
Nightmare Severity and Sleep Disturbance Among Young Adults Reporting Trauma Exposure in Lahore

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Abstract

Nightmare severity and sleep disturbance may co-occur with broader posttraumatic symptoms, but overlapping questionnaire content complicates their interpretation. This study examined concurrent direct and indirect associations among these constructs in 209 young adults aged 18–29 years recruited through educational networks in Lahore, Pakistan. Participants completed the Life Events Checklist for DSM 5, Nightmare Severity Index, PTSD Checklist for DSM 5, and eight item Sleep Condition Indicator. The symptom score used in the primary model excluded the disturbing dreams and sleep difficulty items, and the sleep score was reversed so that higher values indicated greater disturbance. Nightmare severity correlated positively with adjusted posttraumatic symptoms ($r = .675$) and sleep disturbance ($r = .369$); adjusted symptoms also correlated with sleep disturbance ($r = .377$; all $p < .001$). PROCESS Model 4 with 5,000 bootstrap resamples yielded a positive indirect association, $B = 0.196$, 95% bootstrap CI [0.042, 0.359], alongside a remaining direct association, $B = 0.262$, $p = .015$. The final model explained 16.6% of sleep disturbance variance. These findings support assessing nightmare burden, broader symptoms, and sleep difficulties together, while recognising residual measurement overlap and self-report limitations. Because all variables were measured simultaneously, the results do not establish temporal or causal mediation. Longitudinal replication with verified trauma exposure and complementary sleep measures is warranted.

Keywords: nightmares, posttraumatic symptoms, sleep disturbance, young adults, Pakistan, indirect association

Introduction

Nightmares and disrupted sleep are closely connected complaints among people who report exposure to potentially traumatic events. Their co occurrence raises a practical question for psychological research: does the association between nightmare severity and sleep disturbance also involve a broader pattern of posttraumatic symptoms? Answering this question requires separate measurement of nightmares, sleep difficulties, and symptoms extending beyond sleep. Otherwise, an apparent relationship may partly reflect asking about the same problem in different questionnaires. The present study examines these associations among young adults recruited through educational networks in Lahore, Pakistan, using an adjusted posttraumatic symptom score that excludes the two items most directly concerned with nightmares and sleep.

Sleep is relevant to posttraumatic adjustment because difficulties at night can accompany distress during the day. Nightmares may interrupt sleep, while intrusive memories and heightened alertness may make settling down difficult. Research also indicates that sleep problems in people with posttraumatic stress disorder extend beyond nightmares, making it inappropriate to treat every sleep complaint as a single expression of the same disorder (Lancel et al., 2021). This distinction supports examining the relationship between nightmare burden and insomnia related disturbance while retaining a separate measure of broader symptoms. It also requires restraint: questionnaire associations cannot determine whether an individual has a sleep disorder or posttraumatic stress disorder.

Young adults connected to universities provide an important setting for this investigation. Academic commitments, changing routines, and residential circumstances may coincide with psychological distress, but these contextual influences should not automatically be assumed to explain every sleep complaint. Pakistani research has examined perceived stress, poor sleep quality, and mental wellbeing together, supporting the local relevance of studying sleep within a wider psychological context (Qayyum et al., 2024). The present study addresses a more specific question about nightmares and posttraumatic symptoms. It does not estimate the prevalence of trauma or sleep disorders among Pakistani students, and its nonprobability sample cannot represent all young adults in Lahore.

International evidence provides a useful comparison. Schenker et al. (2024) examined 337 trauma exposed university students and reported positive associations between sleep disturbance and posttraumatic symptom severity. Their findings show that this relationship can be studied in younger civilian populations rather than being confined to military or clinical settings. However, differences in recruitment, trauma histories, and instruments limit direct comparisons between samples. Evidence from another student population establishes a reason to examine the relationship locally; it does not establish that the same coefficients, clinical thresholds, or explanatory processes should occur in Pakistan.

This study therefore had two related aims. First, it examined whether nightmare severity, adjusted posttraumatic symptom severity, and sleep disturbance were positively associated. Second, it tested whether adjusted posttraumatic symptoms accounted for a statistically nonzero indirect association between nightmare severity and sleep disturbance. The

corresponding hypotheses predicted positive pairwise correlations and a positive indirect effect with a bootstrap confidence interval excluding zero. These were hypotheses about concurrent statistical relationships. The ordering of variables in the regression model represented the proposed interpretation, not evidence that nightmares preceded other symptoms or that those symptoms subsequently caused sleep disturbance.

Literature Review

Distinguishing Nightmare Burden from Broader Symptoms

Nightmare severity includes more than the frequency of distressing dreams. The Nightmare Severity Index assesses frequency, emotional impact, daytime impact, and nighttime impact, combining these dimensions into a brief score (Geoffroy et al., 2024). This breadth is useful when a person experiences relatively few nightmares that nevertheless have substantial consequences. It also creates an interpretive challenge for sleep research: a measure containing nighttime disruption will share some content with a separate sleep disturbance measure. That overlap must be considered even when the nightmares and sleep variables have different names and scoring systems.

The PTSD Checklist for DSM 5 provides a wider assessment of posttraumatic symptom severity, including intrusion, avoidance, negative changes in cognition and mood, and arousal related symptoms (Blevins et al., 2015). Its full score also includes disturbing dreams and difficulty falling or staying asleep. When the full checklist is placed between a nightmare measure and a sleep outcome, these two items can blur the conceptual distinction among the variables. Removing them offers a transparent way to reduce direct overlap, but the resulting score is a study specific indicator. It should not inherit diagnostic thresholds or all validity claims attached to the complete instrument.

The distinction between trauma exposure and trauma related nightmares is equally important. Reporting a potentially traumatic event does not demonstrate that every subsequent nightmare concerns that event. The NSI evaluates nightmare severity without independently establishing a traumatic origin for each dream. Accordingly, the current article uses the term nightmare severity among young adults reporting trauma exposure. This wording preserves the topic of the original research while keeping the construct aligned with the available measurement. It avoids treating event exposure, posttraumatic symptom severity, and the content of nightmares as interchangeable evidence.

Theoretical Rationale for the Indirect Association

The fear of sleep framework proposes that sleep may become associated with vulnerability or anticipated distress after trauma. Concern about nightmares and reduced vigilance can help maintain difficulty sleeping (Werner et al., 2021). This framework gives a plausible reason for considering nightmare severity together with wider posttraumatic symptoms. It does not imply that the present study measured fear of sleep: no separate fear of sleep scale was included. The framework serves as a rationale for the proposed association, and its specific processes remain questions for subsequent research.

The proposed model allows nightmare severity to retain an association with sleep disturbance after adjusted symptoms are considered. Such a pattern could arise because nightmare experiences and broader distress each relate to sleep, because measured constructs overlap, or because omitted factors influence more than one variable. A nonzero product of regression paths therefore supplies a description of the covariance pattern rather than a unique psychological explanation. Reverse ordering is also plausible: sleep disturbance could accompany or precede increased distress, while broader symptoms could be related to the occurrence or recall of nightmares.

Methodological research has shown that cross sectional mediation estimates may misrepresent processes operating over time (Maxwell & Cole, 2007). This concern cannot be resolved by increasing the number of bootstrap samples or obtaining statistically significant coefficients. The present analysis is consequently framed as an indirect association model. Its value lies in quantifying how the observed nightmare–sleep relationship changes when broader symptoms are included and in identifying a focused question for longitudinal investigation. It is not a test of treatment mechanisms or a demonstration that intervening on the proposed mediator would change sleep.

Research Methodology

Design and Participants

A quantitative, cross sectional correlational design was used. Participants were recruited through university and college contacts, student groups, and academic networks associated with Lahore. Sampling combined convenience access with purposive eligibility criteria. Participants had to be aged 18–29 years, be connected to the relevant educational networks, understand the English questionnaire, provide informed consent, and affirm exposure to at least one potentially traumatic event during screening. Individuals outside the age range or without affirmed exposure were ineligible. Substantially incomplete, duplicate, patterned, or otherwise invalid responses were subject to exclusion under the study's screening plan.

The final analytic sample comprised 209 participants with complete scores on the three primary variables. The recruitment target was 250. Thus, the achieved sample represented 83.6% of the target; this percentage is not a response rate because the number of people approached is unavailable. A preliminary power calculation reported in the study specified a minimum of 68 participants for a two predictor regression with $f^2 = .15$, $\alpha = .05$, and power of .80. The achieved sample exceeded that minimum, although a regression calculation does not establish adequate power for every indirect effect. Mediation specific sample requirements depend on the component paths and inferential method (Fritz & MacKinnon, 2007).

Participants ranged from 18 to 29 years of age ($M = 23.54$, $SD = 2.32$). Recruitment included current students and people recently graduated or otherwise accessible through educational networks. The sample should therefore be understood as educationally connected young adults rather than an exclusively undergraduate cohort.

Measures

Potentially traumatic events were recorded with the Life Events Checklist for DSM 5 (LEC 5), which covers 17 event categories. Responses distinguish direct experience, witnessing, learning about an event, occupational exposure, uncertainty, and nonapplicability. The checklist screens exposure history rather than providing a single clinical severity score (National Center for PTSD, n.d.). For descriptive reporting, any definite exposure combined the first four exposure modes. Internal consistency was not calculated for the checklist because its event categories are not intended to function as interchangeable indicators of one latent severity construct.

Nightmare severity over the previous month was assessed with the NSI (Geoffroy et al., 2024). The reported scoring procedure added the frequency item to the highest item score within each of the emotional, daytime, and nighttime domains: $Q1 + \max(Q2, Q3) + \max(Q4-Q7) + \max(Q8, Q9)$. This produces a score from 0 to 20, with higher scores representing greater nightmare severity. Two supplementary questions concerning recurrence and themes were not included in the core total. Cronbach's alpha across the nine scored items was .929. This coefficient describes consistency among the items; it is not a separate reliability estimate for the nonlinear domain maximum composite.

Posttraumatic symptom severity during the previous month was assessed using the 20 item PCL 5, with item ratings from 0 to 4 and a full score ranging from 0 to 80 (Blevins et al., 2015). The full score was retained for descriptive reporting. For the primary model, Item 2 concerning disturbing dreams and Item 20 concerning sleep difficulty were excluded. The remaining 18 items yielded an adjusted score ranging from 0 to 72. Internal consistency was .968 for the full scale and .964 for the adjusted score. The adjusted score was used continuously and was not interpreted using a PTSD diagnostic cutoff.

Sleep was assessed with the eight item Sleep Condition Indicator (SCI 8), covering insomnia related difficulties and their daytime consequences (Espie et al., 2014). The original score ranges from 0 to 32, with higher scores indicating better sleep. For the association analyses, sleep disturbance was defined as 32 minus the original SCI 8 total, so that higher values consistently represented greater difficulties across all primary variables. Internal consistency for the SCI 8 items was .804. The original score was retained when reporting the proportion at or below the possible insomnia screening threshold of 16; screening status was not treated as a clinical diagnosis.

Procedure and Ethical Considerations

Participants received information about the study purpose, voluntary participation, confidentiality, and the sensitive nature of questions about trauma and sleep. Consent preceded eligibility screening and questionnaire completion. The sequence included demographic information, event exposure, nightmare severity, posttraumatic symptoms, and sleep. A preliminary pilot review addressed clarity, language, formatting, and participant discomfort; pilot responses were not combined with the analytic sample. The report does not provide the pilot sample size or a full record of changes, so no quantitative pilot outcomes are asserted.

Participants could pause or stop without penalty and were advised to seek appropriate university or mental health support if questions caused distress. The questionnaire was not presented as a diagnostic interview or treatment. Unnecessary identifying information was avoided, and study files were described as password protected with access restricted to the researcher and supervisor. The ethical status cannot be established from an unsigned thesis approval page or an empty ethics appendix.

Statistical Analysis

Analyses used IBM SPSS and PROCESS Model 4 (Hayes, 2022). Screening examined completeness, score ranges, unusual responses, and regression diagnostics. The final sample had complete values for nightmare severity, adjusted posttraumatic symptoms, and reversed SCI 8 scores. Descriptive statistics and Cronbach's alpha were followed by Pearson correlations. Spearman correlations were examined as a sensitivity check because the nightmare and adjusted symptom distributions departed from normality. Tests of individual regression paths and correlations used two sided p values, with .05 as the nominal significance threshold.

The model estimated nightmare severity as X , adjusted posttraumatic symptoms as M , and sleep disturbance as Y . Path a related X to M ; path b related M to Y conditional on X ; path c described the total X – Y association; and path c' described the X – Y association conditional on M . The indirect effect ab was evaluated using 5,000 bootstrap resamples and a 95% bootstrap confidence interval. No demographic, medication, treatment, or trauma history covariates were included in the reported primary model. A confidence interval excluding zero was interpreted as evidence of a nonzero indirect association, without assigning causal meaning to the paths.

Results

Participant and Exposure Characteristics

Table 1 summarises the participant profile. Women constituted 71.8% of the sample, and 75.6% were associated with private institutions. Undergraduates were the largest academic category, accounting for 41.6%. Most participants lived with family, were single, and did not report current sleep medication or psychological or psychiatric treatment. Nevertheless, 22.5% reported prescribed sleep medication and 15.3% reported current psychological or psychiatric treatment. These characteristics are relevant to interpreting the symptom scores and the unadjusted primary model.

Table 1

Selected Demographic and Clinical Characteristics

Characteristic	n	%
Women	150	71.8
Men	54	25.8
Gender not disclosed	5	2.4
Private institution	158	75.6

Characteristic	n	%
Public institution	51	24.4
Undergraduate	87	41.6
Living with family	112	53.6
Single	171	81.8
Prescribed sleep medication	47	22.5
Psychological or psychiatric treatment	32	15.3

Note. $N = 209$. Age $M = 23.54$ years, $SD = 2.32$, range = 18–29. Selected characteristics are shown; percentages use the full sample. Medication and treatment rows indicate affirmative responses.

The LEC 5 description indicated a mean of 11.87 event categories with any definite exposure ($SD = 5.19$; range = 0–17). Transportation accidents were most frequently endorsed under this broad definition (167 participants, 79.9%), followed by natural disasters (161, 77.0%) and serious accidents (158, 75.6%). Direct personal exposure to these categories was reported by 65 (31.1%), 63 (30.1%), and 59 (28.2%) participants, respectively. The broad exposure frequencies should not be read as frequencies of personally experiencing each event. One participant affirmed exposure during eligibility screening but recorded no definite LEC 5 exposure category; this participant was retained in the reported analyses.

Descriptive Statistics and Distributional Checks

Table 2 presents the measure summaries. Mean nightmare severity was 12.05 ($SD = 4.80$), and mean adjusted posttraumatic symptom severity was 38.92 ($SD = 17.99$). The full PCL 5 mean was 43.12 ($SD = 20.11$). Mean SCI 8 score was 17.33 ($SD = 5.95$), corresponding to a mean reversed sleep disturbance score of 14.67 ($SD = 5.95$). Scores covered much of the possible range of each measure. On the original SCI 8 metric, 43.1% scored 16 or below, indicating possible insomnia under the instrument's screening convention.

Table 2

Descriptive Statistics and Internal Consistency

Measure	Range ¹	M	SD	α
NSI	0–20	12.05	4.80	.929
Full PCL 5	0–79	43.12	20.11	.968
Adjusted PCL 5	0–71	38.92	17.99	.964
SCI 8	0–31	17.33	5.95	.804
Sleep disturbance	1–32	14.67	5.95	—

Note. $N = 209$. ¹Observed range. NSI = Nightmare Severity Index; PCL 5 = PTSD Checklist for DSM 5; SCI 8 = eight item Sleep Condition Indicator. Adjusted PCL 5 excludes Items 2 and 20. Sleep disturbance = 32 – SCI 8. NSI alpha refers to nine scored items. Alpha is not repeated for the reversed SCI 8 score.

Nightmare severity was negatively skewed (-0.799), as was adjusted posttraumatic symptom severity (-0.470); sleep disturbance showed slight positive skew (0.284). The corresponding kurtosis values were -0.076 , -0.909 , and -0.018 . Shapiro–Wilk tests were

significant for nightmare severity and adjusted symptoms (both $p < .001$), but not for sleep disturbance ($p = .091$). These distributional results motivated the rank correlation sensitivity analysis. They do not independently establish or invalidate the assumptions of the regression models, which concern conditional relationships and residuals rather than requiring every measured variable to follow a normal distribution.

Correlations

All three primary variables were positively correlated (Table 3). Nightmare severity had its largest association with adjusted posttraumatic symptoms, $r(207) = .675$, $p < .001$. Nightmare severity was also associated with sleep disturbance, $r(207) = .369$, $p < .001$, while adjusted symptoms were associated with sleep disturbance, $r(207) = .377$, $p < .001$. The positive correlations supported the three directional association hypotheses. They indicate differences between participants at the same assessment and do not describe symptom changes within individuals.

Table 3

Pearson and Spearman Correlations Among the Primary Variables

Variable	1	2	3
1. Nightmare severity	—	.675	.369
2. Adjusted symptoms	.654	—	.377
3. Sleep disturbance	.345	.353	—

Note. $N = 209$. Pearson correlations appear above the diagonal and Spearman correlations below it. All $p < .001$, two sided. Adjusted symptoms exclude PCL 5 Items 2 and 20.

Spearman coefficients showed the same pattern: nightmare severity with adjusted symptoms, $\rho = .654$; nightmare severity with sleep disturbance, $\rho = .345$; and adjusted symptoms with sleep disturbance, $\rho = .353$ (all $p < .001$). Agreement across Pearson and rank correlations suggests that the overall direction of the pairwise findings was not dependent on the Pearson specification alone. It does not eliminate shared method bias, confounding, or concerns about how the measures were administered and scored.

Regression and Indirect Association

The total association regression explained 13.6% of the variance in sleep disturbance, $R^2 = .136$, $F(1, 207) = 32.66$, $p < .001$. The nightmare coefficient was $B = 0.458$, $SE = 0.080$, 95% CI [0.300, 0.616]. In the path a model, nightmare severity was positively associated with adjusted symptoms, $B = 2.529$, $SE = 0.192$, 95% CI [2.150, 2.908]. That model explained 45.5% of the variance in adjusted symptoms, $R^2 = .455$, $F(1, 207) = 172.84$, $p < .001$. Coefficients for the complete model appear in Table 4.

Table 4

Regression Paths and the Bootstrap Indirect Association

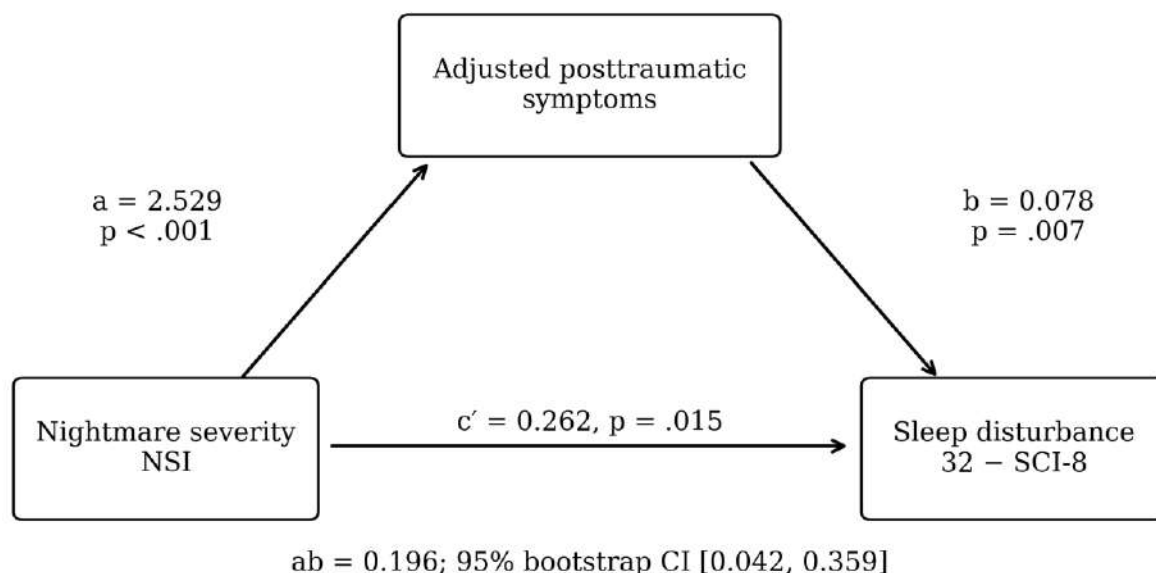
Path	B	SE	p	95% CI
a	2.529	0.192	< .001	[2.150, 2.908]
b	0.078	0.029	.007	[0.021, 0.134]
c	0.458	0.080	< .001	[0.300, 0.616]
c'	0.262	0.107	.015	[0.051, 0.472]
ab	0.196	0.081	—	[0.042, 0.359]

Note. $N = 209$. B = unstandardised coefficient; SE = standard error; CI = confidence interval. a: nightmare severity $\rightarrow$ adjusted symptoms; b: adjusted symptoms $\rightarrow$ sleep disturbance, controlling for nightmare severity; c: total association; c': direct association; ab: indirect association. Indirect effect SE and CI use 5,000 bootstrap resamples; no p value is assigned to that estimate. No covariates were included.

Adding adjusted symptoms to the sleep model increased explained variance by .030, $\Delta F(1, 206) = 7.42$, $p = .007$. The final model explained 16.6% of sleep disturbance variance, $R^2 = .166$, adjusted $R^2 = .158$, $F(2, 206) = 20.54$, $p < .001$. Both conditional coefficients were positive: $B = 0.078$ for adjusted symptoms, $p = .007$, and $B = 0.262$ for nightmare severity, $p = .015$. The latter coefficient was smaller than the total association coefficient. Figure 1 displays the estimated paths and clarifies the statistical ordering used in the analysis.

Figure 1

Estimated Paths Linking Nightmare Severity and Sleep Disturbance

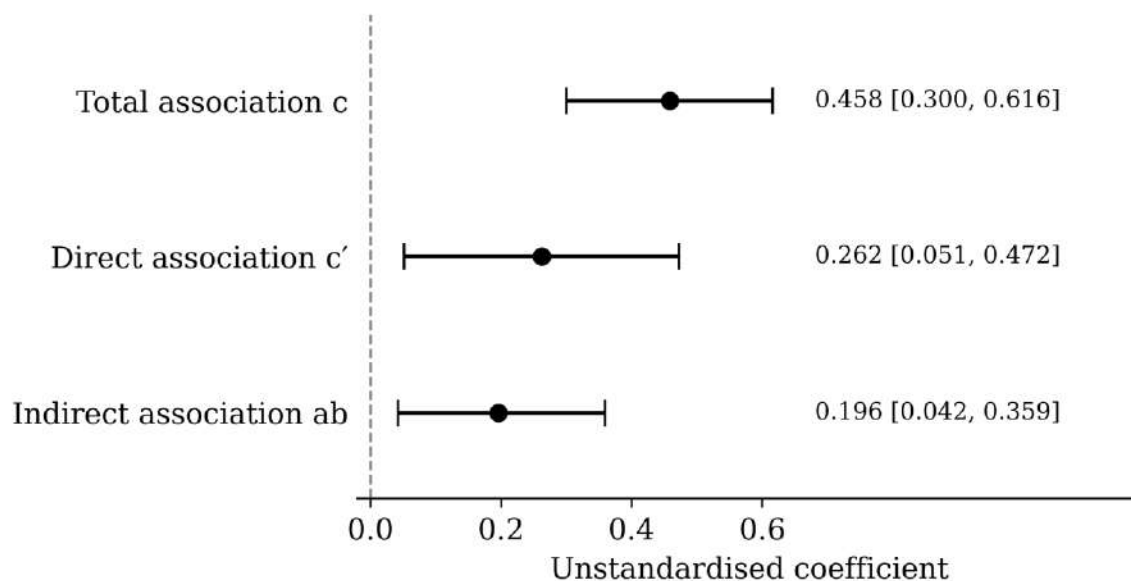


Note. $N = 209$. Values are unstandardised coefficients. Adjusted symptoms exclude PCL 5 Items 2 and 20. Arrows identify the specified statistical ordering and do not establish causation. Original diagram constructed from the reported study estimates; 400 dpi.

The indirect effect was $B = 0.196$, bootstrap $SE = 0.081$, with a 95% bootstrap CI of [0.042, 0.359]. The interval excluded zero, supporting the hypothesised positive indirect association. The completely standardised indirect estimate reported in the study was .158. Figure 2 compares the total, direct, and indirect estimates on their common outcome metric. The continued direct association indicates that conditioning on adjusted symptoms did not remove the nightmare–sleep association. Neither this remaining coefficient nor the bootstrap finding establishes temporal or causal partial mediation.

Figure 2

Total Direct and Indirect Associations With Sleep Disturbance



Note. Points show unstandardised estimates; bars show 95% confidence intervals. The indirect interval uses 5,000 bootstrap resamples; the other intervals are regression based. Each estimate is expressed in sleep disturbance units per one NSI unit. Original plot constructed from the reported study estimates; 400 dpi.

Reported regression diagnostics did not indicate severe collinearity: tolerance was .545 and the variance inflation factor was 1.84 in the final model. The largest reported condition index was 7.70. Standardised residuals ranged from -2.30 to 3.06 , and the observation at the upper end was retained. Residual plots were described as showing no pronounced curvature or funnel shaped spread. These diagnostics support the use of the reported linear models within the observed data, but they do not test independence from unmeasured causes or establish the validity of the model's proposed direction.

Discussion

The study identified positive concurrent associations among nightmare severity, adjusted posttraumatic symptoms, and sleep disturbance in 209 young adults recruited through Lahore's educational networks. Nightmare severity was most strongly associated with broader posttraumatic symptoms. Both variables retained positive conditional relationships with sleep disturbance, and the bootstrap interval for their indirect association excluded zero. The main

contribution is therefore a clearly specified pattern of associations using a symptom score from which explicit nightmare and sleep items were removed. The findings extend the descriptive evidence available for this sample without establishing a sequence of symptom development.

The nightmare–sleep association was consistent with the idea that a higher burden of distressing dreams accompanies greater difficulty sleeping. Yet the magnitude should be interpreted alongside the content of the measures. The NSI includes items about falling asleep and sleep continuity, while the SCI 8 also assesses insomnia related difficulties. Some shared variance may therefore reflect related questionnaire content. This does not make the observed association meaningless, but it limits claims that two entirely independent constructs have been linked. A future analysis could examine NSI domains separately or use a nightmare frequency measure alongside prospectively recorded sleep outcomes.

The strong correlation between nightmare severity and the adjusted symptom score remained after the two directly overlapping PCL 5 items were excluded. This suggests that the nightmare association was not solely attributable to retaining those items in the symptom total. However, it does not show that removal reduced the coefficient, because a corresponding full score comparison was not reported. Nor does high internal consistency prove that the adjusted score isolates a distinct mechanism. General distress, overlapping daytime consequences, and response tendencies could still contribute to the association. The adjusted score is best treated as a transparent analytic choice whose validity requires additional examination.

The positive adjusted symptom–sleep relationship is broadly compatible with the findings of Schenker et al. (2024) in a university sample. The current study adds a separate nightmare predictor and uses a modified symptom score, so its estimates answer a somewhat different question. Comparisons should focus on the shared direction of association rather than ranking the strength of effects across studies. In particular, differences in explained variance cannot establish whether symptoms are more consequential in one national or institutional context when the instruments and model specifications differ.

The indirect effect provides a useful quantitative summary of the specified model. Its point estimate was 0.196 sleep disturbance units per unit of nightmare severity, through the product of the two component regression coefficients. The confidence interval indicates uncertainty around that estimate under the bootstrap procedure. It does not give the probability that a psychological mechanism is true. Likewise, the smaller direct coefficient does not mean that a particular percentage of an individual's sleep problem is caused by posttraumatic symptoms. Such person level and causal interpretations go beyond the reported between person data.

The final model explained 16.6% of the variance in sleep disturbance, leaving substantial variation outside the two predictors. This is an important boundary on the practical interpretation. The model does not offer a comprehensive account of sleep in young adulthood. Medication use, current treatment, event characteristics, depressive symptoms, physical health, schedules, and living circumstances were not jointly evaluated in the primary regression. Their relevance cannot be quantified from the present estimates, but their omission means that the

coefficients should not be described as effects independent of these factors. The results identify a relationship worth examining, rather than a complete explanatory model.

Strengths and Limitations

A strength of the study is its explicit attention to score direction and content overlap. Reversing the SCI 8 total makes higher values consistently represent greater difficulty, while retaining the original score for the screening threshold preserves its intended interpretation. Reporting both Pearson and Spearman coefficients provides a useful sensitivity check. Presenting confidence intervals for the regression paths and the indirect estimate also makes the uncertainty more visible than relying on *p* values alone. These features improve interpretability without compensating for limitations inherent in the research design.

The principal limitation is simultaneous measurement. The model cannot distinguish the proposed order from reverse or reciprocal relationships, and unmeasured common causes remain possible. As Maxwell and Cole (2007) demonstrate, cross sectional indirect effects need not approximate longitudinal mediation. The bootstrap interval addresses sampling uncertainty in the specified statistic, not the plausibility of the causal assumptions. Prospective measurement of nightmares, symptoms, and sleep at multiple occasions is needed to investigate ordering, ideally with attention to baseline levels and the time intervals over which the hypothesised processes operate.

Sampling further constrains generalisability. The sample was self-selected, predominantly female, and concentrated in private institutions. English language eligibility may have excluded young adults with different educational opportunities or preferences for expressing distress. Some participants lived outside Lahore, although recruitment was connected to its educational networks. The achieved sample was below the planned target, and the original regression power calculation was not an indirect effect power analysis. Consequently, these results should not be used to infer citywide disorder prevalence, national estimates, or reliable differences between small demographic subgroups.

Exposure classification also warrants caution. The broad LEC 5 definition combined personal, witnessed, learned about, and occupational exposure, producing a high mean number of endorsed categories. These categories differ in meaning and do not constitute a validated severity total. One retained participant had inconsistent exposure responses across screening and the checklist. The available account does not establish clinical verification of qualifying trauma for every participant or demonstrate that each reported nightmare was related to an index event. These limitations support the more precise description of the sample as young adults reporting trauma exposure.

All primary variables relied on self-report, with no clinical interview, actigraphy, polysomnography, or daily diary confirmation. The adjusted PCL 5 score lacks a separately established diagnostic interpretation, and the nine item NSI alpha does not fully evaluate reliability of its domain maximum composite. The questionnaire appendix presents abbreviated item wording and response instructions, so the administered forms and scoring syntax require verification against the original instruments. These issues should be addressed before treating the findings as evidence of locally validated measurement. No analysis presented here resolves

whether individual response patterns were influenced by interpretation, recall, or common method variance.

Conclusion and Recommendations

Nightmare severity, adjusted posttraumatic symptom severity, and sleep disturbance were positively associated in this sample of 209 young adults. A nonzero indirect association through adjusted symptoms accompanied a remaining direct nightmare–sleep association. The findings support examining these complaints together while preserving the distinction between screening scores and clinical diagnoses. They do not establish that nightmares cause broader symptoms, that those symptoms cause sleep disturbance, or that reducing either predictor would necessarily improve the outcome.

For university counselling services, the findings justify further evaluation of an assessment approach that asks about distressing dreams, sleep difficulties, and wider symptoms together when relevant to a student's concerns. Such an approach should protect confidentiality, allow participants to decline sensitive questions, and provide a route to qualified assessment. The present study did not evaluate screening effectiveness or any intervention. Decisions about treatment therefore require evidence and clinical assessment beyond this model, including consideration of other explanations for disturbed sleep.

Future studies should recruit more diverse samples, document recruitment and exclusions prospectively, and verify event exposure and the relation of dreams to an index event. Repeated assessments would allow examination of temporal ordering; sleep diaries or objective measures could reduce dependence on a single reporting method. Preregistered analyses should specify the role of medication, treatment, and other plausible covariates, evaluate alternative model directions, and plan sample size for the indirect effect itself. Replication with verified instrument versions and explicit ethics documentation would provide a stronger basis for interpreting the pattern observed here.

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