

Evaluating Art-Based Stress Interventions in Correctional Settings: Implications for Systemic Reform

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ABSTRACT

This study evaluates the impact of an expressive arts-based stress management intervention (comprising dance, music, games, arts, crafts, and role-play) on stress levels among female prisoners (n = 32) across three temporal phases: Baseline (Pre-intervention), Mid-intervention, and Post-intervention. Domains assessed include physical stress, social stress, psychological stress, and role stress. Repeated measures and post-hoc analyses (Newman-Keuls test) revealed small, non-significant descriptive reductions in stress across all major domains over time. The persistent overall stress levels underscore the deep-seated impact of institutional incarceration factors, highlighting the need for holistic systemic reforms.

1. INTRODUCTION

Incarceration subjects individuals to a complex array of institutional stressors, including protracted separation from familial networks, profound social isolation, physical confinement, and systemic uncertainty. These challenges are frequently compounded by severe structural deficits—such as severe overcrowding—and mandatory adherence to both official penal regulations and implicit inmate codes. In a rapidly transforming Indian society, evolving gender dynamics coexist with persistent socio-cultural expectations that place women in a unique position. Consequently, the impact of penal confinement carries distinct socio-psychological weight for females. Recent criminological data reveal a marked rise in female offending, driving a disproportionate expansion of the female prison population across the country.

Females in conflict with the law endure disproportionate socio-psychological distress due to disrupted domestic roles (Kaur & Roy, 2021) and distinct socio-cultural consequences (Ahuja, 1969) in India. Forced separation from children and anxiety regarding their well-being (Maurya & Koushik, 2026) are among the primary stressors for female prisoners who have children who either live inside the prison with their incarcerated mothers or are fully dependent on family or distant relatives. Institutional structures across the penal system remain relatively ill-equipped to address mental health issues, exhibiting marked deficits in gender-responsive rehabilitation and skill-based training tailored to female inmates (Kaur & Roy, 2021; Prakash, 2022). The process of reformation and rehabilitation is severely hindered by the stress experienced by female prisoners, as they spend most of their time adjusting to prison lifestyles, missing family members, and worrying about their futures.

Objective

- To evaluate the effect of an expressive arts-based stress management intervention on physical, social, psychological, and role stress among female prisoners across baseline, mid-intervention, and post-intervention phases.

2. METHODOLOGY

2.1 Sample

The sample for the present study comprised female prisoners ($n = 32$) who participated in an intervention program tailored to impart income-generation skills and reduce stress in a District Jail in Uttar Pradesh. Sample selection was purposive; only female prisoners who participated throughout the entire eight-month intervention period and completed evaluations across all three distinct phases (baseline/pre-intervention, mid-intervention, and post-intervention) were included in the final sample.

2.2 Research Tool

A self-constructed schedule was used to measure the stress levels of female prisoners. The schedule consisted of 32 items divided across four domains, structured as a 3-point Likert-type rating scale. The four domains measured were physical stress, psychological stress, social stress, and role stress. The test-retest method was used to determine reliability, while face and content validity were established to ascertain the validity of the tool.

2.3 Data Collection

Data related to the outcome variable (stress) were collected across three temporal phases:

- **Baseline Phase:** Stress levels were evaluated prior to the commencement of intervention activities.
- **Mid-Intervention Phase:** Stress levels were evaluated midway through the program (after 4 months).
- **Post-Intervention Phase:** Evaluation was conducted following the completion of the intervention (after 8 months).

2.4 Statistical Analysis

- **Descriptive Statistics:** Mean scores and Standard Error of the Mean ($\pm$ SEM) were calculated for each phase.
- **Pairwise Comparisons:** Percentage changes (%) and Newman-Keuls post-hoc tests were performed to evaluate statistical significance between phases (Baseline vs. Mid, Mid vs. Post, Baseline vs. Post).
- **Significance Levels:** $p > 0.05$ (Not Significant, ns), $p < 0.05$ (*), $p < 0.01$ (**), $p < 0.001$ (***)

3. RESULTS & DISCUSSION

3.1 Changes in Stress Across Intervention Phases

Mean scores and Standard Error of the Mean for female prisoners' stress levels across intervention phases are presented in Table 1. Across all stress domains evaluated ($n = 32$), baseline measurements registered the highest reported stress levels, with subsequent intervention phases demonstrating varying trajectories of reduction. Physical stress, social stress, and overall stress exhibited a consistent linear decrease over time (Baseline > Mid > Post). Specifically, overall stress dropped from a baseline mean of 73.13 ± 1.70 (SEM) to a mid-intervention score of 71.16 ± 1.60 , reaching its lowest point post-intervention at 70.53 ± 1.89 . Physical and social stress followed the same monotonic downward pattern, moving from 17.56 ± 0.71 to 16.31 ± 0.72 and 19.22 ± 0.52 to 18.41 ± 0.51 , respectively.

Conversely, psychological stress and role stress displayed a slight rebound effect (Baseline > Post > Mid); both domains hit their lowest levels during the mid-intervention phase (16.22 ± 0.56 for psychological; 19.03 ± 0.52 for role) before experiencing a minor increase post-intervention (16.69 ± 0.61 and 19.13 ± 0.57 , respectively). Despite these mid-to-post fluctuations, all post-intervention mean scores remained strictly lower than their corresponding initial baseline levels, reflecting an overall net reduction in stress across every domain.

Table 1: Mean Scores and Standard Error of Stress Among Female Prisoners Across Intervention Phases (n = 32)

Stress Domain	Baseline (Mean $\pm$ SEM)	Mid-Intervention (Mean $\pm$ SEM)	Post-Intervention (Mean $\pm$ SEM)	Linear Trend Description
Physical Stress	17.56 ± 0.71	17.00 ± 0.63	16.31 ± 0.72	Linear Decrease (Base > Mid > Post)
Social Stress	19.22 ± 0.52	18.91 ± 0.55	18.41 ± 0.51	Linear Decrease (Base > Mid > Post)
Psychological Stress	16.91 ± 0.67	16.22 ± 0.56	16.69 ± 0.61	Slight Rebound (Base > Post > Mid)
Role Stress	19.44 ± 0.48	19.03 ± 0.52	19.13 ± 0.57	Slight Rebound (Base > Post > Mid)
Overall Stress	73.13 ± 1.70	71.16 ± 1.60	70.53 ± 1.89	Linear Decrease (Base > Mid > Post)

Pairing the post-hoc Newman-Keuls pairwise comparisons (Table 2) with the baseline-to-post descriptive trends (Table 1) reveals that while numerical stress reductions occurred across all domains, none of the changes reached statistical significance ($p > 0.05$). Physical and social stress registered the largest cumulative percentage drops from baseline to post-intervention (7.1% and 4.2%, respectively), yet these changes did not meet the statistical threshold ($p = 0.183$ and $p = 0.270$). Psychological and role stress showed minimal shifts throughout the intervention period (maximum reductions of 4.1% and 2.1%), consistently exhibiting high p-values ($p > 0.40$). Overall stress showed the largest absolute mean difference between baseline and post-intervention (2.59

Table 2: Newman-Keuls Post-Hoc Pairwise Comparisons of Mean Stress Scores Between Phases

Stress Domain	Baseline vs. Mid Mean Diff (%)	p-value	Mid vs. Post Mean Diff (%)	p-value	Baseline vs. Post Mean Diff (%)	p-value
Physical	0.56 (3.2%)	0.425	0.69 (4.0%)	0.330	1.25 (7.1%)	0.183
Social	0.31 (1.6%)	0.550	0.50 (2.6%)	0.340	0.81 (4.2%)	0.270
Psychological	0.69 (4.1%)	0.473	0.47 (2.8%)	0.427	0.22 (1.3%)	0.710
Role	0.41 (2.1%)	0.706	0.09 (0.5%)	0.855	0.31 (1.6%)	0.542
Overall	1.97 (2.7%)	0.150	0.63 (0.9%)	0.645	2.59 (3.5%)	0.141

points, a 3.5% reduction), approaching the closest margin of significance, but remained statistically non-significant ($p = 0.141$). Despite observable downward numerical trends in stress scores across intervention phases, the data do not provide sufficient evidence to conclude that the intervention caused a statistically meaningful reduction in any stress domain for this sample ($n = 32$).

3.2 Findings and Discussion

The present study demonstrated a linear decline in mean physical, social, and overall stress scores across the intervention phases (Baseline > Mid-intervention > Post-intervention). Conversely, psychological and role stress scores dropped at mid-intervention compared to baseline, but exhibited a slight rebound at post-intervention (Baseline > Post-intervention > Mid-intervention). Although the intervention aimed to alleviate stress among incarcerated women, the overall reductions failed to reach statistical significance.

While expressive and recreational modalities—such as art, music, dance, crafts, role-playing, and games—effectively manage daily stressors in general populations, unique systemic challenges govern the correctional environment. In a rigid institutional setting, structural barriers such as resource scarcity, familial isolation, culture shock, and the overarching trauma of confinement severely impede stress management for female inmates.

Furthermore, despite displaying initial enthusiasm and transient positive affect during sessions (e.g., proudly showing their art and craft products to prison staff and visiting relatives), participants experienced no sustained psychological relief. Several systemic and environmental determinants explain this persistence:

- **Trauma of Incarceration:** Acute distress stemming from arrest, police interrogation, and prison admission remains unresolved, frequently manifesting as recurrent nightmares and intense grief over family hardship.
- **Stigma and Social Dislocation:** Within the Indian socio-cultural landscape, female imprisonment carries a severe moral stain. Inmates face persistent anxiety over anticipated societal ostracization and family rejection following release.
- **Monotonous Institutional Routine:** Brief therapeutic activities offer only temporary respite against rigid, repetitive daily schedules, which continue to foster deep boredom, helplessness, and emotional suffocation.
- **Interpersonal Hostility:** Chronic interpersonal friction, frequent altercations, and verbal aggression among inmates sustain an atmosphere of heightened tension and hypervigilance.
- **Lack of Intrinsic Motivation:** Emotional fatigue and feelings of despair often undermine prisoners' internal drive to participate meaningfully in rehabilitation efforts. Deprived of hope for personal advancement, inmates generally view programs as mandatory routines rather than opportunities for growth. As a consequence, engagement remains surface-level, serving merely as a temporary distraction rather than fostering enduring psychological change.
- **Peer Pressure:** Social pressure and group dynamics also discourage engagement in recreational activities. Fear of ridicule, hostility, or ostracization from influential peers pressures female prisoners to suppress their interest. Consequently, this implicit peer pressure creates a psychological barrier that prevents interested inmates from freely participating in and benefiting from therapeutic interventions.

The empirical evidence also illustrates that while short-term institutional interventions offer brief respite, their long-term efficacy is routinely undermined by systemic and environmental barriers. Short-term

activities—such as mindfulness, yoga, and basic therapy—frequently yield immediate stress relief, yet ongoing institutional intimidation and interpersonal friction severely restrict any enduring psychological benefit (Hidayati et al., 2023). These interventions are further constrained by rigid operational structures, as mandatory isolation, inflexible daily routines, and a deficit of engaging outlets directly erode program impact (Frontiers in Public Health, 2024). Within correctional environments, this disconnect is even more pronounced; therapeutic efforts often prove ineffective against deeply rooted personal trauma and the systemic marginalized treatment of incarcerated women (PubMed Central, 2024). Consequently, female inmates frequently dismiss brief recreational activities as mere surface-level diversions rather than actionable mental health support (Bright et al., 2023).

4. CONCLUSION

Recreational and expressive art activities provide temporary relief but are insufficient on their own to produce long-term reductions in primary stress domains among female prisoners. Comprehensive reformation requires systemic approaches that address both internal prison environments (e.g., psychological counseling, conflict resolution) and external factors (e.g., societal attitudes, family integration, post-release support).

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