



Assessing Psychological Detachment in Pakistani Workers: Psychometric Properties of the Recovery Experience Questionnaire applied on Sialkot Population

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Abstract

This study reports such a case in Sialkot, Pakistan. The psychological detachment subscale of the Recovery Experience Questionnaire (REQ) showed catastrophic measurement failure Cronbach's $\alpha = .34$, KMO = .57, a single factor explaining only 33.4% of item variance, and non-significant loadings for three of four items in 300 working women. This converges with Panthee et al.'s (2020) finding of theoretically reversed detachment associations among Nepalese hospital nurses, the only other verified South Asian evaluation of this subscale. All four REQ subscales fell below research-use reliability thresholds individually, and the 16-item total reached only borderline-acceptable reliability ($\alpha = .72$) a low value for a 16-item instrument that suggests the REQ's problems in this population may extend beyond detachment alone. A planned mediation analysis testing whether detachment explains the insomnia-cognitive flexibility relationship is reported for transparency only: no bivariate relationships or indirect effect reached significance, a null pattern equivalence testing supported at a study-specific bound but not at a stricter conventional one. A systematic check of 13 demographic variables against all outcomes (39 tests) found no correction-surviving subgroup pattern. One exploratory finding on an equally unreliable subscale Mastery correlated with cognitive flexibility ($r = .17$, $p = .004$) is noted only as a lead for replication. We argue the detachment construct, as currently operationalized, requires cultural adaptation rather than translation before valid use in South Asian working populations, with direct implications for occupational health surveillance and workplace mental health screening in under-studied regions.

Keywords: occupational health, measurement invariance, psychological detachment, Recovery Experience Questionnaire, cross-cultural measurement, cognitive flexibility, working women, South Asia

Introduction

Insomnia is a substantial global public health burden in its own right: a 2025 systematic analysis estimated 852 million adults worldwide meet criteria for insomnia (16.2% global prevalence), with 415 million meeting criteria for severe insomnia, and identified women, older adults, and people facing socioeconomic hardship as disproportionately affected (Benjafield et al., 2025; Morin &

Jarrin, 2022). Despite this scale, insomnia remains under-recognized and under-resourced by health systems relative to its burden, particularly among working populations in low- and middle-income countries, where occupational sleep health has received comparatively little public health research attention (Morin & Jarrin, 2022). A recent study of insomnia burden among public-sector nurses in South Africa — one of the few studies of occupational insomnia in a Global South public health workforce — found insomnia screening rates of 41.7%, underscoring that this is not only a clinical or occupational psychology concern but a workforce and public health systems issue in under-studied regions (Ntaba et al., 2025). The present study's population — working women in Pakistan across healthcare, teaching, and other occupations central to public health service delivery — sits squarely within this under-studied space, and the study's methodological contribution (evaluating whether a standard psychological measurement instrument functions validly in this population) is itself a public health measurement-science question: population health surveillance and workplace mental health screening depend on instruments that have been shown to work in the populations where they are deployed, not merely translated into the local language. Sialkot presents a particularly critical test case. As an industrial hub with significant manufacturing and healthcare sectors, its working women face occupational stressors distinct from those in Nepal's hospital system. The city's workforce includes manual laborers, healthcare workers, teachers, and office staff — a more occupationally diverse sample than prior South Asian evaluations. If the REQ detachment subscale fails here, its failure cannot be attributed to a single occupational context or city type. In 2020, a validation study of the Recovery Experience Questionnaire (REQ) among 438 Nepalese hospital nurses found that its psychological detachment subscale produced theoretically reversed associations — detachment correlated with poorer, not better, self-rated health — and the authors proposed this reflected cultural or structural differences in how detachment is experienced in South Asian occupational contexts (Panthee et al., 2020). No data existed from Sialkot to test whether the Nepalese finding generalized to this industrial city, and no comprehensive psychometric evaluation had been conducted in Pakistan. This gap matters because a measurement instrument that does not function as intended produces theory tests that fail silently, indistinguishable from ordinary null findings — a problem with direct consequences for public health practice if such instruments are adopted for workplace mental health screening or occupational health surveillance without local validation. The present study addresses this dual gap: it provides the first comprehensive psychometric evaluation of the REQ detachment subscale in Sialkot, and it tests whether Panthee et al.'s (2020) Nepalese finding generalizes to a different South Asian country, city, and occupational composition. This study makes three contributions. First, it provides the first comprehensive psychometric evaluation — internal consistency, exploratory and confirmatory factor analysis, and inter-item correlation structure — of the REQ detachment subscale conducted in Pakistan, closing a gap left open since Panthee et al.'s (2020) Nepalese finding. Second, by drawing its sample from a single industrial city but across five distinct occupational groups (Table 1), it tests whether a measurement failure is occupation-specific or generalizes across a occupationally heterogeneous working population — a design feature the Nepalese nurse-only sample could not offer. Third, it demonstrates a broader methodological point with implications beyond this one instrument: that a scale's prior validation in Western or East Asian samples does not license its uncritical deployment for occupational health surveillance in a new population, and that this question must be settled empirically, population by population, rather than assumed from linguistic translation alone. The present study set out to test whether psychological detachment mediates the relationship between insomnia severity and cognitive flexibility among working women in Pakistan, motivated by resource-based recovery theories in which incomplete psychological detachment from work is proposed to prolong stress-related arousal, impair sleep, and thereby deplete next-day cognitive resources (Meijman &

Mulder, 1998; Hobfoll, 1989; Sonnentag & Fritz, 2007, 2015). Empirical support for this pathway is real but inconsistent — a diary study found reduced detachment associated with *greater* cognitive flexibility under high job demand (Kubicek et al., 2022), and a systematic review found recovery-relevant work characteristics inconsistently related to sleep across occupational contexts (Van Laethem et al., 2013) the kind of heterogeneity that makes testing the pathway in a new context scientifically warranted. Sleep disturbance itself is linked to cognitive flexibility through mechanisms including altered prefrontal and hippocampal function (Sun et al., 2025; Yang et al., 2025), though a meaningful minority of studies find no such relationship (Sun et al., 2025), and this is the literature the mediation test below was designed against.

Given the Panthee et al. (2020) precedent, we checked the psychometric adequacy of the detachment subscale as a standard preliminary step before proceeding to the planned mediation test. The subscale showed severe reliability and factor-structure problems, which reframes the study's central contribution: the measurement failure is the primary finding, and the mediation test is reported for transparency rather than as an interpretable theory test. Why might the standard measurement approach not travel to this context? Detachment theory presumes an actively maintainable boundary between a "work self" and a "non-work self," an assumption more secure in individualist cultural frameworks than in collectivist ones where occupational and family identities are more thoroughly intertwined (Hofstede, 2001). A 2025 study of psychological detachment among young Chinese employees found the construct functioning in the expected direction but embedded within a collectivist occupational culture demanding near-constant availability (Sheng et al., 2025), and a related study of Chinese university students found detachment "elusive" under cultural norms equating disengagement with weakness (Chen et al., 2025). Hochschild and Machung's (2012) "second shift" concept — that women combining paid work with primary domestic responsibility experience nominal non-work time as a second, unpaid work period — offers a further, gender-specific reason the REQ's presupposed category of unstructured personal time may not describe many respondents' lived experience. We test a narrow, directly available version of this idea in Results. We report this study's results in the order that reflects their evidentiary weight, not the order of the original study design: the measurement finding first, as the central and interpretively prior result; the planned mediation analysis second, reported for transparency but explicitly non-diagnostic given the measurement problem; and supplementary robustness and exploratory analyses last. We note this departs from standard IMRAD chronological ordering by design, and would adapt to a target journal's specific structural requirements if these differ.

Method

Participants

Participants were 300 women aged 20–50 years (20–30: 49.0%; 31–40: 35.7%; 41–50: 15.3%), employed in teaching (27.0%), healthcare (29.7%), office/administrative (18.3%), manual labor (17.3%), and business (7.7%) occupations across Sialkot, Pakistan (60.0% full-time, 40.0% part-time). Full demographics are reported in Table 1. Participants were recruited via purposive sampling across multiple workplace settings, with institutional administrative permission obtained prior to data collection; recruitment channels and participation/response rate were not systematically recorded and cannot be reconstructed, which we treat as a hard limitation on characterizing selection bias, not a minor gap. Inclusion criteria were women aged 20–50, employed full- or part-time. Exclusion criteria were current diagnosed psychological disorder and current sleep-affecting medication use, both self-reported. Because 24.3% (n = 73) endorsed a

separate, broader demographic item asking generally about "any psychological disorder," we cannot confirm the exclusion criterion was applied consistently at recruitment; a sensitivity analysis excluding these 73 participants left all substantive results materially unchanged (the three focal bivariate correlations — insomnia severity with cognitive flexibility, insomnia severity with detachment, and detachment with cognitive flexibility — ranged $r = -.05$ to $.11$ in this subsample, versus $r = .03$, $.06$, and $.10$ in the full sample; detachment $\alpha = .28$; bootstrapped indirect effect = -0.013 , 95% CI $[-0.076, 0.027]$), which we report as reassurance the ambiguity is not driving the study's conclusions, not as resolution of the ambiguity itself. Missing data were minimal: one participant had missing data on the detachment subscale ($N = 299$ for detachment-specific analyses). All other analyses used the full $N = 300$. Given 0.3% missing data with no systematic pattern, listwise deletion was used.

Measures

Insomnia severity was assessed with the 7-item Insomnia Severity Index (ISI; Bastien et al., 2001; $\alpha = .74-.92$ in prior validation work). **Cognitive flexibility** was assessed with a 16-item adaptation of the Cognitive Flexibility Inventory (CFI; Dennis & Vander Wal, 2010; original 20-item $\alpha = .90$). We could not determine which four items were removed in this adaptation or by whom; this is a substantive limitation on sub-dimensional analysis, not merely a documentation gap, and specifically precludes the sub-dimensional CFI analysis that would otherwise be warranted given evidence that insomnia relates to the CFI's Control sub-dimension specifically rather than its total score (Yang et al., 2025). **Psychological detachment** and the REQ's other three recovery experiences (relaxation, mastery, control) were assessed with the 16-item Recovery Experience Questionnaire (REQ; Sonnentag & Fritz, 2007; detachment subscale $\alpha = .78-.90$ in prior validation work).

Procedure and Ethical Documentation

A pilot administration ($N = 10$) preceded the main study; specific pilot findings and any resulting modifications were not documented in materials available to us. In the main study, participants completed all measures following verbal consent. Nineteen cell-level data-entry errors (9 items, 14 participants) were identified, verified against source questionnaires, and corrected; no cases were excluded (final $N = 300$). We state plainly what we can and cannot confirm about ethical procedure. Confirmed: institutional administrative permission was obtained from each workplace, and participants gave verbal consent before participating. Not confirmed from available materials: whether the protocol underwent review by a formal ethics or institutional review board distinct from workplace administrative permission, or why verbal rather than written consent was used. We cannot distinguish, from available materials, whether formal ethics review simply went undocumented or did not occur. This is not merely a paperwork question: if formal ethics review did not occur, that is a substantive procedural deficiency, not a documentation gap, and would need to be resolved before this work could be considered for formal peer-reviewed publication under standard research-ethics norms. We state this plainly because it is the more serious of the two possibilities and should not be minimized by the phrase "documentation gap." Readers should weigh this when evaluating the study's ethical basis; resolving it — ideally through direct confirmation from the original data-collecting institution — is a priority before this work is considered for formal publication.

Data Analytic Plan

Analyses used Python (pandas, scipy, statsmodels, semopy). Reliability was assessed via Cronbach's alpha for all four REQ subscales, not only detachment, to establish whether reliability

problems were detachment-specific or instrument-general. Given detachment's low reliability, we conducted exploratory and confirmatory factor analysis of its four items. Bivariate relationships were tested via Pearson correlation, including an exploratory sweep correlating insomnia severity and cognitive flexibility with all four REQ subscales (Bonferroni-corrected, 8 tests). Employment-status group differences were tested via Welch's t-test and, given significant confounding with age, education, occupation, and work experience, followed up with a confound-adjusted regression. All 13 available demographic variables were tested against all three outcomes (39 tests, Bonferroni and Benjamini-Hochberg corrected) to check for a hidden subgroup effect. The mediation model was tested via the causal-steps framework (Baron & Kenny, 1986) with bootstrapped indirect effects (5,000 resamples; Hayes, 2018), and supplemented with TOST equivalence testing to avoid circular power-based reassurance. Standard assumption checks (Shapiro-Wilk, Levene's, VIF) were conducted throughout and are reported briefly alongside relevant results.

Results

Table 1 Demographic Characteristics of the Sample (N = 300)

Variable	Category	n	%
Age	20–30 years	147	49.0
	31–40 years	107	35.7
	41–50 years	46	15.3
Education	Intermediate	49	16.3
	Undergraduate	107	35.7
	Graduate	82	27.3
	Postgraduate	62	20.7
Occupation	Teacher	81	27.0
	Healthcare	89	29.7
	Manual	52	17.3
	Office	55	18.3
	Business	23	7.7
Employment	Full-time	180	60.0
	Part-time	120	40.0
Work experience	1–3 years	123	41.0
	4–6 years	120	40.0
	7+ years	57	19.0
Residence	Rural	128	42.7
	Urban	172	57.3
Family structure	Joint	118	39.3
	Nuclear	182	60.7
Thinks about work after hours	Yes	159	53.0

Variable	Category	n	%
	No	141	47.0

The Detachment Subscale's Measurement Failure Is the Primary Finding

The psychological detachment subscale showed poor internal consistency, $\alpha = .34$, well below the .78–.90 typically reported. Factor analysis characterized this: sampling adequacy was below the acceptable minimum (KMO = .57, against the .60 threshold; Kaiser, 1974), and while Bartlett's test was significant, $\chi^2(6) = 23.37$, $p < .001$, a single-factor solution explained only 33.4% of item variance, with inter-item correlations ranging from $r = .07$ to $.20$ (Table 2). Reliability could not be improved by removing any item — a scale-level, not item-level, problem (Table 2b). The CFA specified a single-factor model with all four detachment items loading on one latent factor, error variances freely estimated, and no correlated residuals; the model was identified by fixing the latent factor variance to 1.0, with estimation by maximum likelihood. This confirmatory factor analysis found acceptable global fit ($\chi^2(2) = 2.29$, $p = .318$; CFI = .983; RMSEA = .022), but with only two degrees of freedom, this model has few constraints with which to test whether the data support the proposed structure. Concretely: a single-factor, four-item model has almost no room to fail — it is barely overidentified — so a passing global-fit statistic here is close to uninformative about construct validity and should not be read as confirmatory evidence in the way it would be for a model with more indicators and more degrees of freedom. Acceptable fit here is a weak positive signal at best, not meaningful support for the four-item structure. The item-level estimates are the more informative evidence: in standardized terms, REQ1 loaded at .46, while REQ2 (.22), REQ3 (.39), and REQ4 (.26) loaded weakly, with 95% confidence intervals for their unstandardized loadings spanning zero ($[-0.05, 0.78]$, $[-0.03, 1.48]$, and $[-0.02, 0.95]$, respectively). Only REQ1 showed a loading clearly distinguishable from zero; the other three are better described as estimated with too much uncertainty to confirm they are measuring the intended factor at all, rather than as categorically failed on a borderline significance test. We report both the favorable global fit and the concerning item-level loadings because citing only the former would overstate the instrument's validity here. Table 3 places these findings alongside Panthee et al. (2020): a distinct failure signature (reversed criterion validity there, low reliability and weak factor structure here) converging on the same conclusion — this instrument does not have demonstrated validity in South Asian working populations. Extending the reliability analysis to the REQ's other three subscales revealed the problem is broader than detachment alone: Relaxation ($\alpha = .59$), Mastery ($\alpha = .42$), and Control ($\alpha = .58$) all fell below the .70 research-use threshold individually, though the 16-item total reached borderline-acceptable reliability ($\alpha = .72$) — for a 16-item scale this is a low value in absolute terms. By the Spearman-Brown prophecy, a coherent 16-item instrument assembled from four internally consistent subscales should reach a substantially higher total-scale alpha than .72 through aggregation alone; that it does not suggests the REQ's measurement problems in this sample may not be confined to the detachment subscale, but reflect a broader instrument-level misfit to this population that the present study was not designed to fully characterize.

Table 2 *Inter-Item Correlations, Detachment Subscale (N = 299)*

Item	REQ1	REQ2	REQ3	REQ4
REQ1	—			
REQ2	.08	—		
REQ3	.20	.07	—	

Item	REQ1	REQ2	REQ3	REQ4
REQ4	.12	.13	.08	—

Note. N = 299 rather than 300 because one participant had missing data on the detachment subscale specifically. For a coherent 4-item scale, inter-item correlations should range from $r = .30-.70$ (Briggs & Cheek, 1986). Values below $r = .30$ indicate items are not measuring a common construct. The observed range ($r = .07-.20$) falls far below this threshold.

Table 2b Alpha-if-Item-Deleted, Detachment Subscale (N = 299)

Item Removed	Cronbach's α
None (full scale)	.34
REQ1	.23
REQ2	.31
REQ3	.26
REQ4	.29

Note. No single-item deletion is expected to raise reliability above roughly .40 given the uniformly low inter-item correlations reported in Table 2 ($r = .07-.20$); the computed values ($\alpha = .23-.31$) confirm this expectation.

Table 3 Detachment Subscale Failure: Present Study vs. Panthee et al. (2020, Nepal)

Indicator	Present Study (Pakistan)	Panthee et al. (Nepal)
Cronbach's α	.34	Not reported
KMO	.57	Not reported
Failure signature	Low reliability, weak factor structure	Reversed criterion validity
Authors' interpretation	Possible cultural/structural misfit	Possible cultural/structural misfit

Note. These are convergent but non-equivalent evidence types, not directly comparable coefficients.

Table 4 Reliability of All Study Measures (N = 300)

Measure	k	α	Published range
Insomnia Severity Index	7	.71	.74-.92
Cognitive Flexibility Inventory (16-item)	16	.75	.90 (20-item original)
REQ Total	16	.72	—
REQ Detachment	4	.34	.78-.90
REQ Relaxation	4	.59	—

Measure	k	α	Published range
REQ Mastery	4	.42	—
REQ Control	4	.58	—

Table 5 Occupation-Stratified Reliability, Detachment Subscale

Occupation	N	α	95% CI	Mean inter-item r
Healthcare	89	.37	[.12, .56]	.12
Teacher	80	.35	[.08, .56]	.11
Office worker	55	.36	[.03, .60]	.15
Manual worker	52	.13	[−.33, .46]	.05
Businesswoman	23	.40	[−.14, .72]	.15

Note. Confidence intervals are wide, particularly for the smallest group (businesswomen, $n = 23$), and overlap almost completely across occupations. No subgroup reaches an acceptable reliability threshold, and none is distinguishable from the others once sampling uncertainty is taken into account.

Planned Analyses, Reported for Transparency

Insomnia severity was unrelated to cognitive flexibility ($r = .03$, $p = .658$) or detachment ($r = .06$, $p = .290$); cognitive flexibility and detachment were not significantly related ($r = .10$, $p = .099$). The bootstrapped mediation model (5,000 resamples) found no total effect ($b = 0.046$, $p = .745$), no path a (ISI→detachment: $b = 0.008$, $p = .290$), no path b (detachment→CFI: $b = 1.684$, $p = .103$), and no indirect effect ($ab = 0.013$, 95% CI [−0.015, 0.052]). Given the detachment subscale's reliability, we do not interpret these results as evidence against the underlying theory — only as evidence this measure did not capture the construct adequately here. TOST equivalence testing was conducted using a smallest-effect-size-of-interest (SESOI) bound of $r = \pm .16$ — set, following Lakens's (2017) recommendation for cases without a theoretical or practical effect-size boundary, to the smallest effect the study had adequate power to detect: the smallest effect detectable with 80% power at $\alpha = .05$ (two-tailed) with $N = 300$ (G*Power 3.1; Faul et al., 2009). The two insomnia-related correlations were statistically equivalent to a negligible effect at this study-specific SESOI (both $p < .05$), but the cognitive flexibility-detachment correlation was not ($p = .147$). This result should be weighted cautiously, however: at the stricter, more conventional SESOI of $r = \pm .10$ — arguably the more generalizable and interpretable bound, since $\pm .16$ was defined by this study's own power rather than by a theoretical or field-standard effect size — none of the three correlations reached equivalence. We therefore do not claim strong equivalence-based evidence for genuine null relationships; the $r = \pm .16$ result offers weak, study-specific reassurance only, and readers should treat the $r = \pm .10$ result as the more conservative and informative benchmark. An exploratory, non-hypothesized independent-samples t-test found full-time employees scored higher on cognitive flexibility than part-time employees ($t(261.16) = 2.83$, $p = .005$, $d = 0.33$). Employment status was coded full-time = 1, part-time = 0 in the follow-up regression; the bivariate direction and the regression coefficient's sign therefore appear to conflict at first glance ($b = -2.26$, $p = .175$ after adjustment, versus a positive bivariate difference favoring full-time employees). This is not a coding or computational error but a confound-adjustment sign reversal: age, education, occupation, and work experience are each correlated with both

employment status and cognitive flexibility, and once they are held constant the residual association attributed to employment status alone reverses direction — a classic suppression pattern rather than a substantive part-time advantage. Education and occupation, not employment status, were the significant independent predictors in the adjusted model (detailed model output omitted here for brevity). We report this as a methodological illustration — a bivariate finding that not only loses significance but changes sign once confounds are controlled — not as a substantive part-time-versus-full-time effect in either direction. A systematic check of all 13 available demographic variables against all three outcomes (39 tests total) found 9 uncorrected $p < .05$ results, but none survived Bonferroni or Benjamini-Hochberg correction (full results omitted here for brevity). This reduces the plausibility that the central null findings conceal a hidden subgroup effect. One pattern — occupation predicting insomnia severity, with businesswomen ($n = 23$) reporting lower insomnia than teachers and healthcare workers — survived its own internal Tukey correction but not the broader 39-test family. To clarify how these two corrections relate: occupation-predicting-insomnia was a single one-way ANOVA and counted as one of the 39 tests; the Tukey HSD comparisons were post-hoc pairwise contrasts among the five occupation groups conducted only within that one ANOVA, after its omnibus test was significant, to identify which specific group differences drove it. The Tukey correction controls the pairwise-comparison family within this single test; it does not substitute for, and was not counted toward, the Bonferroni or Benjamini-Hochberg correction applied across the full 39-test family. It is noted as a lead for adequately powered future research given the small, unusually homogeneous business subgroup. We also tested the narrowest available version of the collectivism/second-shift interpretation offered in the Introduction, using two coarse proxies: family structure (joint vs. nuclear) and a single item asking whether participants think about work after hours. Neither proxy predicted detachment scores directly (family structure: $t(297) = 0.20$, $p = .844$; work-hours item: $t(297) = 0.29$, $p = .771$). We additionally tested whether either proxy moderated the insomnia-detachment or detachment-cognitive flexibility relationships. Three of four interaction tests were non-significant (family structure $\times$ insomnia severity on detachment, $p = .227$; work-hours $\times$ insomnia severity on detachment, $p = .881$; work-hours $\times$ detachment on cognitive flexibility, $p = .128$), but one was significant: family structure moderated the detachment-cognitive flexibility relationship, $b = -5.37$, $p = .011$. Given the detachment subscale's $\alpha = .34$, with approximately 66% of detachment score variance attributable to measurement error, this interaction is not straightforwardly interpretable as a substantive effect: a "significant" interaction on so unreliable a subscale may reflect systematic error covariance with family structure rather than true moderation. We report it rather than omit it because it does not fit a simple "nothing here" narrative: it suggests the detachment-cognitive flexibility association, weak and non-significant overall, may differ by household structure in a way this study was not designed to explain and cannot interpret with confidence given the underlying subscale's reliability problems. These results, taken together, do not validate the subscale or cleanly rule out the broader collectivism/second-shift account; they show that the directly testable proxies in this dataset only partially and inconsistently engage with it.

An exploratory sweep correlating insomnia severity and cognitive flexibility with all four REQ subscales (8 tests, Bonferroni-corrected threshold $p < .00625$) found one correction-surviving result outside our hypotheses: Mastery correlated with cognitive flexibility ($r = .17$, $p = .004$). Insomnia was unrelated to Mastery ($p = .948$), so this cannot reflect a sleep-mediated pathway; it is a direct association we note for replication, not an established finding. We note this with the same reliability caveat applied to detachment: Mastery's own internal consistency ($\alpha = .42$, Table 4) is also below the .70 research-use threshold, so this correlation should not be read as more

trustworthy than the null detachment findings simply because it reached significance — a lower-reliability subscale surfacing one significant, uncorrected-for-attenuation correlation among several tested is as consistent with capitalizing on chance or attenuation-pattern noise as with a genuine effect. Standard assumption checks: all focal variables departed from normality (Shapiro-Wilk $p < .001$) with modest skew/kurtosis; Pearson correlation and OLS are reasonably robust to this at $N = 300$. Levene's tests supported equal variance across employment groups (all $p > .06$). VIF for the mediation model's predictors was 1.00 ($r = .06$ between predictors; $VIF \approx 1.004$, rounding to 1.00 — near-zero but not literally zero multicollinearity). Given this non-normality, all three focal bivariate correlations were recomputed using Spearman's rank-order correlation as a robustness check. Two of the three Spearman coefficients were consistent with the Pearson results in magnitude, sign, and significance: insomnia severity and detachment, $\rho = .07$, $p = .252$; insomnia severity and cognitive flexibility, $\rho = .02$, $p = .705$. The third, detachment and cognitive flexibility, $\rho = .13$, $p = .025$, crossed the $p < .05$ threshold where the Pearson estimate had not ($r = .10$, $p = .099$). Given the detachment subscale's $\alpha = .34$, we do not treat this as evidence of a genuine relationship; a coefficient surfacing under rank transformation but not under the linear estimator is at least as consistent with measurement noise interacting with the ranking procedure as with an underlying effect, and it does not survive the .00625 Bonferroni threshold applied to the exploratory sweep above. We report it for transparency rather than omit it, consistent with our treatment of the family-structure moderation finding.

Discussion

This study's central, defensible finding is that the REQ detachment subscale does not function reliably among working women in Pakistan — a specific measurement failure, not a theory-disconfirming null result. An alpha of .34 with below-threshold sampling adequacy and a factor structure explaining only a third of item variance indicates the four detachment items did not cohere as a measure of a single construct in this sample. Given classical test theory, this level of unreliability would substantially attenuate any true relationship involving detachment, meaning the null mediation result cannot be read as evidence the underlying theory is false — only that this measure did not capture the construct here. The detachment subscale's failure could reflect measurement noise (unreliable but understood items) or construct irrelevance (items that do not tap the intended construct in this context). The low inter-item correlations ($r = .07-.20$) and weak factor loadings suggest construct irrelevance is primary: the items are not measuring a common construct because "psychological detachment from work" may not be a salient or coherent category in this population. This is more serious than mere imprecision — it indicates the scale is conceptually mismatched, not just technically weak. This concern is not limited to the detachment subscale: Relaxation ($\alpha = .59$), Mastery ($\alpha = .42$), and Control ($\alpha = .58$) were all individually below threshold as well, and the 16-item total's borderline $\alpha = .72$ is lower than aggregation alone should produce from four coherent subscales (Results). Taken together, this raises the possibility that the REQ's difficulties in this population are instrument-level rather than confined to detachment — a broader claim than this study was designed to establish, but one future work should test directly rather than assume away. A recent study in Lahore reported acceptable reliability ($\alpha = .84$) for the REQ detachment subscale among married working women and found significant mediation and moderation effects (Khan et al., 2026). However, that study provided no factor analysis, no inter-item correlations, no translation details, and no robustness checks. Without this psychometric evidence, the $\alpha = .84$ coefficient cannot be independently verified as indicating true construct validity rather than sample-specific homogeneity. The present study's comprehensive evaluation — EFA, CFA, inter-item correlations, systematic demographic checks, and equivalence testing — provides a stronger evidentiary basis for its conclusion of measurement failure. The discrepancy

between Lahore and Sialkot, alongside Panthee et al.'s (2020) Nepalese dysfunction, suggests the REQ detachment subscale's validity in South Asia is unstable and context-dependent rather than uniformly positive or negative. This cross-study inconsistency does not soften what was found in this sample: an α of .34 with below-threshold sampling adequacy is inadequate for research use by any published psychometric standard, and we describe it as a severe measurement failure on those grounds regardless of what a differently-conducted study elsewhere reported. What the Lahore comparison changes is the geographic claim, not the Sialkot finding: we cannot say the REQ detachment subscale fails everywhere in South Asia, only that it failed severely here, failed differently in Nepal, and that a third, methodologically thinner South Asian study reported it succeeding — a pattern that itself argues for population-specific validation rather than assuming validity (or invalidity) travels across borders. One candidate explanation for the Sialkot-Lahore divergence is compositional rather than purely cultural: Khan et al.'s (2026) sample was described as married working women, a more occupationally and maritally homogeneous group, whereas the present sample spans five distinct occupations — manual labor, healthcare, teaching, office work, and business — with varying degrees of schedule control, physical demands, and boundary permeability between work and home. If the detachment construct's coherence depends on the kind of work being detached from, occupational heterogeneity within a single city could itself degrade a subscale's internal consistency even where the same construct functions adequately in a narrower, more homogeneous subgroup. This account makes a clear prediction — detachment should function more coherently in some occupational subgroups than others — and the present sample, though not originally powered to prioritize this comparison, is large enough to test it directly (Table 5). It does not hold: reliability was uniformly poor across all five occupational groups ($\alpha = .13$ – $.40$), and the 95% confidence intervals overlap almost completely across groups, with no subgroup approaching an acceptable threshold. Manual workers showed the lowest point estimate ($\alpha = .13$) but with a confidence interval too wide, given $n = 52$, to distinguish it from the other groups. This result argues against occupational composition as the driver of the Sialkot-Lahore divergence: if a specific occupational mix were responsible, at least one subgroup within our own occupationally diverse sample should have shown markedly better reliability, and none did. The more parsimonious reading is that the detachment subscale fails uniformly in this population regardless of occupational context, which strengthens rather than weakens the paper's core claim — a population-level measurement failure, not one contingent on a particular occupational mix — while removing composition as an explanation for why Khan et al.'s Lahore sample fared better. That divergence remains unexplained by the present data and should not be over-interpreted from a single comparison study. This conclusion is strengthened by Panthee et al.'s (2020) independent finding of detachment-subscale dysfunction among Nepalese nurses, and by the present study's systematic demographic robustness check: across 39 tests, no correction-surviving subgroup pattern emerged, narrowing the space of alternative explanations. Two further considerations deserve brief mention without extended treatment, because available data speak only weakly to either: a sub-dimensional CFI reanalysis (following Yang et al., 2025) is precluded here by the unresolved item-removal question noted in Method, and the collectivism/second-shift account offered in the Introduction remains a plausible but untested interpretive framework — we tested only its narrowest, most directly available version and found mixed results (Results): two proxy variables did not predict detachment directly, three of four moderation tests were non-significant, but family structure did significantly moderate the detachment-cognitive flexibility relationship. This neither validates the subscale nor cleanly rules out the broader account, and the one significant moderation result should be treated as a lead rather than a finding, given the underlying detachment subscale's reliability problems make any relationship involving it difficult to interpret with confidence. The Mastery-cognitive flexibility correlation ($r = .17$, $p = .004$, Bonferroni-surviving)

is a genuinely new observation outside our hypotheses. Insomnia was unrelated to Mastery, so it is not part of a sleep-mediated pathway; we report it for replication, not as an established result. We flag explicitly that Mastery's own reliability ($\alpha = .42$) is well below the .70 research-use threshold — the same standard that renders the detachment findings uninterpretable — so this correlation warrants the same measurement skepticism, not an exemption from it, pending replication with a psychometrically adequate Mastery measure.

The exploratory employment-status finding did not survive confound adjustment (education and occupation, not employment status, were the significant predictors) and we do not carry it forward as a contribution of this study.

Public Health Implications

Beyond its measurement contribution, this study bears on how occupational and mental health surveillance is conducted in working populations in Pakistan and comparable settings. Insomnia's global burden falls disproportionately on women and on populations in under-resourced health systems (Benjafield et al., 2025; Morin & Jarrin, 2022), and healthcare and teaching workers — well represented in this sample — are themselves central to public health service delivery, making their occupational health a workforce-sustainability concern as well as an individual one. Two implications follow directly from the present findings. First, workplace or public health screening programs considering the REQ detachment subscale, or structurally similar recovery-experience instruments, for occupational mental health surveillance in South Asian working populations should not assume validity carries over from Western or East Asian validation samples; the present findings, combined with Panthee et al. (2020), suggest this assumption is currently unsupported for at least this subscale. The present findings, read alongside the Lahore-Sialkot divergence discussed above, also suggest a more specific methodological caution than "validate before use in South Asia": even national or regional labels may be too coarse a unit for measurement validation decisions. Here, that coarseness operates at the city level rather than the occupational level: the present study directly tested whether the subscale's failure varied with occupational composition within Sialkot (Table 5) and found it did not — reliability was uniformly poor across all five occupational groups — yet the same subscale reportedly functioned adequately in Khan et al.'s (2026) Lahore sample. A validation study conducted once in one city cannot be assumed to hold in another city in the same country, let alone region-wide. Surveillance programs that validate an instrument once in a capital-city or single-occupation sample and then deploy it region-wide risk the same artifact this study documents, at a larger and more consequential scale. This is not a hypothetical concern specific to this instrument: a parallel measurement-invariance problem has been documented for controlling-behavior items used to monitor intimate partner violence against women across 19 low- and middle-income countries, where non-invariant items directly limit the validity of tracking progress toward UN Sustainable Development Goal 5.2.1 (Yount et al., 2024, preprint). Instruments that have not been shown to measure the same construct across the populations where they are deployed compromise not only individual studies but also the population-level surveillance and policy-monitoring functions such instruments are often eventually used for. Second, the near-absence of published occupational sleep and recovery research on working women in Pakistan specifically — as distinct from clinical insomnia samples or nurse-specific studies elsewhere in South Asia — is itself a public health evidence gap; this study contributes descriptive occupational sleep and mental-health data (Table 1, Table 4) to a population with limited existing public health surveillance data, independent of the instrument-validity question that is this study's central finding.

Limitations

Beyond the central measurement finding, three documentation gaps constrain what this study can support and should be resolved, not merely noted, before further use of this dataset: which four CFI items were removed in the 16-item adaptation (precluding sub-dimensional analysis); formal ethics review status beyond workplace administrative permission (see Method); and recruitment channels or response rate (not recorded, limiting characterization of selection bias). Additional limitations: all measures were self-report with no objective sleep or performance-based cognitive measures; the cross-sectional design cannot test detachment as the day-level mechanism the theory specifies, for which a diary or experience-sampling design would be better suited; and the single-city purposive sample limits generalizability. We report these limitations to allow readers to assess evidentiary weight accurately, not to pre-emptively disqualify the study: the central substantive finding — the detachment subscale's measurement failure, established via internal reliability, factor structure, and convergence with an independent Nepalese sample — does not depend on the documentation gaps noted above, though the mediation test, the CFI-based analyses, and generalizability claims should be weighed in light of them.

Conclusion

This is the second verified South Asian sample to show REQ detachment-subscale dysfunction, strengthening the case that cultural and linguistic adaptation — not simple translation — is needed before this instrument can validly capture the detachment construct in South Asian working populations. This study's central contribution, however, is not the specific instrument but what a directly tested alternative explanation ruled out: occupational composition does not explain the subscale's failure. Reliability was uniformly poor across five distinct occupational groups within a single city (Table 5), which means the problem is not that this city's workforce happens to be the "wrong" occupational mix — it is that the instrument fails here regardless of occupational composition, a stronger and less easily dismissed claim than an untested compositional hypothesis would have supported. Combined with Khan et al.'s (2026) contrasting Lahore finding, this leaves geography or city-level context, not occupation, as the remaining candidate explanation for where the REQ detachment subscale does and does not function in Pakistan, an open question this study cannot resolve but has narrowed. Neither "validated in Pakistan" nor "validated in South Asia" is a safe basis for deploying this instrument in a new context without population-specific evidence. Researchers currently using the untranslated or directly translated REQ detachment subscale in similar South Asian occupational contexts should treat scores from it with caution: on the evidence assembled here and in Panthee et al. (2020), it may be capturing measurement noise rather than the intended construct. The mediation test this study originally set out to conduct remains, for now, an open question rather than an answered one.

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