

Treating post-trauma nightmares and posttraumatic stress disorder in an individual with psychosis

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Summary. Post-trauma nightmares often persist, even following intervention for posttraumatic stress disorder (PTSD) (Davis, DeArellano, Falsetti, & Resnick, 2003; Scurfield, Kenderdine, & Pollard, 1990). Research finds that directly targeting post-trauma nightmares is effective in reducing their frequency and severity, as well as improving related symptoms (Augedal, Hansen, Kronhaug, Harvey, & Pallesen, 2013; Casement & Swanson, 2012; Ho, Chan, & Tang, 2016; Krippner & Taitz, 2017; Rousseau & Belleville, 2018). Most efforts exploring the efficacy of interventions for post-trauma nightmares have not been evaluated in individuals with psychosis. However, recent research suggests that individuals with psychosis experience frequent nightmares and comorbidity with traumatic stress disorders (Sheaves, Onwumere, Keen, Stahl, & Kuipers, 2015). The current study evaluated the efficacy of a combination of two treatments, Exposure, Relaxation, and Rescripting Therapy (Davis, 2009) and Cognitive Processing Therapy (Resick, Monson, & Chard, 2017), for an individual with visual and tactile hallucinations, nightmares, and PTSD. Results indicated that the participant tolerated all treatment aspects, including written exposure to the content of the post-trauma nightmares. Further, the combined treatment resulted in improvement in trauma-related nightmare frequency and severity, PTSD symptoms, negative post-traumatic cognitions, depressive symptoms, and sleep quality and quantity. Findings suggested that individuals with frequent nightmares, PTSD, and psychosis may benefit from direct treatments targeting these conditions.

Keywords: Posttraumatic stress disorder, sleep disturbances, psychosis, trauma, dreams

1. Introduction

Research on treating post-trauma nightmares has gained significant attention in the past two decades (e.g., Davis, 2009; Krakow et al., 2001). Several treatment approaches have been evaluated and found to be relatively effective in reducing the frequency and severity of post-trauma nightmares, as well as related psychological symptoms, including posttraumatic stress disorder (PTSD) symptoms, depressive symptoms, and sleep quality and quantity (Augedal, Hansen, Kronhaug, Harvey, & Pallesen, 2013; Casement & Swanson, 2012; Ho, Chan, & Tang, 2016; Krippner & Taitz, 2017; Rousseau & Belleville, 2018). Most reports of this research are based on randomized controlled trials (RCTs), which generally do not include participants with certain conditions or symptoms, including psychosis. As this area of inquiry moves forward, it is increasingly important to assess the generalizability of approaches to the broadest range of comorbid conditions.

Recently, a study examined the efficacy of Exposure, Relaxation, and Rescripting Therapy (ERRT; Davis, 2009), a post-trauma nightmare treatment, with individuals diagnosed with bipolar disorder (Miller, Davis, & Rhudy, 2018). This case series of seven individuals found that ERRT was

well tolerated. Results indicated large effect sizes for decreased nightmare frequency and severity, with six of the seven participants reporting complete nightmare cessation at the three-month follow-up. A large effect size was also found for the reduction of PTSD symptoms at follow-up. These results suggest that directly targeting nightmares in individuals generally not included in RCTs is feasible and worthy of additional research and clinical attention.

Research finds that individuals with psychosis also report significant sleep problems (Davies, Haddock, Yung, Mulligan, & Kyle, 2017; Reeve, Sheaves, & Freeman, 2015; Reeve, Sheaves, & Freeman, 2019), including insomnia (Freeman, Pugh, Vorontsova, & Southgate, 2009; Sheaves et al., 2016; Yang & Winkelman, 2006) and sleep apnea (Myles et al., 2016; Sharafkhaneh, Giray, Richardson, Young, & Hirshkowitz, 2005). Psychosis symptoms have been associated with sleep problems (Lunsford-Avery et al., 2013; Waters et al., 2011). Less research has focused specifically on nightmares. Sheaves, Onwumere, Keen, Stahl, and Kuipers (2015) examined the prevalence of nightmares in 40 inpatients and outpatients with psychosis. A two-week retrospective dream log revealed that 55% reported weekly nightmares, and associated nightmare distress was not related to a PTSD diagnosis. Nightmare frequency was associated with poor sleep quality and sleep efficiency; nightmare distress was associated with poor daytime impairment, including psychotic symptoms. This study suggested that nightmares, with or without PTSD, are common among individuals with psychosis and are related to their symptom severity and level of impairment. These findings also point to the importance of investigating the feasibility and impact of treating nightmares in this population.

The case that follows was drawn from a larger RCT investigating differences in PTSD and post-trauma nightmare

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Submitted for publication: October 2019

Accepted for publication: March 2020

DOI: 10.11588/ijodr.2020.1.66929

treatment outcomes. Specifically, the study compared two conditions: (1) a PTSD treatment alone, Cognitive Processing Therapy (CPT; Resick, Monson, & Chard, 2017) and (2) CPT combined with ERRT (administered either before or after CPT). Although individuals with psychosis were excluded from the trial, the present case illustrated the feasibility and effectiveness of the combined treatment with an individual whose psychosis emerged during the course of the treatment. Given the prevalence of nightmares (Sheaves et al., 2015) in individuals diagnosed with psychotic disorders, the present study may have important implications for conducting ERRT with individuals with comorbid conditions.

2. Method

2.1. Procedure

All procedures were approved by a university IRB. For the larger study, participants were recruited via flyers, email, and radio ads. Potential participants were screened over the phone and via an in-person assessment for inclusion criteria (i.e., experiencing a trauma, current PTSD diagnosis, and nightmares at least once per week for the previous month) and exclusion criteria (i.e., severe cognitive impairment, psychotic spectrum disorders, bipolar disorder, current suicidal ideation, or current untreated substance use disorder). Eligible individuals were invited to participate in the study and participants were randomly assigned, using a random number generator, to one of three conditions (i.e., CPT alone, ERRT followed by CPT, CPT followed by ERRT). Participants were re-evaluated at 3-months and 6-months post-treatment. Assessments and therapy were conducted by upper-level graduate students and supervised by the second author (J.D.). All assessors were blinded to condition and participants were compensated for follow-up assessments.

2.2. Measures

A demographic questionnaire obtained standard background information, including age, native language, marital status, educational achievement, ethnicity, vocational status, and household income.

The *Structured Clinical Interview for DSM Disorders* (First, 2015) assessed psychiatric disorders following the *Diagnostic and Statistical Manual of Mental Disorders (DSM-5;* American Psychiatric Association, 2013) symptom criteria. To assess for exclusion criteria, these modules were used: (a) Psychotic and Associated Symptoms to assess for psychotic spectrum disorders, in which hallucinations were defined as “perception-like experiences that occur without an external stimulus. They are vivid and clear, with the full force and impact of normal perceptions, and not under voluntary control” (pp. 87 - 88); (b) Mood Disorder to determine suicidality, current depression diagnosis, and bipolar diagnosis; and (c) Module for Substance Use Disorders to assess for untreated substance use disorder (modified to examine the past six months).

The *Life Events Checklist for DSM-5* (LEC-5; Weathers, et al., 2013a) assessed lifetime history of exposure (“happened to me, witnessed it, learned about it, part of my job, not sure”) to 17 potentially traumatic events.

The *Clinician Administered PTSD Scale for DSM-5* (Weathers et al., 2013b) assessed the 20 DSM-5 criteria for a PTSD diagnosis. Total severity scores range from

0 – 80. The CAPS-5 diagnosis exhibited interrater reliability of $\kappa = .78$ to 1.00 and test-retest reliability of $\kappa = .83$ (Weathers, Bovin, et al., 2018). The CAPS-5 total severity score exhibited excellent internal consistency ($\alpha = .88$), test-retest reliability of ICC = .78, strong convergent validity with a PTSD measure ($r = .66$ to .83), and weak to moderate discriminant validity with other mental health outcomes ($r_s = .02$ to .54).

The *Posttraumatic Stress Disorder Checklist* (PCL-5; Weathers, Litz, et al., 2013) assessed the 20 DSM-5 symptom criteria for PTSD. Total severity scores range from 0 – 80. The PCL-5 total score has exhibited excellent internal consistency ($\alpha_s > .91$), test-retest reliability of $r > .82$, strong convergent validity with other PTSD measures ($r_s = .68$ to .87), and weak to strong discriminant validity with other mental health outcomes ($r_s = .03$ to .74) (Blevins, Weathers, Davis, Witte, & Domino, 2015; Bovin et al., 2016; Wortmann et al., 2016). A score of 31 – 33 has been proposed as a cut-off for PTSD in Veterans (Bovin et al., 2016).

The *Posttraumatic Cognitions Inventory* (PTCI; Foa, Ehlers, Clark, Tolin, & Orsillo, 1999) assessed negative posttraumatic cognitions. Total severity scores range from 33 – 231. The total PTCI score has excellent internal consistency ($\alpha_s = .93$ to .97), test-retest reliability of $\kappa = .74$ to .85, and weak to strong convergent validity with other measures of negative beliefs ($r_s = -.02$ to -.74) and PTSD symptoms ($r_s = .36$ to .79) (Beck et al., 2004; Foa et al., 1999).

The *Center for Epidemiologic Studies Depression Scale-Revised* (CESD-R; Eaton, Smith, Ybarra, Muntaner, & Tien, 2004) assessed depression severity. The CESD-R exhibited excellent internal consistency ($\alpha_s > .92$), strong convergent validity with negative affect ($r = .58$), and anxiety ($r_s = .65$ to .74), and moderate discriminant validity with schizotypy ($r_s = .43$ to .44) (Van Dam & Earleywine, 2011).

The *Trauma Related Nightmare Survey* (TRNS; Davis, Wright, & Borntrager, 2001) assessed various characteristics of chronic nightmares. Likert-type, categorical, and open-ended questions assess the frequency, severity, and duration of nightmares, as well as cognitions, emotions, and behaviors related to nightmares. The TRNS exhibited test-retest reliability of $r = .73$ and moderate to strong convergent validity with other sleep and mood measures ($r_s = .44$ to .78) (Cranston, Miller, Davis, & Rhudy, 2017).

The *Nightmare Distress Questionnaire* (NDQ; Belicki, 1992a) assessed distress associated with nightmares. Total scores range from 0 – 52. The NDQ exhibited good internal consistency ($\alpha_s = .87$ to .88). Nightmare distress was associated with nightmare frequency ($r_s = .26$ to .45) and interest in therapy ($r_s = .43$ to .64) (Belicki, 1992a, 1992b).

The *Nightmare Effects Survey* (NES; Krakow et al., 2000) assessed impairment in various life domains resulting from nightmares. Total scores range from 0 – 33. The NES exhibited excellent internal consistency ($\alpha = .90$) (Krakow et al., 2000) and moderate convergent validity with number of nightmares per week ($r_s = .43$ to .52) (Krakow et al., 2002).

The *Pittsburgh Sleep Quality Index* (PSQI; Buysse, Reynolds III, Monk, Berman, & Kupfer, 1989) assessed sleep quality and problems. Participants rate quality of sleep and degree of sleep difficulties for a set period preceding the assessment. A global sleep quality score is obtained by summing the seven component scores and higher scores reflect poorer sleep quality. The global score may range from 0 – 21. The PSQI has good internal consistency ($\alpha = .83$) and test-retest reliability of $r = .85$. Buysse and colleagues

determined a cut-off score of five as distinguishing “good” sleepers from “poor” sleepers with a diagnostic sensitivity of 89.60% and specificity of 86.50%.

The *Sleep Hygiene Index* (SHI; Mastin, Bryson, & Corwyn, 2006) assessed how often individuals engage in 13 maladaptive sleep behaviors. A total severity score is obtained by summing all items and range from 0 – 52. SHI exhibited questionable internal consistency ($\alpha = 0.66$), test-retest reliability of $r = 0.71$, and weak to moderate convergent validity with other sleep measures ($r_s = 0.24$ to 0.48).

2.3. Treatments

The participant was randomized to receive ERRT, followed by CPT. ERRT is a five-session cognitive behavioral intervention that includes various techniques to target nightmares and sleep problems, including psychoeducation, relaxation, sleep hygiene modification, written and oral exposure to the nightmare, and thematic based rescription of the nightmare. CPT is a 12-session treatment designed to identify and modify maladaptive cognitions about the trauma and its aftermath. This version of CPT does not include exposure of the trauma.

3. Results

The participant provided specific consent for presenting the results of his participation in a case report. The participant reported he was a 19-year-old transgender man, who preferred the pronoun “he.” He identified as bisexual and biracial, Caucasian and American Indian/Alaskan Native. At the initial pre-treatment assessment, he endorsed experiencing four lifetime traumatic events, with childhood sexual assault as his index trauma. He met criteria for a current PTSD diagnosis, with a total CAPS-5 (Weathers et

al., 2013b) severity total score of 34. He did not meet criteria for a current major depressive episode, lifetime bipolar disorder, or substance use disorder. He reported previous diagnoses of anorexia nervosa, binge-eating/purging type, and insomnia. The participant reported taking Trazodone for insomnia, a thyroid hormone for hypothyroidism, and Testosterone Cypionate for his gender transition. The participant reported experiencing visual and tactile hallucinations at the initial pre-treatment assessment; however, he indicated these symptoms were well-managed, as he did not have any recent hallucinations and was not prescribed medications for psychotic symptoms. Thus, the participant was included in the trial. However, during the third session of CPT (eighth treatment session), he reported experiencing distressing visual and tactile hallucinations. Specifically, he indicated objects (e.g., walls) were wavy in appearance and he noted seeing facial patterns on objects (e.g., a couch). He also stated sensations were amplified for him. For instance, a breeze felt like a thousand bugs were crawling on him and the pain of a sore knee was so strong that he felt it needed to be amputated. He reported having these hallucinations a “few” times a day, with increased frequency when experiencing increased anxiety. As he indicated hallucinations were impacting his day-to-day functioning, he independently sought assistance from a psychiatrist. He was prescribed a quetiapine, or antipsychotic, to manage these psychotic symptoms and he longer was taking Trazadone for insomnia. The participant reported his psychotic symptoms were no longer impacting his day-today functioning. He benefited from ERRT and CPT thus far and was interested in continuing treatment, so it was decided to complete CPT. The participant’s hallucinations were closely monitored following this disclosure. It is important to note that the participant’s psychotic symptoms were not aggra-

Table 1. Total Scores on Variables of Interest

| | Pre-TX | ERRT 5 | CPT 12 | 3-Month Post TX | 6-Month Post TX |
|------------------------------------|--------|--------|--------|-----------------|-----------------|
| Nightmare Outcomes | | | | | |
| Nightmare Frequency Per Week | 2 | 0 | 1 | 3 | 1 |
| Nightmare Severity | 3.00 | - | 1.00 | 2.00 | 2.00 |
| Trauma-Related Nightmare Content | Yes | - | No | No | No |
| NDQ Nightmare Distress | 27 | - | - | 10 | 11 |
| NES Nightmare Effects | 16 | - | - | 2 | 3 |
| Sleep Outcomes | | | | | |
| PSQI Total Score | 15 | 9 | 8 | 7 | 10 |
| SHI Total Score | 23 | - | - | 21 | 19 |
| Mental Health Symptoms | | | | | |
| CAPS-5 PTSD Severity | 34 | - | - | 13 | 18 |
| CAPS-5 PTSD Diagnosis | Yes | - | - | No | No |
| PCL-5 PTSD Symptom Severity | 50 | 34 | 5 | 11 | 20 |
| PTCI Negative Cognitions Score | 185 | - | - | 105 | 96 |
| CESD-R Depression Symptom Severity | 45 | 31 | 6 | 16 | 18 |

Note. TX = Treatment; NDQ = Nightmare Distress Questionnaire; NES = Nightmare Effects Survey; PSQI = Pittsburgh Sleep Quality Index; SHI = Sleep Hygiene Index; CAPS-5 = Clinician Administered PTSD Scale; PCL-5 = PTSD Checklist; PTCI = Posttraumatic Cognitions Inventory; CESD-R = Center for Epidemiological Studies Depression Scale-Revised. - = Measures were intentionally not administered during treatment.

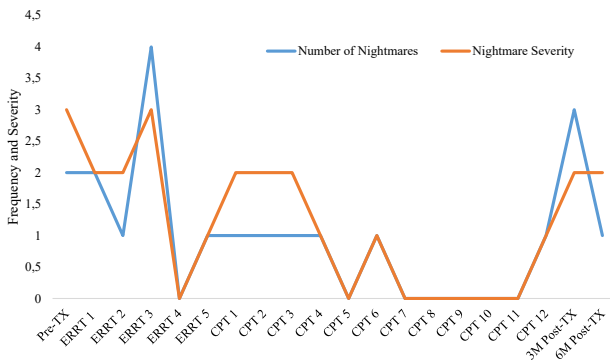


Figure 1. Nightmare Frequency and Severity Over Time
 Note. Nightmare frequency (Open ended question; for this participant, values ranged from 0 to 4 nightmares in a night) and severity (Ranges from 0 = Not at all to 5 = Extremely) across treatment sessions. TX = Treatment. Nightmare number and severity were assessed via TRNS.

vated during the first five sessions of ERRT. The participant also started using a duloxetine daily for anxiety at the tenth CPT session.

Improvements were observed for both trauma-related nightmare frequency and nightmare severity (Table 1). The participant experienced decreased number of trauma-related nightmares during ERRT (two nightmares per week to one) and ceased to have them at the seventh session of CPT (Figure 1). While the participant reported experiencing nightmares at CPT session 12 as well as at 3- and 6-months post-treatment, he indicated these nightmares as unrelated to traumatic events and were at a lower perceived severity, distress-level, and negative effect on his life as compared to pre-treatment. Although these nightmares were unrelated to trauma, some were associated with stressful experiences, including other people calling the participant by his birth name rather than chosen name.

In regard to sleep outcomes, the participant initially exhibited improvements in overall sleep quality (Table 1). Based on the PSQI, he rated his sleep quality as fairly bad at the initial assessment; fairly good at the completion of ERRT; very good at CPT completion and 3-months post-treatment; and fairly good at 6-months post-treatment. Although the participant made various changes in his sleep habits (i.e.,

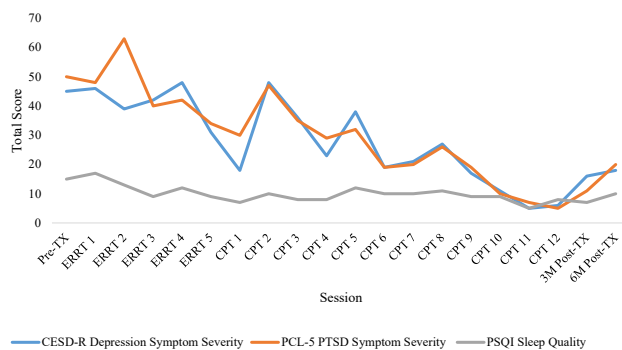


Figure 2. Depression, PTSD, and Sleep Quality Over Time
 Note. Depression and PTSD symptom severity as well as sleep quality across treatment sessions. CESD-R = Center for Epidemiological Studies Depression Scale-Revised. PCL-5 = PTSD Checklist. PSQI = Pittsburgh Sleep Quality Index. TX = Treatment. Mo = Months.

regular bed- and wake-up time, not using electronics one hour before bedtime, only using the bed for sleep) during ERRT, he reported engaged in a variety of unhelpful sleep habits at 3- and 6-month post-treatment.

Changes in mental health symptoms are presented in Table 1 and Figure 2. Improvements in both depression and PTSD symptom severity were exhibited from the first session of ERRT to the: (a) 5th session of ERRT and (b) the 12th session of CPT. These changes were maintained at 3- and 6-month post-treatment. Similar results were exhibited with the CAPS-5, as the participant no longer met criteria for PTSD at the 3- and 6-months follow-up assessments. Further, the participant exhibited decreases in negative post-traumatic cognitions.

4. Discussion

The current study sought to examine the feasibility and acceptability of ERRT in an individual with psychosis. At the completion of both ERRT and CPT, the participant exhibited decreased trauma-related nightmare frequency, severity, distress, as well as negative effects on his life. He also showed improvements in sleep quality and decreased PTSD symptoms, negative posttraumatic cognitions, and depression symptoms. The participant largely exhibited sustained changes 3- and 6-months post-treatment, including no trauma-related nightmares or a PTSD diagnosis. Results suggested ERRT was effective in decreasing the presence and impact of trauma-related sequelae, including nightmares, for an individual with psychosis. This supports previous research indicating the effectiveness of treatment for trauma-related nightmares and PTSD symptoms for the general and severely mentally ill population (Augeudal et al., 2013; Casement & Swanson, 2012; Ho et al., 2016; Krippler & Taitz, 2017; Miller et al., 2018; Rousseau & Belleville, 2018). It is important to note that the participant engaged in medication management of insomnia, hallucinations, and other conditions, which may impact treatment outcomes. It is difficult to specifically delineate the impact of the behavioral versus medication approach on major outcomes. However, current research suggests mixed or limited efficacy of trazadone (Bonnet & Arand, 2018; Mendelson, 2005) and antipsychotics (El-Solh, 2018) on insomnia, nightmares, and/or PTSD.

Although the participant experienced decreases in trauma-related nightmares in ERRT and no longer experienced them during CPT, the participant still experienced weekly non-trauma related nightmares at follow-up assessments. There may be several reasons for the pervasive nature of these nightmares. First, it is not uncommon for individuals with psychosis to experience nightmares (Sheaves et al., 2015), as sleep problems may sustain psychotic symptoms (e.g., Lunsford-Avery et al., 2013). Second, individuals may have medication-induced nightmares (Pagel & Helfter, 2003), which may require a different treatment approach. Third, the ERRT protocol encourages participants to apply learned skills to other nightmares experienced, however, it is unclear if the participant did so. Fourth, it may be that this participant was dealing with chronic stressful experiences, such as gender dysphoria, that may have perpetuated increased nightmare frequency.

Results of this case study need to be interpreted in light of several limitations. This is a single case study with no control, limiting abilities to interpret if symptom changes were the result of treatment or natural regression to the mean.

The present study utilized the DSM-5 (APA, 2013) definition of hallucinations; however, diagnosing psychosis is complex and may benefit from a more multidimensional approach (Larøi, 2006), including medically excluding an underlying organic cause. It is also unclear if individuals with psychosis require extra treatment (e.g., CPT) following ERRT to lead to cessation of trauma-related nightmares. This case study suggested that ERRT is acceptable to an individual with psychosis, which may necessitate examining the effectiveness or efficacy of ERRT among a larger sample. Further, the participant in this case study experienced tactile and visual hallucinations that were well-managed by psychotropic medications. It is unknown if study results are generalizable to individuals who experience psychosis of varying severity, so further replication is encouraged.

Due to high rates of nightmares (Sheaves et al., 2015) among individuals with psychosis, it is vital to understand the most effective treatment approaches for individuals with such comorbidities. This case study suggested that ERRT was feasible, acceptable, and effective for an individual experiencing psychosis; thus, brief and time-limited treatments for trauma-related nightmares may be appropriate for this sample. Increasingly, research suggests that Cognitive Behavioral Therapy for Nightmares (CBT-N) is appropriate for individuals with a range of comorbid conditions (van Schagen, Lancee, Spoomaker, & van den Bout, 2016). Further research is needed to examine the effectiveness and efficacy of CBT-N among individuals with psychotic disorders.

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