

# Effect of Aromatherapy Inhalation on Therapeutic Relationship and Job Stress Levels of Psychiatric Nurses: A Randomized Controlled Study

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## Abstract

**Background:** Psychiatric nurses experience high levels of job stress, which negatively affect therapeutic relationships. Aromatherapy has shown promise in reducing stress; however, its impact on therapeutic engagement remains underexplored.

**Aim:** This experimental study aimed to examine the effects of aromatherapy inhalation on the therapeutic relationship and job stress levels of psychiatric nurses.

**Methods:** This study was designed as a randomized controlled trial with a control group. Participants were randomly assigned to either the experimental group (n=33) or the control group (n=33) from among psychiatric nurses working in a psychiatric clinic in Ankara between January 1 and March 31, 2025. The experimental group received lavender essential oil inhalation three times per week on alternate days. Data were collected using the Introductory Information Form, General Job Stress Scale, and the Therapeutic Relationship Evaluation Scale–Nursing Form. Statistical analyses included the chi-square test, Independent Samples t-test, Paired Samples t-test, and Wilcoxon Signed-Rank test.

**Results:** The groups were homogeneous; however, a statistically significant difference was found in gender distribution (p=0.027). Following lavender essential oil inhalation, the experimental group demonstrated a statistically significant increase in post-intervention therapeutic relationship scores compared to the control group (p=0.042), particularly in the “participation in care” subdimension (p=0.001). No significant difference was observed between groups in terms of job stress levels after the lavender essential oil inhalation (p>0.05).

**Conclusion:** Aromatherapy inhalation was found to enhance the therapeutic relationship. It may support psychiatric nurses in strengthening therapeutic relationships by promoting empathy and engagement.

**Keywords:** Aromatherapy, job stress, psychiatric nursing, randomized controlled trial, therapeutic relationship

## Introduction

Psychiatric nurses are frequently exposed to high levels of occupational stress due to the emotionally intense, unpredictable, and demanding nature of psychiatric care. Managing psychiatric crises, responding to aggressive behaviors, and maintaining therapeutic boundaries place a substantial psychological burden on nurses.<sup>1</sup> Persistent exposure to these stressors has been associated with burnout, reduced job satisfaction, and decreased quality of patient care.<sup>2,3</sup> Importantly, high levels of job stress may negatively affect the therapeutic relationship, which is a core component of effective psychiatric nursing practice.<sup>4</sup>

The therapeutic relationship is defined as a structured, purposeful, and collaborative interaction between the nurse and the patient aimed at promoting recovery. Disruptions in this relationship—particularly those arising from nurse-related psychological strain—may impair treatment outcomes and hinder the recovery process.<sup>5</sup> Therefore, interventions that reduce job stress and support nurses' psychological well-being are essential for sustaining effective therapeutic engagement in psychiatric settings. Various stress-reduction strategies, including mindfulness-based interventions, cognitive-behavioral stress management, and organizational support programs, have been shown to benefit nurses. However, the widespread implementation of these approaches is often limited by time constraints, staffing shortages, and insufficient institutional resources. As a result, easily accessible and low-cost complementary interventions have gained increasing attention.<sup>6–8</sup>

Aromatherapy is a complementary therapy that involves the use of essential oils derived from aromatic plants to promote physical and psychological well-being. Essential oils may be administered through various methods (chemical and physical), including inhalation, topical application, and massage. The term “aromatherapy” originates from the French word “Aromathérapie” and is defined as “scent therapy” according to the Turkish Language Association.<sup>9–11</sup> Inhalation aromatherapy, in particular, is considered a practical method that can be easily integrated into clinical routines without disrupting workflow. Aromatherapy using essential oils derived from various plants can be administered through several methods, including inhalation (breathing), topical application (on the skin), compresses (pressure), baths, and oral ingestion.<sup>9,12</sup>

In the literature, aromatherapy using essential oils such as lavender,<sup>13–16</sup> rose,<sup>15,17</sup> and bergamot,<sup>18</sup> administered through various inhalation methods such as diffusers, cotton pads, or small bottles attached to clothing, has been shown to reduce stress and anxiety among nurses.<sup>13–16</sup> A recent systematic review highlighted the potential of aromatherapy for stress reduction while emphasizing the need for high-quality randomized controlled trials.<sup>19</sup> Despite

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this emerging evidence, few studies have examined the effects of aromatherapy on the quality of the therapeutic relationship, particularly in psychiatric settings. Although some findings suggest that aromatherapy may improve the clinical environment and enhance nurse satisfaction, direct evaluations of its impact on therapeutic engagement remain scarce.<sup>16</sup> Furthermore, there is a scarcity of research specifically investigating aromatherapy inhalation among psychiatric nurses, and only a small number of studies have addressed both job stress and the therapeutic relationship within this context. The unique contribution of the present study lies in its use of lavender essential oil inhalation supported by a structured, time-controlled intervention protocol and its specific application among psychiatric nurses working in inpatient mental health settings, a population often overlooked in aromatherapy research. Therefore, this study aims to evaluate the effects of aromatherapy inhalation on the job stress levels and the quality of the therapeutic relationship among psychiatric nurses.

### Study Hypotheses

**Hypothesis 1<sub>1</sub>:** There is no statistically significant difference in job stress scores between the experimental group that received aromatherapy inhalation and the control group.

**Hypothesis 1<sub>2</sub>:** There is a statistically significant difference in job stress scores between the experimental group that received aromatherapy inhalation and the control group.

**Hypothesis 2<sub>1</sub>:** There is no statistically significant difference in therapeutic relationship quality scores between the experimental group that received aromatherapy inhalation and the control group.

**Hypothesis 2<sub>2</sub>:** There is a statistically significant difference in therapeutic relationship quality scores between the experimental group that received aromatherapy inhalation and the control group.

## Materials and Methods

### Design

The study was designed as an experimental research study employing a pre-test-post-test randomized controlled design to evaluate the effects of aromatherapy inhalation on the job stress levels and therapeutic relationship quality of psychiatric nurses. Trial registration was prospectively obtained from ClinicalTrials.gov (NCT06761859). The study was conducted in accordance with the Consolidated Standards of Reporting Trials (CONSORT) checklist.<sup>20</sup>

### Participants and Setting

The study population consisted of 93 psychiatric nurses working in the psychiatry clinic of a city hospital in Ankara, Türkiye. The psychiatry department included six adult psychiatry units and two child and adolescent psychiatry units. The required sample size was calculated using G\*Power 3.1.9.4 software. Based on the primary outcome variable (General Job Stress Scale [GJSS] total score), assuming an effect size of 0.80, a power of 0.80, and a significance level of 0.05 for an independent samples t-test, a minimum of 26 participants per group was required. The final sample included a total of 52 participants, which met the calculated requirement. To account for potential attrition and non-compliance, the sample size was increased by 25%. Accordingly, 14 additional psychiatric nurses were included in the study, consistent with prior research in similar settings reporting dropout rates of approximately 20–25% for comparable interventions.<sup>21</sup> This adjustment ensured that the study retained sufficient statistical power despite potential participant attrition. The final sample consisted of 66 psychiatric nurses (Fig. 1). Participants were required to meet the following inclusion criteria: providing written informed consent; having at least one year of work experience in a psychiatric unit; actively working in the psychiatric unit during the data collection period; and reporting no known sensi-

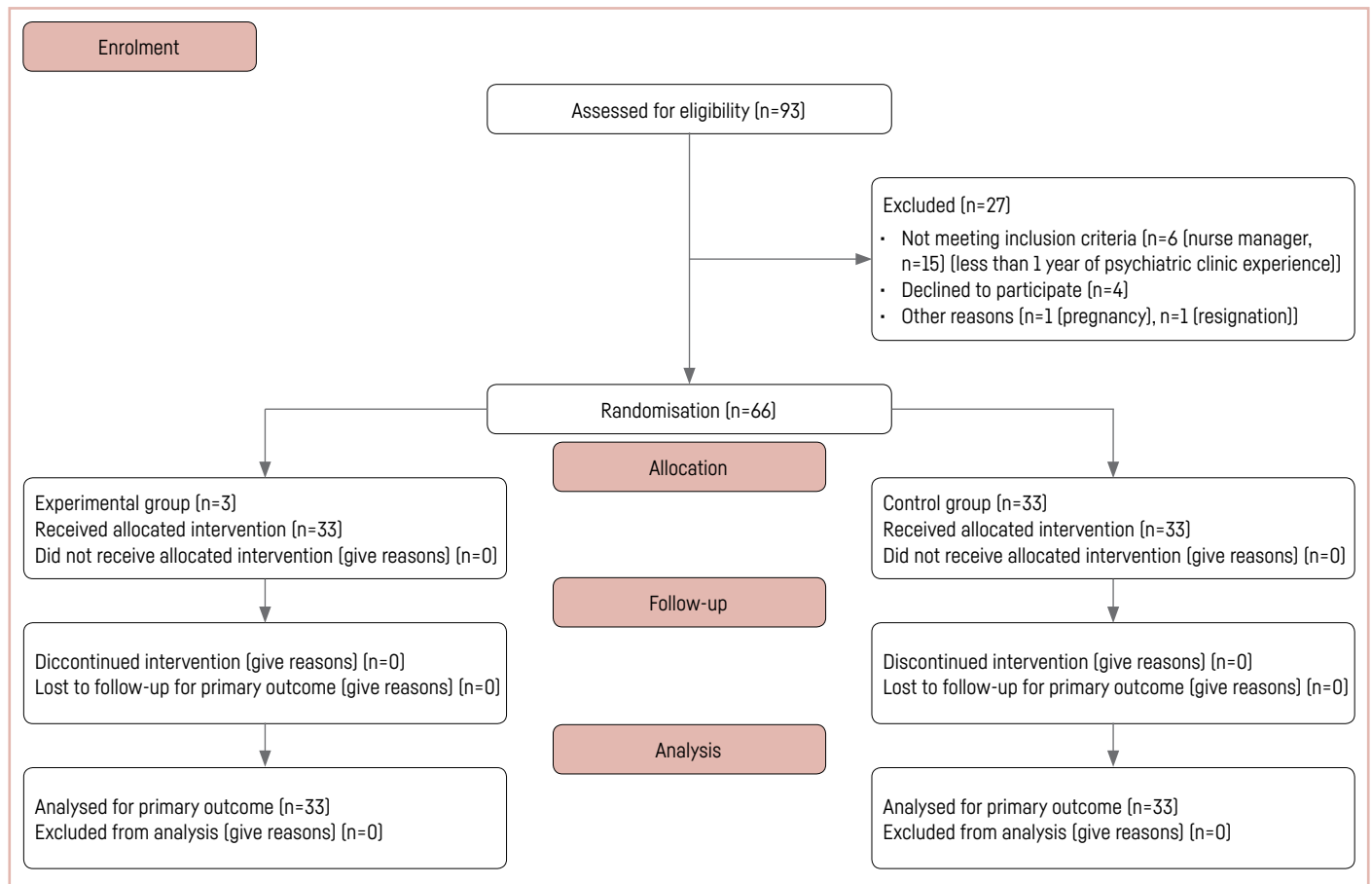


Figure 1. CONSORT flow chart.

**Table 1.** Comparison of sociodemographic characteristics of psychiatric nurses in the experimental and control groups

	Experimental group (n=33)		Control group (n=33)		U	p
	Mean±SD	Median (Min-Max)	Mean±SD	Median (Min-Max)		
Age <sup>a</sup>	25.97±3.57	25.00 [24.00–43.00]	27.42±5.52	25.00 [24.00–48.00]	459.50	0.262
Professional experience <sup>a</sup>	2.92±2.92	2.00 [2.00–18.50]	4.11±4.54	2.00 [2.00–23.00]	446.00	0.137
Psychiatric clinic experience <sup>a</sup>	2.17±0.44	2.00 [2.00–4.00]	2.95±2.03	2.00 [1.00–10.00]	471.50	0.223
Weekly working hours <sup>a</sup>	49.70±8.36	48.00 [40.00–72.00]	49.30±8.78	48.00 [36.00–64.00]	526.50	0.814
	Experimental group (n=33)		Control group (n=33)		χ <sup>2</sup>	p
	n	%	n	%		
Sex <sup>b</sup>					4.889	0.027*
Female	28	84.85	20	60.61		
Male	5	15.15	13	39.39		
Marital status <sup>b</sup>					1.981	0.159
Married	6	18.18	11	33.33		
Single	27	81.82	22	66.67		
Having children <sup>c</sup>					-	0.355
Yes	1	3.03	4	12.12		
No	32	96.97	29	87.88		
Income status <sup>b</sup>					1.331	0.514
Income lower than expenses	10	30.30	6	18.18		
Income equal to expenses	19	57.58	22	66.67		
Income higher than expenses	4	12.12	5	15.15		
Educational level <sup>c</sup>					-	1.00
Associate's or Bachelor's degree	29	87.88	28	84.85		
Postgraduate degree	4	12.12	5	15.15		
Presence of allergic disease <sup>b</sup>					0.471	0.492
Yes	6	18.18	4	12.12		
No	27	81.82	29	87.88		

<sup>a</sup>: Mann-Whitney U test, <sup>b</sup>: Chi-square test, <sup>c</sup>: Fisher's Exact test.

tivity or adverse reactions to lavender essential oil. The exclusion criteria were as follows: not being directly involved in patient care; having prior experience with aromatherapy interventions; voluntarily withdrawing during the intervention period; not actively working in the unit during the study period due to transfer, resignation, or leave; experiencing significant changes in general health status; or receiving psychological or psychiatric support during the study period. Participants were asked about any known allergies before the intervention. Individuals with allergies related to essential oils or fragrances were excluded. The allergies reported within the sample were primarily seasonal or food-related and did not interfere with the aromatherapy intervention.

### Randomization and Blinding

Between January 1 and March 31, 2025, a total of 93 psychiatric nurses were employed at the psychiatry clinic of a city hospital in Ankara. Of these, 25 psychiatric nurses did not meet the inclusion criteria for various reasons (n=6 nurse managers, n=15 with less than one year of psychiatric clinic experience, n=4 who declined to participate). Informed consent was obtained from 68 psychiatric nurses who met the inclusion criteria. However, one nurse was pregnant and one nurse resigned before randomization; therefore, 66 psychiatric nurses were included in the randomization process.

The allocation of participants to the experimental and control groups was conducted using stratified randomization. Randomization ensured that the groups were comparable in terms of both known and unknown confounding variables, thereby allowing for an unbiased evaluation of the intervention's effect.<sup>22</sup> A block randomization method was employed to ensure equal group sizes and balanced allocation. An

independent statistician determined the block size and performed the randomization for the experimental and control groups. Six four-letter block sequences were predefined using the letters "A" and "B" as follows: [1] ABAB, [2] ABBA, [3] BBAA, [4] AABB, [5] BAAB, and [6] BABA. The online tool randomizer.org was used to generate 17 random block sequences [66/4=16.5], resulting in 68 allocations. The first 66 assignments derived from these randomized blocks were used to allocate participants to the groups. Group identities were determined by drawing lots: "A" was designated as the control group and "B" as the experimental group.

After randomization, the homogeneity between the experimental and control groups was assessed. A statistically significant association was found between gender and group allocation (p=0.027). Although randomization was implemented, some baseline differences (e.g., gender distribution) may occur by chance and do not necessarily indicate a failure of the randomization process. Apart from gender, no statistically significant differences were observed between the groups at baseline, indicating successful randomization and overall group comparability (p>0.05) [Table 1].

Due to the researcher's direct involvement in administering the aromatherapy intervention and collecting the data, as well as the participants' awareness of receiving the intervention in the experimental group, blinding of the researcher and participants was not feasible. To minimize bias, allocation concealment was ensured using sealed envelopes prepared and managed by an independent researcher. After obtaining informed consent, the researcher opened the corresponding envelope to reveal the participant's group assignment. Following data collection, an independent statistician who was blinded to group allocation performed the statistical analyses, thereby ensuring objectivity in data interpretation.

## Data Collection Tools

Data were collected using the Introductory Information Form, the General Job Stress Scale, and the Therapeutic Relationship Assessment Scale–Nurse Form (TRAS-NF).

**Introductory Information Form:** The Introductory Information Form was prepared by the researcher in accordance with the literature.<sup>23,24</sup> It was designed to assess the sociodemographic characteristics of psychiatric nurses. The form consists of 12 items, including age, gender, marital status, profession, parental status, income level, education level, total years of professional experience, years of experience in psychiatric wards, weekly working hours, and the presence of chronic or allergic diseases.

**General Job Stress Scale (GJSS):** The General Job Stress Scale was developed by De Bruin<sup>25</sup> and validated for the Turkish population by Teles.<sup>26</sup> The scale consists of 9 items rated on a 5-point Likert-type scale ranging from 1 (Never) to 5 (Always). It evaluates the emotional, cognitive, motivational, and social impacts of work-related stress. Total scores range from 9 to 45, with higher scores indicating greater levels of job stress. Cronbach's alpha was reported as 0.91 in the Turkish adaptation.<sup>26</sup> In the present study, Cronbach's alpha was 0.91 for the pre-test and 0.92 for the post-test.

**Therapeutic Relationship Assessment Scale–Nurse Form (TRAS-NF):** The Therapeutic Relationship Assessment Scale–Nurse Form was developed by Coelho et al.<sup>27</sup> and validated for the Turkish population by Duran and Polat.<sup>28</sup> It is used to evaluate the therapeutic relationship between psychiatric nurses and patients. The scale consists of 25 items rated on a 5-point Likert scale ranging from 1 (Never) to 5 (Always). It can be used either as a single-factor measure or across four sub-dimensions: empathy (items 7–11), self-awareness (items 12–17), participation in care (items 18–25), and orientation/direction (items 1–6). Higher scores indicate a stronger therapeutic relationship. Cronbach's alpha for the Turkish version was reported as 0.93.28 In the current study, Cronbach's alpha coefficients were as follows: Total scale: 0.92 [pre-test], 0.93 [post-test]; Empathy: 0.85 [pre-test], 0.80 [post-test]; Self-awareness: 0.77 [pre-test], 0.86 [post-test]; Participation in care: 0.89 [pre-test], 0.88 [post-test]; Orientation: 0.64 [pre-test], 0.77 [post-test].

## Intervention

### Pilot Study

Prior to data collection, the researcher successfully completed a "120-Hour Aromatic Oils and Formulation" training program and obtained a certified practitioner license. Before initiating the main study, a pilot study was conducted with three psychiatric nurses from a related hospital who met the inclusion criteria between December 20 and 30, 2024. The purpose of the pilot study was to assess the clarity and feasibility of the data collection tools and to evaluate the safety of the aromatherapy intervention. This small sample size was selected pragmatically to identify and resolve any practical issues before commencing the main study. No negative feedback was reported.

### Experimental Group

Aromatherapy inhalation using 2% diluted lavender oil (*Lavandula angustifolia*) was administered to psychiatric nurses in the experimental group over a one-week period on alternate days, for a total of three sessions. The intervention was delivered via a cotton pad affixed to the participant's clothing. Each session was conducted once per day, and no participant received more than one application on the same day. Three drops of lavender oil were applied to a cotton pad, which was pinned to the nurse's clothing approximately 20 cm from the nose. Each session lasted approximately 30 minutes. All interventions were performed before the psychiatric nurses' clinical shifts began to ensure that the procedure did not interfere with working hours. After the intervention session, participants continued with their routine clinical duties. Pre-test measurements (Introductory Information Form, GJSS, and TRAS-NF) were collected prior to the initiation of the intervention. Post-test measurements (GJSS and TRAS-NF) were conducted after completion of the one-week intervention period, following all three sessions. Although the intervention took place within the same clinical unit, applications were conducted individually, with only one participant receiving the intervention at a time. This procedure was implemented to prevent interaction among participants and to minimize potential contamination or interaction bias. Participants were informed that the study involved exposure to

lavender aroma; however, they were not provided with detailed information regarding the expected therapeutic effects to minimize expectancy bias.

### Control Group

Psychiatric nurses in the control group completed the same data collection instruments as those in the experimental group at two time points: pre-test (prior to the intervention) and post-test (following completion of the intervention period in the experimental group). During the one-week period in which the experimental group received lavender aromatherapy inhalation, no intervention was administered to the control group, and participants continued their routine clinical duties. After post-test data collection was completed for both groups, lavender aromatherapy materials were provided to the control group. Nurses who consented were given instructions on the personal use of the intervention.

### Data Analysis

Data were analyzed using SPSS version 21.0 (IBM Corp., Armonk, NY, USA). Descriptive statistics for continuous variables (e.g., age, total scores) were reported as mean, standard deviation, median, minimum, and maximum values, whereas categorical variables (e.g., gender) were summarized using frequencies and percentages. Group homogeneity for categorical variables was assessed using the chi-square test, while the Independent Samples t-test was used for continuous variables. Normality of continuous variables was evaluated using skewness and kurtosis values (with values between -1 and +1 considered acceptable), the Kolmogorov–Smirnov test, and visual inspection of histograms. For between-group comparisons, the Independent Samples t-test was applied to normally distributed variables, whereas the Mann–Whitney U test was used for non-normally distributed variables, specifically the GJSS and TRAS-NF scores. For within-group comparisons, the Paired Samples t-test was used for normally distributed variables, and the Wilcoxon Signed-Rank test was applied to non-normally distributed variables. A p-value <0.05 was considered statistically significant. When statistically significant differences were identified, effect sizes were calculated using Cohen's d (0.20=small, 0.50=medium, 0.80=large) to quantify the magnitude of the effects.<sup>21</sup>

### Ethical Statement

Ethics committee approval for the study was obtained from Çankırı Karatekin University Health Sciences Ethics Committee (Approval Number: 17, Date: 04.12.2024), and institutional permission was granted by the hospital where the research was conducted on December 5, 2024. All participating psychiatric nurses were informed about the purpose of the study, the aromatherapy inhalation procedure, their right to withdraw at any stage without any consequences, and the confidentiality of the collected data. Written informed consent was obtained from all participants prior to the initiation of the intervention. Permission to use the measurement instruments was obtained from the original authors via email. The study was conducted in accordance with the principles outlined in the Declaration of Helsinki.

### Results

No statistically significant difference was found between the experimental and control groups in terms of post-test GJSS total scores ( $p>0.05$ ). In the within-group comparisons, no statistically significant differences were observed between pre-test and post-test GJSS total scores in either the experimental group ( $p>0.05$ ) or the control group ( $p>0.05$ ) [Table 2, Fig. 2].

Statistically significant differences were identified between the experimental and control groups in post-test TRAS-NF total scores ( $p=0.042$ ) and in the "participation in care" subdimension ( $p=0.001$ ). Psychiatric nurses who received aromatherapy inhalation demonstrated higher mean scores in both the "participation in care" subdimension and the total therapeutic relationship score compared to those who did not receive the intervention. No statistically significant differences were found between the groups in the post-test scores of the TRAS-NF subdimensions of "empathy," "self-awareness," and "orientation/direction" ( $p>0.05$ ). When within-group comparisons were examined, the experimental group demonstrated statistically significant increases in TRAS-NF total scores ( $p<0.001$ ) and in the subdimensions of "empathy" ( $p=0.025$ ), "self-awareness" ( $p<0.001$ ), "participation in care" ( $p=0.002$ ), and "orientation/direction" ( $p=0.027$ ) in the post-test compared to the pre-test. In contrast, no statistically significant differences were observed between the pre-test and post-test scores in the control group [Table 3, Fig. 3].

**Table 2.** Inter- and intra-group comparison of GJSS total scores at pre-test and post-test

Scale	Group	Measurement				Test/Significance (intra-group comparison)		
		Pre-test		Post-test		z	p	r
		Mean±SD	Median (Min-Max)	Mean±SD	Median (Min-Max)			
GJSS total score	Experimental	2.17±0.69	2.00 (1.11–3.78)	2.09±0.73	2.00 (1.00–3.78)	-1.074	0.283	0.13
	Control	2.40±0.88	2.11 (1.22–4.56)	2.44±0.92	2.11 (1.00–4.67)	-0.124	0.901	0.02
Test/Significance (inter-group comparison)	U	475.00		432.50				
	p	0.372		0.150				
	r	0.11		0.18				

Test/Significance (inter-group comparisons): The Mann-Whitney U test was used for the GJSS total score. Test/Significance (intra-group comparisons): The Wilcoxon Signed-Rank test was used for the GJSS total score.

**Table 3.** Inter- and intra-group comparison of TRAS-NF total and subdimension total at pre-test and post-test

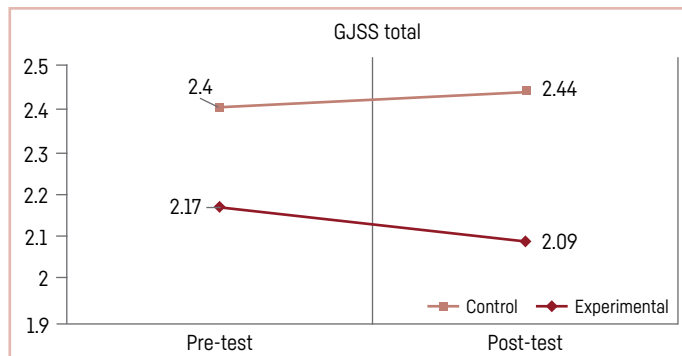
Scale and sub-dimensions	Group	Measurement				Test/Significance (intra-group)		
		Pre-test		Post-test		z/t	p	r/d
		Mean±SD	Median (Min-Max)	Mean±SD	Median (Min-Max)			
Empathy	Experimental	20.85±3.12	20.00 (11.00–25.00)	22.00±2.49	22.00 (16.00–25.00)	-2.249	0.025*	0.28
	Control	21.45±2.25	22.00 (17.00–25.00)	21.73±2.04	22.00 (18.00–25.00)	-1.238	0.216	0.15
Test/Significance (inter-group)	U	498.50		486.50				
	p	0.550		0.450				
	r	0.07		0.09				
Self-awareness	Experimental	24.85±3.71	24.00 (14.00–30.00)	26.21±3.30	26.00 (16.00–30.00)	-3.639	<0.001*	0.45
	Control	24.24±2.14	24.00 (21.00–30.00)	25.18±2.56	25.00 (20.00–30.00)	-1.856	0.064	0.23
Test/Significance (inter-group)	U	451.50		416.00				
	p	0.227		0.096				
	r	0.15		0.02				
Participation in care	Experimental	33.18±4.67	32.00 (21.00–40.00)	35.82±3.64	36.00 (29.00–40.00)	-3.147	0.002*	0.39
	Control	33.33±3.36	32.00 (28.00–40.00)	32.42±3.44	32.00 (25.00–40.00)	-1.360	0.174	0.17
Test/Significance (inter-group)	U	512.50		289.00				
	p	0.680		0.001*				
	r	0.05		0.40				
Orientation/direction	Experimental	25.52±2.79	26.00 (18.00–30.00)	26.79±2.32	27.00 (22.00–30.00)	-2.940	0.003*	0.36
	Control	25.85±2.35	26.00 (21.00–30.00)	26.67±2.62	27.00 (22.00–30.00)	-2.217	0.051	0.32
Test/Significance (inter-group)	U	525.50		535.50				
	p	0.806		0.907				
	r	0.03		0.01				
TRAS-NF total score	Experimental	104.39±12.98	103.00 (64.00–123.00)	110.82±10.14	114.00 (91.00–125.00)	-4.110	<0.001*	-0.55
	Control	104.88±7.49	105.00 (93.00–117.00)	106.00±8.67	108.00 (89.00–122.00)	-1.089	0.284	-0.14
Test/Significance (inter-group)	t	-0.186		2.074				
	p	0.853		0.042*				
	d	0.05		0.51				

Test/Significance (intra-group comparisons): An Independent Samples t-test was used for the TRAS-NF total score, and the Mann-Whitney U test was used for other subdimensions. Test/Significance (inter-group comparisons): A Paired Samples t-test was used for the TRAS-NF total score, and the Wilcoxon Signed-Rank test was used for other subdimensions.

## Discussion

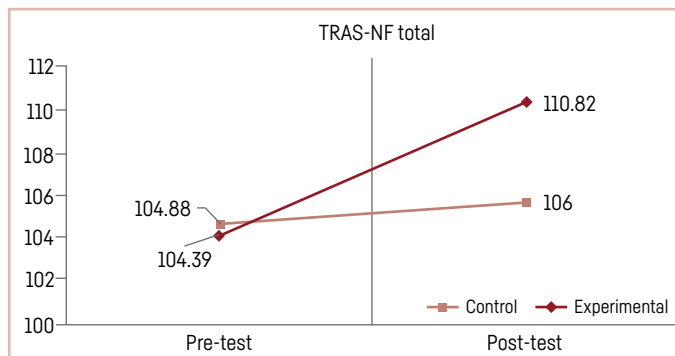
The results of this study provide a foundation for discussing the potential role of complementary interventions in psychiatric nursing practice. The findings suggest that lavender aromatherapy may enhance psychiatric nurses' engagement in patient care, particularly in terms of participation in care and overall therapeutic

relationship quality. This finding supports the acceptance of Hypothesis 2<sub>1</sub> and highlights the potential value of complementary interventions in strengthening nursing practice within psychiatric settings. Within this framework, the therapeutic relationship constitutes a central component of psychiatric nursing practice, serving as a fundamental mechanism through which trust, empathy, and collaboration are established.<sup>28,29</sup> Although only a limited number of studies have directly examined the



**Figure 2.** Comparison of the pre-test and post-test total GJSS scores of psychiatric nurses in the experimental and control groups.

GJSS: General Job Stress Scale.



**Figure 3.** Comparison of the pre-test and post-test TRAS-NF total scores of psychiatric nurses in the experimental and control groups.

TRAS-NF: Therapeutic Relationship Assessment Scale–Nurse Form.

impact of aromatherapy on therapeutic relationships in psychiatric nursing, existing literature from other clinical contexts supports its potential benefits. For instance, Johnson et al.<sup>16</sup> reported that lavender aromatherapy reduced job stress among nurses, indirectly enhancing communication and therapeutic engagement. Similarly, Maddocks<sup>30</sup> suggested that aromatherapy may improve emotional clarity and reduce anxiety, thereby facilitating more effective interpersonal interactions. These findings are consistent with our results, suggesting that sensory-based interventions such as aromatherapy may strengthen nurses' emotional regulation capacities and, consequently, enhance the quality of therapeutic relationships.

Essential oils such as lavender have been shown to alleviate anxiety and promote emotional stability.<sup>15,31</sup> By reducing stress levels and promoting calmness, aromatherapy may positively influence behavioral markers such as tone of voice, body language, and responsiveness—factors that are readily perceived by patients and are crucial for the development of a therapeutic alliance. Furthermore, institutional efforts to integrate aromatherapy into holistic nursing practice have demonstrated promising outcomes. For example, in a program supported by the American Holistic Nurses Association and the Institute of Integrative Aromatherapy, nurses who received aromatherapy training reported increased awareness of non-pharmacological care approaches and greater confidence in recommending these techniques to patients.<sup>32</sup> Enhancing nurses' self-care practices and professional satisfaction may, in turn, foster empathy and strengthen therapeutic engagement. In a study by Kerr et al.,<sup>33</sup> the use of various citrus-based essential oils in a diffusion protocol over eight weeks resulted in improved mood and reduced distress among participating nurses. These emotional improvements contributed to the perception of a more therapeutic care environment. Taken together, these findings suggest that aromatherapy, although often conceptualized as an individual self-care intervention, may also enhance therapeutic interpersonal processes in psychiatric nursing, particularly by improving participation in care, communication, and emotional attunement.

No statistically significant difference in job stress was observed between the group receiving the lavender intervention and the control group. This finding does not support Hypothesis 1. Several studies have reported positive effects of aromatherapy in reducing work-related stress among nurses in intensive care or surgical units.<sup>14–16,34</sup> For example, Pemberton and Turpin<sup>34</sup> reported a reduction in stress levels following inhalation of lavender and clary sage oils among intensive care nurses. Similarly, in a randomized controlled study involving 110 nurses, Chen et al.<sup>14</sup> found that lavender inhalation reduced perceived stress and physical symptoms over four consecutive days. Emadikhalaf et al.<sup>15</sup> also observed significant reductions in stress after four weeks of daily inhalation of rose and lavender oils.

However, not all studies have confirmed the effectiveness of aromatherapy in reducing work-related stress. Barış Eren and Öztunç<sup>32</sup> and Montibeler et al.<sup>35</sup> reported no significant changes in stress levels among intensive care and surgical nurses, respectively, following aromatherapy interventions. In the present study, the short duration of lavender oil application may have been insufficient to counteract deeply rooted stress mechanisms in psychiatric settings. Another possible explanation for the limited effect observed is the use of a single essential oil rather than a blended

or individualized approach. Previous research indicates that individual responses to aromatherapy are highly variable and may be influenced by factors such as olfactory sensitivity, prior exposure, and cultural beliefs regarding complementary and alternative medicine (CAM).<sup>36–38</sup> In this context, some participants may have experienced temporary relief, whereas others may not have perceived any benefit. Additionally, the persistence of active stressors within the psychiatric clinic during the intervention period may have attenuated the potential soothing effects of aromatherapy. Although participants may have experienced transient relaxation, the effect may not have been sustained long enough to produce measurable changes in overall stress levels.<sup>36–38</sup> The cultural context also merits consideration. While aromatherapy and other CAM approaches are widely accepted and integrated into clinical care in countries such as China, these practices are less embedded in Turkish nursing culture. Participants' limited familiarity with or belief in aromatherapy may have influenced the intervention's effectiveness.<sup>39,40</sup> Additionally, persistent stressors within the psychiatric clinic during the intervention period may have masked the potential soothing effects of aromatherapy. Although participants may have experienced transient relaxation, the effect may not have been sustained long enough to produce measurable differences in overall stress levels.

### Limitations

This study has several limitations. The intervention was conducted over a short period and involved only a single essential oil (lavender) administered via inhalation, which may limit both its effectiveness and generalizability. The absence of long-term follow-up prevents the assessment of sustained effects over time. The study relied exclusively on self-reported measures without incorporating physiological or behavioral indicators, rendering the findings susceptible to bias and potential placebo effects. Environmental and structural factors, such as staffing levels and workload intensity, were not fully controlled. Although participants were not informed about the expected effects of lavender aromatherapy to minimize expectancy bias, the subjective nature of the outcome measures may still have allowed for placebo effects. Additionally, a statistically significant difference in gender distribution was observed between the groups, which may represent a potential confounding factor and should be considered when interpreting the findings. This constitutes a notable limitation of the study. Finally, the study was conducted exclusively among psychiatric nurses working in specific clinical settings in Türkiye, which may limit the generalizability of the results to other nursing populations.

### Conclusion

This study highlights the potential value of aromatherapy inhalation as a complementary intervention to support emotional and interpersonal functioning in psychiatric nursing practice. In emotionally demanding care environments, strategies that foster emotional awareness, presence, and therapeutic engagement may meaningfully contribute to person-centered and emotionally responsive care. Aromatherapy inhalation may be better conceptualized not as a primary intervention for managing occupational stress, but as a supportive approach that enhances nurses' capacity to remain emotionally attuned during therapeutic interactions. The ease of implementa-

tion and low cost of aromatherapy inhalation suggest that it is a feasible intervention for integration into clinical practice and educational initiatives. Incorporating such interventions into training programs focused on emotional regulation, self-awareness, and therapeutic communication may promote more sustainable nursing practice and ultimately contribute to improved quality of care. Future research should adopt more comprehensive and methodologically rigorous approaches to further clarify the role of aromatherapy in psychiatric nursing. Combining aromatherapy with established stress management strategies—such as mindfulness-based interventions, cognitive-behavioral techniques, or structured clinical supervision—may produce synergistic effects and enhance outcomes related to both nurse well-being and therapeutic relationships. Longitudinal study designs incorporating repeated measurements are recommended to capture potential delayed or cumulative effects of aromatherapy. Additionally, the use of multidimensional assessment tools that address cognitive, emotional, and physiological aspects of stress would provide a more nuanced understanding of intervention outcomes. Tailoring aromatherapy protocols to individual preferences and evaluating adherence and acceptability may further enhance intervention effectiveness and clinical applicability.

**Ethics Committee Approval:** The study was approved by the Çankırı Karatekin University Health Sciences Ethics Committee (Approval Number: 17, Date: 04.12.2024).

**Informed Consent:** Written informed consent was obtained from all participants prior to the initiation of the intervention.

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