing a wild beast to protect his family. He had numerous previous incidences of sleepwalking with violence, which helped acquit him of the crime (Oswald & Evans, 1985).
Because of the seriousness for the potential for harm, sleepwalking is of a specific concern to the military (Sours, Frumkin, & Indernill, 1963). Sleepwalkers jumping out of foxholes, moving about during the night and falling overboard have come to lethal harm. Cases are documented of soldiers, after experiencing battle, exhibiting sleepwalking episodes. In one of these cases, a soldier bayoneted his corporal and was acquitted on the basis of sleepwalking.

A very public case of homicide and attempted homicide while sleepwalking, took place in Canada in the 1990’s (Broughton, et al., 1994). The issue became; what is sleepwalking and what constitutes murder. The definitions that came forth in the trial were; “Murder only exists when there is provable intent to kill”. [and] “It is generally accepted that sleepwalking is a state of automatism in which an individual is unaware of, and has no control of, his or her behavior” (Broughton, et al., 1994, p. 254). The sleepwalker, Kenneth, was found to have acute states of depression, anxiety and hopelessness. His self perception was that of being inept, inadequate, and incompetent. He exhibited a tendency to worry, self blame and self pity. He was socially isolated and withdrawn. Kenneth had been a severe bedwetter until the age of 11-12. He was a very deep sleeper, with rare dream recall and had exhibited sleepwalking from an early age. While incarcerated, his cell mates described him sitting up in bed, uttering and laying back down. These were probably confusional arousals. His family history was rife with parasomnias including sleepwalking, sleep talking, enuresis, night terrors and unusually deep sleep. Polysomnogram testing showed high amounts of slow wave sleep with awakenings, in Kenneth’s sleep. Slow wave sleep is delta sleep which occurs in stage three sleep and is even more prevalent in stage four sleep. Disturbances and prevalence of the delta sleep are indicators of sleepwalking and night terror disturbances. It is thought that the stress Kenneth was under, combined with serious sleep deprivation were the triggering factors for his episode of
sleepwalking. In light of the familial connection to the parasomnias, the polysomnographic
testing, and lack of a motive, Kenneth was acquitted of the crimes. Sleepwalking episodes are
considered automatic behavior and “There is no evidence that a somnambulist during
sleepwalking can either execute a conscious intent from prior wakefulness or can create an
intent” (Broughton, et al., 1994, p. 262).

Ohayon et al. (1999) found estimates of sleepwalking to be 2% within the general
population and found a comorbidity of sleepwalking and night terrors to be .3% in the population
studied (this study was via telephone and did not factor in amnesia which is prevalent in this
disordered population). Ohayon’s information on comorbidity is in direct contrast to previous
information (J.D. Kales et al., 1980) where current sleepwalkers report 55% comorbidity with
night terrors and night terror subjects report 72% comorbidity with sleepwalking occurrences. It
is also in conflict with the idea of a common substrate for night terrors and sleepwalkers (J.D.
Kales et al., 1980; Kales, Soldatos, Bixler et al., 1980). While Kales et al., (Kales, Soldatos,
Caldwell, Kales et al., 1980) agree with the common substrate theory between night terrors and
sleepwalking, they believe that a continuum best represents this category with night terrors the
more extreme disturbance, and sleepwalking the lesser disturbance. The confirmation of a more
intense psychophysiological disturbance with current sleepwalkers was the concurrence of night
terrors.

Prevalence of sleepwalking in children is estimated at 10-30% for at least one episode,
with episodes most commonly occurring for the first time between four and eight years of age
and abatement typically by 15 years of age (American Psychiatric Association, 2000). Sleepwalking
that originates in childhood is often outgrown as an adult. This is one of the
pointers to an etiology based on the role of the central nervous system and other developmental
Parasomnias

Late adolescent onset and early adult onset, of a persistent nature, is considered more a manifestation of a psychological etiology. Higher correlations with psychopathology, frequency and intense clinical symptoms are seen with later onsets of sleepwalking (Kales, Soldatos, Caldwell, Kales, et al., 1980). Heritability is high in sleepwalkers with estimates of positive family history at 80% (American Psychiatric Association, 2000).

Schenck et al., (1989) finds predominately males with sleepwalking in a study consisting of 71 males and 29 females. Kales (Kales, Soldatos, Caldwell, Kales, et al., 1980) conducted a study of 28 females and 22 males with sleepwalking disorder; they found males and females equally affected. In a study of 4,972 Ohayon (Ohayon et al., 1999) found rates were comparable between males and females.

(Kales, Soldatos, Caldwell, Kales, et al., 1980) studied 50 adults, 29 with current sleepwalking behaviors and 21 with past sleepwalking behaviors (where onset was before 10 and terminated by 15) and compared these groups with a control group. Their findings are; 72% of current sleepwalkers reported an injury or the potential for an injury compared with 33% of past sleep walkers, past sleepwalkers reported no violent behavior but 28% of the current sleep walkers reported violent behavior.

Stress plays a factor in sleepwalking with current sleepwalkers reporting major life events preceding onset at 52% and past sleep walkers at 33% (Kales, Soldatos, Caldwell, Kales et al., 1980; Ohayon et al., 1999), with mental stress affecting current sleepwalkers 80% and past sleep walkers 38% (which the control group resembled at 38%).

Personality characteristics of sleepwalkers were generally active with outward directed behavior (Kales, Soldatos, Caldwell, Kales, 1980; Sours, Frumkin, Inernill, 1963) patterns that had difficulty in managing aggression. Additional characteristics consisted of pathological
behaviors such as explosive and impulsive, with personality traits of antisocial & hypomanic.

The means for all eight scales of the MMPI were elevated for current sleepwalkers. Specifically, current sleepwalkers had more psychopathology on the dimensions of hostility and paranoid ideation. 72% of current sleepwalkers carried a psychiatric diagnosis compared with 67% of past sleepwalkers that did not have a diagnosis.

One of the most interesting variables used within a study was that of car accidents (Ohayon, et al., 1999). In Ohayon’s et al., (1999) study 37.5% of drivers, 18-24 years old, in the sleepwalking group, had car accidents, compared to 9.7% in the control group. Ohayon et al. (1999) hypothesized that car accidents could play a triggering role in sleepwalking. In revisiting the personality characteristics, for a different view of the phenomena of car accidents, the study of Schenck et al. (1989) linked suppressed hostility to sleepwalkers and J.D. Kales et al. (1980) suggested that sleepwalkers have outwardly directed behavior patterns reminiscent of a teen psychological profile. Could these accidents be tied to a manifestation of the personality profile (aggressive driving) of a sleepwalker? Or could road hypnosis play a factor? It is generally accepted that driving can trigger a state of hypnosis. Could this state of hypnosis catapult a driver into the state of sleepwalking? Further research in this area would be interesting.

Methodology.

Ohayon et al. (1999) found 3% concurrence of sleepwalking and night terrors. Other findings indicate a 55% and 72% concurrence. This is a serious difference that may indicate serious flaws inherent within the Ohayon study. The Ohayon study was conducted on 4,972 people ages 15-100 years. Not taken into account was amnesia for sleep disordered events, nor the need for current diagnostic testing by a professional. An assumption was made that this population would have the latest in diagnostic assessments from within their communities so,
when asked if they had a sleep disorder, could answer in the affirmative. Information surrounding incidence of sleep disorders and other psychopathology and comorbidity figures concerning this study must be viewed critically due to the nature of the study. Gau and Soong's (1999) study did not have polysomnographic testing as a confirmation for night terrors nor sleepwalking, although their measures were stringent with complete psychiatric interviews and Junior Eysenck Personality Inventories. Kales, Soldatos, Caldwell, Kales, et al., (1980) study did not use polysomnographic testing but measures were quite stringent with an interview for the sleep disorder and a psychiatric interview with MMPI and SCL-90 testing.

**Clinical Implications.**

Initial treatment for the sleepwalker should take into consideration any dangerous behavior. For severe dangerous behavior, chemical intervention may be indicated. Treatment with Benzodiazepines, Imiprimine, and SSRI’s (specifically Paroxetine) has been considered somewhat effective (Lillywhite, Wilson, & Nutt, 1994). Kavey et al., (Kavey, Whyte, Resor, & Gidro-Frank, 1990) found Carbamazepine, Flurazepam, Clonazepam and Phenytoin to be effective in reducing somnambulism. Drugs, specifically hypnotics, Thioridazine, Trichlorethanol and alcohol have been linked (causative) to sleepwalking incidences with serious violence. “Psychotropic medication, stimulants, antihistamines, and alcohol are [also] likely to induce night terrors and sleepwalking episodes” (Ohayon, et al., 1999, p. 275). This population is at risk for alcohol dependence (Crisp, 1996).

The Ohayon (Ohayon, et al., 1999) study found that nearly half of the confusional arousal group were daily smokers and that confusional arousals, night terrors and sleepwalkers reported a significant consumption of alcohol (which is a CNS depressant) at bedtime compared with a
nonparasomnia control group. Sleepwalkers had the highest percentage of hospitalizations and higher than a nonparasomnia group for medical consultations (Ohayon, et al., 1999).

Sleepwalking is often correlated with nightmares and night terrors. A thorough history and possible polysomnographic testing may be needed. Age of client and developmental stages are important. Later onset can be an indication of psychopathology (or possible organic issues) whereas a childhood onset may be more correlated with genetic and development factors.

From the psychotherapeutic view, the inability to integrate aggression is an area to address along with coping mechanisms for stress. Kales (Kales, Soldatos, Caldwell, Kales, et al., 1980) recommend psychotherapeutic intervention for adolescent and adult onset, while considering childhood sleepwalkers as probably going to outgrow the disorder.

Further Research.

Ohayon et al. (1999) brought new and interesting information surrounding sleepwalking and car accidents and estimates of hospital visits for night terrors subjects and sleepwalkers. Further research into the variable of car accidents and high correlation to sleepwalkers may reveal some additional interesting connections between personality characteristics and outwardly manifested behaviors in the sleepwalking population. The estimates for hospital visits may be especially valuable when contrasted with the benefits of aggressive therapeutic interventions.

Adlerian Perspective

In 1907 Adler along with Freud, Abel, Federn, Hitschmann, Rank, Reitler, Sadger, Schwerdtner, Steiner, and Stekel attended a meeting of the Vienna Psychoanalytic Society where Dr. Schwerdtner opened a presentation on the subject of sleep. (The distinctions of parasomnias that we have today did not exist at that time.) After the initial presentation all attending contributed their views on the subject. Adler postulated that clarification between sleep and the
nature of sleep was needed so that distinctions between the physiological and what was occurring psychologically could be recognized. Adler agreed with the point presented by Dr. Schwerdtner, in the presentation, concerning the assimilation of ideas as a purpose of sleep (Nunberg & Federn, 1906-1908). Adler made the point that sleeping and waking are not contradictory states by saying “Sleeping is another kind of waking” and “…waking is a variant of sleeping…” (p.161). Adler’s method of dream interpretation is based on his belief of the unity of sleeping and waking. Proof of this unity, according to Adler, is inherent in that sleep requires a certain amount of contact with reality or we would fall out of bed and without the unity between sleep and wake we would be unable to hear the ringing of an alarm clock.

Adler clarifies his ideas of sleep and dreams in an article he wrote entitled Organ Dialect and Dreams (Adler, 1929/1964). In this article Adler demonstrates that in the three tasks of life, stoppage, hesitancy, or desire to escape expresses itself within the organs and/or dreams of an individual. After hearing a dream, Adler would relate the dream to the development/movement of the person (lifestyle). With the additional knowledge of the goal directed behavior, Adler then used a dream to unveil the private logic operating. Adler’s belief is that dreams symbolically reflect an individual’s perception of reality. While Adler agrees with Freud and Lichtenberg “…that dreams always contain signs of vital problems which the dreamer never recognizes in his waking life…” Adler believes his understanding is advanced from these views as the dream “…is a function of the entire style of life, more dynamically related to the future than to the past…” (Adler, 1929/1964, p. 162). In What Life Could Mean to You Adler states “The personality is the same in dreaming life as in waking life, but in dreams, the pressure of social demands is less acute and the personality will be revealed because there will be fewer safeguards and concealment” (Adler, 1931/1998).
Adler believes the dreamer during sleep is molding his attitude and disposition with feelings and emotion to pursue his own goal of superiority without the confines of reality. According to Adler the dream will always follow the style of the waking life by presenting a metaphorical expression of it. “The dream strives to pave the way towards solving a problem by a metaphorical expression of it, and in itself it is a sign that the dreamer feels inadequate to solve it by common sense” (Adler, 1929/1964, p. 163). Therefore the dream is in essence a self deception that enables one to escape from the problem and move towards the individual goal. Adler sums this up by saying “We should expect, therefore that the more the individual goal agrees with reality the less a person dreams, and we find that it is so. Very courageous people dream rarely, for they deal adequately with their situation in the day time” (Adler, 1929/1964, p. 163-164). Adler clarifies the exceptions to this statement with the following: there may be an absence of contents of dreams but the emotion remains, which is a further step in self deception; an absence of dreams can represent a neurotic situation a person does not want to change; dreams that are long and complicated are usually experienced by insecure people and indicate hesitation while they postpone self deception for the fear of it not working out; some self deception in dreams is practiced in a way that narrows or shortens a problem to a single part thus effectively eradicating the whole.

Adler’s view of self deception in the dream also extends to the waking life: reality can be completely obscured by the pursuit of the individual goal and use of self deception. In a case study (Adler, 1920/1959) Adler demonstrates the neurotic arrangement formed to achieve the neurotic fictive goal, and that the guiding ideas of the personality-ideal are active even in sleep. After treatment, improvement was verified for his client by a lessening of frequency and intensity of nightmares (Adler called them attacks) a freer manner and more social attitude
ensued. Unfortunately this client gave up on treatment as more of the neurosis was exposed. Dr. Adler goes on to say “… he gave up my treatment, on account of his stubbornness and obstinacy…” (Adler, 1920/1959, p. 182). This is very interesting in light of the personality profiles that have been discussed in connection to the parasomnias and their inability to trust therapeutic relationships.

Much to researchers surprise causation between trauma and experienced parasomnias could not be established within the research studies reviewed in this paper. Some, believing there still is a link between trauma and the experience of parasomnias explain the phenomena as dissociation; that there is an unawareness of the trauma, an unconscious suppression. While many are surprised at the apparent lack of a connection between trauma and experienced parasomnias, Adler’s understanding of the human experience may well explain it. Adler believed that “…No experience is a cause of success or failure. We do not suffer from the shock of our experiences--the so-called trauma--but we make out of them just what suits our purposes. We are self-determined by the meaning we give to our experiences, and there is probably always something of a mistake involved when we take particular experiences as the basis for our future life. Meanings are not determined by situations, but we determine ourselves by the meanings we give to situations” (Adler & Ansbacher, p.208).

Nightmares are considered an attempt at mastery and night terrors are considered a failure of mastery (Fisher et al., 1973). Adler would explain this with life style. Within life style is an established scheme of apperception where experiences are interpreted before they are accepted according to personal original meanings that are established at an early age. We are not easily persuaded from this original scheme even if it results in continual misfortune and unhappiness. Adler believes that dreams use metaphors and symbols to escape from common
sense and reality. This escape from common sense and reality insures continuation of the mistaken lifestyle. He believes the purpose of dreams is to defend the lifestyle (Adler, 1931/1998). “All our strivings are directed toward a feeling of security, a feeling that all the difficulties of life have been overcome and that we have finally emerged, in relation to the whole situation around us, safe and victorious” (Adler, 1931/1998, p. 20-21). Nightmares and night terrors are a manifestation of lifestyle colliding with life events resulting in failure. Adlerian psychology would illuminate the clash between lifestyle and life, helping an individual discover the original error and find more appropriate meanings (cooperation and courage), thus eliminating the need for nightmares and night terrors (Adler, 1931/1998).

Adler’s unity of the individual includes the mind and body connections. “It is the fact that, to a certain degree, every emotion finds some bodily expression” (Adler, 1931/1998, p. 31). “Feelings prepare the body to meet a situation with a specific response” (Adler, 1931/1998, p.28).

He considers mind and body interactions to be a reciprocal relationship, with influence operating in either direction. The mind can exert influence over the body using a physical symptom for expression. Adler believes that sleepwalking and nightmares (the distinction of night terrors was not mentioned) are used in this way for attention (Adler, 1931/1998).

Adlerian Based Research.

In 1982, Brink and Matlock (Brink & Matlock, 1982) conducted a study based upon Adler’s birth order theories. They hypothesized that first born “…with their great disposition toward social interest, would report fewer nightmares than would lastborns, with their predispositions toward inferiority feelings” (p. 48). Their conclusions were the “Youngest siblings are the most likely to report nightmares in adulthood and oldest siblings are the least
likely” (Brink & Matlock, 1982, p. 48). In 1987, McCann and Stewin, (McCann & Stewin, 1987) following Brink and Matlock’s conclusions that last born were more susceptible to nightmares and Adler’s birth order theory hypothesized that last born would experience a larger proportion of nightmares to non-threatening dreams. McCann and Stewin’s results were surprising in that they did not confirm the results of Brink and Matlock’s study. In fact, the results were the opposite. “The proportion of dreams having frightening content “often accompanied by feelings of oppression and helplessness” seems to be higher for those born first than for those born last” (McCann & Stewin, 1987, p. 57).

In 1990, McCann, Stewin and Short (McCann, Stewin, & Short, 1990) conducted a study to provide cross validation for either the Brink, Matlock study or the McCann, Stewin study. The results of the McCann et al. 1990 study supported the findings of McCann and Stewin. “Firstborns reported a frequency of frightening dreams that was more than twice as high as that of lastborns” (McCann, Stewin, & Short, 1990, p. 306).

McCann (McCann, Stewin, & Short, 1990) points out some methodological differences between his study and that of Brink and Matlock. Brink and Matlock asked specifically about nightmare experience. McCann and Stewin asked about “frightening dreams often accompanied by feelings of oppression and helplessness”, which is also what McCann, Stewin and Short asked. Could the term nightmare imply greater fright, helplessness or panic? And, if so, could this impact the results of the study?

McCann, Stewin and Short integrate the work of Hartmann concerning boundaries for part of the explanation. Hartmann (as cited in McCann, Stewin, and Short 1990) believes that nightmare sufferers are persons with thin boundaries. This vulnerability of thin boundaries would make the experience of “normal” fear and anger more vivid and frightening. According to
Manaster and Corsini, “Firstborns tend to be more fearful than are later borns” (Manaster & Corsini, 1982, p. 86) and according to Adler the last born was the most helpless (Adler, Ansbacher, & Ansbacher, 1956). So, in conclusion McCann, Stewin and Short provide a plausible explanation that the methodology of the words in their study and in McCann and Stewin would support the idea of last born being the most helpless thereby reporting more nightmares while first born have more fear, thereby reporting more frightening dreams.

The studies of Picchioni et al (2002) show strong connections between social support and a lessening of intensity and frequency of nightmares. Social Interest would be a positive buffering factor against the intensity and frequency of nightmares.

Conclusions

Nightmares in childhood are relatively common. Late adolescent onset with persistence into adulthood is more prone to the etiology of psychopathology. Personality characteristics within the adult nightmare population are relatively consistent with distrust and alienation. Stress plays an integral role in the experience of nightmares, with coping the factor of resolution. Nightmares with late onset most often have comorbidity with anxiety and mood disorders (specifically depression). Subjects with nightmares experience more suicidal ideation and more emotional problems within their families. Females report twice as many nightmares as men.

Night terrors are thought to occur in about 2% of the population. Predisposing factors affecting the presence of nightmares are stress and sleep deprivation. Night terrors have the highest correlations, of the parasomnias, for violent behavior with high incident of injury or the potential for injury. Night terrors have the highest levels of correlated psychopathology of the parasomnias. They are highly correlated with hysteria, anxiety, mood disorders, and are phobic
with an inhibition of outward expressions of aggression. They are considered the most severe manifestation of the parasomnias and the longest enduring.

Sleepwalking is fairly common among children and most often outgrown. Late adolescent and early adult onset of sleepwalking indicates the possibility of more psychopathology, with the severity of the psychopathology increasing the later the age of onset. Sleepwalking can be injurious or potentially injurious and appropriate measures need to be arranged for adequate protection. Sleepwalkers have difficulty managing aggression and hostility. They are generally active, have high levels of outwardly directed hostility and score high on hysteria. Sleepwalkers are most likely to be diagnosed with a personality disorder with hostility and paranoia most prominent. Sleepwalking has a natural lessening with age.

Stress is a major factor in the frequency and onset of all three parasomnias. All three parasomnias are highly correlated with anxiety. Genetics play a substantial role in the experience of the parasomnias. Environmental and developmental factors highly influence child onset of sleep terrors and sleepwalking. Adolescent and adult onset is a major indication of the psychopathological underpinnings of the parasomnias.

The parasomnias have been overlooked as serious psychopathology. Intervention usually only occurs after the individual or those around them come to harm. Secondary complications such as alcohol dependence becomes of concern as this population self medicates for relief.
References


