

Why the nightmares? Repeating nightmares among intimate partner violence survivors

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Summary. Repeating nightmares are a common phenomenon experienced by survivors of intimate partner violence (IPV). Based on neuroscience and cognitive research, a new model for nightmare generation was created, the AMPHAC/AND neurocognitive model, that suggests nightmares involve an internal fear-memory extinction process facilitating recovery from trauma. The model further identifies repeating nightmares as an impairment of the psychological healing process because they prevent the generation of fear-extinction memories. The two types of repeating nightmares (those that recreate the trauma [i.e., replicative nightmares] and those that repeat but are not recreations of trauma [i.e., recurrent nightmares]) were evaluated to determine if they are significantly related to PTSD symptom severity and nightmare distress, which is implicated by the model in impairing novel, fear-extinction memory generating nightmares. 78 participants were recruited and provided responses to questions evaluating the frequency of repeating nightmares, PTSD symptom severity, nightmare distress, and their experiences of IPV. Analyses of these responses generated the findings that both types of repeating nightmares are significantly correlated with PTSD symptom severity and nightmare distress, and there is a significant negative correlation between the length of time since the last repeating nightmare and PTSD symptom severity.

Keywords: Repeating nightmares, AMPHAC/AND neurocognitive model, intimate partner violence (IPV) survivors, post-traumatic stress disorder (PTSD), nightmare distress

1. Introduction

Intimate partner violence survivor quote (C. Murray, personal communication, October 29, 2014):

It's not over for me. I can't wait for the day when I look back upon my abusive past and it doesn't make me cry and when I don't have nightmares and flashbacks and am afraid to walk alone at night.

The quote above highlights the impact and ongoing challenge nightmares present for survivors of intimate partner violence (IPV). Understanding the relationship of IPV survivors' repeating nightmares to symptoms of posttraumatic stress disorder (PTSD) and nightmare distress was the goal of the current study. There are two types of repeating nightmares, defined in this study as *replicative* (i.e., repeating the trauma experience as it occurred) and *recurrent* (i.e., repeating the same imagery without change and the imagery is not a repeat of the trauma experience as it occurred in waking life) (Levin & Nielsen, 2007; Revonsuo, 2000; Schreuder, Van Egmond, Kleijn, & Visser, 1998). Investigating the relationships between these repeating nightmares, PTSD, and nightmare distress is important because these relationships are not currently well understood, and a theory grounded in neuroscience research suggests that repeating nightmares may indicate the impairment of an internal, psychological

healing process (Levin & Nielsen, 2009). In order to understand the need for investigating these relationships, the impact of IPV and its relationship to PTSD and nightmares are discussed in light of the neuroscientific theory that prompted this investigation.

1.1. Intimate Partner Violence and Posttraumatic Stress Disorder

Intimate partner violence (IPV) affects millions of individuals and families, and is defined as, "any behavior within an intimate relationship that causes physical, sexual, or psychological harm to those in the relationship" (World Health Organization, 2012, p. 1). These behaviors are further categorized into *acts of physical violence, sexual violence, emotional (psychological) abuse, and controlling behaviors* (World Health Organization, 2012, p. 1). IPV survivors describe experiences including isolation from friends and family, torture, rape, beatings, and threats to their own wellbeing as well as to those they love (Black et al., 2010; Golding, 1999; World Health Organization, 2012). The number of individuals affected by IPV is startling. According to Smith et al.'s (2018) National Intimate Partner and Sexual Violence Survey: 2015 Report Summary, 36.4% of women and 33.6% of men in the United States have experienced IPV including stalking, rape, and/or physical violence.

As a consequence of IPV, survivors experience serious psychological distress such as high rates of Post-Traumatic Stress Disorder (PTSD). In a meta-analysis of 11 studies, Golding (1999) reported PTSD rates ranging between 31% and 84.4% among IPV survivors. Even at the lower end of those rates, 31%, the number of IPV survivors with PTSD symptoms would be immense (nearly four million individuals in 2010 based on the estimate of 12.7 million Americans experiencing IPV that year), though the mean percentage for

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those developing PTSD across the studies was much higher at 64%, which would put the number of IPV survivors suffering from PTSD at over 8 million.

The high occurrence of PTSD among IPV survivors is understandable, as individuals who experience IPV face complex emotional pain and trauma (Bostock, 2009; Rasmussen, 2007; Woods, 2000). IPV often involves a serious loss of independence, significant financial problems, and great difficulty caring for children, including, protecting children from the brunt of a partner's violence. These factors compound the fear and pain of the abuse (Bostock, 2009; Woods, 2005; Woods, 2000). In the midst of managing the logistics of survival and dealing with the abuse, the re-experiencing symptoms of PTSD renew the terror generated by episodes of violence (Ehlers, Hackmann, & Michael, 2004). Nightmares are one very common feature of PTSD, categorized as an intrusion/re-experiencing symptom that increases fear and confusion for IPV survivors through exposure to dream imagery that is intensely, emotionally disturbing and may even replicate the violence experienced (i.e., a nightmare of being physically beaten by one's perpetrator exactly as had been experienced in waking life) (Mellman, 2008; Phelps, Forbes, & Creamer, 2008; Rasmussen, 2007).

1.2. Nightmares Following Trauma

Between 50% and 71% of those with a PTSD diagnosis report trauma-related nightmares (Leskin, Woodward, Young, & Sheikh, 2002; Neylan et al., 1998; Rasmussen, 2007). In a study by Rasmussen (2007), rates of nightmares were found to be 50% among IPV survivors, and accounts of their nightmares often describe in terrifying detail the emotions and imagery with which the sufferers live. Nightmare reports from the survivors revealed that content involving torture, murder, death, blood, and being chased occurred commonly and were described as highly emotional and deeply disturbing experiences. Adding more significance to the negative effects of nightmares on IPV survivors are studies indicating that the experience of increased nightmares is linked to a greater likelihood of suicide (Agargun et al., 2007; Cukrowicz et al., 2006; Nadorff & Fiske, 2013; Nadorff, Anestis, Nazem, Claire Harris, & Samuel Winer, 2014; Nadorff, Nazem, & Fiske, 2013; Tanskanen et al., 2001). Specifically, increased nightmares have been linked to increased suicidal ideation, greater number of previous suicide attempts, and increased likelihood of attempting suicide within the next two years, independent of depression, anxiety, and other PTSD symptoms (Sjöström, Hetta, & Waern, 2009; Sjöström, Wærn, & Hetta, 2007; Tanskanen et al., 2001). Such a direct link between nightmares and suicide is alarming, and further emphasizes the importance of increasing understanding of the emotionally distressing phenomenon of nightmares in order to improve treatment for IPV survivors experiencing them.

Nightmares were traditionally considered a secondary symptom of PTSD, however there is growing evidence that they are, in fact, a primary symptom of the disorder (Germain, Buysse, & Nofzinger, 2008; Mellman, 2008; Spoor-maker & Montgomery, 2008). Extant research includes findings that reveal nightmares may persist following treatment of PTSD, that individuals who experience frequent nightmares prior to the occurrence of trauma have an increased likelihood of PTSD following trauma, and that the treatment of nightmares can reduce PTSD symptom severity (Spoor-maker & Montgomery, 2008). Taken together, the available

research findings point to the conclusion that nightmares play a significant role in PTSD, yet it is one that is currently poorly understood.

A contributing factor to not clearly understanding the relationship of PTSD to nightmares is that research on dreams and research on PTSD have largely occurred separately, generating little dialogue amongst researchers in these lines of study. Therefore, it is encouraging that recent research on dreams and theories grounded in that research suggest possibilities for new understandings of nightmares following trauma (Phelps et al., 2008). To further the existing knowledge, it is necessary to differentiate between types of nightmares. In support of generating a better understanding of nightmares in relation to PTSD, Levin and Nielsen (2009) created a model illuminating the role that nightmares play in the development and treatment of PTSD.

1.3. AMPHAC/AND Neurocognitive Model

Levin and Nielsen (2009) proposed a neurocognitive dreaming paradigm, the (A)mygdala, (M)edial (P)refrontal Cortex, (H)ippocampus, (A)nterior (C)ingulate Cortex/(A)ffective (N)etwork (D)ysfunction (AMPHAC/AND) neurocognitive model that draws from neuroscience and cognitive research findings and describes nightmares as being linked to emotional processing. The relationship between neurological processes and the model is reflected in the model's name, which consists of the key brain regions connected to the dreaming process, (A)mygdala, (M)edial (P)refrontal cortex, (H)ippocampus, and the (A)nterior (C)ingulate cortex, as well as the cognitive-neural processing network implicated in nightmare generation, (A)ffect (N)etwork (D)ysfunction. The AMPHAC/AND model proposes that one function of dreaming is fear-memory extinction and that repeating nightmares occur when the fear-memory extinction process is impaired (Levin & Nielsen, 2009).

Levin and Nielsen (2007; 2009) state that nightmares create an environment for fear-memory extinction by stimulating memories that contain fearful or emotionally disturbing content, prompting those memories to be recombined with new content from memory or imagination and thereby, creating a new context for the fearful or emotionally disturbing content. That generation of new context related to the fearful or emotionally disturbing material is described as the creation of new fear-extinction memories. Because dreams feel real, the memories of the new combinations are treated in a similar manner to waking experiences and therefore, provide opportunities for new relationships to the waking experiences that prompted the emotional disturbance. An important part of this process is the involvement of emotional processes in dreaming, as it is through this engagement with emotion that fearful or disturbing memories are recalled. Furthermore, it is through this process that, as those memories are recombined and reimagined in dreaming, new emotional relationships to memories are developed. When the generation of new emotional relationships to memories in dreaming is impaired, extinction memories are not created, and as a result, repeating nightmares are generated and trauma recovery is impaired (Levin & Nielsen, 2007).

Levin and Nielsen (2007) argue that the relationship between brain regions in response to experiences of trauma are directly related to the experiences of nightmares among trauma survivors. Their description of these neurological processes are based on previous neuroscience research findings, but there is also a growing body of research direct-

ly supporting their model (see Germain et al., 2013; Marquis et al., 2016, 2015; Shen et al., 2016; Simor, Blaskovich, Reicher, & Reichard, 2017). The neurological processes Levin and Nielsen describe are the following. Amygdala activation in response to trauma prompts nightmares containing the emotion from the trauma and pulling in memories of the traumatic event. In the nightmare, the hippocampus generates new contextual content in relation to the emotion and memory of the traumatic experience. The generation of new contextual content is stored in the medial prefrontal cortex and facilitates the incorporation of the trauma memory into long-term memory. However, the hippocampal generation of new contextual content and incorporation of the traumatic memory into long-term memory can be inhibited through neural processes. Levin and Nielsen propose that affective distress (AD) (i.e., the emotional pain being experienced) is connected to ACC activity that inhibits the generation of new contexts for fear and fear related memories in the hippocampus, resulting in a lack of new fear-extinction memories. The important aspect of this process in relation to the current study are that higher levels of AD impair the generation of new contextual content in nightmares.

There are two types of repeating nightmares, replicative and recurrent. In relation to replicative and recurrent nightmares, the AMPHAC/AND model proposes a typology with replicative nightmares (i.e., those that directly replicate a trauma event) as the most severe form of nightmares and nightmares that are not replicative as the second most severe nightmare form (Levin & Nielsen, 2007). This typology is suggested but not directly supported by research evidence. The model does not directly account for the non-replicative, recurrent nightmares despite the presence of these types of repeating nightmares in reports of those experiencing traumatic nightmares (Rasmussen, 2007). This suggests a need for research to better situate recurrent nightmares in relation to replicative nightmares and in relation to AD and PTSD symptom severity.

In summary, the AMPHAC/AND model provides a clear rationale for understanding the relationship of repeating nightmares to PTSD and supports looking more closely at the relationship of repeating nightmares to nightmare distress. Within the model, AD is implicated in the impairment of dreaming that results in nightmares. When the impairment is significant, the result is repeating nightmares (Levin & Nielsen, 2007; 2009). Nightmare distress is a variable measuring AD related to nightmares (Levin & Nielsen, 2007). Therefore, evaluating the relationship between replicative and recurrent nightmares, PTSD symptom severity, and nightmare distress will increase understanding of whether nightmare distress is strongly linked to replicative and recurrent nightmares in a manner that would be consistent with it being a primary factor in the generation of those repeating nightmares and the consequent maintenance of more severe PTSD symptoms among IPV survivors. Subsequently, the research questions for the study were as follows.

1. Is there a significant relationship between the frequency of recurrent or replicative nightmares and nightmare distress and PTSD symptom severity among IPV survivors?
2. Is there a significant relationship between the time since the last repeating nightmare (replicative and recurrent nightmares) and PTSD symptom severity among IPV survivors?

2. Method

2.1. Participants

It is well known that survivors of IPV have nightmares, but the relationship between the types of nightmares, their frequency, the distress attributed to them, and PTSD symptom severity are not well understood. Therefore, participants who had experienced IPV and who are currently experiencing nightmares were selected in order to have a participant sample in which PTSD symptom severity could be examined in relation to frequency and types of nightmares. The specific selection criteria required participants to be adult survivors of IPV, who were over the age of 21 and who were experiencing nightmares. To avoid contributing to suffering, participants were only allowed to participate if they were currently out of any abusive relationships. Participants were recruited through volunteer sampling in conjunction with an interest network for IPV survivors, through social media sites supporting survivors of IPV, from a variety of state coalitions against domestic violence, and from agencies directly working with survivors of IPV.

A total of 69 participants completed the entire survey, and 78 individuals completed a majority of the survey, such that their responses could be included. One hundred sixty-eight individuals viewed the survey and ninety-six agreed both agreed to participate and were eligible. Of those who qualified and agreed to participate, five answered no questions in the survey, leaving 91 participants who answered some portion of the survey. Of those 91, 12 completed too few items for their responses to be used, and one participant's responses were discarded because of uninterpretable answers. Therefore, there was a 41% completion rate among those individuals who viewed the survey and a 76% total completion among those individuals who started the survey.

Participants' ages ranged from 21 to 73 years old with a mean age of 36.69 (SD = 10.98). Sixty-four participants were women (87.67%), three were male (5.48%), two participants selected other (2.74%), and three participants chose not to answer the question (4.11%). Abuse was reported by all participants. Of the 75 participants responding to questions of abuse, 60 reported physical abuse (80.0% of respondents), 67 reported emotional abuse (89.3% of respondents), 65 reported verbal abuse (86.7% of respondents), and 53 reported the occurrence of sexual abuse (70.7% of respondents). There was also significant overlap in participants' experiences of abuse types with 44 participants reporting all four types of abuse, 16 reporting three types, nine reporting two types, and six reporting only one type.

Overall, participants were Caucasian (94%), married or in a committed relationship (60%), and educated beyond high school (67% had an associates, bachelors or graduate degree). Seventy-four percent of participants were in counseling at the time of the survey, though only 29% of those reported that counseling was helpful or very helpful in addressing their nightmares. Twenty eight percent were taking medications. Fifty-five percent (12 participants) of those taking medications reported nightmares were less frequent, and a smaller percentage, 32% (seven participants), stated nightmares were less disturbing. The mean number of years since respondents had been in an abusive relationship was 6.52 (SD = 7.09), with 41% reporting being out of an abu-

sive relationship for over 13.61 years. Further demographic information is provided in Table 1.

2.2. Research Instruments

Demographics- In order to contextualize results from the assessments and participant responses, information regarding participants' age, ethnicity, comfort in taking a survey in English, psychotherapeutic history (including whether they have received counseling following their experience of IPV and the perceived benefit of counseling), psychotropic medications (including whether they are taking any medications for nightmares and what the effects they have noticed the medications having on their nightmares), types of abuse they experienced, and number of abusive relationships prior to their most recent abusive relationship. The question about language evaluated whether the participant was able to adequately comprehend the consent document and assessments, and if a lack of proficiency was expressed, they were asked not to complete the survey due to concerns

Table 1. Participant Demographics

Demographic Characteristics	n	%
Ethnicity		
Caucasian	73	93.6
African-American	1	1.3
Hispanic	1	1.3
More than one ethnicity	3	3.8
Total	78	100.0
Education Level		
High School Diplomas or GEDs	19	24.4
Associates Degree	14	17.9
Bachelors Degree	22	28.2
Graduate Degree	17	21.8
No High School Diploma or GED	3	3.8
Other	3	3.8
Total	78	100.0
Household Income		
Under \$30,000	25	32.1
\$30,000- \$59,000	28	35.9
\$60,000- \$100,000	17	21.8
Over \$100,000	8	10.3
Total	78	100.0
Number of Abusive Relationships		
One	25	32.1
Two	15	19.2
Three	18	23.1
Four	5	6.4
More than four	10	12.8
More than one but did not specify	1	1.3
Did not respond	4	5.1
Total	78	100.0

about informed consent and ability to correctly interpret survey questions.

IPV Questionnaire- Using six questions, information about the nature of the IPV abuse participants experienced was assessed. This information included the type of relationship in which the abuse occurred, the length of the relationship, the time since the relationship ended, and if there were abusive relationships that preceded the most recent one. There is no psychometric information on this questionnaire. However, this questionnaire was adopted from one used in studies of IPV survivors (see Flasch, Murray, & Crowe, 2017; Murray, Crowe, & Flasch, 2015; Murray, King, & Crowe, 2015). Those studies draw attention to the importance of the information generated from the questionnaire in understanding the experiences of IPV survivors.

Nightmare Type and Frequency Questionnaire- The questions about nightmare types and frequencies were developed for this study, since there were no existing questionnaires that ask for this specific information. Fourteen questions were used to collect data on the types and frequencies of nightmares among respondents and assess the number of replicative and recurrent nightmares and when the last replicative or recurrent nightmare occurred. The questionnaire gave definitions of replicative and recurrent nightmares and then, asked participants to provide information about how often they had experienced those types of nightmares. Participant responses about the types and frequencies of their nightmares along with the time since they experienced the nightmares were used individually in analyses. There is no scale or index to this questionnaire, so responses were not aggregated. There is no psychometric data on this questionnaire, but it was reviewed by four counseling experts with experience and knowledge about dreams, nightmares and IPV in order to assure content validity and readability.

PTSD Checklist-5 (PCL-5)- was used to assess PTSD symptoms of participants and will be referred to as PTSD in the analyses. The PCL-5 (Weathers et al., 2013) is a 20 item, self-report measure that is congruent with the DSM-5 diagnostic criteria for PTSD. The items use a five-point Likert scale from "Not at all" (0) to "Extremely" (4). A total severity score is obtained by summing all item scores (Weathers et al., 2013). A cut-point score of 38 is recommended and gives a strong indication of PTSD, but the duration of symptoms and trauma exposure also need to be assessed to assure proper diagnosis (Weathers et al., 2013).

The reliability and validity of the DSM-5 version of the instrument has preliminary support and is the only self-report symptom scale the U.S. Department of Veterans Affairs lists as an approved "DSM-5 validated measure" ("DSM-5 validated measures," 2014). A recent study demonstrated a Cronbach's alpha of .94, test-retest reliability of 0.73, and construct validity of .95 which supports the psychometric strength of the updated version and consistency with earlier versions. In the current study, the PCL-5 had a Cronbach's alpha score of 0.91, which closely aligns with the scores from previous studies.

Nightmare Distress Questionnaire (NDQ)- is the most widely used measure of distress attributed to nightmares (Böckermann, Gieselmann, & Pietrowsky, 2014) and consists of 13, five-point Likert scales which generate a total score ranging from 13 to 65, with higher scores indicating greater distress (Belicki, 1992b). Items use Likert scales and are anchored by *always* (1) or *never* (5) for 10 questions, Two items are anchored by *not at all* (1) to a *great deal* (5), and

one item uses *not at all interested* (1) to *extremely interested* (5). Examples of NDQ questions include, *Do nightmares affect your well-being?*, and *Do nightmares interfere with the quality of your sleep?*

Two factor analyses have demonstrated that three factors make up the NDQ measure (Böckermann et al., 2014; Martinez et al., 2005). The factors are consistent with the variable nightmare distress and are described by Bockermann et al. (2014) as *general distress*, *impact on sleep*, and *impact on daytime reality*. The Cronbach alphas for these three factors are 0.80, 0.64, and 0.51 respectively, and all three factors are highly and significantly correlated with the total NDQ score (Böckermann et al., 2014).

The NDQ has been used widely and has been shown to measure a unique yet related experience to simple nightmare frequency (Belicki, 1992a, 1992b; Duval, McDuff, & Zadra, 2013; Martinez, Miro, & Arriaza, 2005). Duval et al. (2013) found that nightmare distress accounted for 20.3% of the variance in nightmare frequency, in a study evaluating the frequency of nightmares in 352 undergraduate females, and was a better predictor of nightmare frequency than history of childhood abuse or waking psychopathology (Duval et al., 2013). Belicki (1992a) conducted a study of nightmare distress in relation to nightmare frequency and found that distress, not frequency, was significantly correlated with psychopathology.

The NDQ shows good psychometrics for internal consistency and convergent validity (Böckermann et al., 2014; Martinez et al., 2005). Across four studies involving 540 volunteer undergraduate participants, Belicki (1992b) found Cronbach's alphas ranging from 0.83 to 0.88. In two more recent studies examining the factorial structure of the NDQ, the Cronbach's alpha scores of internal consistency were found to be 0.80 in both studies (Böckermann et al., 2014; Martinez et al., 2005), and in a recent study by Steine et al. (2012) in a study of survivors of sexual abuse, the Cronbach's alpha was .90. The Cronbach's alpha of .87 in the current study closely fits with Steine et al.'s score.

In this study, the NDQ was used to understand the subjective effect of nightmares. With the permission of the author, the time frame of item 12 was changed from "in the last year" to "in the last month" to better correspond with the time frame of other instruments in the study. Additionally, participants were asked to respond to the questions based on their experience of nightmares over the preceding month.

2.3. Procedure

The study survey was created in an electronic format using the Qualtrics survey program. The 15-minute long survey began with an IRB approved description of the purpose of the study, risks that may result from participation, voluntary

nature of the study, and information about how participant information would be used and kept confidential. Following an acknowledgement of this information and acceptance to participate, the survey began. Participants then answered questions about their trauma experiences, PTSD symptoms, nightmare types and frequencies, and nightmare distress. In Qualtrics, the option to preclude multiple entries from the same individual was selected to prevent multiple submissions from the same individual. After data collection, participants responses were analyzed using SPSS to answer the research questions.

3. Results

Descriptive analyses were conducted for the primary research variables (see Table 2). PTSD symptom severity and nightmare distress were both normally distributed and without outliers. Recurrent and replicative nightmares were not normally distributed and there were several outliers for both variables. After examining the data, it was determined that the responses were consistent with what might be expected (i.e., some individuals had more than one repeating nightmare per night and others had no repeating nightmares) and should be included. Therefore, the nonparametric Spearman's Rho analysis was chosen for the correlation analysis. The bivariate correlation was conducted, and the results provided the correlation matrix in Table 3.

From the correlation matrix, it can be seen that significant relationships exist between all of the variables. For replicative nightmares, there is a moderately strong relationship with nightmare distress ($r = 0.440, p < 0.001$) and a moderate relationship with PTSD symptom severity ($r = 0.318, p = 0.006$). For recurrent nightmares, there is a moderately weak relationship with both nightmare distress ($r = 0.286, p = 0.015$) and PTSD symptom severity ($r = 0.293, p = 0.012$). The findings confirm the hypothesis for the first research question, there is a significant relationship between the frequency of recurrent and replicative nightmares and the measures for nightmare distress and PTSD symptom severity reported among IPV survivors.

Descriptive analyses were also conducted for the variables in the second research question (see Table 2). The variables of Time Since the Last Repeating Nightmare and PTSD were first analyzed to test for outliers and normality. PTSD was normal and without outliers. Time Since the Last Repeating Nightmare was not normal based on a significant result on the Shapiro-Wilk normality test, a very large skewness and kurtosis, and eight significant outliers based on Cohen's D. However, the data was consistent with what would be expected, namely that some participants had been out of abusive relationships for many years but were still reporting repeating nightmares. Therefore, the nonparametric analysis Spearman's rho was also used for this corre-

Table 2. Variable Psychometrics

Variables	N	M	5% Trimmed Mean	SD	Range	Skew
PTSD	74	49.55	50.05	14.01	10-76	-0.57
Nightmare Distress	76	43.87	43.92	8.36	28-60	-0.21
Recurrent Nightmares	78	2.15	1.96	2.24	0-8	1.22
Replicative Nightmares	78	1.71	1.48	2.23	0-8	1.33
Time Since the Last Repeating Nightmare	65	61.57	8.98	359.20	1-2880	7.80

Table 3. Spearman's rho Correlations

Variables	Recurrent Nightmares	Replicative Nightmares	Nightmare Distress
Replicative Nightmares	0.249*	-	-
Nightmare Distress	0.286*	0.440**	-
PTSD	0.293*	0.318**	0.624**

Note. N=72. * $p \leq 0.05$ (2-tailed), ** $p \leq 0.01$ (2-tailed).

lation analysis. The analysis revealed a significant negative correlation existed between Time Since the Last Repeating Nightmare and PTSD symptom severity ($r = -0.376$; $p = 0.001$; $N = 71$). This confirmed the hypothesis for the second research question, there is a significant negative relationship between the time since the last repeating nightmare (replicative and recurrent nightmares) and PTSD symptom severity among IPV survivors.

4. Discussion

The demographic profile of the participants is important for understanding the study findings. PTSD symptom severity was generally high for participants, with only 20.3% scoring below the cut-score (i.e., the score at and above which PTSD is likely), meaning that 79.7% of participants were experiencing significant symptoms of PTSD. The majority of the study participants had been out of any abusive relationships for years, with 88.9% out of any abusive relationship for at least a year and 76.4% for at least two years. Amongst the participants, only 15.4%, reported no replicative or repeating nightmares. It is noteworthy in and of itself that 84.6% of participants who took the study based on having experienced IPV and having nightmares had experienced replicative or recurrent nightmares in the last week. The enduring psychological effect of the trauma of IPV is apparent in this information.

In light of the demographic information, the results of the study are interpretable as indicating that replicative and recurrent nightmares are a common experience for the participants, who are survivors of IPV, and that the occurrence of these nightmares is related to high levels of PTSD symptoms and affective distress related to those nightmares, with replicative nightmares being more strongly related, as compared to recurrent nightmares, to both PTSD symptom severity and nightmare distress. It is also noteworthy from the data analysis that as the time since the last replicative or recurrent nightmare increased, there was a decrease in PTSD symptom severity.

The relationship between PTSD symptom severity and Nightmare Distress, seen in the correlation matrix in the analysis for the first research question, was significant and strong. The relationship between these variables suggests that 39% (determined by squaring the correlation) of the variability in PTSD symptom severity may be explained by Nightmare Distress. Study results consistently show high levels of nightmare distress in participant groups with high PTSD scores (Phelps, Forbes, Hopwood, & Creamer, 2011; Scott et al., 2017; Van Schagen, Lancee, Spoomaker, & Van Den Bout, 2016) along with significant relationships between nightmare distress and a variety of mental health assessments such as the Symptom Checklist-90-Revised (SCL-90R), Beck Depression Inventory (BDI), State-Trait Anxiety

Inventory (STAI), and Dissociative Experiences Inventory (DEI) (Belicki, 1992a; Duval et al., 2013; Levin & Fireman, 2002). These studies suggest there is a strong relationship between the variables of nightmare distress and PTSD. However, there is a dearth of research providing direct correlations between nightmare distress scores and PTSD assessments, which makes this finding notable.

When these findings are examined in relation to the AMPHAC/AND neurocognitive model, the expectations of what should be found are consistent with what was found, which is also indicated by the confirmation of the hypotheses. Based on this model, an explanation for the results is that repeating nightmares are linked to an impairment of the fear-memory extinction process, with replicative nightmares indicating a greater degree of impairment compared to recurrent nightmares. Furthermore, it is the affective distress related to nightmares that is impairing the generation of novel, non-repeating nightmares, which are necessary for fear-memory extinction during dreaming. The results of this study in no way confirm the AMPHAC/AND model, but they do lend more credence to the possibility that this model may be correct. The findings of this study along with the AMPHAC/AND model also suggest that a typology for dreams and nightmares should likely have the associative nature of the dreams and nightmares as a key element for differentiation.

5. Future Directions

There are several relevant future directions for practicing counselors and psychotherapists. A primary one being the importance of investigating the presence of replicative and recurrent nightmares among IPV survivors, as it appears repeating nightmares occur more frequently for those with greater PTSD symptom severity. In other words, questioning clients about repeating nightmares may improve a therapist's ability to identify those individuals suffering from PTSD. This is suggested by the findings but needs more research. In addition, repeating nightmares are linked to high levels of nightmare distress, which means the nightmares are having a negative impact on the waking life of survivors. The impact of nightmare distress on an IPV survivor is an issue that is important to address clinically because nightmare distress involves the impairment of sleep, negative effects on interpersonal relationships, decreased well-being, and increased levels of anxiety. Moving forward, it is important to evaluate the effects of directly addressing nightmare distress.

There is evidence that the intervention, Imagery Rehearsal Therapy (IRT), can improve nightmare distress and PTSD. IRT has been found to significantly reduce nightmare frequency and severity along with PTSD symptoms (Casement & Germain, 2014; Krakow, Hollifield, & Johnston, 2001; Nappi, Drummond, Thorp, & McQuaid, 2010), and a longitudinal and randomized study by Kunze, Arntz, Morina, Kindt, & Lancee (2017) along with several case studies (Davis & Wright, 2005; Germain & Nielsen, 2003) demonstrated significant reductions in nightmare distress following IRT. With IRT showing promising results in addressing both PTSD and nightmare distress and the strong and significant relationship between those variables in this study, the use of IRT with IPV survivors suffering from nightmares should be considered as a treatment intervention, though further research is needed.

The current study provides information about relationships between repeating nightmares, nightmare distress, and PTSD symptom severity that may be helpful for counselors and psychotherapists, but it also highlights the need for greater research on nightmares in relation to PTSD and IPV survivors. A first suggestion for research is to focus on developing an understanding of what interventions positively impact nightmare distress and whether that impact results in improvements in PTSD symptom severity for IPV survivors. Following from the first suggestion and looking specifically at IRT, does the reduction of PTSD symptom severity from IRT result from a decrease in nightmare distress? Third, does a change from repeating nightmares to non-repeating nightmares directly correspond to a decrease in PTSD symptom severity among IPV survivors, as suggested by the AMPHAC/AND model? Finally, how do dreams and nightmares, differentiated by their novelty (i.e., replicative, recurrent, or new content), relate to specific aspects of mental health, such as PTSD symptom criteria and insomnia among IPV survivors. Answering these questions would help to generate better answers to questions clients are likely to ask, such as “Why am I having these nightmares?”; “What can I do about these nightmares?”, and “How can I heal from the abuse I experienced, so that I no longer have PTSD or nightmares?”

6. Limitations

There are limitations to any study and, in the current study, limitations occurred. First, respondents completed the survey online, limiting participation to those with access to internet connected technology and making it impossible to confirm the veracity of responses. Second, the participants were primarily female and Caucasian, limiting generalizability of the results to other genders and ethnicities. Third, the sexual identity of participants along with the type of relationship (i.e., homosexual or heterosexual) in which the abuse took place was not assessed, which may also affect generalizability of the results. Fourth, the study was cross-sectional in nature, therefore, causal conclusions were not reached. Fifth, there was an inducement used to encourage participation. This inducement consisted of 25 Amazon gift certificates worth \$20 each that were randomly given to participants who upon completion of the study, followed a link to a separate Qualtrics site and agreed to enter the drawing for the gift certificates. There is the potential that individuals could have completed the survey inaccurately in order to enter the drawing. The length of the survey (15 minutes) and relatively small inducement hopefully made inaccurate entries less likely, but it is a possibility. Sixth, the study relied on self-reports of nightmares, PTSD, and nightmare distress, which creates possibilities for inaccuracy in memory. Seventh, there were participant differences, such as whether they attended counseling, took medications for nightmares, and the types of abuse they endured, that may have affected participants' PTSD symptoms, nightmare distress, and repeating nightmares. Because of insufficient variability and participant numbers in these differences, it was not possible to determine the influence they had on the measured variables. Eighth, the Nightmare Type and Frequency Questionnaire was created for this study and therefore, lacks extensive evaluation. Expert reviewers were used to limit problems. However, the use of a new questionnaire creates the possibility that questionnaire design may limit the accuracy of client responses. Finally, survey data was

collected in a naturalistic setting, so unknown external variables may have affected the data.

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