

Use and Perceived Benefits of Thyme and Peppermint Aromatherapy for Respiratory Symptoms and Quality of life in Saudi Arabia

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Abstract

Background: Respiratory symptoms such as cough, nasal congestion, and dyspnea are common worldwide. Thyme and peppermint are traditionally used in aromatherapy for respiratory relief, but evidence specific to the Saudi population is limited.

Objective: To investigate the prevalence, and perceived benefits of thyme and peppermint aromatherapy for respiratory symptoms and quality of life among adults in Saudi Arabia.

Methods: A cross-sectional, descriptive study was conducted from February to May 2026 using a self-administered online questionnaire distributed via social media. Convenience sampling was used. The survey included validated sections on demographics, aromatherapy use, perceived benefits and quality of life. Descriptive statistics and chi-square tests were applied.

Results: A total of 407 participants completed the survey. Among all participants, 18.9% (n=77) reported current or past aromatherapy use. The primary purpose was relief of respiratory symptoms (70.1% of users). Steam inhalation was the most frequent application method (35.1%). High benefit was reported for nasal congestion (57.2%), breathing (55.8%), relaxation (63.7%), and sleep quality (62.3%). Overall satisfaction with aromatherapy effects was high in 66.3% of users. No significant association was found between frequency of use and respiratory benefit ($p=0.212$), but method of use was significantly associated with benefit ($p=0.003$), with steam inhalation showing the highest moderate-to-high improvement. Quality of life among users was generally good, with 46.8% reporting good physical health and 50.6% excellent overall life satisfaction.

Conclusion: Thyme and peppermint aromatherapy are perceived as beneficial for respiratory symptoms and associated with high satisfaction among Saudi adults. However, overall prevalence of use in this sample was low (18.9%). Further controlled studies are needed to confirm effectiveness in the Saudi population.

Keywords: Thyme, peppermint, aromatherapy, respiratory symptoms, quality of life, Saudi Arabia

How to cite this article: Aisha A Hagag¹, Reham H Diab², Samaher A Almohammadi¹, Afrah M Alluqmani¹, Rataj O Habash¹, Taif F Alsaadi¹, Khawlah S AL- Luqmani¹, Bodor E Alsaiani¹. Use and Perceived Benefits of Thyme and Peppermint Aromatherapy for Respiratory Symptoms and Quality of life in Saudi Arabia. *Int J Drug Deliv Technol.* 2026;16(78s):998-1007. DOI: 10.25258/ijddt.16.78s.109.

Introduction:

Respiratory complaints such as cough, nasal congestion, sneezing, mucus production, and shortness of breath are frequently reported among individuals of different age groups worldwide. These symptoms may result from several factors including environmental exposure, air pollution, allergens, smoking, infections, and chronic respiratory diseases. Persistent respiratory symptoms can negatively influence daily activities, sleep quality, physical performance, and overall quality of life.[1]

The severity and progression of respiratory symptoms vary depending on the underlying health condition and individual characteristics. Older adults and individuals with chronic illnesses such as asthma, chronic obstructive pulmonary disease (COPD), cardiovascular disorders, or weakened immunity are

generally more vulnerable to respiratory complications. Therefore, identifying supportive and effective symptom-management approaches remains important for improving patient comfort and wellbeing. [2]

Management of respiratory symptoms generally involves two main branches of treatment, pharmacological and non-pharmacological methods. The first step in managing respiratory disease and its symptoms is pharmacological treatment, which is generally preferred to reduce the frequency, duration, and severity of symptoms; limit disease exacerbation; improve the patient's ability to perform daily activities; and enhance their quality of life. As for non-pharmacological treatments, they include physical therapy, massage, relaxation techniques, meditation, yoga, herbal medicine, acupuncture,

acupressure, reflexology, music therapy, and many more. Therapeutic techniques and other plant-based medications are being utilized more frequently to manage respiratory problems, combining traditional and modern treatment. [3]

Thyme (*Thymus vulgaris*) is a prevalent example of a plant species that is largely described in the literature for the treatment of respiratory challenges. As a natural medicine, it is one of the traditional therapies for nasal obstruction from asthma, bronchial collections, and in any disease, cold and flu, sinus disease, pharyngeal inflammation, and allergic rhinitis. The healing power of thyme is due to a variety of ingredients. One of them is called Thymol which is classified as an expectorant and antipyretic, as well as a microorganism killing agent (antibacterial).[4]

In the same way, peppermint (*Mentha piperita*) is equally known for its advantages in the area of respiratory care. The main active ingredient of peppermint is menthol, which is known to act as a counter irritant and a decongestant. Menthol helps patients feel as if their breathing airways are opening and helps clear excess mucus in the airways and helps ease breathing the breathing process.[5] Some of these herbs used in aromatherapy, involve the inhalation of their essences, which provides a simple and direct method for delivering some of these active ingredients to the respiratory system.[6]

A study conducted in a tertiary hospital in Türkiye evaluated the effects of thyme oil inhalation as a supplementary aromatherapy technique. For reducing asthma symptoms and improving respiratory function in hospitalized asthma patients. The findings showed that the application of thyme oil via inhaler stick significantly reduced asthma symptoms, including dyspnea, cough, nocturnal wheezing, chest wheezing, and sputum secretion, compared to the control and placebo groups at the post-test assessment.[7]

A study conducted in Vali-e Asr Hospital, Zanjan, Iran, evaluated the effect of thyme essential oil on patients with Coronavirus Disease 2019 (COVID-19). The findings showed that one week after taking thyme, symptoms such as fever, dizziness, cough, dyspnea, muscular pain, headache, anorexia, weakness and lethargy, fatigue, and chest wall pain were significantly reduced, but lymphocyte count was increased significantly; therefore, it is recommended for reducing the symptoms of COVID-19.[8]

According to a case series study conducted in India, the effect of peppermint oil steam inhalation on pulmonary function in patients with bronchial asthma was evaluated. The findings indicate that inhalation

of peppermint oil steam has enhanced lung function in patients with bronchial asthma.[9]

This study, conducted in the pulmonary rehabilitation program at Universitair Ziekenhuis Leuven Hospital, examined the effect of inhaled menthol, a compound naturally present in peppermint, on dyspnea in COPD patients during cycle exercise. It found that dyspnea intensity ratings were significantly lower with menthol compared to placebo.[10]

Although multiple studies suggest that thyme and peppermint can effectively improve respiratory symptoms, there is a lack of research specifically targeting the Saudi population.

Accordingly, this study aims to investigate the use and perceived benefits of thyme and peppermint aromatherapy for managing respiratory symptoms and improving quality of life in Saudi Arabia.

Rationale and objectives:

Respiratory symptoms such as cough, nasal congestion, sneezing, and shortness of breath are common health complaints in Saudi Arabia and may negatively affect activities of daily living and therefore quality of life. Thyme and peppermint are commonly used in aromatherapy as complementary approaches for relieving respiratory symptoms and improving well-being. Previous studies have suggested potential benefits of these herbs; however, evidence regarding their use and perceived effectiveness among the Saudi population remains limited. Therefore, this study aims to investigate the prevalence, patterns of use, and perceived benefits of thyme and peppermint aromatherapy for respiratory symptoms and quality of life among adults in Saudi Arabia.

Objectives:

- 1- To determine the prevalence and patterns of use of thyme and peppermint aromatherapy for respiratory symptoms among adults in Saudi Arabia.
- 2- To assess the perceived effectiveness of thyme and peppermint aromatherapy on respiratory symptoms
- 3- To assess the perceived effectiveness of thyme and peppermint aromatherapy on quality of life

Research questions:

1. What is the prevalence of use of aromatherapy with thyme and peppermint in Saudi Arabia?
2. What are the perceived benefits of applying aromatherapy to common respiratory symptoms?
3. What are the perceived benefits of applying aromatherapy to quality of life?

Hypothesis

We hypothesized that the use of thyme and peppermint aromatherapy is associated with perceived improvement in respiratory symptoms and quality of life.

Research methodology:

• **Study design:**

An observational, descriptive, cross-sectional study which was conducted from February 2026 to May 2026 to assess Perceived Benefits of Thyme and Peppermint Aromatherapy for Respiratory Symptoms and Quality of life in Saudi Arabia.

• **Study setting:**

The study was conducted in Saudi Arabia through social media platforms.

• **Study population:**

General population residing in Saudi Arabia.

Inclusion criteria included:

- Adults aged 18 years and above.
- Residents of Saudi Arabia.
- Able to read either Arabic or English.
- Willing to participate voluntarily.
- Individuals with or without respiratory symptom

While Exclusion criteria were: Participants younger than 18 years and incomplete questionnaire responses.

• **Sampling and sample size:**

Convenience sampling used to recruit participant. The sample size of 385 was calculated using an online sample size calculator, with a confidence level of 95%, a margin of error of 5%, a population proportion of 50% and an infinite population approach was assumed for sample size calculation.[11]

• **Data collection:**

Data was collected using an anonymous, self-administered online questionnaire distributed through Google Forms in both English and Arabic languages. The original English version of the questionnaire was adopted from previously developed and validated studies. The Arabic version was translated using a forward-backward translation method to ensure linguistic accuracy and equivalence. Content validity was assessed by a panel of experts, while internal consistency reliability was evaluated using Cronbach's alpha coefficient, which demonstrated excellent reliability ($\alpha = 0.946$).

Table1.Demographic data and general characteristics of the participants (n=407)

Frequency%	Variable
1- What is your gender?	
50 (12.3%)	Male
357 (87.7%)	Female
2- What is your age?	
160 (39.3%)	18-25

The estimated time required to complete the questionnaire is approximately 5 minutes. The structured questionnaire consists of three sections, each adapted from validated sources. The first section (Questions 1–6) collects participants' demographic characteristics. Participants will also be asked whether they experience any respiratory symptoms; those who respond "yes" will proceed to the second section (Questions 7–23), which assesses the use and perceived benefits of the intervention/application. The third section (Questions 24–30) evaluates participants' quality of life.[12], [13], [14]

• **Data analysis:**

Data was analysed using Statistical Package for the Social Sciences (SPSS). Descriptive statistics was used to summarize the data, including standard frequencies and percentages Inferential statistics was also used such as Chi-square test to assess associations between categorical variables.

• **Ethical approval**

This study was approved by the Research Ethics Committee of the Collage of Medical Rehabilitation Sciences, Taibah University, TU-RHB-26-04-019.

Results

A total of 407 participants answered the online survey. The majority were female (87.8%) and most were aged 18–25 years (39.3%). Most participants were from the Western region (94.8%). Regarding education, the majority held a bachelor's degree (65.4%), and only 25.6% worked in healthcare. Regarding respiratory symptoms, most participants reported no symptoms (62.7%), while (37.3) % indicated having respiratory symptoms. Among the reported symptoms, nasal congestion or blocked nose was the most frequent (15%), followed by shortness of breath (14.5%), mucus/phlegm production (11.3%), frequent sneezing (10.6%), cough (9.6%), sore or irritated throat (7.6%), and chest pain (4.4%). Participants were allowed to select multiple responses; therefore, percentages do not sum to 100% as shown in **table 1**.

72 (17.7%)	26-35
80 (19.7%)	36-45
69 (17%)	46-55
26 (6.4%)	Above 55
3- What is your residential region?	
386 (94.8%)	Western Region
9 (2.2%)	Eastern Region

0 (0%)	Northern Region
1(0.2%)	Southern Region
11 (2.7%)	Central Region
4- What is your educational level?	
1 (0.2%)	Illiterate (cannot read or write)
3 (0.7%)	Primary school
8 (2%)	Middle school
66 (16.2%)	High school
41 (10.1%)	Diploma
266 (65.4%)	Bachelor's
22 (5.4%)	Postgraduate studies
5- Do you work in healthcare	
104 (25.6%)	Yes
303 (74.4%)	No
6- Do you have any respiratory symptoms?	
255 (62.7%)	No
152 (37.3%)	Yes (Please choose all that apply)
39 (9.6%)	Cough
59 (14.5%)	Shortness of breath
46 (11.3%)	Mucus (phlegm)

The table 2 shows that the total number of participants in the study was 407; however, the responses related to the use were limited to only 77 participants, who had previously used essential oils or were currently using them. Among this user group, (peppermint oil) emerged as the most prominent choice, ranking first with a total of 43 selections (consisting of 35 participants who used it individually and 8 who used it in combination with thyme). In **Table 3: Survey questions to evaluate use and perceived benefits (n = 77)**

<u>Variable</u>	<u>Frequency%</u>
1- What is your purpose for using aromatherapy?	

18 (4.4%)	Chest pain
61 (15%)	Nasal congestion or blocked nose
31 (7.6%)	Sore or irritated throat
43 (10.6%)	Frequent sneezing

Data were presented as frequencies and percentages.

Table2. Survey questions to evaluate the uses of aromatherapy (n=407).

<u>Variable</u>	<u>Frequency%</u>
1-Do you use aromatherapy either now or in the past?	
Yes	77(18.9%)
No	330(81.1%)
2- Which of the following essential oils have you used?	
Thyme oil	19(4.7%)
Peppermint oil	35(8.6%)
Both thyme and peppermint	8(2.0%)
Others	15(3.6%)
Not using	330(81.1%)

Data were presented as frequencies and percentages.

contrast, (thyme oil) followed in second place with a total of 27 selections. Additionally, 15 participants (3.6%) reported using other oils that did not fall under the specific categories of peppermint and/or thyme. This distribution underscores a significant preference for Peppermint oil, which stood out as the leading essential oil, reflecting its widespread popularity.

To relieve respiratory symptoms	54(70.1%)
To reduce stress	23(29.9%)
To improve sleep	18(23.4%)

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quality	
To reduce fatigue	9(11.7%)
For general health	12(15.6%)
2- What method do you usually use to apply essential oils?	
inhalation	12(15.5%)
diffuser	21(27.3%)
topical application	16(20.8%)
Steam inhalation	27(35.1%)
Other	1(1.3%)
3- How often do you use aromatherapy?	
Daily	6(7.8%)
Several times a week	9(11.7%)
Once a week	7(9.1%)
Sometime	39(50.6%)
Rarely	16(20.8%)
4- How long have you been using aromatherapy?	
Less than one month	56(72.7%)
1–6 months	16(20.8%)
6–12 months	2(2.6%)
More than one year	3(3.9%)
5- Do you believe aromatherapy helps to improve your symptoms?	
Strongly agree	25(32.4%)
Agree	37(48.1%)
Neutral	14(18.2%)
Disagree	1(1.3%)
Strongly Disagree	0(0%)
6- How much did aromatherapy reduce your sore throat pain?	
High benefit	35(45.5%)

Moderate benefit	30(39%)
Low benefit	12(15.5%)
7- How much did aromatherapy reduce your nasal congestion?	
High benefit	44(57.2%)
Moderate benefit	21(27.3%)
Low benefit	12(15.5%)
8- How much did aromatherapy improve your breathing?	
High benefit	43(55.8%)
Moderate benefit	23(29.9%)
Low benefit	11(14.3%)
9- How much did aromatherapy reduce your stress level?	
High benefit	43(55.9%)
Moderate benefit	22(28.6%)
Low benefit	12(15.5%)
10- How much did aromatherapy help you feel relaxed?	
High benefit	49(63.7%)
Moderate benefit	18(23.3%)
Low benefit	10(13%)
11- How much did aromatherapy reduce your level of fatigue?	
High benefit	45(58.4%)
Moderate benefit	17(22.1%)
Low benefit	15(19.5%)
12- How much did aromatherapy improve your sleep quality?	
High benefit	48(62.3%)
Moderate benefit	20(26%)
Low benefit	9(11.7%)

13 - Overall, how beneficial was aromatherapy for your respiratory symptoms?	
High benefit	43(55.8%)
Moderate benefit	23(29.9%)
Low benefit	11(14.3%)
14- Overall, how satisfied are you with the effects of aromatherapy?	

Table 3 demonstrates use and perceived benefits, it shows that the primary motivation for participants using aromatherapy centered on the relief of respiratory symptoms (70.1%), followed by stress reduction (29.9%), and improvement in sleep quality (23.4%). Participants were allowed to select multiple responses; therefore, the total percentage for these purposes exceeds 100%. Regarding the method of application, steam inhalation (35.1%) was the most common application method. With 72.7% of the sample having used it for less than a month; 80.6% of users confirmed the effectiveness of these oils in **Table 4. Survey questions to evaluate quality of life among participants using thyme or mint (N = 77)).**

Variable	Frequency%
1- Recently how satisfied have you been with your physical health?	
Very good	20(26%)
Good	36(46.8%)
Fair	20(26%)
Bad	1(1.3%)
Very bad	0(0%)
2- Recently how satisfied have you been with your mood?	
Very good	20(26%)
Good	32(41.6%)
Fair	18(23.4%)
Bad	6(7.8%)
Very bad	1(1.3%)
3- Recently how satisfied have you been with your household activities?	

High benefit	51(66.3%)
Moderate benefit	14(18.2%)
Low benefit	12(15.5%)

Data were presented as frequencies and percentages.

improving their overall symptoms. The highest levels of benefit were observed in aspects related to relaxation (63.7%) and improving sleep quality (62.4%), relieving nasal congestion (57.2%), which aligns perfectly with the participants' initial objectives. The results culminated in a very high overall satisfaction level (66.3%), suggest a potential beneficial effect of aromatherapy in achieving a tangible balance between relieving physical symptoms and enhancing the psychological well-being of the users.

Very good	21(27.3%)
Good	34(44.2%)
Fair	18(23.4%)
Bad	4(5.2%)
Very bad	0(0%)
4- Recently how satisfied have you been with your leisure time activities?	
Very good	17(22.1%)
Good	25(32.5%)
Fair	22(28.6%)
Bad	11(14.3%)
Very bad	2(2.6%)
5- Recently how satisfied have you been with your ability to function in daily life?	
Very good	26(33.8%)
Good	30(39%)
Fair	19(24.7%)
Bad	2(2.6%)

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Very bad	0(0%)
6- Recently how satisfied have you been with your overall sense of well-being?	
Very good	26(33.8%)
Good	29(37.7%)
Fair	17(22.1%)
Bad	5(6.5%)
Very bad	0(0%)

Table 4. Demonstrates participant's quality of life. It showed that 36 (46.8%) of the participants reported good physical health, while only 1 (1.3%) reported poor physical health. Regarding mood, 32 (41.6%) participants reported good satisfaction,

Table 5. Association between frequency of aromatherapy use and overall benefit on respiratory symptoms (n=77)

Aromatherapy overall respiratory benefit						
P-value	Total	High benefit (7-10)	Moderate benefit (4-6)	Low benefit (0-3)		
0.212	6 (7.8%)	4 (5.2%)	0 (0%)	2 (2.6%)	Daily	Frequency of aromatherapy use
	9(11.7%)	8 (10.4%)	1 (1.3%)	0 (0%)	Several times per week	
	7(9.1%)	3(3.9%)	3(3.9%)	1(1.3%)	Once per week	
	39(50.6%)	21(27.3%)	14(18.2%)	4(5.2%)	Occasionally	
	16(20.8%)	7(9.1%)	3(6.5%)	4(5.2%)	Rarely	
	77	43(55.8%)	23(29.9%)	11(14.3%)	Total	

Table 5 shows the association between the frequency of aromatherapy use and the overall perceived respiratory benefit among participants (n=77). The majority of participants reported a high benefit (43, 55.8%), followed by moderate benefit (23, 29.9%) and low benefit (11, 14.3%). High benefit was most commonly observed among participants who used aromatherapy occasionally (21, 27.3%), followed by those who used it several times per week (8, 10.4%). In contrast, moderate benefit was also most frequent among occasional users (14, 18.2%), while low benefit appeared across different usage frequencies with relatively small proportions. The Chi-square test indicated that there was no statistically significant association between the frequency of aromatherapy use and the perceived respiratory benefit (p = 0.212).

Analys

Aromatherapy overall respiratory benefit						
P-value	Total	High benefit (7-10)	Moderate benefit (4-6)	Low benefit (0-3)		
0.003**	51 (66.2%)	4 (5.2%)	20 (26.0%)	27 (35.1%)	Steam inhalation	Method of aromatherapy use
	24 (31.2%)	3 (3.9%)	9 (11.7%)	12 (15.6%)	Direct inhalation	
	31 (40.3%)	9 (11.7%)	6 (7.8%)	16 (20.8%)	Applying on the skin	
	34 (44.2%)	7 (9.1%)	6 (7.8%)	21 (27.3%)	Using a diffuser	
	2 (2.6%)	0 (0%)	1 (1.3%)	1 (1.3%)	Other (drops)	
	77	42 (54.5%)	23 (29.9%)	12 (15.6%)	Total	

Steam inhalation was the most commonly used method and was associated with higher levels of mild and moderate improvement. Diffuser use and topical application also showed notable contributions

7- Recently How would you rate your overall life satisfaction and contentment?	
Very good	39(50.6%)
Good	26(33.8%)
Fair	11(14.3%)
Bad	0(0%)
Very bad	1(1.3%)

Data were presented as frequencies and percentages.

whereas 6 (7.8%) reported poor mood. Additionally, the overall sense of wellbeing was good in (37.7%) compared to (6.5%) who demonstrated bad sense. Finally, 26 (33.8%) participants reported good overall life satisfaction and contentment.

Analyzed by Chi-square test, $p > 0.05$ = not significant, $p \leq 0.05$ ** = significant

55.8%), followed by moderate benefit (23, 29.9%) and low benefit (11, 14.3%). High benefit was most commonly observed among participants who used aromatherapy occasionally (21, 27.3%), followed by those who used it several times per week (8, 10.4%). In contrast, moderate benefit was also most frequent among occasional users (14, 18.2%), while low benefit appeared across different usage frequencies with relatively small proportions. The Chi-square test indicated that there was no statistically significant association between the frequency of aromatherapy use and the perceived respiratory benefit (p = 0.212).

ed by Chi-square test, $p > 0.05$ = not significant, $p \leq 0.05$ ** = significant

Table 6 shows the association between the method of aromatherapy use and the overall perceived respiratory benefit among participants (n=77). Most participants reported high benefit (42, 54.5%), followed by moderate benefit (23, 29.9%) and mild benefit (12, 15.6%), while no participants reported no benefit.

to high improvement. Direct inhalation demonstrated moderate effectiveness, whereas the use of drops was minimal and showed limited impact. The Chi-square test showed a statistically significant association

between the method of use and perceived respiratory

benefit ($p = 0.003$).

Analyzed by Chi-square test, $p > 0.05$ = not significant, $p \leq 0.05^{**}$ = significant

Table 7. Association between working in healthcare and use of aromatherapy (n=407)

P-value	Total	No (Do not use)	Yes (Use Aromatherapy)		
0.012**	104 (25.6%)	93(89.4%)	11 (10.6%)	Yes	Work in healthcare
	303 (74.4%)	237(78.2%)	66 (21.8%)	No	
	407	330(81.1%)	77 (18.9%)	Total	

Table7 demonstrated a statistically significant association between working in healthcare and the use of aromatherapy ($p = 0.012$). Participants working in healthcare reported lower use (10.6%) compared to those not working in healthcare (21.8%).

Discussion

The present study aimed to investigate the use and reported benefits of thyme and peppermint aromatherapy on respiratory symptoms including cough, dyspnea, nasal congestion, and sore throat among adults in Saudi Arabia. Such symptoms can significantly affect daily functioning and quality of life. Thyme and peppermint are commonly used as natural therapies for respiratory discomfort; however, evidence in the Saudi population is still limited.

In the present study, overall use of aromatherapy was relatively low (18.9%), although there was widespread public interest in complementary health regimens. The most commonly used essential oil was peppermint oil (8.6%), followed by thyme oil (4.7%). These findings were in line with a large cross-sectional online survey of Brazilian adults that, likewise, reported a relatively low use of aromatherapy (16.5%) [15]. We wondered if this low prevalence was because most people used more traditional medical treatments and medications, as opposed to complementary or herbal methods.

The majority of participants in the present study reported using aromatherapy primarily to relieve respiratory symptoms (70.1%), highlighting its perceived role as a supportive therapy for common respiratory complaints. These findings are consistent with the study conducted by Öner et al. (2025), which demonstrated that inhalation of thyme oil significantly reduced respiratory symptoms such as dyspnea, cough, and secretion among patients with COPD. Additionally, improvements in oxygen saturation and respiratory rate were observed, supporting the effectiveness of aromatherapy as a complementary non-pharmacological intervention in respiratory care.[16]

A high proportion of users reported substantial perceived benefits in respiratory outcomes, particularly in reducing nasal congestion (57.2%) and improving breathing (55.8%). These

agreed with a study of Zeliha Cengiz and Uğur Öner (2024) who conducted a randomized trial, used aromatherapy via the inhalation of thyme oil. The results showed a positive effect on improving breathing by reducing shortness of breath, as well as significantly alleviating nasal congestion and other symptoms. The study concluded that aromatherapy is an effective and safe method for relieving respiratory symptoms in COVID-19 patients.[17]

The method of aromatherapy application showed a statistically significant association with perceived respiratory benefit ($p = 0.003$), with steam inhalation being the most commonly used and one of the more effective methods. This may be due to improved delivery of active compounds to the respiratory tract through warm vapor, enhancing mucosal hydration and facilitating airway clearance. This finding aligned with Md. Nafees Rahman Chowdhury.(2022), who reported that steam inhalation improves respiratory function by increasing airflow and reducing airway congestion, as well as enhancing mucociliary clearance. These effects may explain why participants in the present study perceived greater respiratory benefits when using steam inhalation compared to other methods. [18]

There was no significant association was found between the frequency of aromatherapy use and perceived respiratory benefit ($p = 0.212$). This suggests that increasing frequency of use does not necessarily enhance outcomes, and that effectiveness may depend more on correct usage technique or individual response rather than repeated exposure. This was consistent with the findings from a population-based study that was reported no significant association between the frequency of aromatherapy exposure and respiratory outcomes, suggesting that increased in frequency of use does not necessarily indicate greater perceived benefit, and that effectiveness may be more influenced by other factors such as the application method and the individual variability rather than repeated exposure. [19]

Beyond respiratory outcomes, aromatherapy demonstrated notable perceived

benefits in psychological well-being and quality of life. High levels of improvement were reported in relaxation (63.7%), sleep quality (62.3%), and stress reduction (55.9%), alongside generally positive ratings of physical health, mood, and overall life satisfaction. These findings are consistent with the systematic review and meta-analysis conducted by Lin et al. (2019), which demonstrated that aromatherapy significantly improved sleep quality and reduced stress and anxiety levels across multiple adult populations. The authors suggested that inhalation aromatherapy promotes relaxation and psychological well-being through its effects on the nervous system and emotional regulation pathways. These findings support the current study results, indicating that thyme and peppermint aromatherapy may positively contribute to relaxation, sleep quality, and stress reduction among users.[20]

The present study also demonstrated a statistically significant association between employment in healthcare and the use of aromatherapy ($p = 0.012$). Interestingly, individuals working in healthcare reported lower utilization (10.6%) compared to those not working in healthcare (21.8%), indicating a negative association. This finding may be attributed to a more cautious attitude among healthcare professionals toward aromatherapy, possibly due to concerns about safety and limited formal training in this field. This is supported by the study conducted by Belghiti et al. (2022), which reported that although healthcare professionals are generally aware of essential oils, their use remains limited due to knowledge gaps, concerns about toxicity, and lack of formal education, potentially influencing their utilization practices.[21]

Limitations

This study has several limitations. First, the cross-sectional design limits causal inference between aromatherapy use and perceived benefits. Second, data were based on self-reported responses, which may be affected by recall bias and subjective perception. Third, the relatively small number of aromatherapy users ($n=77$) may limit generalizability. The sample was predominantly female and from one region, introducing potential selection bias. Additionally, no objective clinical measures of respiratory function were included. Variability in type, dose, and method of essential oil use was not standardized, which may influence outcomes.

Conclusion

Our study shows that Saudi adults have a positive view of thyme and peppermint aromatherapy, with a specific preference for the inhalation method. They are satisfied with using these oils for respiratory symptoms. However, the

actual use remains low at only 18.9%, showing a gap between belief and practice. Therefore, more clinical studies are needed to prove the benefits of these oils and support their use scientifically.

Recommendations

Further studies were recommended to

- 1- Provide a randomized controlled designs to establish causal relationships and objectively evaluate the effects of thyme and peppermint
- 2- Determine the best dosage, duration, and methods of use for these oils.
- 3- Assess the clinical benefits of aromatherapy using objective measurements.
- 4- Ensure long-term safety and monitor effects on different patient groups.

References:

- [1] S. Kharbanda, R. Anand, S. Kharbanda, and R. Anand, "Health-related quality of life in patients with chronic obstructive pulmonary disease: A hospital-based study," *Indian Journal of Medical Research*, vol. 153, no. 4, pp. 459–464, Jun. 2025, doi: 10.4103/ijmr.IJMR_1812_18.
- [2] G. Viegi, S. Maio, S. Fasola, and S. Baldacci, "Global Burden of Chronic Respiratory Diseases," *J. Aerosol Med. Pulm. Drug Deliv.*, vol. 33, no. 4, pp. 171–177, Aug. 2020, doi: 10.1089/jamp.2019.1576.
- [3] N. Anthonisen et al., "Global strategy for the diagnosis, management, and prevention of chronic obstructive pulmonary disease. NHLBI/WHO Global Initiative for Chronic Obstructive Lung Disease (GOLD) Workshop summary," *Am. J. Respir. Crit. Care Med.*, vol. 163, no. 5, pp. 1256–1276, 2001, doi: 10.1164/ajrccm.163.5.2101039.
- [4] A. Firdaus, M. H. Yunus, S. K. Izhar, and U. Afaq, "Medicinal Plants in the Treatment of Respiratory Diseases and their Future Aspects," *Recent Pat. Biotechnol.*, vol. 19, no. 1, pp. 2–18, 2025, doi: 10.2174/0118722083278561231212072408.
- [5] D. L. McKay and J. B. Blumberg, "A review of the bioactivity and potential health benefits of peppermint tea (*Mentha piperita* L.)," *Phytother. Res.*, vol. 20, no. 8, pp. 619–633, Aug. 2006, doi: 10.1002/ptr.1936.
- [6] H. M. A. Cavanagh and J. M. Wilkinson, "Biological activities of lavender essential oil," *Phytother. Res.*, vol. 16, no. 4, pp. 301–308, 2002, doi: 10.1002/ptr.1103.
- [7] U. Öner, Z. Gürdap, and Z. Cengiz, "The effect of thyme oil on asthma symptoms and respiratory parameters in patients with asthma: a single-blind randomised controlled

- trial,” *J. Herb. Med.*, vol. 56, p. 101090, Mar. 2026, doi: 10.1016/j.hermed.2026.101090.
- [8] S. Sardari, A. Mobaien, L. Ghassemifard, K. Kamali, and N. Khavasi, “Therapeutic Effect of Thyme (*Thymus Vulgaris*) Essential Oil on Patients with COVID19: A Randomized Clinical Trial,” *Journal of Advances in Medical and Biomedical Research*, vol. 29, no. 133, pp. 2676–6264, 2021, doi: 10.30699/jambs.29.133.83.
- [9] Y. Chidambaram, A. T. Mujeebullah, S. Soundarapandian, S. Senthilkumar, A. Subramanian, and M. Kuppusamy, “Effect of peppermint oil steam inhalation on pulmonary function in patients with bronchial asthma: a case series,” *Int. J. Community Med. Public Health*, vol. 12, no. 9, pp. 4157–4161, Aug. 2025, doi: 10.18203/2394-6040.ijcmph20252867.
- [10] M. R. Schaeffer *et al.*, “Inhaled Menthol for Dyspnea Relief During Cycle Exercise in COPD: A Randomized Trial,” *Chest*, vol. 168, no. 2, pp. 390–401, Aug. 2025, doi: 10.1016/j.chest.2025.03.002.
- [11] “Sample Size Calculator.” Accessed: Feb. 14, 2026. [Online]. Available: <https://www.calculator.net/sample-size-calculator.html>
- [12] S. A. Moawd and A. Verma, “Bidirectional study comparing effect of cure tape and aromatherapy massage versus cure taping on primary dysmenorrhea”, Accessed: Feb. 20, 2026. [Online]. Available: www.isisn.org
- [13] M. Mancak and U. K. Çalışkan, “Applications of Dietary Supplements and Aromatherapy for Prophylactic and Treatment Purposes During COVID-19 Pandemic,” *Turk. J. Pharm. Sci.*, vol. 20, no. 3, pp. 176–184, Jun. 2023, doi: 10.4274/tjps.galenos.2022.21370.
- [14] H. Y. Kang, H. Y. Ahn, M. J. Kang, and M. H. Hur, “Effects of aromatherapy on sore throat, nasal symptoms and sleep quality in adults infected with COVID-19: A randomized controlled trial,” *Integr. Med. Res.*, vol. 12, no. 4, Dec. 2023, doi: 10.1016/j.imr.2023.101001.
- [15] Boccolini PMM, et al. Use of integrative and complementary practices in Brazil during the COVID-19 pandemic. *PLoS One*. 2024;19(12):e0308299.
- [16] Öner U, Cengiz Z, Erol A. Effects of thyme oil on respiratory systems, hemodynamic parameters and vital signs in COPD patients: a randomized controlled trial. *Holist Nurs Pract*. 2025.
- [17] Öner U, Cengiz Z. The effects of aromatherapy with thyme oil on disease symptoms, vital findings, and hemodynamic parameters in COVID-19 patients. *Journal of Science and Healing*. 2024;20(4):544-553.
- [18] Chowdhury MN.R., Alif YA., Alam S., Emon NU., Richi FT., Zihad SMN., Taki MT., Rashid MA. Theoretical effectiveness of steam inhalation against SARS-CoV-2 infection: updates on clinical trials, mechanism of actions, and traditional approaches. *Heliyon*. 2022;8(1):e08816. p. 2–3, 7.
- [19] Al Khathlan N, Basuwaidan M, Al Yami S, Al-Saif F, Al-Fareed S, Ansari K. Extent of exposure to scented candles and prevalence of respiratory and non-respiratory symptoms amongst young university students. *BMC Public Health*. 2023;23(1):80.
- [20] Lin PC, Lee PH, Tseng SJ, Lin YM, Chen SR, Hou WH. Effects of aromatherapy on sleep quality: A systematic review and meta-analysis. *Complement Ther Med*. 2019;45(1):156-166.
- [21] Alaoui Belghiti A, Yafout M, Bennis S, Ait Haj Said A. Survey on Aromatherapy Among Healthcare Professionals in Morocco. *Pharmacogn J*. 2022;12(5): 666-670.