

Specific versus scaled estimates: A comparison of two approaches to measuring retrospective nightmare frequency

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Summary. Previous research has retrospectively assessed nightmare frequency using either specific estimates of the number of nightmares experienced in a given time period (i.e., 0, 1, 2...) or rating scale responses about the frequency of nightmares (i.e., not often, often). However, research comparing the two approaches has been lacking. This study compared correlations of specific and rating scale estimates of nightmare frequency with neuroticism, general psychological distress, nightmare distress, and self-related variables among a sample of 117 university students. The results indicated that both measures of nightmare frequency demonstrated correlations of similar strengths with other variables, though scaled estimates had a slightly stronger validity coefficient. Nightmare distress similarly mediated the relationships, including the relationship between the two nightmare measures. The results and suggestions for future research were discussed.

Keywords: Nightmares, Nightmare Frequency, Nightmare Distress, Personality, Measurement

1. Introduction

Nightmares have been defined as intense, disturbing dreams associated with unpleasant emotions (American Psychiatric Association, 2013). Despite a plethora of nightmare research generated over the past two decades, measurement of the phenomenon has remained largely unstandardized. For instance, the use of retrospective measurements has sometimes requested respondents to estimate specific numbers of nightmares experienced over a particular time period, hereafter referred to as specific estimates, i.e., "How many nightmares have you recalled over the past week? 0, 1, 2, 3..." (Krakow et al., 2002; Schredl, 2003), while other researchers have asked participants to respond to rating scale measures that assessed perceived frequency of nightmares, i.e., "How often do you have nightmares" with responses ranging from "never" to "often, hereafter referred to as scaled estimates (i.e., Nguyen, Madrid, Marquez, & Hicks, 2002; Picchioni & Hicks, 2009).

Separate studies using either specific estimates or scaled estimates have produced relatively consistent findings. For example both Krakow et al. (2002) and Nguyen et al. (2002) found specific and scaled estimates were correlated with measures of anxiety at $r=.28$ and $r=.26$, respectively. Further, specific and scaled estimates have been correlated at similar magnitudes, $r=.56$ (Miró & Martínez, 2005) and $r=.61$ (Picchioni & Hicks, 2009), respectively, with nightmare distress.

Despite consistency among previous findings, we were unable to locate any studies which simultaneously compared the relationships between specific and scaled measures of nightmare frequency and other variables. Direct examinations of the similarity, or differences, in findings using specific and scaled estimates of nightmare frequency would be useful to researchers in selecting appropriate measures and generalizing findings of previous studies that used disparate approaches.

The purpose of the current study was to compare correlations within the same sample between a specific and scaled estimate of nightmare frequency and other constructs that have been previously found to be related to nightmare frequency: nightmare distress, neuroticism, and general psychological distress (Schredl, 2003; Lee & Suh, 2016; Miró & Martínez, 2005). Further, given theoretical speculations that nightmares represent a less healthy self-structure (Kohut, 1977), exploratory measures of self-esteem, affect regulation, and self-identity, three of Kohut's theorized functions of the self, were also included as comparative measures. Based on previous findings that demonstrated consistency between specific and scaled measures (Krakow et al., 2002; Miró & Martínez, 2005; Nguyen et al., 2002; Picchioni & Hicks, 2009), it was hypothesized that specific and scaled measures of nightmare frequency would have similar patterns of correlations with other variables.

2. Method

2.1. Participants

Participants included 117 (78 male, 34 female, 5 unidentified) students enrolled in undergraduate psychology courses at a small university in the United States. The average age of the sample was 20.23 years ($SD=2.17$). Consistent with the demographics of the university, 73% self-identified as White/Caucasian.

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2.2. Measures

Nightmare Frequency-Specific. Specific estimates of nightmare frequency were obtained using a modified version of the Nightmare Frequency Questionnaire (NFQ; Krakow et al., 2002). Participants responded to two items that estimated the number of nights they experienced nightmares over the past two weeks (0-14) and the number of nightmares experienced in the past two weeks (0-28+). Responses were summed to produce a continuous nightmare frequency score.

Nightmare Frequency-Scaled. Scaled ratings of nightmare frequency were obtained by asking participants to respond to the item "I have nightmares often" using a 5-point scale (0=Strongly Disagree, 1=Disagree, 2=Neutral or Not Sure, 3=Agree, 4=Strongly Agree).

Nightmare Distress (ND). Nightmare distress was assessed by asking participants to respond to a single item: "I am very distressed by my nightmares" using a 5-point scale (0=Strongly Disagree to 4=Strongly Agree).

Neuroticism. The four-item Neuroticism Scale of the Mini-IPIP (N; Donnellan, Oswald, Baird, & Lucas, 2006) was used to assess trait neuroticism. A sample item is "I have frequent mood swings." Participants responded using a 5-point scale (0=Strongly Disagree to 4=Strongly Agree). Higher scores indicated more neuroticism.

General Psychological Distress. General distress was measured using the six-item K6 (Kessler et al., 2002). K6 items assessed how often respondents experienced, over the past 30 days, distress symptoms not specific to any particular psychological syndrome or disorder but rather tap general distress. A sample item is "[how often did] you feel hopeless?" Participants responded using a 5-point scale (0="None of the Time" to 4="All of the Time"). Higher scores indicated more distress.

Self-Esteem. The four-item version of Rosenberg's Self-Esteem Scale (SE-4; Tambs & Røysamb, 2014) was used to assess self-esteem using a 5-point scale (0=Strongly Disagree to 4=Strongly Agree). Higher scores indicated more self-esteem. A sample item is "I take a positive attitude toward myself."

Affect Regulation. Affect regulation was assessed using the item from the General Emotional Dysregulation Measure (Newhill, Mulvey, & Pilkonis, 2004) that Newhill et al. reported had the highest loading on the general dysregulation scale factor: "Other people tell me I'm too sensitive or that I overreact to emotional issues." Participants responded using a 5-point scale (0=Strongly Disagree to 4=Strongly Agree). Higher scores represented less affect regulation.

Self-Identity. Self-identity (SI) was measured using the item from the Sense of Self Scale reported to have the highest item-total scale correlation (Flury & Ickes, 2007): "It's hard for me to figure out my own personality, interests, and opinions." Participants responded using a 5-point scale

(0=Strongly Disagree to 4=Strongly Agree). Higher scores represented a less cohesive identity.

2.3. Procedure

Participants were recruited before undergraduate psychology courses to complete a questionnaire on "Nightmares and Personality." After providing informed consent, participants completed anonymous paper and pencil questionnaires during regular class times. There was no time limit for questionnaire completion and no exclusionary criteria were used.

2.4. Statistical analysis

Pearson correlations were calculated to examine relationships between all variables. Partial correlations were calculated to determine correlations between variables while controlling nightmare distress. Calculations were calculated using SPSS 22.0 for Windows.

3. Results

Specific and scaled measures of nightmare frequency were strongly correlated, $r=.73$, $p<.001$, $R^2=.53$. Correlations comparing specific and scaled nightmare frequency measures were presented in Table 1. As seen in the table, though relationships with other measures were relatively consistent for specific and scaled estimates, some small variations occurred. For instance, the largest difference was for neuroticism: scaled estimates were more strongly correlated with neuroticism than were specific estimates. The difference in correlations for neuroticism was .13, which was not statistically significant, $z=1.1$, $p=.28$ (two-tailed). The smallest difference was for general distress, $r=.01$. When averaging the six correlations presented in Table 1 for each nightmare measure, the validity coefficient for specific estimates was $r=.33$, while the validity coefficient for scaled estimates was slightly improved, $r=.37$.

To determine the extent to which nightmare distress differentially affected correlations for specific and scaled estimates of nightmare frequency, partial correlations between variables in Table 1 were calculated while holding nightmare distress constant. Accounting for nightmare distress, specific and scaled nightmare estimates remained significantly correlated, $r=.58$, $p<.001$, $R^2=.34$, but the correlation was significantly, $z=2.0$, $p<.05$, smaller than the $r=.73$ when not controlling nightmare distress. Other partial correlations are presented in Table 2.

As presented in the table, after accounting for nightmare distress, both estimates of nightmare frequency demonstrated reduced correlations with other scales. For both nightmare measures, only two of five correlations remained significant. General psychological distress remained a significant correlate for both nightmare measures. However,

Table 1. Correlations Comparing Specific and Scaled Measures of Nightmare Frequency

Scale	Nightmare distress	Trait neuroticism	General psychological distress	Rosenberg Self-Esteem Scale-4	Affect regulation	Self-identity
Nightmare frequency-specific	.56**	.24**	.36**	-.34**	.27**	.20*
Nightmare frequency-scaled	.64**	.37**	.37**	-.28**	.29**	.24**

Note: N = 117. * $p<.05$, ** $p<.01$ (two-tailed).

Table 2. Partial correlations holding nightmare distress constant

Scale	Trait neuroticism	General psychological distress	Rosenberg Self-Esteem Scale-4	Affect regulation	Self-identity
Nightmare frequency-specific	.06	.20*	-.19*	.02	.05
Nightmare frequency-scaled	.20*	.19*	-.09	.00	.07

Note: N = 117. *p<.05 (two-tailed).

whereas specific estimates remained significantly related with self-esteem, scaled estimates remained associated with neuroticism.

4. Discussion

The current study found that correlations between specific and scaled estimates of nightmare frequency and other variables were of relatively consistent magnitudes. The pattern of small differences in correlation strength generally remained after controlling for the influence of nightmare distress, though extracting the variance of nightmare distress made most correlations with nightmare frequency nonsignificant. This was consistent with previous research (Lee & Suh, 2016). The findings of the current study also were consistent with findings that nightmare frequency was related with neuroticism and general distress (i.e., Schredl, 2003). Moreover, the current study supported previous theoretical notions that nightmares may be associated with an unhealthy self-structure (Kohut, 1977). Additional research is needed to replicate and extend this latter finding.

By examining specific and scaled nightmare frequency simultaneously, the current findings extended previous research which separately exhibited consistency between correlations using either specific or scaled estimates of nightmare frequency (Krakow et al., 2002; Miró & Martínez, 2005; Nguyen et al., 2002; Picchioni & Hicks, 2009). The two nightmare frequency measurement approaches yielded relatively consistent correlations with other measures making them generally equivalent in terms of outcomes. Nevertheless, there may be advantages and disadvantages which researchers should consider when choosing to use either a specific or scaled nightmare frequency measures. For instance, unlike scaled measures, specific measures of nightmare frequency would allow researchers to estimate nightmare prevalence (Schredl, 2013). Further, specific measures might be confounded less by shared method variance with other self-report measures that use “strongly disagree” to “strongly agree” response scales. On the other hand, using scaled nightmare frequency estimates similar to response options for other instruments might be helpful by decreasing respondents’ need to shift attention from perceived experiences to recalling and counting specific numbers of nightmares. Given that previous research found retrospective estimates of specific numbers of nightmares possibly were inaccurate (Wood & Bootzin, 1990), asking respondents to recall specific numbers of nightmares might be unnecessary and confusing for some populations if prevalence rates are not needed. For instance, distressed clinical samples might become frustrated and have difficulty recalling and counting specific numbers of nightmares compared to providing a scaled estimate of their perceived nightmare frequency.

One unexpected, interesting finding in the current study was the degree to which nightmare distress contaminated the relationship between the two nightmare frequency measures. One simple explanation for this finding is the com-

mon-sense notion that frequent nightmares are generally distressing. Thus, eliminating the distress associated with nightmares might reduce the relationship among frequency estimates as well as other variables. This is consistent with Martínez, Miró, and Arriaza’s (2005) findings that individuals who reported frequent nightmares exhibited nightmare distress scores that were twice as high as those with less frequent nightmares. It is also possible that frequency and distress represent two parts to a general nightmare experience construct. Thus, extracting one aspect of the construct would decrease the predictive power of other aspects. Additional research is needed to examine this possibility.

There are limitations to the current study which should be considered before generalizing the findings. For example, the sample was relatively small, homogeneous, and included mostly male college students. Also, the measures used were brief or single-item assessments which might not allow for a nuanced assessment of the constructs. Future researchers should consider using more culturally diverse samples with relatively even distributions of males and females and using lengthier assessments. Further, it would be of interest to compare specific and scaled nightmare frequency estimates in clinical samples and examine if scaled estimates of nightmares are sensitive to intervention effects relative to specific measures. Additionally, it might be of interest to compare differences of specific and scaled estimates with respect to prospective dream diaries (Levin & Nielsen, 2007).

In sum, the current study found that, consistent with the hypothesis, specific and scaled estimates of nightmares produced similar patterns of correlations. Further, it appears that the two measures can be used interchangeably with some degree of confidence that they produce comparable findings across studies. Researcher’s selection of scaled or specific estimates of nightmare frequency would largely depend on their needs (i.e., prevalence rates vs. perceived estimates) and whether respondents might become distracted or confused attempting to estimate specific nightmare numbers versus scaled general perceptions of nightmare frequency.

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