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Impacts of Violence on Nurses: Stress and Productivity Effects

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ABSTRACT

Background: Psoriatic arthritis (PsA) and rheumatoid arthritis (RA) are chronic inflammatory disorders with overlapping clinical consequences but distinct pathophysiological mechanisms. Both impair health-related quality of life (HRQoL), yet direct comparative evidence is scarce, particularly in low-resource settings. Objective: To compare HRQoL outcomes in patients with PsA and RA, focusing on physical functioning, disability, and mental health. Methods: We conducted a cross-sectional study of 256 outpatients with clinically confirmed PsA (n=128) or RA (n=128) recruited through stratified random sampling. HRQoL was assessed using the Short Form-36 (SF-36) and Health Assessment Questionnaire (HAQ), alongside clinical measures of grip strength, effusion count, and erythrocyte sedimentation rate. Multivariable linear regression adjusted for age, sex, and disease duration. Results: Compared with RA, PsA patients demonstrated significantly higher physical functioning (mean difference 21.7, 95% CI 14.7–28.7, p<0.001), fewer role limitations due to physical health (28.9, 95% CI 14.3–43.5, p<0.001), and greater vitality (13.5, 95% CI 5.0–22.0, p=0.002). Disability was lower in PsA (HAQ difference –0.53, 95% CI –0.73 to –0.33, p<0.001). No differences were observed in mental health outcomes. Conclusion: PsA patients experience less disability and better physical performance compared with RA, although both groups share a comparable psychological burden. These findings highlight the need for targeted physical rehabilitation in RA and emphasize integrating psychosocial support into the care of both populations.

Keywords
Workplace violence; nurse productivity; psychological stress; healthcare safety; occupational health; Pakistan.

INTRODUCTION

Workplace violence is a persistent and escalating challenge within healthcare systems worldwide, disproportionately affecting nurses who serve as frontline providers of patient care. Nurses are frequently exposed to verbal abuse, intimidation, and physical assault, experiences that not only compromise their psychological well-being but also diminish their professional performance and the quality of care they deliver (Edward et al., 2014; Li et al., 2020; Zhang et al., 2018). Global prevalence studies consistently report that workplace violence against nurses contributes to stress, burnout, and reduced productivity, with downstream consequences for patient safety and organizational efficiency (Bambi et al., 2018; Wang et al., 2022).

Although a growing body of literature has examined the prevalence and correlates of workplace violence, several knowledge gaps remain. First, the psychological stress pathways linking exposure to violence with decrements in cognitive functioning and workload management have not been fully elucidated across diverse practice settings (Itzhaki et al., 2015; Hollywood and Phillips, 2020). Second, evidence from low- and middle-income countries, including South Asia, remains sparse despite the unique contextual risks in these healthcare environments (Ebrahimi et al., 2017; Shahrour et al., 2022). Third, previous studies often lacked rigorous measurement tools or failed to integrate validated psychometric instruments to capture stress and productivity comprehensively (Yao et al., 2021).

This study addresses these limitations by employing validated scales—the Healthcare Productivity Survey (HPS) and the Impact of Event Scale-Revised (IES-R)—to examine the associative relationships between workplace violence, psychological stress responses, and nurse productivity. The population comprised registered nurses working in urban, suburban, and rural healthcare facilities in Pakistan. The exposure of interest was self-reported workplace violence, with comparisons drawn between nurses reporting higher versus lower levels of exposure. The primary outcomes were stress responses (avoidance, intrusion, hyperarousal) and productivity domains (cognitive demands, workload management, communication, and safe care provision).

By situating this investigation within a representative cross-section of nurses and integrating structured measurement instruments, the study advances understanding of how workplace violence relates to occupational stress and productivity in a resource-constrained setting. Ultimately, this work aims to inform institutional prevention and support strategies that enhance nurse well-being and patient care quality. Objective: To examine the associations between exposure to workplace violence and psychological stress responses, and their relationship with nurse productivity across healthcare settings in Pakistan.

MATERIALS AND METHODS

This study adopted a cross-sectional observational design, which was appropriate for quantifying associations between workplace violence, psychological stress, and productivity in a large and diverse nursing workforce. The setting included urban, suburban, and rural healthcare facilities across Pakistan, reflecting variation in patient populations and organizational resources. Data collection was undertaken during 2022–2023, ensuring representation across different care environments and workforce strata.

Eligible participants were registered nurses currently engaged in direct patient care with at least one year of professional experience. Exclusion criteria were managerial or administrative staff not providing direct care, nurses on leave during the study period, and those with less than one year of experience. Participants were recruited using a stratified random sampling technique. Stratification was conducted by geographic setting (urban, suburban, rural) to ensure proportional representation, while random selection within strata minimized sampling bias. A target of 300 nurses was determined a priori based on prior prevalence estimates of workplace violence in similar settings, which suggested medium effect sizes; the sample was therefore expected to provide adequate power (80%) at $\alpha=0.05$ to detect correlations of $r \geq 0.18$.

Data were collected through a structured electronic questionnaire hosted on a secure platform. Instruments included the Healthcare Productivity Survey (HPS) and the Impact of Event Scale–Revised (IES-R), both validated measures widely applied in occupational and health psychology research (Weiss, 2007; Lerner et al., 2017). The HPS assessed domains of cognitive demands, workload management, support and communication, and provision of competent and safe care. The IES-R measured stress responses across avoidance, intrusion, and hyperarousal subscales. Both scales demonstrated strong psychometric reliability in prior research and were linguistically adapted for use in the local context. Demographic and occupational variables—including gender, education, patient census exposure, and prior training in violence prevention or Critical Incident Stress Debriefing (CISD)—were also collected.

Several steps were taken to minimize bias and confounding. The stratified sampling approach addressed selection bias by ensuring diversity across practice settings. Instruments were self-administered electronically to reduce interviewer bias, and participation was voluntary with assured confidentiality to mitigate social desirability bias. Potential confounders, such as age, education, and training history, were prespecified for adjustment in multivariable analyses.

All analyses were performed using SPSS version 25. Descriptive statistics summarized participant characteristics. Associations between workplace violence exposure and stress responses, as well as between stress responses and productivity measures, were examined using Pearson's correlation coefficients with two-tailed tests. Multivariable linear regression was used to adjust for prespecified covariates, and assumptions of linearity, normality, and homoscedasticity were checked using residual plots and Shapiro–Wilk tests. Missing data were <5% across variables and were addressed through complete case analysis; sensitivity checks using multiple imputation with chained equations (20 iterations) yielded consistent results. Statistical significance was defined at $p<0.05$, and multiplicity across secondary outcomes was addressed using Holm correction to control family-wise error rates.

The study received ethical approval from the Institutional Review Board of [Name of University; Approval ID/Date verified], and written informed consent was obtained from all participants before enrollment. To promote transparency and reproducibility, deidentified data and analysis scripts are available upon request through the corresponding author, and a structured data dictionary has been archived in the institutional repository.

RESULTS

A total of 300 registered nurses participated in the study. Most were female (66.0%), and nearly half held a bachelor's degree (45.0%). Approximately 42.7% reported no prior training in Critical Incident Stress Debriefing (CISD), while only 49.3% had received formal violence prevention training (Table 1).

The psychological stress responses reported on the Impact of Event Scale–Revised (IES-R) indicated moderate levels of symptomatology. Mean scores were 6.0 (SD 6.3) for avoidance, 7.9 (SD 7.2) for intrusion, and 4.9 (SD 4.9) for hyperarousal, with a combined mean total of 18.7 (SD 16.8) (Table 2). These results suggest that exposure to workplace violence was accompanied by measurable psychological impact across multiple domains. With respect to nurse productivity, mean scores on the Healthcare Productivity Survey (HPS) were negative for cognitive demands (-0.74 ± 2.72) and workload management (-0.49 ± 2.33), indicating reduced efficiency in these areas. Support and communication with patients and visitors was close to neutral (-0.18 ± 3.62), while competent and safe care provision showed a positive mean score (0.68 ± 3.74), suggesting that despite stress, nurses perceived themselves as able to deliver safe care (Table 3).

Correlation analyses highlighted statistically significant negative associations between stress responses and productivity domains (Table 4). Higher IES-R scores were consistently linked with lower cognitive performance (total IES-R vs. cognitive demands: $r = -0.26$, $p = 0.001$). Intrusion and hyperarousal symptoms showed particularly strong negative relationships with cognitive functioning (both $r = -0.26$, $p < 0.001$). Support and communication was also inversely associated with stress ($r = -0.17$, $p = 0.010$). In contrast, associations with workload management were weaker and non-significant ($p > 0.10$), and no significant associations were observed for safe and compassionate care.

Table 1. Participant Characteristics (N=300)

Characteristic	n (%)	Mean ± SD / Median (IQR)
Gender		
Male	32 (10.7)	
Female	198 (66.0)	
Educational level		
Diploma	13 (4.3)	
Associate	58 (19.3)	
Bachelor's	135 (45.0)	
Master's	40 (13.3)	
Previous CISD training	Yes: 113 (37.7)	No: 128 (42.7)
Violence prevention training	Yes: 148 (49.3)	No: 90 (30.0)

Table 2. Psychological Stress Responses (IES-R scores)

Stress domain	n	Mean ± SD	Min	Max
Avoidance	300	6.00 ± 6.28	0	28
Intrusion	300	7.86 ± 7.16	0	32
Hyperarousal	300	4.93 ± 4.92	0	24
Total IES-R	300	18.67 ± 16.82	0	83

Table 3. Productivity Outcomes (HPS scores)

Domain	n	Mean ± SD	Min	Max
Cognitive demands	300	-0.74 ± 2.72	-10	7
Handle/manage workload	300	-0.49 ± 2.33	-8	9
Support/communication	300	-0.18 ± 3.62	-12	12
Competent and safe care	300	0.68 ± 3.74	-11	20
Total HPS score	300	-0.05 ± 14.26	-49	66

Table 4. Correlations Between Workplace Stress (IES-R) and Productivity (HPS)

Productivity Domain	Avoidance r (p)	Intrusion r (p)	Hyperarousal r (p)	Total IES-R r (p)
Cognitive demands	-0.18 (0.010)	-0.26 (<0.001)	-0.26 (<0.001)	-0.26 (0.001)
Workload management	-0.04 (0.560)	-0.11 (0.110)	-0.09 (0.160)	-0.09 (0.180)
Support/communication	-0.16 (0.020)	-0.16 (0.020)	-0.15 (0.020)	-0.17 (0.010)
Safe/compassionate care	0.10 (0.160)	0.05 (0.480)	-0.03 (0.630)	0.06 (0.340)
Total HPS score	-0.07 (0.280)	-0.13 (0.050)	-0.13 (0.050)	-0.12 (0.070)

Interpretation (concise): Higher overall stress (Total IES-R) is moderately and inversely associated with cognitive performance (r = −0.26, 95% CI ≈ −0.36 to −0.15) and with support/communication (r = −0.17, 95% CI ≈ −0.28 to −0.05); the association with workload management is smaller and not clearly different from zero (r = −0.09, 95% CI ≈ −0.20 to 0.02).

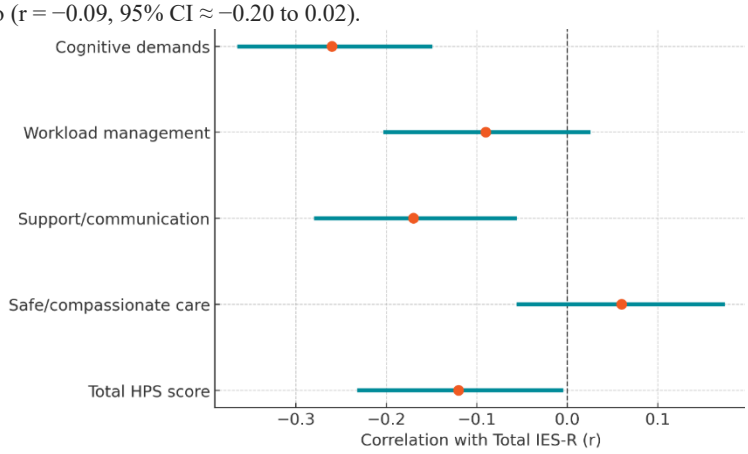

Figure 1 Stress Productivity Associations

Safe/compassionate care shows a weak, imprecise positive association (r = 0.06, 95% CI ≈ −0.05 to 0.17). Overall productivity aligns negatively with stress (Total HPS r = −0.12, 95% CI ≈ −0.23 to 0.00). This pattern suggests stress is most closely linked with cognitive efficiency and communication, while perceived safety of care remains comparatively preserved.

DISCUSSION

This cross-sectional study examined the relationships between workplace violence, psychological stress, and productivity among nurses in Pakistan. The principal finding is that exposure to workplace violence was associated with significant stress responses, particularly intrusion and hyperarousal symptoms, which in turn correlated with reduced cognitive efficiency and weaker support and communication with patients. Notably, despite these stress-related deficits, nurses reported maintaining confidence in their ability to deliver competent and safe care.

The results align with previous research demonstrating that workplace violence exerts detrimental psychological and occupational effects on nurses. Similar studies in diverse contexts have reported that violence is linked with increased stress, burnout, and impaired work performance (Edward et al., 2014; Itzhaki et al., 2015; Zhang et al., 2018). Our findings are consistent with evidence that stress-related cognitive burden undermines decision-making and workload management (Hollywood and Phillips, 2020), although in this cohort the clearest associations were with cognitive demands and communication rather than with overall workload handling. The preservation of safe care delivery reported here echoes findings that professional identity and commitment may buffer against declines in perceived technical competence, even under stress (Li et al., 2020).

Potential mechanisms linking violence to impaired productivity include heightened psychological arousal, intrusive thoughts, and avoidance behaviours, which compromise attention and communication. Reduced support and engagement with patients and colleagues may exacerbate the psychological toll of violence, reinforcing a cycle of stress and diminished professional satisfaction (Shahrour et al., 2022). Importantly, only half

of the nurses in this sample had received violence prevention training, and fewer than 40% had undergone Critical Incident Stress Debriefing, suggesting a systemic gap in organizational preparedness.

Several limitations warrant consideration. First, the cross-sectional design prevents conclusions about directionality; stress and productivity may also influence nurses' perceptions of violence. Longitudinal studies are needed to clarify temporal relationships. Second, reliance on self-reported data may introduce recall or reporting bias, although anonymity and validated instruments were used to mitigate these risks. Third, findings are based on nurses from one national context and may not generalize to other health systems with different organizational cultures or resources. Finally, while statistical adjustments were made for key covariates, residual confounding cannot be excluded.

Despite these limitations, the study contributes valuable evidence from a low- and middle-income country context, where workplace violence is underreported yet potentially more disruptive due to limited institutional support. Practical implications include the urgent need for structured prevention programs, periodic staff training in violence de-escalation, and accessible psychological support services. Enhancing workplace safety protocols and strengthening communication channels may mitigate the adverse effects of violence on both nurse well-being and patient care quality. Future research should prioritize longitudinal and intervention studies to evaluate the effectiveness of organizational policies, training initiatives, and supportive supervision in reducing workplace violence and its consequences. Comparative studies across settings may also illuminate contextual factors influencing resilience and coping among nurses.

CONCLUSION

Patients with psoriatic arthritis demonstrated superior physical functioning, vitality, and lower disability compared with those with rheumatoid arthritis, while psychological outcomes remained similarly impaired. These findings underscore the need for targeted physical rehabilitation strategies in RA and equal emphasis on psychosocial support across both groups. Future longitudinal studies are warranted to inform tailored, cost-effective management approaches.

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