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Differentiating single and multiple suicide attempters: What nightmares can tell us

By

Katrina Joy Speed

A Thesis
Submitted to the Faculty of
Mississippi State University
in Partial Fulfillment of the Requirements
for the Degree of Master of Science
in Psychology
in the College of Arts & Sciences.

Mississippi State, Mississippi

May 2017

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2017

Differentiating single and multiple suicide attempters: What nightmares can tell us

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Pages in Study: 55

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Suicide is a leading cause of death in the United States, despite a wealth of research investigating suicide risk factors. Sleep disturbances are also rising, and continue to be an often undetected and untreated source of increased suicide risk. A growing body of literature has looked for connections between sleep disturbances and increased suicidality, but few studies have looked at differentiating between single and multiple suicide attempters. Further, when assessing nightmares, literature varies widely on defining and measuring symptoms of nightmares, and no known studies have compared frequency, distress/severity, and duration. Participants (n =225) were recruited via an online study conducted on Amazon Mechanical Turk who reported one or more prior suicide attempts. Results show that nightmare frequency independently predicted multiple suicide attempters when controlling for symptoms of depression, PTSD, insomnia, nightmare severity/distress, and nightmare duration. Clinical implications for findings include screening and treating nightmares as a potential suicide intervention.

DEDICATION

I would like to dedicate and thank all of those that contributed to my successful completion of this milestone project. First, I would like to thank Dr. Kristina Hood for teaching me the process, being patient with my learning curve, and believing I could do something I did not know I could do. Dr. Michael Nadorff, for providing me with data, outstanding mentorship, and continual support. Dr. Mitchell Berman, for giving me critical and honest feedback in a non-anxiety provoking manner. Dr. Christopher Drapeau, for schooling me on APA-style and giving me the much-needed inspiration to continue when I was stuck. Dr. Samuel Winer, for providing me with access to data for the project and encouraging me to critically examine research instead of excepting the status quo. To my partner, Gage, for understanding when the nights were long and the weekends short, but always encouraging me to push forward. To my grandpa, for always encouraging me to pursue my education with passion. To my mother, grandmother, and adopted grandmother for listening to my endless frustrations, taking my babies to play so I could get out "one more round of edits out," and talking me back from quitting more times than I can count. To my dad, for always telling me how proud he is and praying for me every chance he gets. To my children, Seth Cole and Sophie Belle, for always loving and supporting me even when it means it is tough sometimes. This would not have been possible without any of you, and I will forever be thankful for your support in my pursuit of higher education.

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CHAPTER I

INTRODUCTION

For over a decade, suicide has been in the top ten causes of death in the United States (Drapeau & McIntosh, 2015; Centers for Disease Control and Prevention, 2016). Current published rates for deaths by suicide may be misleading, with suicide rates being as much as 42% higher when undetermined and probable suicide deaths are considered (Bakst, Braun, Zucker, Amitai, & Shohat, 2016; Sehdev & Hutchins, 2001). Researchers have focused on numerous risk factors (e.g., depression, age, gender, etc.) that increase suicidality, or likelihood of death by suicide, but sleep disturbances are less studied.

Studies on sleep have found as evidence that as many as 29.2% of American adults have a sleep duration of less than 6 hours per night (Ford, Cunningham, & Croft, 2015). Further, outpatient visits for sleep-related concerns have risen as much as 29% since 1999 (Ford, Wheaton, Cunningham, Chapman, & Croft, 2014). With trends showing that complaints about sleep concerns are on the rise in clinical settings, along with known co-morbidity between sleep disturbances and other mental health disorders, including depression, a deeper look at the connection between sleep and suicide is warranted (Alvaro, Roberts, & Harris, 2013; Franzen & Buysse, 2008).

Research has yet to provide a clear understanding of how sleep difficulties, suicidal risk, and death by suicide are related. Given that previous suicide attempts are the strongest known predictor of death by suicide to date and multiple attempts have been

shown to increase suicide risk (Borges et al., 2010; Joiner et al., 2005), it is critical to investigate what factors that may contribute to engagement in suicidal attempts. The purpose of this study was to investigate whether sleep disturbances (i.e. nightmares and insomnia symptoms) increase the likelihood that individuals will report multiple suicide attempts in their lifetime independent of other known risk factors. Previous research suggests that nightmares may be more important than insomnia symptoms in predicting suicide risk (Cukrowicz, Otamendi, Pinto, & Benert, 2006; Nadorff, Nazem, & Fiske, 2011); this study also aims to analyze the predictive power of nightmare symptom components in differentiating between single and multiple suicide attempters.

Understanding the Current State of Suicide in the United States

In 2015, more than 44,000 individuals died by suicide, making it the tenth leading cause of death overall across all ages (Center for Disease and Prevention Control and Prevention [CDC]). Suicides had a higher prevalence rate per 100,000 people in the population than both accidental transportation accidents and homicides, with rates falling at 13.7, 12.3, and 5.5 respectively (CDC). Suicide can have a devastating impact on those left behind, with research suggesting that numerous individuals are being exposed to and affected by each death by suicide (Berman, 2011; Cerel, Jordan, & Duberstein, 2008). Mental health researchers have targeted the challenge of unremitting suicide rates in the United States by investigating risk factors associated with suicidal ideations, attempts, and deaths by suicide (Curtin, Warner, & Hedegaard, 2016). One such risk factor that has been investigated are symptoms of sleep disturbances.

Sleep Disturbances: Insomnia Symptoms and Nightmares

Insomnia Symptoms

The current understanding of the connection between risk of suicide and sleep disturbances has been growing over the past two decades. To date, suicide and sleep disturbance research has largely focused on the role of insomnia symptoms in increasing suicidal ideations, initial and subsequent attempts, and resulting deaths (Li, Lam, Yu, Zhang, & Wing, 2010; McCall et al., 2010; Woznica, Carney, Kuo, & Moss, 2015). Fawcett and colleagues (1990) published a landmark longitudinal study that introduced insomnia symptoms as a suicide risk factor to the clinical and research community. Their study, which was conducted over ten years with 954 psychiatric patients, aimed to determine what suicide risk factors were associated with proximal and distal suicide risk. Insomnia symptoms were identified as a proximal risk factor, as insomnia symptoms were reported within the year prior to suicide, whereas suicidal ideation and history of previous suicide attempts were distal risk factors, only associated with death by suicide when occurring more than a year prior to death (Fawcett et al., 1990). This finding paved the way for researchers to investigate sleep disturbances as potential independent risk factors.

In a study of 100 consecutive inpatients who made severe suicide attempts (i.e., drug and/or alcohol overdosing, chest stabbing, poisoning), Hall, Platt, and Hall (1999) found that 92% of patients reported the presence of at least one type of insomnia (e.g., onset, maintenance, or terminal symptoms), with 64% reporting multiple sleep disturbances. These rates are substantially higher than the insomnia symptom rates found in the general population (Morin, LeBlanc, Daley, Gregoire, & Merette, 2006; Ohayon,

2002). In psychiatric outpatients, individuals reporting frequent insomnia symptoms (difficulty initiating/maintaining sleep at least 3 times a week in past year) were approximately seven times more likely than control participants who did not meet criteria for insomnia to have at least one suicide attempt at one-year follow up (OR = 6.96; 95% CI [1.21, 39.97]) and their lifetime prevalence of attempts increased (OR = 1.55; 95% CI [1.06, 2.25]; Li et al., 2010). In addition, insomnia has been associated with death by suicide in retrospective studies (Goldstein, Bridge, & Brent, 2008) and insomnia symptoms in a longitudinal study predicted death by suicide at 14-year follow-up (Fujino, Mizoue, Tokui, & Yoshimura, 2005).

Fujino et al. (2005) conducted a cohort study assessing stress, self-rated overall health, insomnia, and suicide death over 14 years. Japanese individuals reporting difficulty maintaining sleep were twice as likely to die by suicide (Fujino et al., 2005). Goldstein et al. (2008) conducted a study using psychological autopsy, and found that one was seven times more likely to die by suicide when compared to controls if insomnia symptoms were present in the week before death. This finding further supports Fawcett and colleagues' (1990) finding that insomnia serves as a proximal risk factor for death by suicide. Another study found that individuals who reported nightly symptoms of insomnia were twice as likely to die by suicide even when accounting for depression, anxiety, and substance use (Bjørngaard, Bjerkeset, Romundstad, & Gunnell, 2011).

Although results of studies have pointed to an association between insomnia and suicide attempts in a variety of settings, the evidence does not conclusively support insomnia symptoms as an independent predictor of attempts when other psychopathology is controlled for (McCall et al., 2010). The presence of sleeplessness and fatigue has been

tied to worse treatment outcomes for individuals with suicidal ideation in inpatient settings, independent of depressive symptoms (Nadorff, Ellis, Allen, Winer, & Herrera, 2014). In the study by Nadorff and colleagues (2014), those endorsing higher sleep-related complaints at psychiatric inpatient admission had increased risk for suicide and were less likely to see improvements in overall treatment and suicidality at discharge if sleep symptoms did not improve. Other studies show that although insomnia predicted suicidal ideation and plans, it was not associated with increased risk for suicide attempts when medication use was adjusted for (Brower et al., 2010). Goldstein and colleagues (2008) found that retrospective accounts of sleep disturbance severity linked death by suicide to more severe sleep disturbance independent of depressive symptoms. To build on this study, Bjørngaard and colleagues (2011) conducted a longitudinal study within the Norwegian general population, and found that the frequency of insomnia symptoms was a stronger predictor of death by suicide than both symptoms of depression and anxiety. Further, those who endorsed insomnia "almost every night" were almost 5 times more likely to die by suicide (Bjørngaard et al., 2011). Bernert, Turvey, Conwell, and Joiner (2014) also found a connection between death by suicide and sleep disturbances (e.g., difficulty falling asleep) such that those with poorer sleep quality over a 10-year span were more likely to die by suicide.

Despite the compelling evidence for insomnia as a predictor of increased suicidality, research is mixed on whether insomnia is associated with suicide independent of other psychopathology. Bernert, Joiner, Cukrowicz, Schimdt, and Krakow (2005) conducted a study with psychiatric outpatients and found that when controlling for other psychological symptoms including insomnia symptoms, only nightmares remained

significantly predictive of suicidal ideations. Cukrowicz and colleagues (2006) found supporting results when assessing insomnia and nightmares as predictors of suicidal ideation in a college student sample. Although both insomnia and nightmares predicted symptoms of depression, when controlling for depressive symptomology, insomnia was no longer a predictor of suicidal ideation although nightmares remained a significant predictor. In a similar study, Nadorff et al. (2011) found that both insomnia and nightmares were significant predictors of suicidal ideation, but when depression, anxiety, and PTSD symptoms were controlled for, only nightmares remained significant. In a review of current literature, Bernert and Nadorff (2015) found that individuals endorsing symptoms of insomnia only sometimes led to increased suicide risk, whereas nightmares were consistently tied to increased suicide risk across studies. Given the mixed evidence regarding insomnia and potential support for nightmares, the role of nightmares in suicidality should be investigated more in depth.

Nightmares

Nightmares are frightening or disturbing dreams that disrupt an individual's sleep to the point of startling them awake (Levin & Nielsen, 2007). The three major sources for defining are the American Psychiatric Association (APA), the World Health Organization (WHO), and the American Academy of Sleep Medicine (AASM). The collective definitions and criteria from these three organizations emphasize that nightmares are repetitious over time with a duration of around a month. Further, nightmares seem to function as well-remembered and themed dreams, occur only in REM sleep (typically during the second half of sleep cycle), and when the individual is startled awake they become highly alert and oriented quickly (American Academy of Sleep Medicine, 2014;

American Psychiatric Association, 2013; World Health Organization, 2007). Individuals suffering from nightmares tend to have a sleep architecture involving reduced sleep efficiency with heightened negative affect that is associated with longer durations of REM sleep (Simor, Horváth, Gombos, Takács, & Bódizs, 2012).

Criteria for a diagnosis of Nightmare Disorder, per the Diagnostic and Statistical Manual of Mental Disorder, 5th edition (DSM-5; American Psychiatric Association, 2013), is said to be clinically met when an individual has the following symptoms:

A. "Repeated occurrences of extended, extremely dysphoric, and well-remembered dreams that usually involve efforts to avoid threats to survival, security, or physical integrity and that generally occur in the second half of the major sleep episode.
B. On awakening from the dysphoric dreams, the individual becomes rapidly oriented and alert.
C. The sleep disturbance causes clinically significant distress or impairment in social, occupational, or other important areas of functioning.
D. The nightmare symptoms are not attributable to the physiological effects of a substances (e.g., a drug of abuse, a medication)
E. Coexisting mental and medical disorders do not adequately explain the predominant complaint of dysphoric dream (p. 404)."

Although the DSM-5 criteria are some of the most commonly used criteria in psychological settings, the International Classification of Diseases (ICD-10) is another

commonly used tool for defining nightmare disorder. The criteria for the ICD-10 are as follows:

> Nightmares consists of dream experiences filled with anxiety or fear that also include a very detailed recall of the dream content. The dream is vivid and typically features themes involving security, threats to survival, or self-esteem. The awakening typically occurs during the second half of a sleep cycle. Upon awakening, the individual rapidly becomes alert and oriented. These awakening cause distress to the individual and are not caused by any organic factor (World Health Organization, 2007)

The most notable difference between the DSM-5 and the ICD-10 is that the ICD-10 does not require a rule out of posttraumatic stress disorder or night terrors in order to give a nightmare disorder diagnosis. Likewise, the International Classification of Sleep Disorders – 3rd Edition (ICSD-3; American Academy of Sleep Medicine, 2014) follow this same rule, allowing individuals having a diagnosis of posttraumatic stress disorder or night terrors to also meet criteria for a nightmare disorder. The ICSD's criteria for nightmare disorder consist of the following:

A. Recurrent episodes of extended, extremely dysphoric, and well-remembered dreams

B. Full alertness on awakening, with little confusion or disorientation; person becomes rapidly oriented

C. The dream experience causes clinically significant distress indicated by the self-reported experience of at least one of the following:

1. Delayed return to sleep after the episode; sleep resistance

2. Mood disturbance
3. Cognitive impairments
4. Negative impact on caregiver or family
5. Behavioral problems
6. Daytime sleepiness
7. Fatigue or low energy
8. Impaired occupational, educational, or interpersonal/social functioning

Nightmare theories. In order to understand how nightmares occur and function, it may be also be helpful to understand what theories exist surrounding why and how nightmares occur. Some researchers think nightmares to be an amalgamation of a history of trauma or abuse that has yet been able to be emotionally processed to the fullest, while other research conceptualizes nightmares as a potential mechanism serving as an interruption in the processing of emotional experiences that typically occur during normal dreams (Carr, 2016). Cartwright (2001) formulated a conceptualization of nightmares by viewing them as a result of emotion regulation and processing difficulties. She stated that individuals may not be capable of processing emotions to the fullest extend at the time a trauma occurs. Nightmares may be the result of the brain's attempt to help process the remaining emotions created from the traumatic event. Once the individual has completely processed the trauma then nightmares should subside, but for some individuals, nightmares develop into a chronic problem.

Both Levin and Nielsen (2007) and Revonsuo (2000) take on a more biological approach to the cause and function of nightmares. Revonsuo (2000) proposed the threat

simulation theory of dreaming (TST), stating that dreams are essentially a biological defense mechanism serving an evolutionary purpose of exposing the mind to threat simulations repeatedly. The theory suggests that an individual experiencing threatening events in their environment when awake will see an increased activation of the threat simulation response when sleeping, thus leading to an increased frequency and severity of disturbing dreams or nightmares (Revonsuo, 2000; Valli, 2003).

Levin and Nielsen (2007) use a cognitive and a neurophysiological explanation of how nightmares operate with their AMPHAC/AND model. Based on their explanation, an individual experiencing affect load (e.g., interpersonal conflicts or unresolved trauma) with resulting pathological symptoms would cognitively experience (1) dream contexts with increased resistance to extinction, (2) incomplete activation of fear memories, (3) increased fear memory response elements (i.e., sleep behaviors during nightmare or premature awakenings), and avoidance of nightmare recall. From a neurophysiological standpoint, the individual would experience (1) fear context disruptions in the hippocampus, (2) fear memory activation anomalies in the amygdala, and (3) fear memory regulation failure in the medial prefrontal cortex. With this model, Levin and Nielsen use the combined the physiological and cognitive levels to describe a fear-memory extinction process occurring during the normal dreaming process. However, individuals that have significant distress may experience difficulty in altering their fearful memories, or that may alter them in a way that causes more fear and distress, thus leading to nightmares or disturbing dreams (Levin & Nielsen, 2009). Distress associated with chronic nightmares may lead an individual having increased fear of sleep and to look for escape mechanisms.

Nightmare prevalence. Prevalence rates for nightmares vary depending on age, but are largely consistent across countries such as the United States, Canada, Japan, Iceland, Sweden, France, and Belgium (Levin & Nielsen, 2007). Simard, Nielsen, Tremblay, Boivin, and Montplaisir (2008) estimate via parental reports that 1.3-3.9% of preschool children have persistent nightmares. The American Psychiatric Association (2013) has found as many as 50% of children report frequent nightmares between the ages of 3-6. Further, their estimates suggest that girls/women have an increased prevalence of nightmares over the lifetime when compared to boys/men (American Psychiatric Association, 2013). Prevalence rates of nightmares in older adults suggest that nightmares are less common in the elderly population when compared to their younger counterparts. Salvio, Wood, Schwartz, and Eichling (1992) conducted a cross sectional study comparing nightmares in older adults and college students and found that college students reported significantly higher prevalence of nightmares (19.5% college students > 4.3% older adults). With Nightmare Disorder estimated to occur in 2-8% of the general population across ages, and individuals in clinical settings, especially those with trauma history, likely experiencing higher nightmare frequency, nightmares should be looked at more in depth (American Academy of Sleep Medicine, 2014).

Nightmare duration, frequency, and severity play an important role in explaining the connection between suicidal risk and nightmares. Duration and frequency of sleep disturbances have been tied to increased suicide risk in cross-sectional studies and to suicide deaths in longitudinal studies at 14-year follow up (Nadorff, Nazem, & Fiske, 2013; Tanskanen et al., 2001). In Tanskanen et al. (2001), individuals reporting occasional nightmares had a 57% higher chance of dying by suicide. Those reporting

frequent nightmares were 105% more likely to die by suicide compared to individuals denying the presence of nightmares. This study used an adjusted hazard ratio to control for covariates such as heavy alcohol intake, insomnia symptoms, depression symptoms, anxiety symptoms, life stress rates, and use of psychotropic mediation. Nadorff, Nazem, and Fiske (2013) built on this study by turning the focus to both frequency and duration of insomnia symptoms and nightmares when controlling for anxiety, depression, and PTSD symptoms. Their first finding was that frequency and severity of insomnia symptoms and nightmares did not significantly predict suicide risk, while depressive symptoms and PTSD symptoms were positively associated with suicide risk and anxiety symptoms were negatively associated with suicide risk. In their next regression step, they found that both insomnia symptom duration and nightmare duration were independently associated with suicide risk after statistically controlling for the additional comorbid variables, with anxiety no longer being related to suicide risk.

Other studies have found that the presence of nightmares can increase severity and expression of suicidal ideations and behaviors as much as a four-to-five-fold within samples of university students and inpatient psychiatric settings (Hochard, Heym, & Townsend, 2015; Sjöström, Wærn, & Hetta, 2007). For university students completing a fixed interval diary study, nightmares were found to increase the likelihood of suicide (Hochard, Heym, & Townsend, 2015). Sjöström et al. (2007) investigated this by looking at inpatients admitted for suicide attempts in Swedish medical or psychiatric wards. In their study, persistent nightmares were associated with increased odds that an individual would repeat their suicide attempt, but other sleep disturbances, such as difficulty initiating asleep, were not predictive. This finding held true when gender and

intensity of anxiety and depressive symptomology were controlled for (Sjöström et al., 2007). Sjöström, Hetta, and Waern (2009) had similar findings when they used the same study, but assessed for the relationship of nightmares and suicide attempts at 2-year follow-up. Frequent nightmares were associated with almost a threefold increase in likelihood that an individual would engage in a repeat suicide attempt independent of sex, psychiatric disorders (depression, substance use, psychotic, anxiety, other axis-I diagnoses, PTSD), depression and anxiety symptom intensity, and antidepressant use (Sjöström et al., 2009). The findings from these studies suggest that knowledge is limited regarding unique features that differentiate single versus multiple attempters, and further investigation is merited since risk of death increases with multiple attempts.

Single versus Multiple Attempts

Given that the best predictor of future suicidal behavior is a previous attempt (Borges et al., 2010; Joiner et al., 2005), it is important to understand what factors predict re-attempt. Maris (1992) was one of the first to hypothesize differences between single versus multiple attempters of suicide. Specifically, Maris (1992) hypothesized that to die by suicide, one likely non-fatally attempts first. A longitudinal study, including 10 years of data observation points, associated multiple attempters to significantly higher impulsivity scores and increased likelihood of meeting criteria for personality disorders when compared to single attempters (Boisseau et al., 2013). Similar results were found in military personnel and Veterans distinguishing borderline personality disorder, but no other psychiatric diagnosis, as a predictor for multiple attempts only when compared to single attempters or those endorsing ideation without attempts (Bryan & Rudd, 2015). Choo et al. (2014) found that psychosomatic complaints of headaches and insomnia were

associated with repeat suicide attempts in attempters who had been hospitalized. Monnin et al. (2012) conducted a 2-year follow-up study with individuals admitted to emergency departments for suicide attempts. Results from the study revealed that women who were not currently following up with medical or mental health providers, or currently receiving treatment, had a greater likelihood of reattempt at the 2-year mark, whereas men with multiple attempts at the 2-year mark typically had substance use disorders (Monnin et al., 2012).

Other unique differentiators include lack of employment, childhood abuse, diagnosed mental health disorders, stressful live events, and history of suicidal behavior in family members (Choi et al., 2013; Forman, Berk, Henriques, Brown, & Beck, 2004; Mendez-Bustos, de Leon-Martinez, Baca-Garcia, & Lopez-Castroman, 2013). Beghi, Rosenbaum, Cerri, and Cornaggia (2013) conducted a review of fatal and non-fatal re-attempters and found similar risk factors for individuals who engage in subsequent suicide attempts. For deaths by suicide, being older in age, having suicidal ideations, and previous suicidal attempts were the strongest predictors (Beghi et al., 2013). These studies suggest that individuals with multiple suicide attempts may have more severe clinical profiles than single attempters or ideators without a suicide attempt history. As mentioned in previous sections, studies have found sleep disturbances to be proximal risk factors for suicide death when ideations and previous attempts were distal (Fawcett et al., 1990; Goldstein et al., 2008); thus, it is important to also assess how sleep disturbances may contribute to an understanding as potentially unique differentiators of those at risk of multiple suicide attempts.

Current Study

Although the studies from Sjöström and colleagues (2007; 2009) began to pave the way for a clearer understanding of how nightmares might affect suicide risk, gaps still remain in the literature. In Sjöström and colleagues (2009), the study based its finding regarding nightmares on a single item instead of a fully validated measure. Further, the outcome variable of repeat suicides was limited to information available from previous admissions at the hospital, which may not be representative of actual reattempts and there was no differentiation between single and multiple attempters reported. Participants were drawn from a specific subset of individuals, an inpatient group, which may limit the generalization of findings to the general population, as many attempts go unreported or do not result in hospitalizations. The study from Sjöström and colleagues (2007; 2009) was conducted in Sweden, which is known to have different rates in suicide, further limiting the degree to which comparisons can be made with American individuals.

Other areas for growth and advancement in research literature include a deeper look at differentiation between severity and frequency of nightmares with subsequent influence on suicidality and or known covariates of suicidality. One aspect of contention within this literature is that severity and frequency are not differentiated in the majority of studies. This begs the question of which sleep disturbance feature may best account for the findings. Although nightmare frequency may serve as an important factor in understanding the relation between nightmares and increased suicide rates (Sjöström et al., 2009), frequency is subsumed within overall nightmare severity or distress in most cases, but may represent independent contribution to increased suicide risk. Some evidence even suggests that the level of distress an individual experiences from their

nightmare (i.e., severity) may be more important in predicting clinical psychological disturbances than the number of nightmares an individual has (Levin & Fireman, 2002). Further, a final consideration for future studies is that many of the studies cited have significant limitations due to lack of control comparisons or control for covariates, which may have confounded some of the findings.

The aim of this project is to expand on the study from Sjöström et al. (2009) by investigating what unique factors may predict subsequent suicide attempts and assessing differences in nightmare severity and frequency, when controlling for known covariates.

Research Question

Does nightmare severity and frequency independently differentiate multiple suicide attempters from single attempters when controlling for nightmare frequency (or severity), insomnia symptoms, depressive symptoms, and posttraumatic stress symptoms?

Hypothesis

Nightmare frequency and severity will differentiate between single and multiple suicide attempters when controlling for insomnia symptoms, depressive symptoms, and posttraumatic stress symptoms such that as frequency or severity of nightmares increase, so will the likelihood of multiple attempts of suicide.

CHAPTER II

METHOD

Participants

For this study, archival data will be used to assess responses from participants in a large online survey who endorsed history of at least one suicide attempt. A total of 1,062 individuals completed the larger study assessing the relation between sleep and mental health across the lifespan. However, for the purposes of this study only 225 individuals were included (107 individuals self-identifying as one-time attempters and 118 of individuals reporting multiple suicide attempts in their lifetime). Individuals included in the sample all indicated that they were from the United States, and the majority of individuals who completed this study identified as Caucasian (80%) and women (70%). The sample ranged in age from 18 to 64 years (Mean = 32.38, *SD* = 10.25). Although participants were only awarded a nominal fee ($0.25), recent studies suggest that many individuals participating in mTurk studies may have motives other than monetary gain, such as entertainment or the desire to advance science and make a difference (Buhrmester, Kwang, & Golsing, 2011).

Measures

The dependent variable was taken from one item which asked, “How many times have you attempted suicide?” Responses were divided by coding into two groups in order

to create a dichotomous variable with those having multiple attempts being represented by a 1 and those with only one attempt being represented by 0.

Nightmares were measured with the Disturbing Dreams and Nightmares Severity Index (DDNSI; Krakow et al., 2002). The DDNSI measures frequency and severity of nightmares during the most recent year. The total number of nights per week with nightmares and the nightmare count per week are used in assessing nightmare frequency. Additional questions use Likert-type responses to further assess nightmares by asking about frequency of awakenings due to nightmares, and severity and intensity of actual nightmares. The measure has a possible score range of 0 to 37, with higher scores reflecting more severe nightmares and a total score of 10 or greater indicating the likely presence of a clinically significant nightmare disorder. Internal consistency for this measure has been found at $\alpha = .90$ in a previous study (Golding et al., 2015) and in the current sample was $\alpha = .87$.

Scales for nightmare frequency and severity were created by using items from the DDNSI. For frequency, only the three items specifically referring to frequency were used (i.e., How often did you have disturbing dreams and/or nightmares, how many NIGHTS in a week/month/year did you have disturbing dreams and/or nightmares, and How many disturbing dreams and/or nightmares did you have in a week/month/year?). Internal consistency for this scale in the current sample was $\alpha = .81$. For severity, only the three items specifically targeting severity of nightmares were used (i.e., On average, do your nightmares wake you up, how would you rate the SEVERITY of your disturbing dreams and/or nightmare problem, and how would you rate the INTENSITY of your disturbing

dreams and/or nightmares?). Internal consistency for this scale in the current sample was $\alpha = .91$.

The Insomnia Severity Index (ISI; Bastien, Vallieres, & Morin, 2001) is a 7-item Likert-type scale of perceived insomnia severity. Response options range in point value from 0 to 4, with a maximum potential score of 28. Scores totaling at or greater than 14 indicate the presence of clinically meaningful levels of insomnia. Items focus on difficulty initiating or maintaining sleep, early wake patterns, level of satisfaction with current sleep pattern, severity of daily interference due to sleep problems, subjective worry regarding sleep difficulties, and perceived noticeability of sleeping problem to others. The internal consistency for this measure has been found at $\alpha = .90$ in a previous study (Golding et al., 2015) and in the current study was $\alpha = 0.85$.

The Posttraumatic Stress Disorder Checklist-Civilian Version (PCL-CL; Weathers, Litz, Herman, Huska, & Keane, 1993) is a 17-item measure of prevalence of PTSD symptoms and associated difficulty experienced related to participants most significant life stressor. Items can be rated from 1 (not at all) up to 5 (extremely) with higher total scores suggesting the presence of more severe PTSD symptoms. Internal consistency for this measure has been found at $\alpha = .92$ in a previous study (Golding et al., 2015) and in the current study was $\alpha = .93$.

The Center for Epidemiologic Studies - Depression Scale (CES-D; Radloff, 1977) is a 20-item, self-report measure scored on a 0-3 scale that assesses depressive symptoms during the past week. Total scores on this measure range from 0-60 with the commonly used cut off of > 16 for depression symptoms with potential clinical significance.

Internal consistency for this measure has been found at α = .90 in a previous study (Nadorff, Nazem, & Fiske, 2011) and in the current study was α = .92.

Procedures

All procedures were approved by the Mississippi State University Office of Research Compliance, and all research was conducted in accordance with the IRB protocol. The sample was recruited from Amazon's Mechanical Turk (mTurk), an online workplace. Previous studies have found that sample demographics are comparable to traditional online studies and may also contain greater diversity when compared to studies using American college students (Buhrmester et al., 2011). Individuals must have been at least 18 years of age and from the United States to participate in the study. Once selecting the study and choosing to participate, participants were shown a consent form and then the battery of self-report measures (see above). At the completion of the study, all participants were debriefed and given information regarding nationwide mental health resources and crisis line services. Participants were then granted credit to the Amazon mTurk worker account.

Analyses

Based on the research questions and hypotheses, binary logistic regressions was used to determine differences between group membership for the dependent variable, individuals with one self-reported suicide attempt versus individuals self-reporting multiple suicide attempts. By using logistic regressions to analyze the data, results show the relation between the dependent binary variable and the multiple listed independent variables. Logistic regression is also the most appropriate statistic to be used as is does

not depend on assumptions (e.g., linearity, normal distribution, homoscedacity, and independence of errors) being met about the underlying data as would be expected in another statistic, such as discriminant analysis (Field, 2013).

A power analysis was conducted with SPSS's Sample Power software to establish the number of participants necessary to achieve adequate statistical power. A post hoc analysis using a logistic regression to predict power for nightmare or insomnia severity and either single or multiple suicide attempt histories. Each of the Cohen's d were used based on previous studies of sleep disturbances and suicidality and effect sizes were comparable (Nadorff, Anestis, Nazem, Harris, & Winer, 2014). For the hypothesis, a Cohen's *d* of 0.29 was used for single attempters and a Cohen's *d* of 0.48 was used for multiple attempters at an $\alpha = 0.05$. The projected power was 0.83 based on Sample Power analysis.

In the hypothesis, we predicted that nightmare frequency and severity will independently differentiate between single and multiple suicide attempters when controlling for insomnia symptoms, depressive symptoms, and posttraumatic stress symptoms, such that individuals endorsing frequent and/or severe nightmares will be more likely to have multiple suicide attempts. To test this, nightmare frequency and nightmare severity (compiled from items on the DDNSI) were used as the independent variables to differentiate the dependent variable regarding suicide attempts, with the following variables being covariates: insomnia symptoms, depressive symptoms, and posttraumatic stress symptoms. We decided to include insomnia symptoms despite their not being significantly related to the outcome variable in order to fully test the original

hypotheses plus any bias that it would add should be a conservative bias, giving us even greater faith in the robustness of the findings should an effect be found.

CHAPTER III

RESULTS

Data were initially collected from 1,062 participants; however, steps were taken to ensure data quality due to the online nature of the survey. For the purposes of this study, individuals not completing the survey, and those who answered all items with the same response were removed from the data analyses. Further, only participants who reported at least one suicide attempt in their lifetime were used. Once removing participants for the above listed reasons, the sample included data from a total of 225 individuals. Of the measures used, the mean score for the depressive symptoms measure exceeded the clinical cutoff of 16. All other measures had a mean score fell slightly below known clinical cutoffs. Correlations for all measures used are found in Table 1.

To test the hypothesis, a logistic regression was performed, using the created variables for nightmare frequency and nightmare severity. The model included age, gender, depressive symptoms, PTSD symptoms, and insomnia symptoms with the addition of nightmare frequency and severity instead of symptoms of nightmares as a whole (see Table 2). The overall regression model included IVs and covariates, was statistically reliable in distinguishing between single and multiple attempters [-2 Log Likelihood = 287.846, $\chi^2(1) = 6.808$, $p = .033$], and correctly classified 61.1% of cases. The first part of the hypothesis was supported with nightmare frequency significantly predicting multiple suicide attempts ($\beta = .084$, $t = 1.088$, $p = .021$). However, the same

was not true when looking at nightmare severity (β = -.024, t = .976, p = .551), leading to an unsupported latter half of the hypothesis.

An exploratory analysis was run using the same model used for testing hypothesis 3 and 4, but adding nightmare duration in a final step (see Table 3). As nightmare duration was the only item from the original nightmare measure not assessed, the aim of the exploratory analysis was to assess if nightmare duration effected the overall findings. Overall, the adjusted logistic regression model was not statistically reliable in distinguishing between single and multiple attempters [-2 Log Likelihood = 284.842, $\chi^2(1) = 3.004$, p = .083], but correctly classified 58.8% of cases. When nightmare duration was added into the model, nightmare duration was not a significant predictor of multiple suicide attempts (β = -.022, t = .978, p = .089), but nightmare frequency remained a significant predictor (β = .087, t = 1.091, p = .019) and age was no longer a significant predictor (β = -.027, t = .974, p = .074).

CHAPTER IV

DISCUSSION

There is potential value in ascertaining differences between those who attempt suicide once, and those who attempt numerous times and value in determining what relation exists between nightmares and increased suicidality. Results of this study, much like several other studies (Nadorff, Nazem, & Fiske, 2011; Sjostrom, Hetta, & Waern, 2009), do not support insomnia symptoms as an independent predictor of multiple suicide attempts when controlling for other common covariates. Its unsurprising that this is the case as insomnia symptoms had a low correlation with suicide attempts (Table 1) and was more highly correlated with depressive symptoms and nightmares. It is possible that symptoms seen in insomnia may have been better accounted for by the experience of depressive symptomology or frequency of nightmares. However, findings from this study indicate that nightmares are significant predictors of multiple lifetime suicide attempts independent of other known influencing factors.

When analyzing components of nightmares by frequency versus severity items, only nightmare frequency and age were predictive of multiple suicide attempts. These findings support other studies (Nadorff, Nazem, & Fiske, 2011; Sjostrom, Hetta, & Waern, 2009) showing that nightmares may be an independent risk factor for increased suicidality. Adding nightmare components into the logistic regression model significantly increased the R^2 value (Table 2 & 3). The findings from this study also support previous

work detailing that individuals suffering from frequent nightmares as reported over a 1-month period tend to have significant scores indicative of global maladjustment (Berquier & Ashton, 1992). Further, the findings support research from Tanskanen et al. (2001) regarding the presence of higher suicide risk in individuals with frequent nightmares.

A strength of this study is that, to the author's knowledge, it is the first cross-sectional study to assess components of nightmares by pitting frequency items, strictly severity items, and the duration item against each other when predicting multiple suicide attempts independent of other variables. Research has been able to separately show that nightmare severity predicts increased suicidality (Krakow, Ribeiro, Ulibarri, Krakow, & Joiner, 2011), and that duration of nightmares predicts suicidality in certain populations (Golding et al., 2015; Nadorff et al., 2013). However, nightmare frequency has historically been subsumed as a part of the broader construct of nightmare severity and has typically been assessed via one item from a sleep measure (Li et al., 2010; Pigeon, Pinquart, & Conner, 2012; Sjöström et al., 2007; Tanskanen et al., 2001), whereas the current used multiple items to assess nightmare frequency. This study fills that gap by a) defining nightmare frequency independently from severity items when using the DDNSI as a measure of nightmare symptoms, and b) assessing frequency, severity, and duration simultaneously as independent constructs.

This study has strengths in its potential clinical implications. Not only is it important to screen for sleep disturbances, but this study's findings narrow down the specific component of nightmares that seems to be most important - frequency of nightmares. In both medical and psychological clinics, asking about sleep disturbances may provide a less threatening way to open the door about the presence of suicidal

ideation or intent currently and previous attempts. Further, it is possible that sleep disturbances may be viewed as less stigmatized than suicidality, as many individual conceptualize sleep disturbances as a medical concern instead of a psychological concern, and may view it as more easily treated.

Another strength of this study is that this the first known study to conceptualize the impact of nightmare components on increased suicidality in a United States sample. A differential look at cross-country comparisons show that much of the research on the relation between sleep and suicide has been conducted outside of the United States (Li et al., 2010; Sjöström et al., 2007; Sjöström et al., 2009; Tanskanen et al., 2001). It is critical that we assess this relation in American individuals as well as international individuals as American participants were almost twice as likely to report sleep difficulties when compared to European or Japanese participants (Léger, Poursain, Neubauer, & Uchiyama, 2008). There are no known studies detailing differences in global rates of individual suicide risk reporting; however, the World Health Organization's (2016) latest statistical reports using 2012 data regarding differences in deaths by suicide globally place Americans in approximately the middle of countries with reported death by suicide rates at 13.7 suicides per 100,000, compared to 36.8 deaths in Korea at the highest. Understanding what specific components of sleep disturbances, specifically nightmare frequency, increase the likelihood that an individual has multiple attempts at suicide helps with the development of interventions targeted to decrease symptoms and the rate of suicide deaths in the American population.

Evidence suggests that gender may be important in understanding nightmare frequency, as women are both more likely to recall dreams then men, and more likely to

use less lethal means of suicide attempts (Schredl and Reinhard, 2011). However, in this study, gender was not a significant predictor of multiple suicide attempts in any model, which may be partially attributed to the high number of women in the sample and be a product of a small sample size. Given that unbalanced proportions affects power, it is possible that having more women than men in the study may have accounted for the lack of significance in gender.

Limitations

In addition to the strengths of the study, several limitations should be considered. This study had participants complete a retrospective nightmare severity assessment tool to measure nightmare symptoms. Although evidence is limited, some studies suggest that using self-report measures to test nightmare recall instead of a sleep and dream log yields significantly underestimated current nightmare and bad dream frequency (Robert and Zadra, 2008). However, the measure used in this study has been validated and is a frequently used measure of nightmares that has been published in top sleep research journals.

Although multiple known risk factors were accounted for, it was not feasible to control for all known variables that may have yielded influence on the outcome. This study was unable to account for alcohol use, which may have contributed reports of frequent nightmares as previous studies have shown them to be strongly associated (Sandman, et al., 2015). However, recent evidence suggests that gender and insomnia symptoms help to explain the connection between alcohol use and suicide risk (Nadorff et al., 2014). Further, despite symptoms of depression, posttraumatic stress, insomnia, and nightmares being controlled for in the various models, there were no formal

diagnostic assessments of psychiatric conditions evaluated, nor were there any items inquiring if a formal diagnosis had been given previously. The measures were meant to evaluate symptoms, but do not necessarily equate to or warrant a formal diagnosis of any mental health condition being present, thus limiting the degree to which the study can state with certainty the influence of these diagnoses.

In the current study, there was also a lack of equal representation of individuals. By far, our participants were Caucasian women, which is not a diverse representation of the general population. However, the participants may be indicative of a representative sample of individuals who jointly report frequent nightmares and suicide attempts in tandem (Sjöström et al., 2009). There is a need to further investigate what aspects of nightmare symptoms may be the driving factor and replication of findings in multiple settings. Further, as these findings are the product of cross sectional data instead of longitudinal data, causality cannot be inferred.

Conclusions

The frequency of nightmares seems to be more important in some ways than even the distress or duration of the nightmares experienced in predicting multiple attempts of suicide. With knowledge that nightmares are often underreported, and thus untreated (Nadorff, Nadorff, & Germain, 2015), this finding has potential clinical implications. A routine assessment of all sleep concerns, but specifically nightmares, in general clinical practice may represent a positive effort toward reducing the of suicide attempts and completions. Further, other research (Norra, Richter, & Juckel, 2011) suggests that integrating detailed assessments of sleep disturbances in medical settings may serve as an individually treatable target for suicide prevention.

Psychological and medical literature would also benefit from examining the longitudinal effects of nightmare treatment on subsequent suicidal ideation, behaviors, and deaths by suicide to determine if a reduction of suicidality occurs. Another potential consideration for future studies would be a replication of the findings of the current study, assessing whether frequency of nightmares is more important than reported distress of long-term duration. As this is the first known study comparing the constructs of frequency, severity or distress, and duration of nightmares individually when differentiating suicide attempters, replication is warranted in a longitudinal study. Further, studies with a larger participant pool may allow for larger effect sizes to be seen. Increased power may allow for additional variables such as alcohol use or theoretical components also to be considered.

Lastly, theoretical explanations should be further explored to help elucidate potential causal mechanisms of frequent nightmares on increased suicidal thoughts and actions. Bryan and Rudd (2016) suggest that a nonlinear approach may prove beneficial when examining change in suicidality. It is possible that further exploring a combination of theories such as Levin and Nielsen's (2007; 2009) neurophysiological and cognitive model or Cartwright's (2001) looking at the role of emotion regulation may prove useful in understanding why nightmares are related to increased risk of suicide attempts.

In sum, assessment of nightmares could be a clinically useful and less invasive way to screen individuals for risk of multiple suicide attempts. Further, this study found that assessing the frequency component specifically, may be more important beyond having the knowledge that an individual experiences nightmares.

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APPENDIX A

RESULT TABLES

Table 1

*Correlations, means, and standard deviations__(N=225)_*

	Measure/Variable	1	2	3	4	5	6	7	8	9	N	Mean	*S.D.*
1.	Suicide Attempts[a]	1	.165*	.140*	.180*	.143*	.126	.184**	.003	-.132*	225		
2.	PCL[b]		1	.551**	.388**	.165*	.402**	.297**	.007	-.139*	225	49.54	15.41
3.	ISI[c]			1	.243**	.140*	.269**	.166*	.013	.085	224	14.62	5.82
4.	DDNSI[d]				1	.180*	.878**	.921**	.092	-.088	224	9.31	8.60
5.	CESD[e]					1	.334**	.275**	.012	-.103	224	30.67	13.94
6.	NM Severity						1	.627**	.119	-.095	225	6.24	4.74
7.	NM Frequency							1	.061	-.065	224	5.13	5.61
8.	Gender								1	-.059	225		
9.	Age									1	224		

** Significant at p <.001; * Significant at p < .05; [a]Single vs Multiple Suicide attempts; [b]Posttraumatic Stress Checklist-Civilian Version; [c]Insomnia Severity Index; [d]Disturbing Dreams and Nightmares Index; [e]Center for Epidemiological Studies Depression Scale

Table 2

Regression Coefficients-Nightmare Frequency and Severity Predicting Multiple Suicide Attempts

Predictors	R^2	*β*	*SE*	*t*	*p*
Step 1:	**.067**				
Age		**-.029**	**.014**	**.971**	**.040**
Gender		-.077	.304	.926	.799
Depressive Symptoms		.006	.016	1.006	.706
PTSD Symptoms		.008	.015	1.008	.622
Insomnia Symptoms		.038	.029	1.038	.196
Step 2:	**.105**				
Age		**-.031**	**.015**	**.969**	**.034**
Gender		-.134	.312	.875	.668
Depressive Symptoms		.004	.016	1.004	.813
PTSD Symptoms		.003	.016	1.003	.853
Insomnia Symptoms		.042	.030	1.043	.159
Nightmare Frequency		**.084**	**.036**	**1.088**	**.021**
Nightmare Severity		-.024	.040	.976	.551

*The R^2 value used is Nagelkerke R square

Table 3

Regression Coefficients-Nightmare Frequency, Severity, and Duration Predicting Multiple Suicide Attempts

Predictors	R^2	β	*SE*	*t*	*p*
Adjusted Model Final Step:	**.122**				
Age		-.027	.015	.974	.074
Gender		-.070	.316	.933	.825
Depressive Symptoms		.004	.016	1.004	.786
PTSD Symptoms		.003	.016	1.003	.840
Insomnia Symptoms		.037	.030	1.038	.213
Nightmare Frequency		**.087**	**.037**	**1.091**	**.019**
Nightmare Severity		.004	.043	1.004	.933
Nightmare Duration		-.022	.013	.978	.089

*The R^2 value used is Nagelkerke R square

APPENDIX B

INSOMNIA SEVERITY INDEX

Insomnia Severity Index

1. Please rate the current (i.e. last 2 weeks) SEVERITY of your insomnia problem(s).

	None	Mild	Moderate	Severe
Difficulty Falling Asleep:	0	1	2	3
Difficulty Staying Asleep:	0	1	2	3
Problem waking too early:	0	1	2	3

2. How SATISFIED/dissatisfied are you with your current sleep pattern?

Very Satisfied				Very Dissatisfied
0	1	2	3	4

3. To what extent do you consider your sleep problem to INTERFERE with your daily functioning (e.g. daytime fatigue, ability to function at work/daily chores, concentration, memory, mood, etc.)

Not at all Interfering	A Little	Somewhat	Much	Very Much Interfering
0	1	2	3	4

4. How NOTICABLE to others do you think your sleeping problem is in terms of impairing the quality of your life?

Not at all Interfering	A Little	Somewhat	Much	Very Much Interfering
0	1	2	3	4

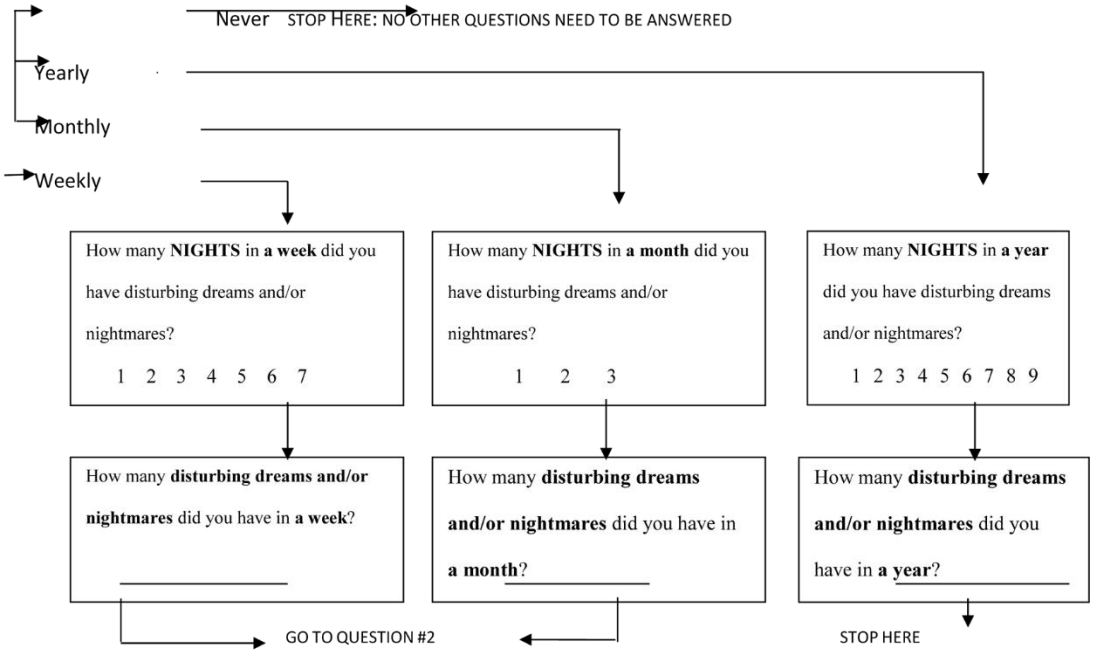
5. How WORRIED/distressed are you about your current sleep problem?

Not at all	A Little	Somewhat	Much	Very Much
0	1	2	3	4

APPENDIX C

DISTURBING DREAMS AND NIGHTMARES SEVERITY INDEX

1. How often did you have disturbing dreams and/or nightmares: (Circle one, then follow the arrow)



2. Please estimate the NUMBER of months or years you have had disturbing dreams and/or nightmares:

_____months _____years

3. On average, do your nightmares wake you up? (Circle answer)

Never/Rarely Occasionally Sometimes Frequently Always

4.How would you rate the SEVERITY of your disturbing dreams and/or nightmare problem? (Circle answer)

No Problem | Minimal Problem | Mild Problem | Moderate Problem | Severe Problem | Very Severe Problem | Extremely Severe Problem

5.How would you rate the INTENSITY of your disturbing dreams and/or nightmares? (Circle answer)

Not Intense | Minimal Intensity | Mild Intensity | Moderate Intensity | Severe Intensity | Very Severe Intensity | Extremely Severe Intensity

APPENDIX D

THE PTSD CHECKLIST CIVILIAN VERSION

INSTRUCTIONS TO PARTICIPANT: Below is a list of problems and complaints that people sometimes have in response to stressful experiences. Please read each one carefully, select the best option to indicate how much you have been bothered by that problem in the past month.

1. Repeated, disturbing memories, thoughts, or images of a stressful experience?

   1. Not at all 2. A little bit 3. Moderately 4. Quite a bit 5. Extremely

2. Repeated, disturbing dreams of a stressful experience?

   1. Not at all 2. A little bit 3. Moderately 4. Quite a bit 5. Extremely

3. Suddenly acting or feeling as if a stressful experience were happening again (as if you were reliving it)?

   1. Not at all 2. A little bit 3. Moderately 4. Quite a bit 5. Extremely

4. Feeling very upset when something reminded you of a stressful experience?

   1. Not at all 2. A little bit 3. Moderately 4. Quite a bit 5. Extremely

5. Having physical reactions (e.g., heart pounding, trouble breathing, sweating) when something reminded you of a stressful experience?

   1. Not at all 2. A little bit 3. Moderately 4. Quite a bit 5. Extremely

6. Avoiding thinking about or talking about a stressful experience or avoiding having feelings related to it?

   1. Not at all 2. A little bit 3. Moderately 4. Quite a bit 5. Extremely

7. Avoiding activities or situations because they reminded you of a stressful experience?

   1. Not at all 2. A little bit 3. Moderately 4. Quite a bit 5. Extremely

8. Trouble remembering important parts of a stressful experience?

   1. Not at all 2. A little bit 3. Moderately 4. Quite a bit 5. Extremely

9. Loss of interest in activities that you used to enjoy?

   1. Not at all 2. A little bit 3. Moderately 4. Quite a bit 5. Extremely

10. Feeling distant or cut off from other people?

    1. Not at all 2. A little bit 3. Moderately 4. Quite a bit 5. Extremely

11. Feeling emotionally numb or being unable to have loving feelings for those close to you?

    1. Not at all 2. A little bit 3. Moderately 4. Quite a bit 5. Extremely

12. Feeling as if your future will somehow be cut short?

    1. Not at all 2. A little bit 3. Moderately 4. Quite a bit 5. Extremely

13. Trouble falling or staying asleep?

    1. Not at all 2. A little bit 3. Moderately 4. Quite a bit 5. Extremely

14. Feeling irritable or having angry outbursts?

    1. Not at all 2. A little bit 3. Moderately 4. Quite a bit 5. Extremely

15. Having difficulty concentrating?

    1. Not at all 2. A little bit 3. Moderately 4. Quite a bit 5. Extremely

16. Being "super-alert" or watchful or on guard?

    1. Not at all 2. A little bit 3. Moderately 4. Quite a bit 5. Extremely

17. Feeling jumpy or easily startled?

    1. Not at all 2. A little bit 3. Moderately 4. Quite a bit 5. Extremely

APPENDIX E

CENTER FOR EPIDEMIOLOGIC STUDIES DEPRESSION SCALE

CES-D

Below is a list of the ways you might have felt or behaved. Please check the boxes to tell me how often you have felt this way in the past week or so.

	Last Week				
DURING THE PAST WEEK:	Not at All or Less Than 1 Day	1-2 Days	3-4 Days	5-7 Days	
1. I was bothered by things that usually don't bother me.					
2. I did not feel like eating; my appetite was poor.					
3. I felt that I could not shake off the blues even with help from my family or friends					
4. I felt depressed.					
5. My sleep was restless.					
6. I felt I was just as good as other people.					
7. I could not get going.					
8. I had trouble keeping my mind on what I was doing.					
9. I felt that everything I did was an effort.					
10. I felt hopeful about the future.					
11. I thought my life had been a failure					
12. I felt fearful.					
13. My sleep was restless.					
14. I was happy.					
15. I talked less than usual.					
16. I felt lonely.					
17. People were unfriendly.					
18. I enjoyed life.					
19. I felt sad.					
20. I felt that people dislike me.					