

Psychotherapeutic approaches for post-traumatic stress disorder nightmares

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Summary. Post Traumatic Stress Disorder (PTSD) can affect individuals in both their waking and sleeping life and psychotherapists can utilize interventions towards either wakefulness or sleep. This article reviews the history of PTSD, its socio-cultural contexts, as well as incidence and treatment. We then discuss a multilevel cognitive model of PTSD nightmares and research-supported treatments. Such treatments range from waking exposure, pre-sleep rescripting, to lucid dreaming exposure. The authors conclude with a discussion of Time Perspective Therapy.

Keywords: PTSD nightmares; lucid dreaming therapy; time perspective therapy; dream revision therapy; exposure, relaxation, and rescripting therapy

1. Introduction

In the English language, the word “trauma” is applied to an assault on the human mind or body that disrupts the ordinary functioning of one’s biological, psychoneurological, social-emotional, and/or spiritual-existential subsystems. Psychological trauma often leads to a constellation of disorders that do not seem to mend, such as persistent anxiety and depression, often reflected in recurring nightmares (Barrett, 2001; Kramer, 1979). Such a constellation, labeled Post-Traumatic Stress Disorder (PTSD), is described by the latest version of the American Psychiatric Association’s Diagnostic and Statistical Manual (DSM 5) as a condition following the experiencing or witnessing of life-threatening events that exceed one’s psychological coping capacity, emotional resources, and/or existential worldviews (American Psychiatric Association, 2013).

2. PTSD Nightmares: A Multilevel Neurocognitive Model

Nightmares can be defined as frightening dreams that awaken the dreamer, who typically has a clear memory of the dream imagery and narrative (Cartwright, 2012, p. 129). They most frequently occur during rapid eye movement (REM) sleep and are characterized by such emotions as fear, terror, grief, and rage (Fisher, Byrne, & Edwards, 1968).

Levin and Nielsen (2007) used the term *disturbed dreaming* to refer collectively to nightmares and unpleasant or bad dreams, the latter defined as negatively toned dreams that

may or may not awaken the dreamer. The authors suggest that the two are phenotypic variations of the same genotype but differ in how effective or ineffective they are in regulating shifting surges of current affect levels, a process they referred to as affect load. When the affect is too overwhelming to be effectively downloaded, the resulting recurring nightmares can become linked with psychopathology (Hartmann, 1998).

Levin and Nielsen (2007) have proposed a multilevel model of dream function and nightmare production that is especially relevant to PTSD-related nightmares. The neurophysiological branch of this model involves the amygdala, the medial prefrontal cortex, the hippocampus, and the anterior cingulate cortex, all of which underlie emotional expression and representation (2007). The cognitive branch is a dream production system that transforms memories into dream and nightmare imagery (2007). This model stipulates that disturbed dreaming results from the dysfunction in a network of affective processes that, during normal dreaming, serve the adaptive function of fear memory extinction (Nielsen & Levin, 2007); REM sleep appears to be primed to activate these processes. At the cognitive level, normative dreaming facilitates extinction of fear memories by memory element activation, memory element recombination, and emotional expression (2007).

According to Levin and Nielsen (2009), the first process, *memory element activation*, refers to the increased availability of a wide range of memory elements during dreaming. Most dreams do not represent coherent episodic memories, but rather solicit various memories from multiple sources of time and context (2009). The second process, *memory element recombination*, continuously assembles the isolated memory units into a coherent flow of imagery, often providing a new context for highly arousing (positive and negative) memory elements (2009). The authors suggest that just as the hippocampus remaps representations during waking, it renders those new elements into visual simulations while dreaming to enhance its effect on limbic structures. They are then reconstructed to introduce contextual elements that are incompatible with existing fear memories. This pro-

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Submitted for publication: January 2017

Accepted for publication: July 2017

gression facilitates emotional processing by means of the acquisition and maintenance of extinction memories. However, PTSD nightmares do not follow this sequence; new contexts do not replace the existing context (p. 85), therefore they are incompatible with and ineffective at maintaining the extinction of the fear memories.

The third process in normative dreaming, emotional expression, maximizes the involvement of neural structures, primarily limited by limbic activity, to further down-regulate negative emotional arousal (Malinowski & Horton, 2014). The PTSD nightmare is incapable of regulating affect load; in fact, it may reflect an increase of affect load, preventing the extinction of fear memories. The repetitive nature of PTSD nightmares may represent failed attempts at extinction, which is adaptive to the organism's healthy functioning.

Levin and Nielsen (2007) proposed that the engagement of fear extinction processes might be one of the default functions of REM sleep; that is, dreaming represents the phenomenological output of these mechanisms. The inclusion of memory components in dream content is determined by ongoing daytime demands on the emotional memory system. The continuing accumulation of stressful negative experiences impinges on an individual's capacity to effectively regulate the affect load. Indeed, affect distress may result, bringing the negative emotionality of the nighttime dreams into dreamers' waking activities.

The authors explain that, at the neurological level, the fear extinction function is supported by a network of limbic, paralimbic, and prefrontal regions that constitute the control center for the expression and regulation of emotion, both in sleep and in wakefulness (Levin & Nielson, 2007). The amygdala is the "control center" for affect load, while the medial prefrontal cortex serves as the mediator of extinction by regulating impulsive emotional expression (p. 86). Furthermore, the hippocampus plays a crucial role in the encoding and consolidation of memories as well as the representation of stimuli in novel contexts, a crucial mechanism for the processing of emotions during dreaming. Finally, the anterior cingulate mediates affect distress, processing negative emotional stimuli. This network does not adequately process negative emotional stimuli during PTSD nightmares.

Levin and Nielson's (2007) multilevel model portrays an emotion-based neurological network within which disruptions, such as those associated with PTSD, produce increasingly disturbed dreaming, beginning with more and more unpleasant dreams and proceeding to highly distressing nightmares (p. 86). The authors explain that, for dreamers not affected by PTSD, occasional unpleasant dreams and nightmares often occur in response to increased levels of affect load but remain isolated incidents without much accompanying affect distress during the day. However, the dreams of those with PTSD may activate previously encoded fear memory structures, leading to greater waking affect distress and an increase in nightmares. For these individuals, nightmares may become "false positives," bringing about false alarm responses such as those occurring in panic disorders (2007).

As a result, PTSD nightmares are resistant to extinction. Instead, they are recurrent; fear memory elements may become globally activated in a highly coherent manner, producing nightmares that consistently (albeit with some variation) reproduce past fearful experiences. Examples include: the accidental shooting of an innocent villager thought to

have been carrying a weapon; witnessing a friend's body being shattered by an improvised incendiary device; engaging in face-to-face combat with an enemy who spurted blood when bayoneted and killed. Civilian examples include: being raped by a trusted family friend; becoming engulfed in a tsunami and being swept into the ocean; or being constantly taunted, bullied, and physically abused by members of one's high school peer group.

Empirical support for the role of affect load in the generation of disturbing dreams is abundant. Heightened life stress is associated with an increase in dream recall, and distressing life events have been found to precipitate nightmares (Hartmann, 1998; Kramer, 2007). At the neural level, there is ample evidence of anatomical connections among the four designated brain regions, all of which have been associated with both state and trait differences in emotional responding and in distress-based emotional disorders such as PTSD (Levin & Nielson, 2007). Brain-imaging studies in both human and animal samples have indicated that activity in all four regions increases during REM sleep above non-REM sleep or wakefulness levels (Nofzinger, 2004; McGaugh, 2004, respectively). Hence this network appears to be a vital component in shaping emotional imagery during dreaming.

In addition, there is less verbal content in nightmares of patients with PTSD than those without (Krippner, 2016). Psychotherapy for PTSD nightmares, which often recognizes this lack of verbal content, may supplement cognitive interventions with breathing, relaxation, artistic expression, bodily movement, mindfulness meditation, biofeedback, and other non-verbal activities (e.g., Lancee, van den Bout, & Spoormaker, 2010a; Lewis & Krippner, 2016).

Levin and Nielsen (2007) do not claim that fear extinction is the sole function of dreaming; they assert that there are other likely functions such as threat detection, memory consolidation, problem solving, and mood regulation. However, from an evolutionary perspective, fear extinction is highly adaptive despite its predilection for false positives such as nightmares. This multilevel neurocognitive model also provides an explanation for the fact that content analysis reveals that more unpleasant than pleasant dreams appear in reports gleaned from non-pathological dreamers (Barrett, 2001). In addition, it reflects Griffin and Tyrrell's (2004) contention that dreams, including nightmares, metaphorically act out non-discharged emotional arousals that were not expressed or resolved during the day. When the emotional arousal remains un-discharged, it may re-occur in dreams and nightmares. Until resolution occurs, those dreamers are unable to dream normally, even to the extent of having more nightmares but fewer unpleasant dreams than do non-pathological dreamers. Hence, the term "bad dreams" is a misnomer since unpleasant dreams typically serve a positive adaptive function.

For the PTSD dreamer, this self-regulation process of affect load characterizing other dreamers has also broken down. Fear memories are directly expressed in PTSD nightmare reports rather than undergoing transformations that would reduce daytime affect distress (Mellman & Pigeon, 2005). The brain network serving the adaptive function of fear memory extinction is disrupted, with such sequelae as repetitive nightmares (Domhoff, 1996).

After reviewing the research literature, Cartwright (2012) concluded that during sleep, dreamers review emotive experiences from the day, defuse that emotional impact with similar experiences from memory, update an organized

sense of self, and rehearse new coping behaviors. PTSD Nightmares are an exception because they fail to perform these functions. The PTSD nightmare is stuck in a loop, like a broken record, unable to play on or transition to the remainder of life's experiences and memories that might blend and soften the overwhelming emotion.

Diagnoses for nightmare clients are based on nightmare recall and affect, reactive orientation, distress or functional impairment, as well as differential consideration for culture, bereavement, and neurobiological functioning (APA, 2013). PTSD nightmares may involve several potentially interacting and/or confusing emotions: fear, grief, disgust, frustration, guilt, anger, anxiety, and sadness (Krippner, 2016). Exact replays tend to be rare (Davis, 2009b), and many nightmares change and distort over time (Peasant & Zadra, 2006), suggesting that they attempt to be adaptive by re-contextualizing the feared memories in neutral or discordant context, character, or place (a la the hippocampus' pyramidal cells; Kubie & Ranck Jr, 1982) in order to dilute the affect. Initially, PTSD nightmares (particularly with triggering components) rarely employ the metaphors and symbols that represent a beneficial working through of negative affect in normative dreams (Davis, 2009b, p. 48). As a result, their attempts to serve an adaptive function fail (Kramer, 1991) without external guidance and assistance.

3. Treatment for PTSD nightmares

Though some research has shown improved general sleep quality (not specifically nightmares) through PTSD treatment (Spoomaker & Montgomery, 2008; Bisson & Andrew, 2007; Bisson et al., 2007), PTSD related nightmares can persist far after PTSD resolves, even throughout life (Aurora et al., 2010). Therefore, it is our recommendation that treatment should focus directly on nightmare modification as the key to unraveling PTSD and restoring the traumatized individual to everyday functioning. As long as the PTSD nightmare recurs, the dreamer of the nightmare is blocked from resolving basic existential conflicts that prevent him or her from moving ahead. The mind is "frozen" in a particular time and space context, and the therapeutic challenge is to initiate a "thaw."

After reviewing the literature on the use of medication for nightmares, Davis (2009c) concluded, that clients have had little success with the efficacy of numerous medicative treatments for nightmares. Although one of the most encouraging medications is Prazosin, an alpha-1-adrenergic, its effect may be merely palliative. When it is discontinued, the nightmares often return (p. 101). Hartmann (1984) observed that while medication may reduce anxiety and the immediate intensity of the nightmares, it may do so at a price. Medication often makes the connecting process more difficult, perhaps by reducing REM sleep. As a result, the traumatic nightmares are more likely to become chronic (p. 239).

In regard to PTSD in general, many types of psychotherapy have been found effective (Van Etten & Taylor, 1998). A well-designed study of the research literature found no major differences between various types of "bona fide" treatments (Benish et al., 2008). The list includes various iterations of Cognitive-Behavioral Therapy (CBT): Prolonged Exposure Therapy, Eye Movement Desensitization and Reprocessing (EMDR) Therapy. Each of these bona fide treatments, along with other approaches, has been used in the treatment of patients with PTSD nightmares, at least in the case of combat veterans, the focal group of most of these

studies. However, rarely have nightmares been addressed intensely, despite the insistence of many psychotherapists that PTSD nightmares need to be targeted directly (Krippner, 2016; Halliday, 1987). This may be why, according to Zimbardo et al. (2012), the majority of therapies showed short term success but few follow-up after two-years.

If repetitive nightmares begin to shift, this movement could initiate a ripple or cascade effect that could produce positive changes in work and relationship activity (Germain, 2009). The PTSD nightmare could be considered a "chaotic attractor" (Krippner & Combs, 2007), one that is at the core of the entire disorder because it represents both the neurological and the cognitive dimensions of PTSD.

3.1. Exposure Therapy

Exposure Therapy (ET) is a frequently used intervention strategy for nightmares. It is an adaptation of one of the most successful treatments for PTSD in which a psychotherapist guides clients to recall memories in a controlled fashion until they have mastered their thoughts and feelings surrounding the traumatic experience (Foa, Molnar, & Cashman, 1995).

An examination of the effects of ET on the brains of PTSD clients revealed decreased amygdala activation during fear processing, while ventromedial prefrontal cortex activity increased (Felmingham et al., 2007). Amygdala activity typically increases during fear conditioning, and prefrontal cortex activity decreases. In other words, ET enhanced the inhibition of fear responses. The eight participants in this study had developed PTSD as a result of bodily assault or car accidents. There are other studies (e.g., Burgess, Gill, & Marks, 1998) that support the use of ET for treating the nightmares of clients with different histories of trauma.

3.2. Imagery Rescripting

Krakow et al. (2000) insisted that nightmares are not a secondary phenomenon that will fade away with time and treatment, and developed Imagery Rehearsal Therapy (IRT) to attack the nightmare directly. IRT involves some degree of exposure to nightmare content as well as rewriting or rescripting components of the nightmare (Krakow & Zadra, 2006). Controlled and uncontrolled case studies found promising results for the efficacy of IRT for chronic nightmares both in people who were and were not exposed to trauma (Krakow et al., 2001; Davis, 2009c, p. 100).

Since normative dreaming serves the adaptive functions of fear memory extinction and affect regulation, dreams desensitize the disturbing experience through repeated exposure in a less frightening context. The PTSD nightmare attempts to perform these desensitization and emotional regulation tasks, but fails to do so because the trauma was too overwhelming to be downloaded and extinguished by the dreamer's self-regulatory processes (Levin & Nielsen, 2007). The IRT practitioner asks dreamers to write down a disturbing dream but change it in any way they wish. The dreamers spend time each day mentally rehearsing the revised dream (Moore & Krakow, 2011). Eventually, the nightmare itself begins to shift, completing the desensitization.

In one randomized control study, Lancee and his associates compared the results of IRT self-help and ET self-help interventions with a number of other groups (2010a). Members of one group were on a waiting list while the second group used a self-help version of IRT. The third used

a simpler form of ET that did not directly involve exercises with nightmare imagery, while members of the fourth group simply recorded their nightmares. A 4-week follow-up demonstrated that IRT and ET were equally effective in comparison to the other treatments. In addition, just recording nightmares was better than being on the waiting list.

Lancee, Spoomaker, and Van den Bout (2011) designed a more ambitious follow-up study in which some 200 participants were assigned randomly to IRT or ET after completing baseline measurements. They received an 8-week self-help intervention and completed questionnaires three times after the treatment ended. The researchers based the treatment on self-help booklets adapted from publications by Krakow and Zadra (2006) as well as Burgess, Gill, and Marks (1998). Initial progress was almost completely sustained after 42 weeks; no differences were found between the two therapies.

Furthermore, just as some clients may align with Psycho-dynamic Therapy rather than CBT, similar clients may cooperate better with an approach that is more interpersonal than IRT. Focus-Oriented Dreamwork (FOD; Gendlin, 1986) is another imagery rescripting approach to reoccurring nightmares that focuses emotional, sensory experiences of the dream as well as reintroducing the novel components of normative dreaming. In a recent, qualitative study, Ellis (2016) analyzed the dream content of veteran clients through the course of a FOD protocol and identified themes as well as trends over the course of treatment – moving from reproduction of the traumatic experience towards normative dreaming. In addition, participants exhibited a clinically significant remission of PTSD symptoms (especially in re-experiencing and avoidance clusters) as measured on the Posttraumatic Stress Diagnostic Scale (PDS; Foa, 1995). Future research may investigate the mechanisms of action for these rescripting therapies and potentially investigate a near-universal protocol.

3.3. Exposure, Relaxation, and Rescripting Therapy

Davis (2009c) developed Exposure, Relaxation, and Rescripting Therapy (ERRT) once she discovered patients' attempts to engage in pleasant imagery before sleep had little effect on their nightmares. Also using techniques from IRT, Davis targeted three systems in which anxiety was manifested, namely physiological (e.g., increased arousal at bedtime), behavioral (e.g., using legal and illegal substances to fall asleep), and cognitive (e.g., the belief that sleep is inevitably accompanied by nightmares). She directly engaged the fear network of which PTSD nightmares are a part by including an exposure component in her treatment.

The four basic treatment components were educational (e.g., providing accurate information about PTSD nightmares), exposure (e.g., directly engaging the fear network using both written and oral exposure to nightmare content), rescripting (e.g., altering the nightmare's emotional component such as shifting from insecurity to security), and relaxation (e.g., progressive muscle relaxation). Davis made a clear distinction between the nightmare as an associated feature of experiencing a trauma and the trauma itself. An event can be traumatizing, but it is not traumatic; only the experience of it can be described as traumatic (Krippner, Pitchford, & Davies, 2012).

This perspective is introduced in the educational component of ERRT. Clients are told that people respond to potentially traumatizing events in different ways. Indeed, some

experience few difficulties at all, while others are distressed months or years after the event (Davis, 2009c). Clients are told about the various forms the traumatic experience may take, including nightmares. Depending upon the group being studied, from 50% to 90% report PTSD nightmares, and the nature and frequency of these reports may change over time. A nightmare set in Iraq may change to one in which a terrorist invades the client's home. A nightmare reflecting an assault on a dark street might shift to one in which the setting is the dreamer's workplace.

In EERT, clients are informed of the benefits of the exposure procedure; a traumatic experience is not processed in the same way as other emotional experiences, and exposure facilitates emotional discharge and downloading (Davis, 2009c). One client commented, "I used to be afraid of harmless snakes, but the more contact I had with them, the more comfortable I was with them. It might work the same way with my wartime trauma."

The second component, relaxation, does not come easily to PTSD clients and usually must be taught. Progressive Muscle Relaxation involves alternatively tensing and relaxing different muscle groups of the body. This procedure can be utilized whenever a client notices a buildup of tension and anxiety. Diaphragmatic breathing is also taught to the clients who place one hand on their chest and another on their belly, trying to shift the movement that accompanies breath into the stomach area.

When clients rescript their nightmares, they sometimes use humor. This is so incongruous with the traumatizing event that it often becomes incorporated into the nightmare itself. One veteran in the study changed the female terrorist who blew herself up into a Playboy bunny who jumped out of a huge party cake. Just like in PMR where relaxation replaces tension, humor replaces fear, allowing the brain to associate a new emotion with the respective memory. Similar to how the Boggart, a fear-inducing creature from the Harry Potter series, is dispelled by a "ridikulus" spell (pairing its horrifying appearance with a hilarious one) and ensuing laughter, so too may a nightmare dissolve back into a dream when juxtaposed with that very dream-like element of bizarreness.

The behavioral component involves diminishing the use of legal and illegal substances including alcohol, increasing social engagement, and/or exploring employment opportunities. All of these components interact; for example, proper sleep hygiene includes a series of behaviors, and rescripting reflects one's education about PTSD. In one study, more PTSD clients found education about sleep hygiene to be more helpful than education about PTSD (Davis & Wright, 2007). Research on ERRT has ranged from case studies to randomized control trials. An example of the latter involved 49 participants (82% female), of whom 84% reported positive "end state functioning" (i.e., an absence of nightmares in the week before the report; Davis, Rhudy, Byrd, & Wright, 2009, p. 189). This was even higher than the 79% who reported positive "end state functioning" for PTSD symptoms as a whole.

Having ERRT clients write their own account of the traumatizing event was surprisingly beneficial, possibly because it combined both cognitive and emotional elements of the trauma, helping them to develop a more coherent narrative of the event (Foa, Molnar, & Cashman, 1995). The thematic exploration of nightmares is one of the components that differentiate ERRT from other nightmare treatments, possibly

because it leads to resolution, control, and mastery (Davis, Rhudy, Byrd, & Wright, 2009, pp. 200-201). However, Davis (2009a) admitted that researchers and clinicians have yet to fully understand PTSD nightmares.

3.4. Dream Revision Therapy

Bruce Dow (2015), a neuroscientist and psychiatrist, has presented a similar method to treat nightmares, as well as flashbacks, anxiety, and other debilitating effects of PTSD. His approach involves “rescripting” the nightmare and rehearsing the revision, but in a group context, similar to the Ullman Dream Groups (Ullman, 1996). Dow minimizes his clients’ recall and re-exposure to trauma, in an attempt to make the treatment more benign than many other methods. He has presented a step-by-step procedure that can be followed by the therapist or, in some cases, by PTSD survivors themselves.

Dow developed his method when he was working with groups of Vietnam War veterans at the San Diego VA Medical Center. A patient volunteered a nightmare, which a staff member wrote on a whiteboard. Other members of the group asked questions, including frequency, variations, and triggers. Next, the dreamer described concomitant emotions. Dow observed that this was helpful to the other group members and helped avoid alexithymia, the inability to put a name to an emotion. The group members then brainstormed the possible overt and covert meanings of the nightmare.

The next step was for the dreamer’s fellow patients to propose changes to the dream. A staff member wrote these alterations on the whiteboard, enabling the dreamer to select his own revision, or perhaps combine elements of several suggestions. The dreamer was instructed to rehearse the revised dream during the day and look for possible changes at night. The dreamer gave a report to the group at its next meeting, usually one week later. Dow observed that peer support and encouragement became an important part of the process. Although dream revision therapy can be used in one-on-one counseling, Dow found many advantages to group dreamwork.

One veteran reported a repetitive nightmare in which he relived, with great agony, the death of his friend, Paul. “The helicopters are there. The helicopter is up but my buddy Paul is still holding on to my hand. They’re saying, ‘He’s dead; he’s dead.’ I feel like I’m flying, but I worry about landing on my feet. I go up with him until they say, ‘He’s dead’: then I’m floating. The feeling of floating, the sound of the helicopter, and his holding my hand all stay after I’m awake until I stand up” (Dow, 2015, p. 22). Following group input, the dreamer revised the nightmare: My guardian angel, Paul, is protecting me. He keeps me safe by holding my hand. Holding my hand makes me feel stronger, like a survivor.” Eventually, the negative emotions disappeared and the scenario became a dream, not a nightmare.

Dow has used this method as the core of psychotherapy with trauma survivors, whether or not they are veterans, or even adults. In contrast to exposure therapy, the goal of dream revision therapy is not just to recall the trauma but to change it, weaken it, and eventually to eliminate it. As PTSD may present as a conditioned fear, dream revision therapy may prove to be a robust method to improve extinction.

3.5. Lucid Dreaming Intervention(s)

Lucid dreaming therapy (LDT) is a rising therapy that combines elements of imagery rehearsal, exposure therapy, and cognitive-behavioral therapy as an *in vivo* nightmare revision. Lucid dreaming (LD) is defined as attaining and maintaining awareness of being in the dream without waking up (LaBerge, 1985). Research (Voss, Holtzmann, Tuin, & Hobson, 2009; Dresler et al., 2012) has indicated that lucid dreaming is associated with an increased activation in the dorsolateral pre-frontal cortex (DLPFC). The DLPFC is normally quiescent in dreaming (Braun et al., 1997; Maquet et al., 1996) but otherwise indicated for metacognition (Fleming & Dolan, 2012) and decision making, particularly in ambiguous situations (Krain, Wilson, Arbuckle, Castellanos, & Milham, 2006). Recently, a study of trans-cranial direct current stimulation (tCDS) provided preliminary empirical support for this correlation via increased lucidity according to participants’ self-ratings (Stumbrys, Erlacher, & Schredl, 2013). As decreased prefrontal cortex activity is associated with increased activity in the amygdala (Felmingham et al., 2007), a lucid dreaming treatment could potentially reverse these effects and inhibit the fear response, similar to ET.

Beyond tCDS, this skill can be learned through various methods, involving repeated testing of which state of consciousness the individual is in (e.g. double checking small text and time), referred to as “reality checks” (LaBerge, 1985). However, the term “reality check” divorces dreams from the reality that the dreamer may truly be in (C. Hoffman, personal communication, June 4, 2014), and may be better termed as “state checks.” Nonetheless, Soffer-Dudek, Werheim, and Sharhar (2011) have provided significant evidence for the hypothesis that this naturally occurring dream phenomenon serves as a protective factor against psychological distress (Tholey, 1988). In addition, therapists have significantly reduced nightmares with LD (Brylowski, 1990; Holzinger, Klösch, & Saletu, 2015; Spoormaker, van den Bout, & Meijer, 2003; Zadra & Phil, 1997). Research has also begun to direct LDT towards PTSD nightmares.

Building upon their 2006 pilot study, Lancee, van den Bout, and Spoormaker (2010b) investigated LDT as nightmare reduction in the Netherlands. They compared IRT (in a self-help format), IRT combined with sleep hygiene, and IRT combined with a LD component. The researchers used participants on a waiting list as controls, with the four groups comprising a total of 278 participants (recruited through a Dutch nightmare website, www.nachtmerries.org); however, the attrition rate reduced the total number of participants by over one-half. Researchers measured such symptoms as nightmare frequency, nightmare distress, and sleep quality at 4, 16, and 42 weeks following the start of treatment. In addition, the researchers assessed for self-reported PTSD symptoms.

In the IRT component, researchers requested that participants reflect upon the origin of the nightmare, change the ending of the nightmare, and imagine the changed nightmare; after which, the LDT group were to tell themselves, “This is not real, but this is only a dream” (2010b). In order to further instigate lucidity during the night, the researchers instructed the LDT group to imagine the nightmare throughout the day while reminding themselves that it is only a dream. The sleep hygiene component emphasized finding a comfortable bed, using it for sleep and sex only, and maintaining a regular sleeping and waking schedule. The sleep hygiene component was included as many IRT

practitioners have observed frequent sleep apnea among people reporting PTSD nightmares and often include sleep hygiene and breathing practices in their interventions. In addition, research has shown an inverse relationship between sleep hygiene and nightmare frequency (Ohayon, Morselli & Guilleminault, 1997; Schredl, 2003; Schredl, 2009).

According to the results, the IRT group without the sleep hygiene or the lucid dreaming component was the only condition that fared significantly better than the control group, reducing both nightmare frequency and distress. The latter treatments showed a positive (but not statistically significant) effect on nightmare measures. The authors indicated that low power and an increased dropout (due to participation fatigue from participants of the previous pilot study) may explain the lack of significance with the LDT and sleep hygiene groups - though the researchers attempted to correct for these limitations through statistical methods (i.e., multiple imputation).

A recent study (Harb, Brownlow, & Ross, 2016) suggests that nightmare distress may be a better target for treatment than frequency. Where a lack of control over nightmare content may produce distress in veterans, the revision and repetition of novel dream imagery in IRT may indicate the potential boost in efficacy with an added focus on its capability for lucid awareness and/or dream content control. Just as Taitz (2011) suggested that LD might have evolved to serve as a functional adaption to continue problem solving in a novel state, IRT's process of cognitive restructuring in waking may be further improved upon with the LD state. Future research should investigate more intense LDTs on larger PTSD populations to determine the true effect of combating a post-traumatic nightmare from within.

3.6. Time Perspective Therapy

TPT has taken a critical look at the most commonly used treatments for PTSD. In regards to medication, Zimbardo, Sword, and Sword (2012) stated that, drugs do not address the cause but alters behavior as a temporary solution, leaving the sufferer feeling hopeless towards any change. In regards to cognitive processing therapy, prolonged exposure therapy, and virtual reality therapy, they commented that members of their treatment group reported regressions in gains made in time perspective therapy process (e.g. increase in nightmares, anger, flashbacks, and social isolation, as well as homicidal and suicidal thoughts). Additionally, some advocates of cognitive-behavior therapy admit that the intervention may not be effective if the client is experiencing any one of a number of reactions such as excessive avoidance, dissociation, anger, grief, substance abuse, depression and suicidal thoughts, and poor motivation (Bryant & Harvey, 2000). Alternatively, TPT treats clients exhibiting all of these reactions, only excluding those with organic disorders or psychosis.

TPT focuses on six major time perspectives: past positive, past negative, present hedonistic, present fatalistic, future, and transcendental future (referring to life-after-death; Zimbardo, Sword, & Sword, 2012). Unlike other treatments, TPT addresses the whole client - acknowledging past trauma, conceptualizing its impact on present hedonism and fatalism, then targeting and planning for achievable goals to create a future positive time perspective and ultimately empower the client. TPT, according to Zimbardo et al. (2012),

helps clients develop vital tools to use in their daily lives for the short and long term. Members of their original therapy group were followed for three and one-half years; 87 percent reported decreased PTSD symptoms and 100 percent decreased depression ratings (p. 264). To date, there have been no suicides in this group.

Several surveys of PTSD treatment outcomes have observed that the greatest success occurs when existential elements of the traumatic experience are directly addressed (Ehlers et al., 2010). TPT's focus on meaning and on an "expanded present" places it in this category. This finding has implications for nightmare therapy. In rescripting and reframing the nightmare, guilt can be replaced by restitution. "I will never forgive myself for killing that young girl whose doll I mistook for a grenade" can be replaced by "I will do volunteer work at a children's shelter, bringing new life and hope to girls who have been abused." The irrational belief that "My best friend died in that car crash; I should have died along with her," can be replaced by, "A part of me died in that accident as well. But I will live my life in such a way that I can demonstrate gratitude for my survival." Similarly, the notion that, "I am responsible for being raped because I was wearing a provocative dress," can give way to, "I must learn to make better choices when I enter unknown neighborhoods and consort with strangers. But nothing that I did is comparable to the violation that was perpetrated that night." A grieving child who blames himself for his mother's death can learn that disease does not respect family ties; however, compassionate behavior and kind acts can insure that a mother's love has long-lasting effects. These rational beliefs and positive personal myths can be rehearsed during the day as well as immediately following one's awakening from a nightmare.

4. Conclusion

Jenkins (2012) cited the many examples of dealing with nightmares as narratives that need improvement. PTSD nightmares reveal what might be called an existential shattering; treatment needs to help clients put those pieces together again, perhaps in a manner that is wiser, deeper, and more resilient.

Pitchford (2009) applied this perspective to PTSD, calling for more research-informed activism in trauma treatment. Particularly, the need for more support systems for and community outreach to families, as well as more holistic and less stigmatizing models of treatment and intervention. PTSD is a consequence of modern life, and the nightmares that accompany it both reflect contemporary violence and present a challenge for those valiant practitioners who attempt to treat those who have been devastated by it.

Note

Portions of this article have been adapted from Krippner, S. (2016). Working with Posttraumatic Stress Disorder Nightmares. In J.E. Lewis & S. Krippner (Eds.), *Working with Dreams and PTSD Nightmares: 14 Approaches for Psychotherapists and Counselors* (pp. 251-268). Santa Barbara, CA: Praeger.

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Acknowledgement

The authors express their gratitude to The Chair for the Study of Consciousness, Saybrook Graduate School, Saybrook University, Oakland, California, for its support in the preparation of this paper.