

Gender Differences in Response to a Structured Art-Based Activities Programme: Effects on Self-Esteem and Anxiety Among Institutionalised Adolescents

Bhanuprakash Raju

M.A. Student, Clinical Psychology, Department of Applied Social Sciences, Chhatrapati Shivaji Maharaj University

Abstract

Structured art-based activities have shown promise in improving psychological well-being among institutionalised adolescents; however, little is known about whether their effectiveness differs between male and female adolescents. Understanding potential gender differences in intervention response is important for informing evidence-based, gender-sensitive psychosocial programmes within residential care settings. This study investigated whether male and female institutionalised adolescents aged 12–19 years differed in their psychological response to a structured five-session art-based activities programme, as measured by changes in self-esteem and anxiety. A secondary analysis was conducted using data from 64 institutionalised adolescents (20 males, 44 females) who participated in a one-group pre-test–post-test intervention study. Self-esteem and anxiety were assessed using the Rosenberg Self-Esteem Scale (RSES) and the Generalised Anxiety Disorder-7 (GAD-7). Baseline gender differences were examined using independent-samples t-tests, pre- to post-intervention change within each gender group was assessed using paired-samples t-tests, and a 2 (gender) $\times$ 2 (time) mixed-design analysis of variance (ANOVA) was used to test gender $\times$ time interaction effects. At baseline, female adolescents reported significantly higher anxiety than male adolescents, $t(62) = 2.564$, $p = 0.013$, $d = 0.69$, whereas self-esteem did not differ significantly by gender. Following the intervention, both genders showed significant improvements in self-esteem and reductions in anxiety. Males showed large effect sizes for self-esteem ($d = 1.01$) and anxiety ($d = 1.02$), while females showed a moderate-to-large improvement in self-esteem ($d = 0.68$) and a large reduction in anxiety ($d = 0.89$). Mixed-design ANOVA revealed no significant gender $\times$ time interaction for either outcome. These findings indicate that the programme was similarly effective for male and female adolescents despite females entering with higher baseline anxiety, supporting the broader implementation of structured art-based activities within residential care while underscoring the value of gender-sensitive assessment.

Keywords: art-based activities, institutionalised adolescents, gender differences, self-esteem, anxiety, residential care

1. Introduction

Adolescence is a critical developmental period characterised by rapid biological, cognitive, emotional, and social change that shapes long-term psychological well-being. Adolescents residing in institutional care face a markedly elevated risk of anxiety, diminished self-esteem, emotional dysregulation, and broader psychosocial difficulty, largely as a consequence of early experiences of neglect, abuse, parental loss, and disrupted attachment [1, 2, 3]. Structured art-based activities have emerged as a promising, low-cost psychosocial intervention for this population: systematic reviews indicate that arts-based approaches can meaningfully improve emotional well-being, self-concept, and anxiety symptoms among children and adolescents [4, 5].

This study draws on three complementary theoretical frameworks. Rosenberg's (1965) conceptualisation of self-esteem as a global evaluation of personal worth provides the basis for understanding change in self-perception following intervention [6, 7]. Bandura's (1997) social cognitive theory situates mastery experiences — such as those offered by structured creative tasks — as a central mechanism through which self-efficacy, and by extension self-esteem, develops [8]. Bronfenbrenner's (1979) ecological systems theory frames the institutional environment itself as a proximal system shaping adolescent development, underscoring the relevance of interventions delivered within, rather than external to, the care setting [9].

Prior studies conducted in residential care settings have reported improvements in self-esteem and emotional well-being following structured art-based interventions [4, 10]. However, whether gender moderates the effectiveness of such interventions among institutionalised adolescents remains largely unexamined; existing gender-difference research in residential care has instead focused on baseline psychopathology and behavioural presentation rather than intervention response [11]. This represents a meaningful gap, given that adolescent girls consistently report higher rates of internalising symptoms, including anxiety disorders characterised by persistent and excessive worry [12], than boys in both community and residential samples [11]. Accordingly, the present study examined (a) whether male and female institutionalised adolescents differed in baseline self-esteem and anxiety, (b) whether both groups improved following a structured five-session art-based activities programme, and (c) whether gender moderated intervention outcomes.

2. Method

2.1 Study Design and Participants

This study reports a secondary analysis of data derived from a pre-experimental, one-group pre-test–post-test intervention study. The primary study evaluated the effectiveness of a structured five-session art-based activities programme among 64 institutionalised adolescents aged 12–19 years residing in three NGO-managed Child Care Institutions in Navi Mumbai, Maharashtra, India. Participants were recruited using purposive sampling from an accessible population of 103 eligible adolescents. The sample comprised 20 males (31.3%) and 44 females (68.7%), reflecting the gender distribution of the participating institutions. Detailed inclusion and exclusion criteria are reported in the primary study.

Table 1: Demographic Characteristics of Participants by Gender

Characteristic	Males (n = 20)	Females (n = 44)	Total (N = 64)
Age (years), M (SD)	14.20 (2.14)	14.57 (2.26)	14.45 (2.22)
Age range	12–18	12–19	12–19

2.2 Measures

Rosenberg Self-Esteem Scale (RSES). The RSES [6] is a 10-item self-report measure of global self-esteem using a four-point Likert scale. Total scores range from 10 to 40, with higher scores indicating greater self-esteem. The instrument has demonstrated good reliability and validity across diverse adolescent populations [13, 14].

Generalised Anxiety Disorder-7 (GAD-7). The GAD-7 [15] is a seven-item self-report measure assessing anxiety symptoms experienced during the preceding two weeks. Each item is rated on a four-point scale ranging from 0 (Not at all) to 3 (Nearly every day), yielding total scores between 0 and 21, with higher scores reflecting greater anxiety severity. Both instruments were administered bilingually (English and Hindi) to facilitate participant comprehension.

2.3 Intervention

Participants completed a structured five-session art-based activities programme delivered over approximately four weeks (see Table 2).

Table 2: Overview of the Structured Art-Based Activities Programme

Session	Activity	Duration
1	Draw Your Feelings	90 min
2	Self-Portrait Drawing	90 min
3	Strength Tree Activity	90 min
4	Mandala Colouring	55–60 min
5	Clay Modelling	55–60 min

Each session followed a standardised format comprising a welcome activity, an ice-breaker, instructions for the creative task, independent artistic expression, and guided group reflection. The intervention emphasised creative expression and personal meaning rather than artistic ability and was facilitated by the researcher across all participating institutions.

2.4 Procedure

Following institutional approval and participant assent, baseline assessments — including a Participant Information Form, the RSES, and the GAD-7 — were administered. Participants then completed the five-

session intervention over approximately four weeks. Post-intervention assessments were conducted using the same outcome measures immediately following completion of the programme.

2.5 Ethical Considerations

Institutional consent was obtained from the directors of the participating Child Care Institutions. Verbal assent was obtained from all participants after they were informed about the study's objectives, the voluntary nature of participation, confidentiality, and their right to withdraw at any stage without consequence. Participant confidentiality was maintained through coded identifiers, and the identities of participating institutions were anonymised throughout the study.

2.6 Statistical Analysis

Data were analysed using IBM SPSS Statistics (Version 26.0). Descriptive statistics were computed separately for male and female participants. Independent-samples t-tests were used to compare baseline self-esteem and anxiety scores between genders, and paired-samples t-tests examined pre- to post-intervention change within each gender group. A 2 (gender: male vs. female) $\times$ 2 (time: pre-test vs. post-test) mixed-design ANOVA was conducted separately for self-esteem and anxiety to evaluate gender $\times$ time interaction effects. Cohen's d was calculated to estimate within-group effect sizes, partial eta squared (η^2) was calculated for ANOVA effects, and statistical significance was set at $p < 0.05$.

3. Results

Results are presented in three sections. First, baseline differences between male and female participants are examined. Second, changes in self-esteem and anxiety following the intervention are evaluated separately for each gender. Finally, mixed-design ANOVA results are reported to determine whether gender moderated intervention effectiveness.

3.1 Baseline Gender Differences

Baseline comparisons of self-esteem and anxiety scores by gender are presented in Table 3. Independent-samples t-tests indicated no statistically significant difference between males and females in baseline self-esteem, $t(62) = 0.394$, $p = 0.695$. In contrast, female participants reported significantly higher baseline anxiety than male participants, $t(62) = 2.564$, $p = 0.013$, with a moderate-to-large effect size ($d = 0.69$).

Table 3: Baseline Self-Esteem and Anxiety Scores by Gender

Variable	Males M (SD)	Females M (SD)	t(62)	p	d
Self-Esteem (RSES)	26.25 (4.91)	25.80 (3.77)	0.394	0.695	0.10
Anxiety (GAD-7)	10.70 (3.05)	13.07 (3.62)	2.564	0.013	0.69

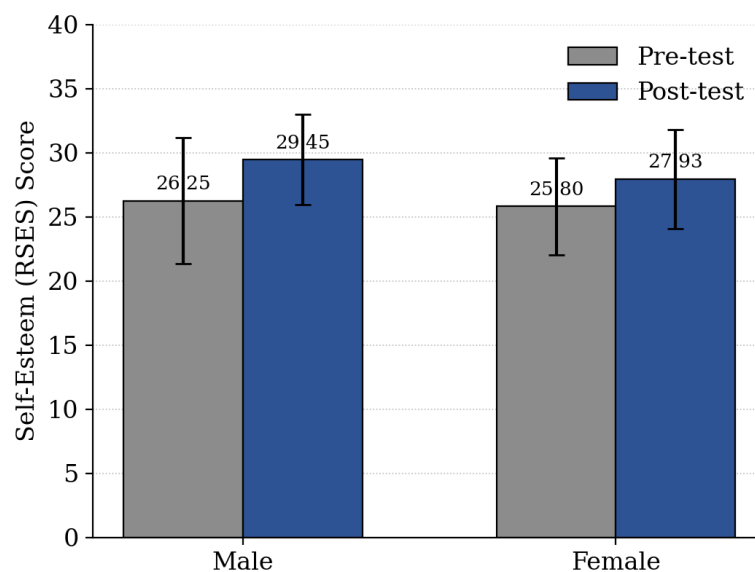
3.2 Changes in Self-Esteem and Anxiety Following the Intervention

Both male and female participants demonstrated statistically significant improvements in self-esteem and significant reductions in anxiety following the intervention (all $p < 0.001$; see Table 4 and Figures 1–2). Males showed large effect sizes for both self-esteem ($d = 1.01$) and anxiety ($d = 1.02$), while females showed a moderate-to-large improvement in self-esteem ($d = 0.68$) and a large reduction in anxiety ($d = 0.89$).

Table 4: Pre- and Post-Intervention Self-Esteem and Anxiety Scores by Gender

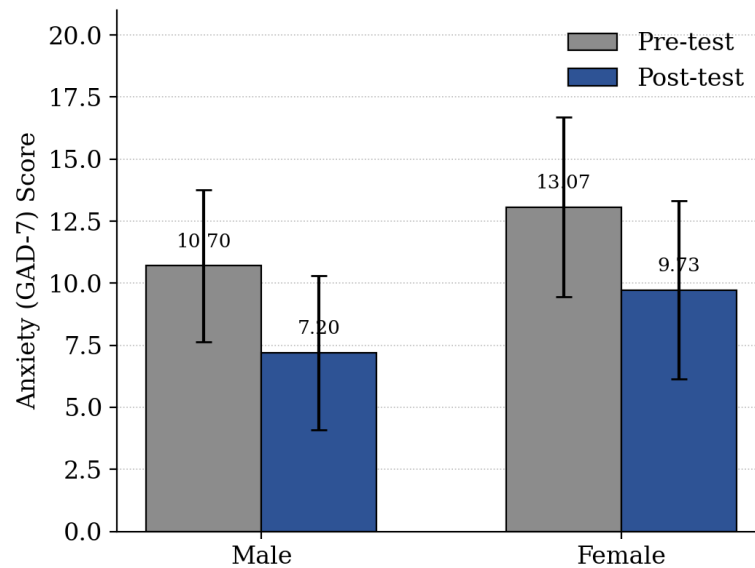
Variable	Group	Pre M (SD)	Post M (SD)	t (df)	p	d
Self-Esteem	Males	26.25 (4.91)	29.45 (3.52)	4.504 (19)	< 0.001	1.01
	Females	25.80 (3.77)	27.93 (3.84)	4.258 (43)	< 0.001	0.68
Anxiety	Males	10.70 (3.05)	7.20 (3.11)	4.547 (19)	< 0.001	1.02
	Females	13.07 (3.62)	9.73 (3.59)	6.158 (43)	< 0.001	0.89

Figure 1: Mean Self-Esteem (RSES) Scores by Gender and Time



Note: Error bars represent ± 1 SD. RSES = Rosenberg Self-Esteem Scale.

Figure 2: Mean Anxiety (GAD-7) Scores by Gender and Time



Note: Error bars represent ± 1 SD. GAD-7 = Generalised Anxiety Disorder-7.

3.3 Gender $\times$ Time Interaction Effects

Mixed-design ANOVA demonstrated significant main effects of time for both self-esteem and anxiety, indicating that participants improved following the intervention (see Table 5). No significant gender $\times$ time interaction was observed for either outcome, indicating that male and female adolescents benefited similarly from the structured art-based activities programme despite females reporting higher baseline anxiety.

Table 5: Mixed-Design ANOVA Results for Self-Esteem and Anxiety

Outcome / Effect	F(1, 62)	p	Partial η^2
Self-Esteem – Time	37.46	< 0.001	0.377
Self-Esteem – Gender	1.42	0.238	0.022
Self-Esteem – Gender $\times$ Time	0.81	0.371	0.013
Anxiety – Time	55.91	< 0.001	0.474
Anxiety – Gender	6.09	0.016	0.089
Anxiety – Gender $\times$ Time	0.09	0.761	0.002

4. Discussion

This study examined whether gender influenced the effectiveness of a structured art-based activities programme in improving self-esteem and reducing anxiety among institutionalised adolescents. Three principal findings emerged. First, female participants reported significantly higher baseline anxiety than

males, whereas baseline self-esteem did not differ significantly between genders. Second, both male and female participants demonstrated significant improvements in self-esteem and reductions in anxiety following the intervention. Third, mixed-design ANOVA revealed no significant gender $\times$ time interaction for either outcome, indicating that the programme was similarly effective for both genders.

4.1 Baseline Gender Differences

The finding that female adolescents reported significantly higher baseline anxiety is consistent with prior research showing that girls in residential and community samples generally report greater internalising symptoms than boys [11]. This pattern may reflect a combination of biological, developmental, and psychosocial influences that increase vulnerability to anxiety among females. In contrast, baseline self-esteem did not differ significantly between genders, suggesting that institutional care may exert comparable effects on global self-worth irrespective of gender.

4.2 Effect of the Intervention on Self-Esteem

Both male and female adolescents demonstrated significant improvements in self-esteem following participation in the programme. These findings are consistent with evidence that structured creative interventions promote positive self-perception and psychological resilience [4]. Viewed through Bandura's (1997) social cognitive lens [8], the large effect observed among males and the moderate-to-large effect among females suggest that the intervention created repeated opportunities for mastery, self-reflection, and supportive peer interaction that reinforced perceived competence regardless of gender.

4.3 Effect of the Intervention on Anxiety

Anxiety scores decreased significantly among both male and female participants. These findings align with reviews reporting that art-based interventions reduce anxiety in children and adolescents by facilitating non-verbal emotional expression and enhancing adaptive coping [4, 5]. The large effect sizes observed in both groups indicate that the programme was clinically, as well as statistically, meaningful.

4.4 Gender as a Moderator of Intervention Effectiveness

The principal contribution of this study is the finding that gender did not moderate intervention effectiveness. Although female adolescents entered the programme with higher anxiety, both genders experienced comparable improvement over time. The absence of a significant gender $\times$ time interaction suggests that structured art-based activities may function as a broadly applicable psychosocial intervention for institutionalised adolescents, without necessarily requiring separate gender-specific programme formats. Nevertheless, the higher baseline anxiety among females highlights the value of gender-sensitive assessment and supportive implementation — for example, ensuring facilitators are attentive to signs of heightened distress among female participants entering the programme.

4.5 Clinical and Practical Implications

These findings support the integration of structured art-based activities into psychosocial services within Child Care Institutions. Such programmes require comparatively few resources, can be delivered in groups, and provide a developmentally appropriate avenue for emotional expression and resilience building [9]. Mental health professionals, counsellors, social workers, and residential care staff may

incorporate structured creative activities as part of routine psychosocial care while remaining attentive to differing baseline emotional needs among male and female adolescents.

4.6 Strengths and Limitations

A strength of this study is its focus on an understudied population and its examination of gender as a potential moderator of intervention outcomes, using validated psychological instruments and a standardised intervention protocol. However, several limitations should be acknowledged. The study employed a one-group pre-test–post-test design without a control group, limiting causal inference: observed change cannot be unambiguously attributed to the intervention rather than to maturation, institutional routine, or repeated testing. The unequal gender distribution (20 males, 44 females) and relatively modest overall sample size may also have reduced statistical power to detect small gender $\times$ time interaction effects, meaning that true but subtle gender differences could have gone undetected. Outcomes were based on brief self-report measures without longer-term follow-up, so the durability of the observed gains is unknown. Future research should employ randomised or quasi-experimental designs with larger, more evenly distributed samples and longer follow-up periods to evaluate the sustainability of intervention effects.

5. Conclusion

This study examined whether gender influenced the effectiveness of a structured art-based activities programme in improving self-esteem and reducing anxiety among institutionalised adolescents. By conducting a secondary analysis of data from 64 adolescents residing in Child Care Institutions, the study addressed a gap in the literature concerning gender-specific responses to psychosocial interventions in residential care settings.

Both male and female adolescents experienced statistically significant improvements in self-esteem and significant reductions in anxiety following participation in the structured five-session programme. Although female participants reported higher baseline anxiety than males, mixed-design ANOVA indicated no significant gender $\times$ time interaction for either outcome, suggesting that the intervention was similarly effective for both genders and supporting its broader application within institutional care settings.

Unlike studies that evaluate overall intervention outcomes without reference to gender, this research specifically examined gender as a potential moderator of treatment effectiveness. The results indicate that while baseline psychological profiles may differ between males and females, the therapeutic benefits of structured creative activities appear comparable across genders. This finding extends the current literature and provides empirical support for implementing inclusive, group-based art programmes within residential child care institutions, while underscoring that practitioners should remain attentive to gender-related differences in baseline emotional functioning — particularly the higher anxiety levels observed among female adolescents in this sample.

Several limitations temper these conclusions, most notably the absence of a control group and the relatively small, unevenly distributed sample, both of which limit causal inference and statistical power to detect subtle interaction effects. Future research should employ larger, more balanced samples,

randomised controlled designs, and longer follow-up periods, and should examine additional potential moderators such as age, duration of institutional care, prior trauma exposure, and family background.

In conclusion, structured art-based activities represent a promising, practical, and evidence-informed approach for promoting psychological well-being among institutionalised adolescents. The present findings suggest that meaningful improvements in self-esteem and anxiety can be achieved irrespective of gender, supporting the integration of structured creative interventions into psychosocial services within Child Care Institutions.

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References

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