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Effectiveness of Expressive Art Therapy on Physiological and Biochemical Parameter among Women in Selected Destitute Home at Chennai

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Abstract **Background:** Expressive art therapy has emerged as a significant intervention method in both psychological and physical health realms, allowing individuals to utilize various artistic mediums for emotional expression and healing. **Aim:** The study aimed to evaluate the effectiveness of expressive art therapy on physiological parameter and salivary cortisol among women in selected destitute home. **Methods:** The study employed a quasi-experimental approach to evaluate the effectiveness of an intervention on destitute women, divided into age groups of below 40 and above 41 years, residing in various destitute homes. Purposive sampling method was used. The study utilized purposive sampling to recruit 120 participants, distributing them evenly with 60 in the experimental group and 60 in the control group. Those who were sick, or taking psychiatric medication were excluded. Socio demographic variables, Biophysiological parameters and biochemical parameters were measured before and after the intervention. **Results**: The study result showed that the intervention significantly reduces salivary cortisol levels was contained in the experimental group between post-test and control ($p<0.001$). ANOVA showed the group, test and the group x test interaction to be significant ($p<0.001$). Moreover, unusual improvement in the physiological parameters ($p<0.001$) was observed in the experimental group, while no significant changes were found in the control group. **Conclusion:** The study result suggests that expressive art therapy is an effective intervention for stress reduction in destitute women. Future research should build upon these results by exploring long-term effects and potential applications across diverse demographics and clinical settings.

Key Words Knowledge, Attitude, Menopausal Symptoms Midlife Women

INTRODUCTION

Expressive art therapy has emerged as a significant intervention method in both psychological and physical health realms, allowing individuals to utilize various artistic mediums for emotional expression and healing. As a form of psychotherapy, expressive arts therapy integrates arts such as drawing, painting, music and drama to facilitate effective emotional expression, particularly for those who find traditional verbal communication challenging [1,2]. This therapeutic approach has gained traction, particularly among populations experiencing trauma or mental health issues, with a growing number of studies focusing on its effects on women [3,4].

Physiologically, stress can manifest in changes to various health parameters, with salivary cortisol being a sensitive marker for stress levels. Evidence suggests that expressive art therapy can significantly lower salivary cortisol levels, leading to enhanced emotional and physical well-being. In a study focusing on veterans, participants demonstrated reduced cortisol levels following art therapy interventions, indicating effective stress regulation [5,6]. The connection between stress relief and physiological responses underscores the importance of this therapy for populations vulnerable to stress-induced health issues, particularly women [7,8].

Research identifies that combining expressive arts with other therapeutic methods significantly alleviates anxiety in patients undergoing treatment for gynecological malignancies [9]. This demonstrates that art therapy supports emotional well-being and contributes to positive physiological changes, underscoring its dual role in mental and physical health management [10,11].

Alwledat *et al.* [12] found that yoga, often integrated into art therapy practices, significantly decreased salivary cortisol among participants, suggesting that creative expressions paired with mindfulness exercises can be effective in regulating stress hormones. This evidence aligns with findings indicating that engaging in artistic activities can lead to immediate stress relief and increased feelings of relaxation.

A systematic review concluded that patients involved in expressive art interventions experience lower stress levels, improved mood and overall psychological enhancement [13,14]. Moreover, the integration of expressive art therapy can be beneficial in fostering community and support among participants. As they engage in creative processes, these women often share their stories, creating a shared understanding and connection that can alleviate feelings of isolation and hopelessness [15]. The collective art-making experience fosters a sense of belonging and validation, which are crucial for psychological healing and recovery in vulnerable populations [16].

This study seeks to explore the effects of expressive art therapy on the physiological parameters, specifically salivary cortisol, among destitute women. Through creative engagement, it is anticipated that participants will not only achieve emotional expression and healing but will also experience measurable physiological benefits, reinforcing the efficacy of expressive arts as a vital therapeutic intervention in mental health care. The study aim to evaluate the Effectiveness of Expressive Art therapy on physiological parameter and Salivary Cortisol among women in selected Destitute Home.

METHODS

The study employed a quasi-experimental approach to evaluate the effectiveness of an intervention on destitute women, divided into age groups of below 40 and above 41 years, residing in various destitute homes. This design was chosen due to logistical constraints in these settings, which made randomization unfeasible. The study utilized purposive sampling to recruit 120 participants, distributing them evenly with 60 in the experimental group and 60 in the control group. Only women who gave consent to participate, were included. we excluded those who were sick during the study or those who were on psychiatric medication.

Tools

The tool contains socio-demographic variables, biophysiological parameters (pulse rate, blood pressure, respiration rate, BMI) and biochemical parameters (salivary cortisol levels). It is also going to require to take baseline measurements before the intervention and to compare the post intervention assessments.

Data Collection Procedure

The data collection procedure started with a pre-test that evaluated the biophysiological and biochemical parameters of both the experimental and control groups. Following the baseline assessment, Expressive Art Therapy was administered to the experimental group, while the control group was maintained with routine institutional care. The researchers also conducted a post-test after six weeks on the experimental group who participated in a twelve-week integrated intervention period to assess any long-lasting impact from the therapy. The control group received identical assessments at the same time intervals, facilitating a comparison of effectiveness from the interventions.

Statistical Analysis

Descriptive statistics evaluated demographic information along with scores from the knowledge assessment and attitude measurement. The researchers evaluated relationships between knowledge and demographic variables and attitude through the application of chi-square tests and inferential analysis. The researchers performed Pearson's correlation to evaluate the connection between knowledge and attitude measures.

RESULTS

Demographic Variables

The Table 1 presents the demographic characteristics of midlife women in the study. The majority (56.67%) were

Table 1: Socio-demographic variables of control and experimental groups for homogeneity

S. No.	Variable	Category	Control	Experiment	Statistics
1	Age	<40 years	29	24	$\chi2 = 0.541$
		>41 years	31	36	$p = 0.462$
2	Education	Primary school	19	12	$\chi2 = 1.566$
		Secondary school	41	48	$p = 0.211$
3	Marital status	Single	7	18	$\chi2 = 5.053$
		Married	53	42	$p = 0.025$
4	Number of children	No child	33	45	$\chi2 = 4.432$
		1 to 3 children	27	15	$p = 0.035$
5	Employment status	Unemployed	36	24	$\chi2 = 4.033$
		Employed	24	36	$p = 0.045$
6	Duration of stay	<5 years	49	39	$\chi2 = 3.452$
		>5 years	11	21	$p = 0.063$
7	Past psychiatric illness	No	47	48	$\chi2 = 0$
		Yes	13	12	$p = 1.0$
n = 60 each					

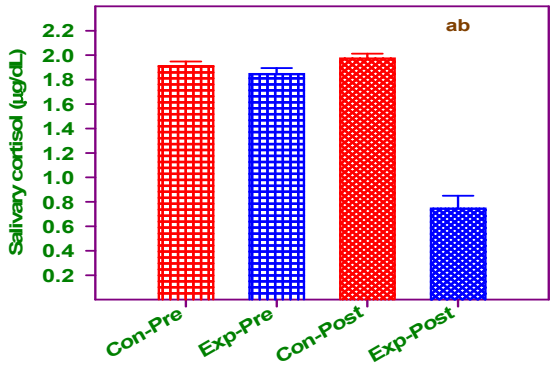

Figure 1: Comparison of control and experimental groups on salivary cortisol

Table 2: Comparison of control and experimental groups on salivary cortisol in pre-test and post-test

S. No	Groups comparisons	Test comparisons	Salivary cortisol
1	Control	Pre-test	1.910+0.038
	Experimental	Pre-test	1.847+0.047
	Control	Post-test	1.973+0.039
	Experimental	Post-test	0.748+0.102
2	Significance among groups (Control/Experimental)		F = 65.165 p<0.001
	Significance among tests (Pre-test/Post-test)		F = 186.402 p<0.001
	Significance in the interaction (groups X test)		F = 234.096 p<0.001
3	Significance between Pre-test (Control and Experimental)		t = 0.719 p = 0.475
	Significance between Post-test (Control and Experimental)		t = 13.861 p<0.001
4	Significance within Control (Pre-test and Post-test)		t = 1.165 p = 0.251
	Significance within Experimental (Pre-test and Post-test)		t = 20.473 p<0.001
n = 60 each			

Table 3: Comparison of control and experimental groups on physiological parameter in pre-test and post-test

S. No.	Measurement	Group	Pre-test (Mean±SD)	Post-test (Mean±SD)	Significance (t value)
1	Pulse Rate	Control	78±4.5	77±4.3	t = 0.814, p = 0.416
		Experimental	77±4.2	72±3.9	t = 5.732, p<0.001
2	Blood Pressure	Control	120/80±8/4	119/79±7/3	t = 1.256, p = 0.211
		Experimental	121/81±7/5	113/75±6/4	t = 6.365, p<0.001
3	Respiration Rate	Control	16±1.5	15±1.3	t = 1.638, p = 0.105
		Experimental	16±1.4	14±1.2	t = 6.042, p<0.001
4	BMI	Control	24.5±3.2	24.4±3.1	t = 0.482, p = 0.632
		Experimental	24.6±3.3	22.9±3.0	t = 8.234, p<0.001

aged between 45-50 years, with a smaller proportion (43.33%) falling within the 51-55 years range. Regarding education, 46.67% had an undergraduate degree, while 33.33% had a postgraduate degree. In terms of marital status, 70% were married and 13.33% were single. Professionally, 40% were full-time employed, with 23.33% being homemakers or retired. Economic status showed that 50% had a middle income, followed by 26.67% in the low-income category.

Biophysiological and Chemical Parameters

Results indicate that the intervention had a statistically significant effect of reducing salivary cortisol levels in the experimental group. Both groups had similar pre-test ($p = 0.475$) cortisol levels, but the amount that the experimental group's cortisol levels dropped in the post-test was significantly ($p<0.001$) greater than that of the control group ($p = 0.251$). Results from the ANOVA revealed a significant main effect of groups ($p<0.001$), tests ($p<0.001$) and their interaction ($p<0.001$). In the experimental group there was a significant reduction in cortisol levels confirming the effectiveness of the intervention (Figure 1, Table 2).

The Table 3 compares the pre-test and post-test values of pulse rate, blood pressure, respiration rate and BMI for both groups, along with the statistical significance of the changes.

The experimental group showed significant improvements in all measures ($p<0.001$), while the control group showed no significant changes.

DISCUSSION

The study revealed that expressive art therapy significantly reduced salivary cortisol levels in the experimental group, demonstrating a clear decrease in physiological stress markers ($p<0.001$). Despite similar cortisol levels at baseline across both groups ($p = 0.475$), only the experimental group showed reductions post-intervention. The ANOVA confirmed significant effects of the group, test and group-by-test interaction on cortisol reduction ($p<0.001$), underscoring the intervention's effectiveness.

The substantial decrease in cortisol levels aligns with existing literature supporting the use of art therapy as an effective stress-reduction technique. Such physiological responses are consistent with findings from previous research utilizing varied stress-relief techniques, which collectively indicate that immersive creative activities can lead to lower stress hormone levels [14].

Moreover, other physiological parameters measured-pulse rate, blood pressure, respiration rate and Body Mass Index (BMI)-all showed significant improvements in the experimental group ($p<0.001$) compared to the control group. These improvements not only align with the observed reductions in salivary cortisol levels but also suggest that expressive art therapy could induce a holistic enhancement in physical health, reinforcing the link between psychological well-being and physiological health in the target population. These findings mirror those of Hastings *et al.* [15], who reported that interventions focusing on stress relief positively influenced both psychological and physiological outcomes, ultimately improving overall health status.

The absence of marked changes in the control group further underscores the intervention's effectiveness and points to the critical nature of active therapeutic engagement in stress management. Study conducted by Probst *et al.* [16], confirmed that interventions involving creative or expressive elements led to superior outcomes relative to passive control conditions. Thus, the therapeutic efficacy demonstrated in this study elicits a call for broader application of expressive art therapy in mental health treatment paradigms-particularly for sensitive populations such as destitute women.

Furthermore, the results corroborate theories positing that creative engagement can positively influence the body's stress regulatory systems. For instance, the reduction in cortisol levels observed could be attributed to the emotional catharsis facilitated by artistic expression, which has been shown to lower anxiety and stress perception [17,18]. The physiological response can be interpreted through the lens of the biopsychosocial model, which emphasizes the interconnectedness of emotional, psychological and biological processes in health outcomes [19,20]. Hence, the success of the expressive art therapy intervention highlights the potential of arts in fostering resilience and restoring balance in individuals facing chronic stressors.

The significance of these findings extends beyond mere hormonal measurements; they pivot towards a deeper understanding of how structured creative outlets can serve as therapeutic tools in underserved populations. The need for this study arises from the recognition that destitute women often experience chronic stress and elevated cortisol levels, which can adversely affect their overall health and quality of life. Expressive art therapy has been proposed as a potential non-invasive intervention strategy aimed at reducing physiological stress markers in vulnerable populations.

Consequently, this study can inform future program designs aimed at leveraging the therapeutic benefits of art in various healthcare settings, especially among vulnerable groups.

CONCLUSIONS

The study concluded that there is a statistically significant reduction in salivary cortisol levels, alongside the observed improvements in other physiological parameters amongst the experimental group, suggests that expressive art therapy is an effective intervention for stress reduction in destitute women. These findings underscore the need for integrating expressive arts into therapeutic practices for marginalized communities, fostering a more inclusive approach that highlights creativity's intrinsic therapeutic value. Future research should build upon these results by exploring long-term effects and potential applications across diverse demographics and clinical settings.

Recommendation

Research should investigate how expressive art therapy affects psychologically empowered marginalized populations long-term. Support programs should use expressive art therapy as a widely available service for reducing stress. Ongoing research must evaluate the long-term effects of expressive art therapy on women dealing with socio-economic issues to determine lasting health benefits.

Limitations

The study on the effectiveness of expressive art therapy was limited by its focus on a specific population in a single destitute home in Chennai, which may not be generalizable to other settings or populations. The lack of a long-term follow-up limited the ability to assess the sustained impact of the therapy. Additionally, potential confounding factors, such as individual differences in engagement with the therapy, were not fully controlled.

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