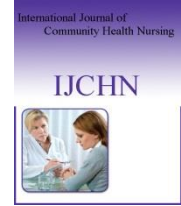




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## EFFECTIVENESS OF AROMATHERAPY ON JOINT PAIN AND DEPRESSION AMONG ELDERLY WOMEN IN A RESIDENTIAL CARE FACILITY IN CHENNAI, INDIA

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### ABSTRACT

**Background:** Joint pain and depression are prevalent among elderly individuals, particularly those residing in long-term care facilities. Complementary therapies such as aromatherapy have gained attention as non-invasive interventions to improve physical and psychological wellbeing. **Objective:** To assess the effectiveness of aromatherapy massage using lavender essential oil on joint pain and depression among elderly women in a residential care facility. **Methods:** A pre-experimental one-group pre-test/post-test design was adopted. Thirty elderly women (aged 60–80 years) with joint pain and depression were recruited from Little Drops Home for Aged Destitute, Chennai. Universal Pain Assessment Scale and Geriatric Depression Scale (GDS-15) were used for outcome measurement. Participants received daily aromatherapy massage with lavender essential oil for 15–20 minutes over 10 days. Data were analyzed using descriptive and inferential statistics. **Results:** Pre-test mean joint pain score was  $6.00 \pm 1.74$ , which significantly reduced to  $2.43 \pm 1.85$  post-intervention ( $t = 17.690, p < 0.001$ ). Depression scores also declined from a mean of  $8.60 \pm 2.11$  to  $3.30 \pm 1.84$  ( $t = 19.495, p < 0.001$ ). Significant associations were found between pain reduction and duration of stay in the facility, as well as between depression reduction and number of children. **Conclusion:** Aromatherapy massage with lavender essential oil is effective in reducing joint pain and depression among elderly women in institutional care. Larger randomized controlled trials are recommended to validate these findings.

**Key Words:** Aromatherapy, Elderly, Joint Pain, Depression, Complementary Therapy, Lavender Oil.

### INTRODUCTION

Population aging is a global phenomenon, with the proportion of individuals aged 60 years and older projected to reach 22% by 2050 [1]. In India, the elderly population is expected to exceed 173 million by 2026 [2]. With aging, joint pain and depression are common conditions that compromise quality of life. Chronic joint pain is reported in over 40% of older adults [3], while depression affects nearly 20% of the elderly, particularly those in institutional care [4].

Pharmacological management often provides partial relief but carries risks of side effects and

polypharmacy. Complementary and alternative therapies, including aromatherapy, are increasingly explored to address both physical and psychological health. Aromatherapy, the therapeutic use of essential oils, particularly lavender oil, has demonstrated analgesic, anxiolytic, and antidepressant effects through olfactory stimulation and cutaneous absorption [5, 6].

Although aromatherapy has shown promise in palliative care and among surgical patients, limited evidence exists on its use for elderly residents in care homes in India. This study aimed to evaluate the effectiveness of lavender



aromatherapy massage on joint pain and depression among elderly women in an institutional setting.

## METHODS

### Study Design and Setting

A quantitative, pre-experimental one-group pre-test/post-test design was conducted at Little Drops Home for Aged Destitute, Chennai. The facility accommodates approximately 200 elderly residents.

### Participants

Thirty elderly women aged 60–80 years with documented joint pain and depressions (as per GDS-15) were recruited using purposive sampling.

### Inclusion criteria:

- Elderly women with knee joint pain
- Age 60–80 years
- Mild to moderate depression
- Willingness to participate

### Exclusion criteria:

- Recent analgesic use
- Severe joint deformities or injuries
- History of nasal allergy or sinusitis

### Intervention

Participants received aromatherapy massage using lavender essential oil diluted in carrier oil, applied to the knee joints for 15–20 minutes daily over 10 days.

### Instruments

**Table 1: Demographic profile of participants (N = 30).**

Variable	Category	Frequency (n)	Percentage (%)
Age (years)	60–70	14	46.7
	71–80	11	36.7
	81–90	5	16.6
Marital Status	Married	2	6.7
	Unmarried	6	20.0
	Divorced	4	13.3
	Widowed	18	60.0
Education	No formal education	5	16.7
	School education	22	73.3
	Graduate	3	10.0
Number of Children	None	9	30.0
	1–3	14	46.7
	4–6	5	16.7
	>6	2	6.6
Duration of Stay in facility	<1 year	4	13.3
	1–3 years	7	23.3
	3–5 years	8	26.7
	>5 years	11	36.7

- **Universal Pain Assessment Scale (UPAS):** Scores range from 0 (no pain) to 10 (severe pain).
- **Geriatric Depression Scale (GDS-15):** Scores of 5–8 indicate mild depression, 9–11 moderate, and 12–15 severe.

### Data Collection and Analysis

Pre-test assessment was conducted on day 1. Post-test assessments were completed on day 10. Data were analyzed using descriptive statistics (frequency, percentage, mean, standard deviation) and inferential statistics (paired t-test, chi-square test) with significance set at  $p < 0.05$ .

## RESULTS

### Demographic Characteristics

Table 2 represents the frequency and percentage distribution of pretest and posttest level of joint pain among elderly. In pretest 1 (3.33%) elderly had mild joint pain, 17 (56.67%) had moderate joint pain and 12 (40.0%) elderly had severe joint pain and none of them had no pain. In posttest level of joint pain 3 (10.0%) elderly had no joint pain, 20 (66.67%) had mild joint pain, and 7 (23.3%) elderly had moderate joint pain and none of them perceived severe joint pain.

The comparison of mean and standard deviation between pretest and posttest level of joint Pain among elderly. The pretest mean score of joint pain was 6.00 with standard deviation of 1.74 and in posttest mean score was 2.43 with standard deviation of 1.85. The paired 't' value of 17.690 was very highly significant at  $p < 0.001$  level. The difference between pretest and post test score was decreased from 6.00 to 2.43 it indicates the effectiveness of Aromatherapy on joint pain among elderly.

**Table 2: Frequency and percentage distribution of pretest and posttest level of joint pain among elderly. N=30**



Level of joint pain	No Pain		Mild Pain		Moderate Pain		Severe Pain	
	No.	%	No.	%	No.	%	No.	%
Pre test	0	0	1	3.33	17	56.67	12	40.0
Post Test	3	10.0	20	66.67	7	23.33	0	0

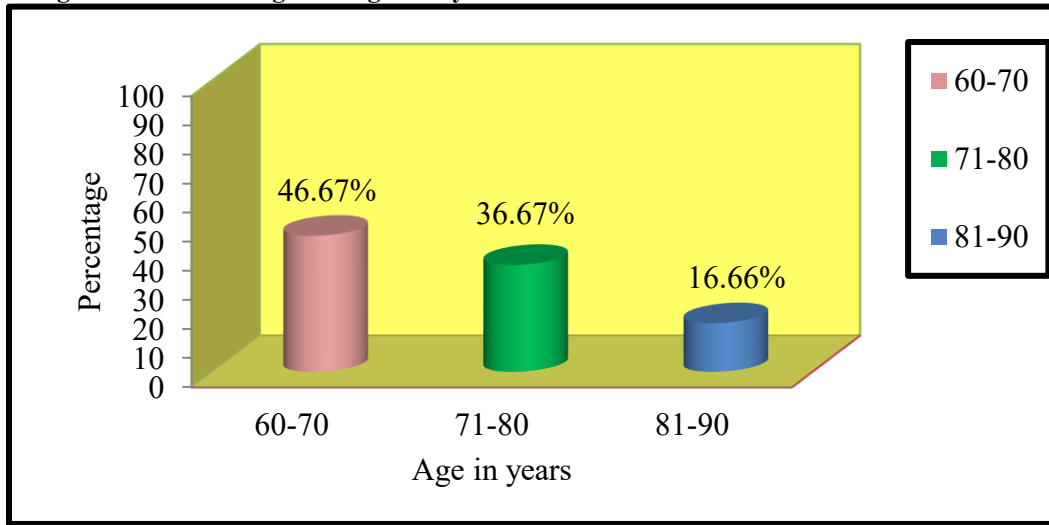
**Table 3: Comparison of pre- and post-test joint pain scores.**

Assessment	Mean ± SD	t-value	p-value
Pre-test	6.00 ± 1.74		
Post-test	2.43 ± 1.85	17.690	<0.001

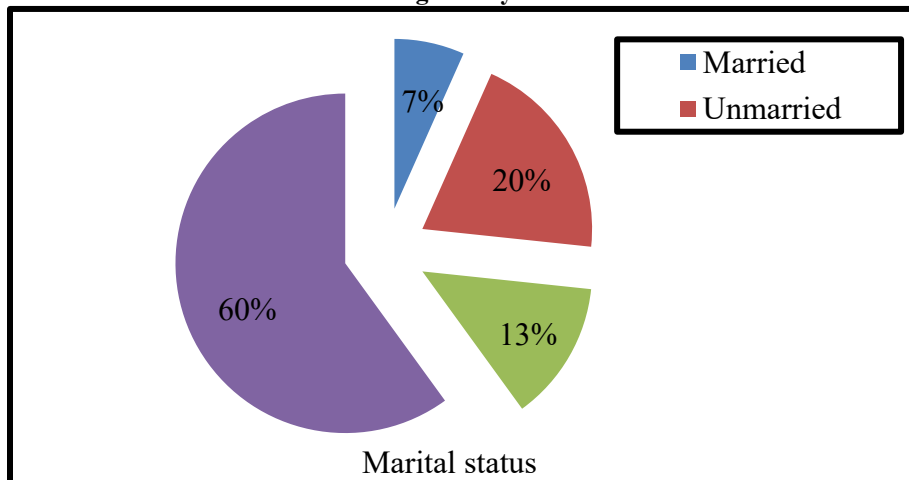
**Table 4: Comparison of pre- and post-test depression scores.**

Assessment	Mean ± SD	t-value	p-value
Pre-test	8.60 ± 2.11		
Post-test	3.30 ± 1.84	19.495	<0.001

**Figure 1: Percentage distribution of age among elderly.**



**Figure 2: Percentage distribution of marital status among elderly.**



**Figure 3: Percentage distribution of religion among elderly.**

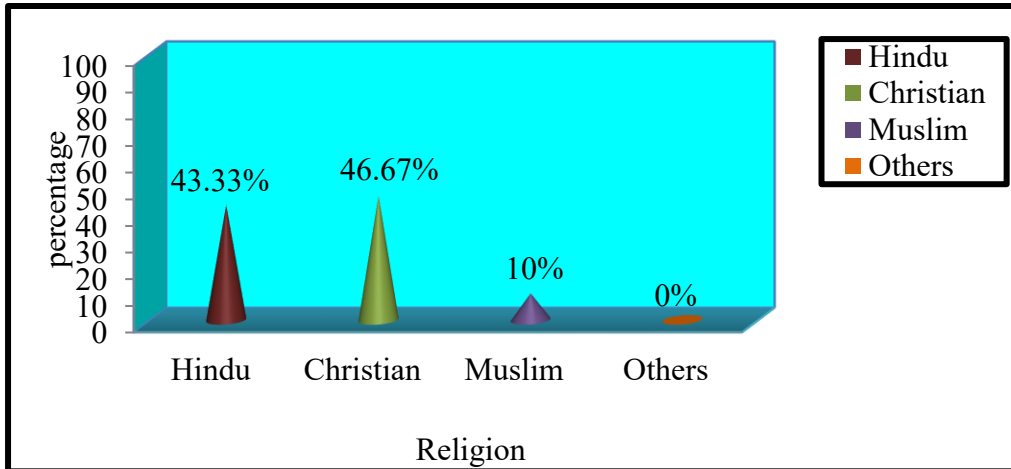


Figure 4: Percentage distribution of educational status among elderly.

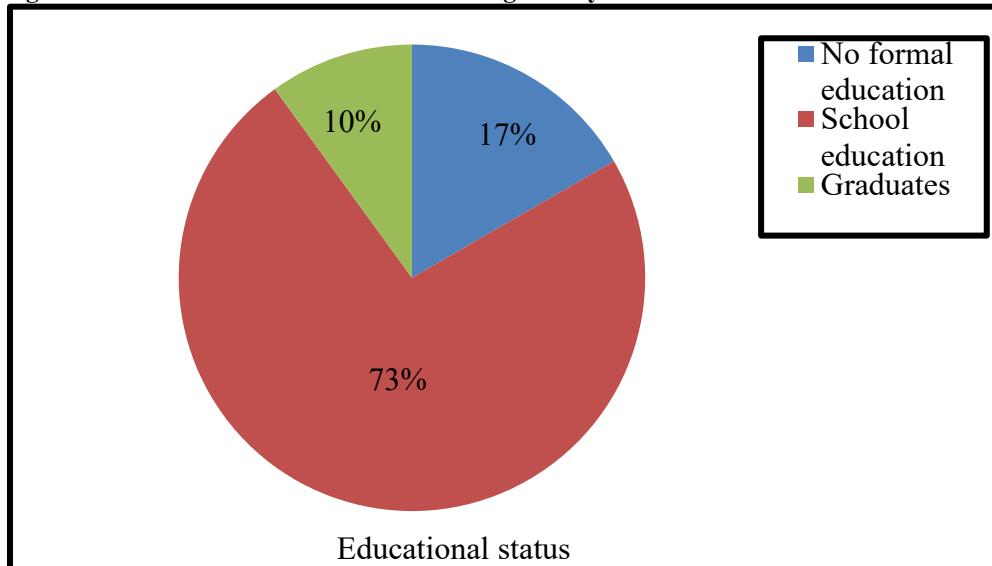


Figure 5: Percentage distribution of number of children among elderly.

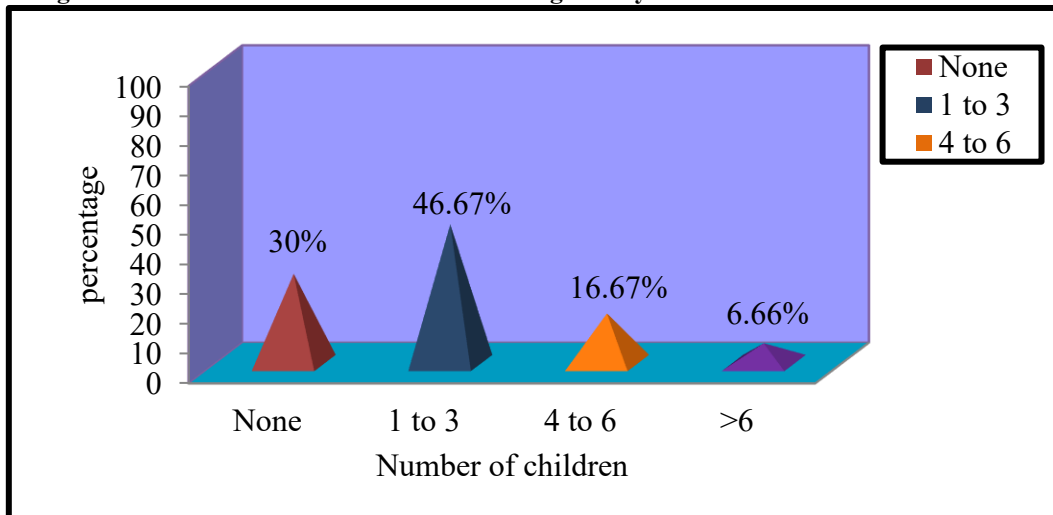


Figure 6: Percentage distribution of duration of stay at old age home among elderly.



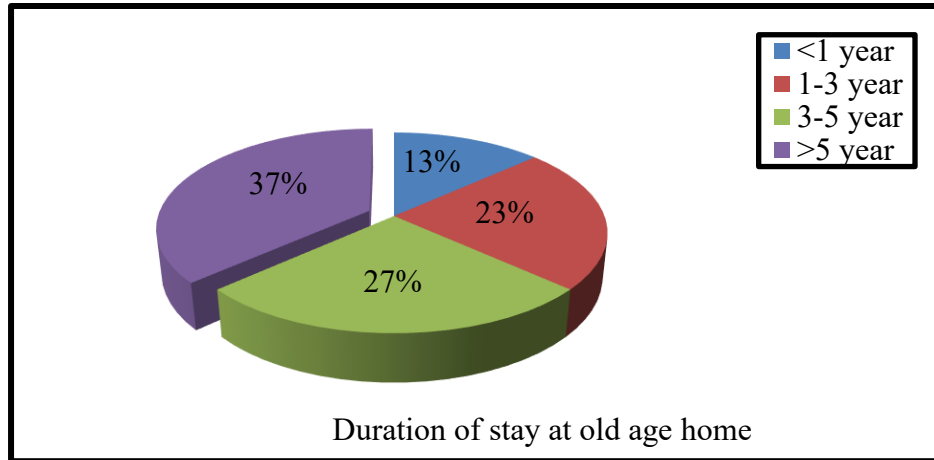


Figure 7: Percentage distribution of co-morbid illness among elderly.

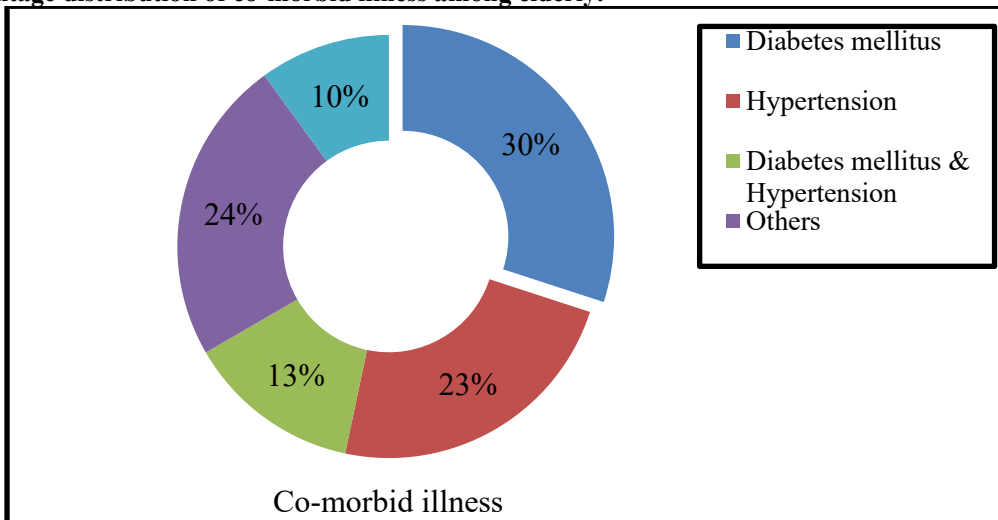


Figure 8: Percentage distribution of pre test and post test level of joint pain among elderly.

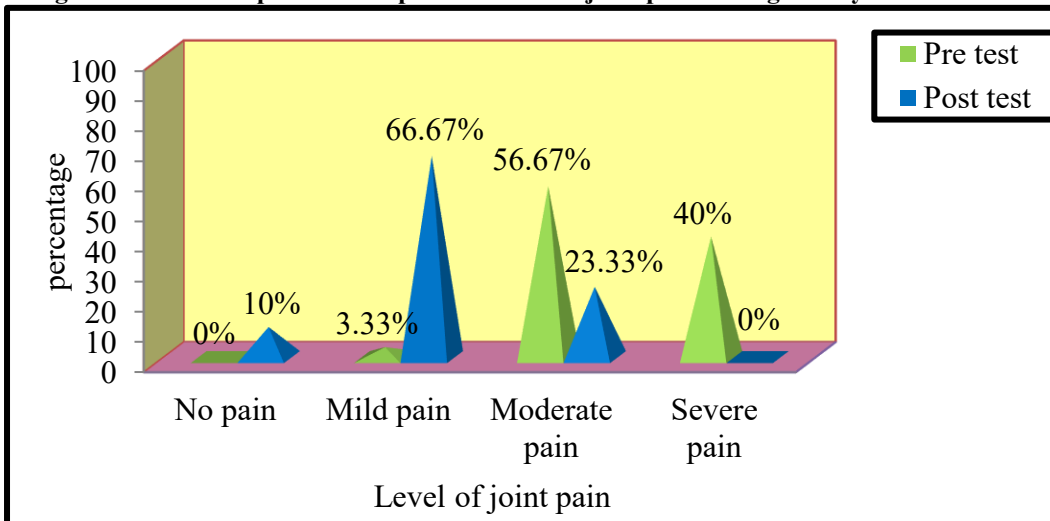


Figure 9: Percentage distribution of pre test and post test level of depression among elderly.

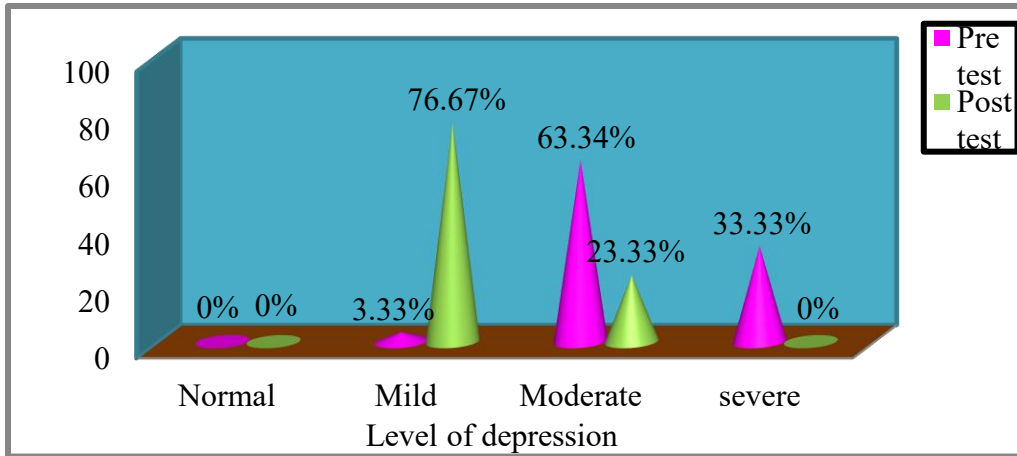


Figure 10: Comparison of mean and standard deviation between pre test and post test level of joint pain among elderly.

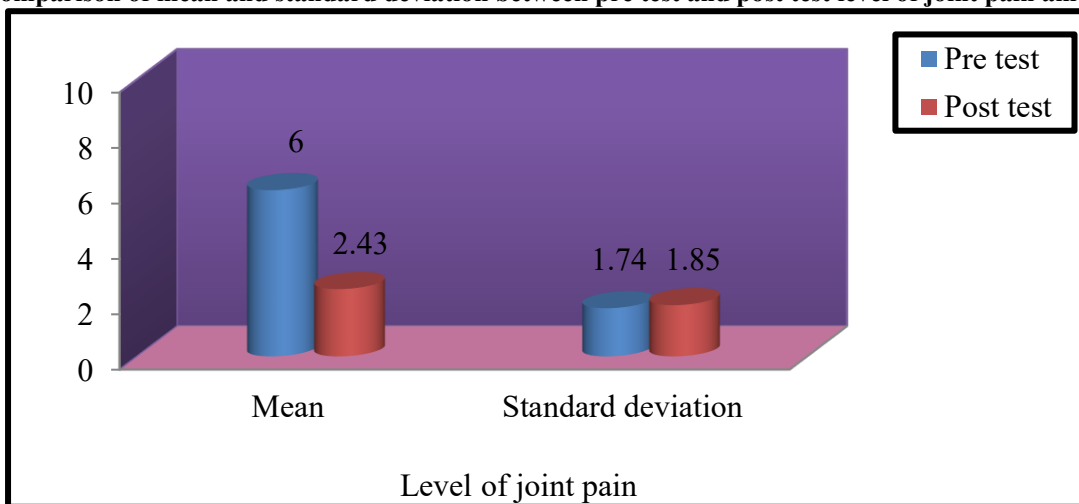
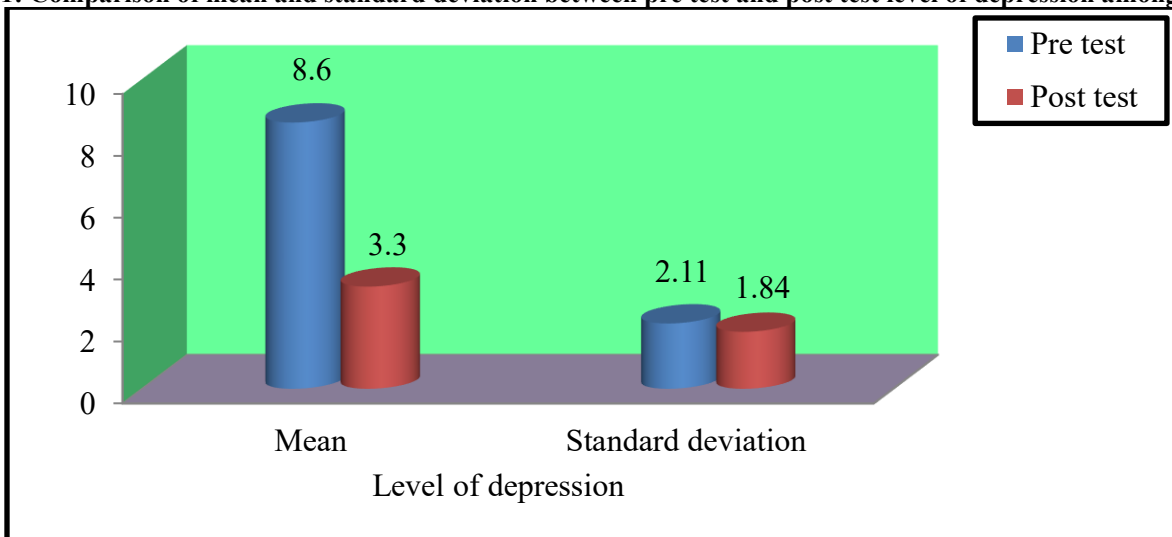


Figure 11: Comparison of mean and standard deviation between pre test and post test level of depression among elderly.



DISCUSSION



This study demonstrated that aromatherapy massage with lavender essential oil significantly reduced both joint pain and depression among elderly women in a residential care facility. These findings align with previous research showing lavender aromatherapy's analgesic and mood-enhancing effects [5-7].

The observed reduction in pain may be attributed to lavender's antinociceptive properties, mediated by linalool and linalyl acetate, which modulate neurotransmitters and inflammatory pathways [8]. Its antidepressant effect may be linked to serotonergic activity and the parasympathetic relaxation response [9].

While this study strengthens evidence for aromatherapy in geriatric care, limitations include small sample size, lack of control group, and short intervention duration. Future research should adopt randomized controlled trials with larger samples, longer follow-up, and inclusion of both genders.

## **CONCLUSION**

Aromatherapy massage using lavender essential oil is an effective complementary therapy to alleviate joint pain and depression among elderly women in institutional care.

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Incorporating aromatherapy into geriatric nursing practices may improve physical comfort and psychological wellbeing.

## **Limitations**

- Small sample size limits generalizability.
- No control group for comparison.
- Short intervention period.
- Only elderly women included, not men.

## **Recommendations**

- Conduct larger randomized controlled trials.
- Include both men and women.
- Use longer follow-up periods.
- Compare with other therapies or standard care.
- Explore integration into routine geriatric care.

**Conflict of Interest:** None declared.

**Funding:** Self-funded.

## **Ethical Clearance**

Ethical approval obtained. Confidentiality and voluntary participation were ensured.

