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Nightmares And "Nonpathological" Fantasy Proneness and Absorption

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ABSTRACT – Previous research links nightmares with immersive cognitive styles, but many studies relied on measures saturated with neuroticism. This study examined whether nonpathological fantasy proneness and absorption relate to nightmare distress and frequency independent of neuroticism. Undergraduate students (N = 136) completed measures of nightmare distress and frequency, fantasy proneness, two absorption measures (curiosity-based and task-focused), and neuroticism. Bivariate correlations showed that fantasy proneness and curiosity-based absorption were associated with more frequent and distressing nightmares. However, in ordinal regression models controlling for age, gender, and neuroticism, only curiosity-based absorption uniquely predicted nightmare distress and frequency. Fantasy proneness and flow-based absorption were not significant predictors. Findings suggest that nightmares in young adults may be linked to normative experiential immersion and heightened internal engagement outside of negative affectivity, highlighting the importance of distinguishing adaptive imaginative traits from maladaptive fantasy or dissociative tendencies in nightmare research.

Keywords: Nightmares; Absorption; Fantasy proneness; Neuroticism; Imagination; Dreaming

Introduction

Nightmares, disturbing dreams that typically result in awakening (Hartmann, 1999), are relevant to both clinical and nonclinical populations. Epidemiological estimates suggest that approximately one-third of community adults experience nightmares at least monthly, and a

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smaller but meaningful proportion report weekly occurrences (Levin & Nielsen, 2007; Sandman et al., 2013).

While nightmares are often transient, their presence in otherwise healthy individuals is thought to indicate affective hyperarousal and vulnerabilities in emotional processing (Gieselmann et al., 2019). In student and community samples, higher nightmare frequency and nightmare distress, waking suffering from nightmares (Belicki, 1992), have been associated with elevated anxiety, poor sleep quality, and emotion dysregulation (Rek et al., 2017; Sheaves et al., 2016). In some studies nightmare distress and frequency are related to personality factors while statistically controlling for the other (Kelly & Mathe, 2020; Schredl et al., 2021), indicating some separateness of nightmare occurrences and concerns about them. Taken together, these findings suggest that nightmares among nonclinical samples might be markers of normative individual differences in emotional and cognitive functioning, not solely as clinical symptoms.

Contemporary models emphasize continuity between waking and dreaming states, proposing that cognitive–affective tendencies observable during the day extend into dreaming content and emotional tone (Kelly et al., 2024; Levin & Nielsen, 2007; Schredl, 2019). Within this framework, nightmares may be one manifestation of broader immersive cognitive styles. In particular, fantasy proneness and psychological absorption have been linked to heightened dream vividness, increased dream recall, and greater emotional involvement in dreams (Levin & Fireman, 2001–2002). Fantasy proneness and absorption refer to traits involving deep engagement with mental imagery, internal experience, and activity-focused attention, Relatedly, findings examining personality markers associated with nightmares suggests that some individuals may possess a dispositional vulnerability toward experiencing frequent and distressing nightmares partly due to a combination of negative affectivity and experiences of absorption in fantasy-like sensory perceptions during waking states (Kelly, 2018). These associations align with the idea that individuals who vividly imagine, elaborate, and emotionally inhabit internally generated experiences during waking life may also be predisposed to intense nocturnal affective experiences.

However, much of the literature relating nightmares to fantasy proneness and absorption has relied on measures that incorporate maladaptive content, including dissociative tendencies, negative distressing mind wandering, and emotional instability (Fassler et al., 2006; Rauschenberger & Lynn, 1995). Because maladjustment has itself been implicated in nightmare frequency and distress (Levin & Nielsen, 2007), previous findings may partly reflect confounding between immersive imagination and general emotional vulnerability. As such, distinguishing nonpathological imaginative engagement from maladjustment-laden constructs would be important for clarifying whether nightmares relate to "healthy" (i.e., nonpathological) immersive cognitive styles or primarily to dysregulated affective processes. However, such studies are rare.

The present study addresses this gap by examining whether nightmares are associated with fantasy proneness and absorption as measured by instruments intentionally selected to minimize psychopathology content. By focusing on such measures, the current study investigates whether nonpathological forms of imagination and immersive engagement relate to nightmare frequency and nightmare distress. To further control for possible influences of negative affect, the current

study will statistically adjust for neuroticism. This design allows evaluation of whether immersive cognitive tendencies relate to nightmare characteristics outside emotional vulnerability.

Based on this aim, the findings reviewed above, and the conceptualization of nightmares partly resulting from relatively common internally generated stimuli (e.g., Kelly, 2024; Soper et al., 1997), the following hypotheses were developed:

H1: Higher levels of nonpathological fantasy proneness will be positively associated with greater nightmare frequency and nightmare distress.
H2: Higher levels of nonpathological absorption will be positively associated with greater nightmare frequency and nightmare distress.
H3: Associations between fantasy proneness, absorption, and nightmare variables will remain significant after controlling for neuroticism.

Method

Participants

Participants included 136 (61 females, 75 males) students enrolled in various undergraduate psychology courses at a university in the United States. The average age of the sample was 20.57 years (*SD* = 2.44).

Measures

Nightmare Frequency and Nightmare Distress. Nightmare frequency was assessed using the single-item nightmare scale from the Mannheim Dream questionnaire (Schredl et al., 2014): "How often do you experience nightmares?" Participants were provided with Schredl et al.'s (2014) definition of nightmares (including the waking criteria) and responded using an 8-point scale from 0 (*Never*) to 7 (*Several times a week*). Retest reliability has been estimated at .75 (2 weeks; Schredl et al., 2014). Nightmare distress was assessed using a single item from Kelly and Daughtry (2021): "Typically, how distressed are you by your nightmares?" Participants responded using a 5-point scale from 0 (*Not at all distressed*) to 4 (*Very distressed*). Retest reliability was reported as .72 (2 weeks; Kelly & Daughtry, 2021).

Fantasy Proneness. Fantasy proneness was measured using the 8-item Openness to Fantasy scale from the NEO Personality Inventory-Revised (Costa & McCrae, 1992), e.g., "I have an active fantasy life." Participants responded using a 5-point scale from 0 (*Strongly disagree*) to 4 (*Strongly agree*). Higher scores indicate more imaginative fantasy life. Retest reliability has been estimated at .73 (6 years; Costa & McCrae, 1988).

Absorption. Absorption was measured using two scales: the 3-item Absorption Factor from the Curiosity and Exploration Inventory (CEI-A; Kashdan et al., 2004), e.g., "I tend to get so involved that I lose track of time," and the 4-item Absorption by Activity Factor from the Short Flow Scale (FSS-A; Engeser & Rheinberg, 2008), e.g., "I am totally absorbed in what I am doing." All items were preceded by a stem stating, "When I'm involved in something very interesting…" The CEI-A was designed to reflect absorption in curiosity driven activities while the FSS-A reflects absorption in task involvement, i.e., flow. Neither appear to tap dissociative absorption per se.

Participants responded using a 7-point scale from 1 (*Strongly disagree*) to 7 (*Strongly agree*). Higher scores for both measures indicated more absorption for each scale. Retest reliability of the CEI-A was estimated at .74 (1 month; Kashdan et et al., 2004). Internal consistency of the FSS-A was reported as .78 (Engeser & Rheinberg, 2008). The two absorption measures were only moderately correlated in the current sample, r_s = .38, p < .001. As such, they were analyzed separately.

Neuroticism. Neuroticism was screened using a 2-item Neuroticism Scale from the Short Form of the Big Five Inventory (BFI-10-N; Rammstedt & John, 2007), e.g., "Gets nervous easily." Items are preceded by the stem, "I see myself as someone who…" Participants respond using a 5-point scale from 1 (*Strongly disagree*) to 5 (*Strongly agree*). Higher scores indicated more neuroticism. Retest reliability was estimated at .74 (8 weeks; Rammstedt & John, 2007).

Procedure

The project was approved by the local institutional review board. After providing informed consent participants who were in attendance at undergraduate psychology courses were recruited to complete a "paper and pencil" survey on "Sleep Experiences and Personality." Questionnaires were completed in group settings during regular class times. Care was taken not to administer the survey during exam weeks. No time limits were imposed for questionnaire completion, and no exclusionary criteria were applied.

Statistical Analyses

Analyses were conducted using SPSS 30 for Windows. Due to the ordinal nature of the MADRE-N and nightmare distress measures, Spearman correlations were calculated to examine the relationships between all variables. Ordinal regressions were calculated using nightmare frequency and nightmare distress as criterions and loading neuroticism, fantasy, and absorption measures simultaneously as predictors. Gender and age were included as potential covariates for regressions as they have been related to nightmares (Kelly & Daughtry, 2021; Schredl & Reinhard, 2008). An alpha level of p < .05 (two-tailed) was set for statistical significance.

Results

All primary variables were suitably normally distributed (skewness and kurtosis < 1.0). On average participants reported having nightmares 2-4 times a year (M = 3.09, SD = 1.53, Median = 3.00) and being between "not that distressed" to "somewhat distressed" by their nightmares (M = 1.53, SD = 1.01, Median = 1.00) (see Table 1).

Age was significantly related to nightmare frequency, r_s = –.31, p < .001, and nightmare distress, r_s = –.28, p < .001, and neuroticism, r_s = –.22, p = .011, but not other variables. Similarly, gender differences were found for nightmare frequency, t (134) = 3.48, p < .001, nightmare distress, t (134) = 4.09, p < .001, and neuroticism, t (134) = 4.32, p < .001, with women scoring higher than men, but not other variables, t's < 0.99, p > .325. Given their relationships with nightmares and nightmare frequency, gender and age were retained as covariates for regressions.

Table 1: Frequencies for nightmare frequency and nightmare distress

Categories	Frequency	Percentage
	Nightmare frequency	
0-Never	11	8.1
1-Less than once a year	21	15.4
2-About once a year	16	11.8
3-About 2 to 4 times a year	29	21.3
4-About once a month	23	16.9
5-About 2 to 3 times a month	28	20.6
6-About once a week	8	5.9
7-Several times a week	0	0
	Nightmare distress	
0-Not at all distressed	20	14.7
1-Not that distressed	52	38.2
2-Somewhat distressed	40	29.4
3-Quite distressed	20	14.7
4-Very distressed	4	2.9

Note: $N = 136$.

As presented in Table 2, nightmare frequency was significantly correlated with neuroticism, fantasy proneness, and CEI-A scores. Nightmare distress was significantly correlated with fantasy proneness and CEI-A scores. Not shown in the table, nightmare frequency and nightmare distress were significantly correlated, $r_s = .57$, $p < .001$. Neuroticism was largely unrelated to scores on fantasy proneness, $r_s = -.04$, $p = .689$, the CEI-A, $r_s = .08$, $p = .338$, and FSS-A, $r_s = -.07$, $p = .435$.

As presented in Table 3, the ordinal regression results indicated that age, gender, and CEI-A scores uniquely predicted nightmare frequency. Similarly, gender and CEI-A scores independently predicted nightmare distress.

Table 2: Scale descriptive statistics and Spearman correlations with nightmare frequency and nightmare distress

Scale	Nightmare Frequency	Nightmare Distress	*M*	*SD*
Neuroticism	.21*	.10	6.20	1.99
Fantasy Proneness	.19*	.20*	17.40	4.97
CEI-A	.23**	.20*	12.19	3.37
FSS-A	−.03	.09	14.98	4.30

Note: $N = 136$. *$p < .05$ **$p < .01$. CEI-A = Curiosity and Exploration Inventory Absorption Scale; FSS-A = Short Flow Scale Absorption Scale.

Table 3: Ordinal regressions predicting nightmare frequency and nightmare distress

Variable	Nightmare Frequency			Nightmare Distress		
	SE	χ^2	*p*	SE	χ^2	*p*
Age	0.06	10.16	.001	0.06	0.56	.456
Gender	0.36	5.24	.022	0.38	15.30	<.001
Neuroticism	0.08	0.33	.563	0.09	0.24	.628
Fantasy Proneness	0.03	3.03	.082	0.03	1.77	.183
CEI-A	0.05	10.61	.001	0.05	4.36	.037
FSS-A	0.04	1.84	.176	0.04	0.26	.608
	$\chi^2 = 40.95$, $p < .001$, Nagelkerke $R^2 = .273$			$\chi^2 = 29.06$, $p < .001$, Nagelkerke $R^2 = .211$		

Note: SE = Standard Estimate. Gender dummy coded as 1 = men and 2 = women.

Discussion

The present findings offer further support for the continuity model of dreaming, which proposes that waking cognitive–affective tendencies carry into dream mentation and emotional tone (Schredl, 2017). In line with prior work indicating that immersive cognitive styles predict vivid dream imagery and heightened emotional dream involvement (Belicki & Belicki, 1986; Levin & Fireman, 2001–2002), fantasy proneness and curiosity-based absorption were positively related with nightmare frequency and distress at the bivariate level. These results are broadly consistent with research showing that individuals high in imagery vividness and immersive internal experience tend to report more emotionally intense and vivid dreams, and in some cases greater nightmare vulnerability (Hartmann, 2011; Levin & Fireman, 2001–2002; Levin & Nielsen, 2007; Stickgold et al., 2001).

However, the pattern was refined when accounting for age, gender, neuroticism, and other fantasy and absorption measures. Only the curiosity-driven absorption measure uniquely predicted nightmare frequency and distress, whereas fantasy and flow-based absorption did not. This provides some nuance to how absorption relates to nightmare experiences. The CEI-A may index an emotionally permeable, curiosity-driven form of internal engagement, whereas the flow-based absorption scale reflects goal-directed attentional control. If this is the case, nightmares appear more closely linked to affective and imaginative immersion than to performance-focused flow states. This distinction is in line with arguments that different facets of immersive experience carry different psychological implications (Kashdan et al., 2004; Engeser & Rheinberg, 2008). Absorption grounded in curiosity, attentional engagement, and exploratory cognitive style may reflect a form of "experiential permeability" that heightens both the vividness and emotional tone of dream content. This interpretation resonates with Hartmann's (1984) work on "thin boundaries," which conceptualizes nightmares as part of a broader profile of heightened emotional and imaginative openness rather than pathology per se (McCrae, 1994). In contrast, imaginative involvement without immersion in experience (as reflected in openness to fantasy) may be insufficient to meaningfully contribute to nightmare vulnerability among nonclinical samples.

Interestingly, neuroticism did not uniquely predict nightmare distress or frequency in the multivariate models. While neuroticism is a well-established correlate of nightmare frequency and distress (e.g., Schredl & Göritz, 2021), studies using abbreviated trait scales, student samples, or low-symptom populations sometimes observe attenuated effects (Rammstedt & John, 2007). The present results may thus reflect measurement breadth, sample characteristics, and modest statistical power rather than a departure from established emotional vulnerability models. On the other hand, sometimes longer, psychometrically sound neuroticism measures do not relate to nightmares after accounting for other possible nightmare mechanisms (Kelly & Mathe, 2024). Still, the pattern tentatively suggests that immersive tendencies, particularly curiosity-driven absorption, may contribute to nightmare experiences partly independent of global negative affectivity.

These current findings advance efforts to differentiate normative imaginative engagement from relatively maladaptive fantasy and dissociative tendencies (Fassler et al., 2006; Rauschenberger & Lynn, 1995). Nightmare research has historically intertwined imaginative immersion with clinical vulnerability. Yet, the present results follow a pattern suggesting that nightmares among young nonclinical samples of adults may arise not only from emotional dysregulation, but from other psychological processes such as difficulty distinguishing perceptions of inner sensory-affective imagination from outer experiences (Kelly, 2020, 2024). This aligns with perspectives positioning dreams, and some nightmares, as extensions of internal meaning-making and emotional simulation processes (Hartmann, 2011) rather than strictly markers of dysfunction.

This interpretation parallels work linking imagery vividness, creativity, and emotional engagement to dream intensity (Blagrove & Hartnell, 2000) and supports viewing nightmares within a spectrum of adaptive imagination, emotional permeability, and affectively rich cognition (Zhang et al., 2024).

There are several limitations to the current study that caution attempts to generalize its findings. Although single-item nightmare assessments are efficient and validated (Schredl et al., 2014), multi-item and diary-based approaches might capture richer phenomenology, including nightmare themes and temporal dynamics. Next, reliance on a university sample limits generalizability to nonstudent community groups. Future research should incorporate broader age and cultural groups, given evidence that cultural context and stress exposure modulate nightmare prevalence (Sandman et al., 2013). It is also noteworthy that though the CEI-A and FSS-A were designed with different intents and were only moderately correlated in this sample, at an item level they appear to tap very similar domains. This makes interpretation of the current results (i.e., nightmares as related to curiosity-driven vs. flow-driven absorption) less clear. Additional study is needed to better differentiate the two measures. Finally, effect sizes in the current study were modest. This might be expected in personality research (Hemphill, 2003), yet it highlights the value of multi-method designs and larger samples.

Future work may benefit from incorporating measures of imagery vividness, daydreaming styles, and concretization tendencies (Kelly, 2024) to further refine which aspects of internal immersion are most relevant for nightmare occurrence and distress. Also, it would be interesting to replicate the current findings among clinical samples. Longitudinal data may also clarify

whether immersive styles confer vulnerability over time or interact with stress exposure, chronotype, or sleep disruption (Sheaves et al., 2016).

In sum, this study suggests that curiosity-based immersive engagement—rather than fantasy per se or negative affectivity alone—relates to nightmare frequency and distress in young adults. These findings contribute to emerging frameworks situating nightmares at the intersection of imagination, emotional openness, and normative internal experience. Nightmares in healthy young adults may reflect not only vulnerability, but the vividness and emotional richness of an active inner life.

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