JOURNAL OF INTERDISCIPLINARY PERSPECTIVES

ISSN Print: 2984-8288, ISSN Online: 2984-8385
Vol. 3 No. 8, 410-416, August 2025

Sustainable Aromatherapy Pouch with Natural Lemon and Rosemary Scents

Julianne Caitlin S. Tomaroy*, Divine Mhargarette I. Cadayona, Harley E. Partosa, Maria Antonio Kyrell A. Bangalando, Rhea Roxana A. Grefaldia
Saint Paul University, Dumaguete City, Negros Oriental, Philippines

*Corresponding Author Email: julcaitlin28@gmail.com

Date received: April 25, 2025
Date revised: June 17, 2025
Date accepted: July 10, 2025

Originality: 94%
Grammarly Score: 99%
Similarity: 6%

Recommended citation:
Tomaroy, J.C., Cadayona, D.M., Partosa, H., Bangalando, M.A., & Grefaldia, R.R. (2025). Sustainable aromatherapy pouch with natural lemon and rosemary scents. *Journal of Interdisciplinary Perspectives*, *3*(8), 410-416. https://doi.org/10.69569/jip.2025.312

Abstract. This study examines a novel approach to aromatherapy, utilizing Orbeez—small, water-absorbing beads—as carriers for essential oils. While lemon and rosemary are known for their calming effects, no research has been done on using Orbeez to diffuse these scents. To combine relaxation with sustainability, the beads were placed in pouches made from recycled paper, creating an eco-friendly product that provides quick stress relief. To assess the usability, durability, and effectiveness of the pouch, 60 participants used the aromatherapy pouch and completed a descriptive survey questionnaire. The survey included indicators that measured how easy the pouch was to use, how well it held up over time, and its effectiveness in providing emotional comfort. Results showed strong positive feedback. Portability received a high mean score of 4.45, while overall user-friendliness was rated at 4.32. For durability, the pouch remained functional after repeated use ($\bar{x}$ = 4.07), although some users reported minor issues, such as tearing. The recycled materials were still seen as generally durable (average: 3.92). Regarding effectiveness, participants reported a calming effect during anxious moments ($\bar{x}$ = 4.15), and many found the blend of lemon and rosemary to be especially soothing ($\bar{x}$ = 4.58). The study presents a practical, low-cost, and sustainable tool for emotional support using natural ingredients and recyclable materials. Its simplicity, portability, and immediate effect make it suitable for everyday use, especially in moments of stress or discomfort. Future research is recommended to investigate the duration of the scent's effectiveness, how different users respond to the aromatherapy pouch, and how it can be improved for enhanced durability and broader applicability.

Keywords: Aromatherapy; Lemon; Orbeez; Rosemary; Sustainable.

1.0 Introduction

In high-pressure environments, stress can quickly build up and lead to emotional strain and discomfort. For many people—especially students—this ongoing stress can make it more challenging to concentrate, manage emotions, and maintain overall health (Barbaynnis et al., 2022; Rugulies et al., 2023). Without the right tools or coping strategies, even everyday challenges can become overwhelming and contribute to long-term health issues (Weinmann et al., 2025). This study introduces a sustainable, sensory aromatherapy pouch designed to help ease stress through the natural benefits of scent and touch(Różycka-Tran et al., 2025). The product uses Orbeez—small, water-absorbing beads—infused with essential oils from lemon and rosemary. These scents are well-known for their calming and uplifting properties (Sulistyowati, 2021; Ghasemzadeh & Hosseinzadeh, 2020).

Lemon oil, in particular, is valued for its refreshing scent that can boost mood and help improve mental clarity (Jana & Pradhan, 2024). Meanwhile, rosemary has been linked to better focus and emotional balance (Enwright et al., 2023). When combined, these two natural oils create a relaxing sensory experience that can be beneficial in managing stress throughout the day (Weston-Green, Clunas, & Jimenez, 2025).

To make the product eco-friendly, the infused Orbeez are placed inside small pouches made from recycled paper. The beads also provide a soft, textured surface that offers a comforting, tactile element during moments of anxiety or distraction (Ozen et al., 2019). This combination of scent and touch offers a simple but effective way to support both mental and physical relaxation. Although many stress-relief products are available, such as diffusers, roll-ons, fidget tools, or weighted items, most focus on only one sense and are often not designed with portability or sustainability in mind (Hoxha et al., 2025). Some may be too bulky, expensive, or disposable. Past studies have mostly explored either the benefits of scent (Dilrukshi, Nishiyama, & Nomura, 2024) or tactile tools (He et al., 2024) separately, but rarely in a combined product. That is where this pouch differs: it combines both sensory elements while utilizing recyclable materials to minimize waste. Interestingly, although Orbeez are widely used in crafts and sensory play, there is very little research on their role in scent diffusion for wellness purposes. While some interest exists around using water beads in aromatherapy, scientific evidence on their safety and effectiveness in this area is still limited. This lack of research highlights a clear gap in the field—and it is a gap this study aims to address. This study will survey the usability, durability, and effectiveness of the product. By offering a simple, natural, and eco-conscious approach to managing stress, this project aims to contribute not only to individual well-being but also to broader discussions about sustainable self-care. The study focuses on evaluating the pouch's usability, durability, and overall effectiveness as a daily stress-relief aid.

2.0 Methodology

2.1 Research Design

This study employs a descriptive research design to develop and evaluate an eco-friendly aromatherapy pouch, examining its usability, durability, and effectiveness. The aromatherapy pouch consists of Orbeez—small, water-absorbing beads—infused with natural lemon and rosemary essential oils and enclosed in paper pouches made from recycled materials. Both scent and sustainability are central to the design, offering a gentle and environmentally responsible way to support relaxation and emotional comfort. The development of the tool begins with the preparation of natural scent extracts. First, two lemons are thoroughly washed, and their outer zest is carefully peeled to avoid the bitter white pith. Lemon juice is extracted, and fresh rosemary leaves are washed and lightly crushed to release their essential oils. The lemon zest and rosemary leaves are then placed in separate glass jars and fully submerged in rubbing alcohol. These jars are sealed and stored in a cool, dark place for a seven-day fermentation period, with daily shaking to enhance the infusion. After fermentation, the mixtures are strained using a fine mesh or cheesecloth to remove solid residues. Distilled water is added to reduce the alcohol concentration, and castor oil is included to enhance the scent's consistency and longevity. The final extracts are stored in airtight spray bottles or containers. This mixture is used to soak the Orbeez, allowing them to absorb and slowly release the aroma. Once infused, the Orbeez are placed inside biodegradable paper bags with a calming textured outer surface to complete the aromatherapy pouch. To evaluate the effectiveness of the aromatherapy pouch, the study employs a quantitative method, utilizing a descriptive survey questionnaire to collect user feedback. Sixty participants familiar with high-stress environments or scent-based relaxation tools are selected. While the study does not observe participants during active episodes of discomfort, it relies on their reflective feedback regarding scent strength, emotional impact, usability, and overall satisfaction. Additionally, the researchers did not further explore the product experimentally. Sustainability remains a guiding principle, ensuring that the aromatherapy pouch is both practical and mindful of environmental impact.

2.2 Research Locale

This study was done at St. Paul University Dumaguete (SPUD), a private Catholic school located in Bantayan, Dumaguete City, Philippines. The school is run by the Sisters of St. Paul of Chartres (SPC) and has been around since October 29, 1904. It started as an elementary school when seven sisters from Vietnam came to the Philippines after being invited by a bishop from Iloilo. Over time, SPUD grew and now offers both basic and college-level education. It is one of approximately 40 SPC schools in the country that aim to instill strong values and encourage students to contribute to their communities. The Basic Education Department was chosen as the research site because it is easily accessible, has a conducive learning environment, and offers a diverse student

body, making it an ideal location to gather helpful information for the study.

2.3 Research Participants

The Sustainable Sensory Relief aromatherapy pouch, which uses scent-infused Orbeez enclosed in recycled paper bags with natural lemon and rosemary aromas, is designed to enhance relaxation and sensory comfort for individuals seeking a natural method to improve their overall well-being. Participants in this study will be selected based on their self-identified interest in experiencing sensory-based relief through aromatherapy pouches. Ensuring a diverse range of perspectives, approximately 60 individuals between the ages of 16 and 50 participated. Feedback was gathered through a survey questionnaire, focusing on the usability, durability, and effectiveness of the infused orbeez aromatherapy pouch. Ethical standards were maintained throughout the process, with informed consent obtained from all participants. Privacy and confidentiality were observed and respected throughout the study. Participation was entirely voluntary, and individuals had the option to withdraw from the study at any point without any negative consequences.

2.4 Research Instrument

To measure the usability, durability, and effectiveness of the aromatherapy pouch, the researchers developed a survey questionnaire. It utilized a five-point Likert scale, where participants rated their level of agreement from "Strongly Disagree" to "Strongly Agree." The survey was designed based on participants' past experiences with sensory-based relief aromatherapy pouches, as these experiences could not be tested in real-time. The questionnaire included sections on user experience, scent strength, calming effects, and the design of the aromatherapy pouch.

The infused Orbeez were prepared using natural lemon and rosemary scents. The scents were extracted by soaking lemon peels and crushed rosemary leaves in rubbing alcohol for seven days. After fermentation, the mixture was strained and blended with distilled water and castor oil to help the scent last longer. The prepared oils were then used to soak the Orbeez. Once the beads absorbed the scents, they were placed inside a small ziplock bag, which was then placed in a biodegradable paper bag. This setup allowed the aroma to be released when the bag was squeezed or shaken.

Before launching the survey, a dry run was conducted with a different group of individuals to ensure the clarity and reliability of the survey. The feedback from this test group helped refine the questions. The reliability of the survey was measured using Cronbach's Alpha. All categories—usability, durability, and effectiveness—had values higher than 0.70, which indicated that the items were consistent and dependable.

Feedback was gathered from 60 individuals selected for their prior experience using sensory-based relief aromatherapy pouches. Their responses were analyzed using descriptive statistics, including mean, standard deviation, and percentage. This analysis helped evaluate the practicality, effectiveness, and sustainability of the aromatherapy pouch based on user perception.

2.5 Data Gathering Procedure

The data collection process began after the research aromatherapy pouches were approved and validated by a group of experts. Prior to gathering any responses, the researchers ensured informed consent was obtained from all participants to maintain ethical standards. A preliminary test of the survey was carried out to ensure the clarity and understandability of the questions. The feedback received from this test was used to refine the final version of the questionnaire, aligning it with the study's objectives. Participants were selected to participate in the study and were provided with an aromatherapy pouch to observe, smell, and handle in a quiet and comfortable environment. This setting enabled participants to interact with the product as they would in a typical usage scenario. After interacting with the aromatherapy pouch, participants completed a survey that included questions about the product's usability, durability, and effectiveness. The researchers compiled the responses and organized the data for analysis. Descriptive statistics, including mean and standard deviation, were used to examine the results.

2.6 Data Analysis Procedure

After collecting all responses, the researchers reviewed the data for completeness and accuracy. The information

was then organized and encoded using a data analysis aromatherapy pouch for easier evaluation. Descriptive statistics were employed to assess the results, including the mean to gauge the overall agreement with each statement. The standard deviation was also calculated to measure the consistency of responses. A low standard deviation indicated that participants gave similar answers, while a higher value suggested more varied opinions. A Likert scale was used to quantify responses, with values ranging from 1 (Strongly Disagree) to 5 (Strongly Agree), allowing for a numerical representation of participant opinions. The results were categorized into key areas, including usability, durability, and effectiveness, which were analyzed separately. The findings were then interpreted to address the research questions and form conclusions based on the collected data.

2.7 Ethical Considerations

All participants involved in the study were informed about the purpose, procedures, and nature of the aromatherapy pouch being tested. Prior to participation, informed consent was obtained to ensure that individuals voluntarily agreed to participate in the evaluation. Participants were assured that their involvement was voluntary and that they could withdraw at any time without any consequences. To protect privacy, all responses and personal information were kept confidential and were used solely for this research. No identifying details were disclosed in the analysis or reporting of the results.

3.0 Results and Discussion

3.1 Usability of the Orbeez Infused with Rosemary and Lemon

In terms of usability, the aromatherapy pouch was rated as "Highly Usable", with respondents finding the scent pleasant and calming ($\bar{x}$ = 4.08), the packaging easy to carry and store ($\bar{x}$ = 4.45), and the aromatherapy pouch intuitive and user-friendly ($\bar{x}$ = 4.32). The composite mean of 4.12 and a standard deviation of 0.17 indicated consistent and generally positive feedback.

Table 1. *Usability of the scent-infused Orbeez aromatherapy pouch*

	Indicators	Mean	Interpretation
1	The scent of the infused Orbeez (lemon and rosemary) is pleasant and calming.	4.08	Agree
2	The aroma is not too overpowering or irritating.	3.97	Agree
3	The product is easy to carry and store.	4.45	Strongly Agree
4	The packaging (paper bag) is practical and convenient to use.	4.08	Agree
5	The scent is released easily upon shaking or squeezing the bag.	3.97	Agree
6	The design and material of the product make it easy to use.	4.07	Agree
7	I find the product's overall concept intuitive and user-friendly.	4.32	Strongly Agree
	Composite Mean	**4.12**	**Agree**
	Standard Deviation	**0.17**	

Note: 4.21 – 5.00 (Strongly Agree, SA), 3.41 - 4.20 (Agree, A), 2.61 – 3.40 (Neutral, N), 1.81 – 2.00 (Disagree, D), 1.00 – 1.80 (Strongly Disagree, SD)

Table 1 provides a detailed examination of how users perceive the usability of the infused Orbeez product. Overall, the feedback leans strongly positive, with participants appreciating several key aspects of the experience. The calming scent of lemon and rosemary was a highlight ($\bar{x}$ = 4.08), with users noting that the aroma was gentle and not overpowering ($\bar{x}$ = 3.97), making it pleasant for regular use. Portability and storage were other big wins, with many finding the product convenient to carry around ($\bar{x}$ = 4.45). The packaging, made from a simple paper bag, was seen as both practical and easy to use ($\bar{x}$ = 4.08). Additionally, the scent was found to be effectively released when the bag was shaken or squeezed ($\bar{x}$ = 3.97), adding to its functionality. Users also appreciated the product's thoughtful design and materials, which made it feel easy to handle and use, especially in moments where comfort is needed ($\bar{x}$ = 4.07). The overall concept resonated with people as well, with many describing it as user-friendly and intuitive ($\bar{x}$ = 4.32). With a composite mean of 4.12 and a low standard deviation of 0.17, it is clear that feedback was not only positive but also consistent across the board. This suggests the product reliably delivers a satisfying and easy-to-use experience.

According to Caballero-Gallardo, Quintero-Rincón, and Olivero-Verbel (2025), natural plant-based scents, such as lemon and rosemary, are not only pleasant but also have a significant impact on both mental and physical health. Their research highlights that essential oils contain bioactive compounds that interact with the body through the olfactory system, which is closely linked to the brain's emotional and stress-regulating centers. This connection helps explain why certain aromas can induce calming effects, promoting relaxation and emotional balance. According to Aćimović (2021), when thoughtfully integrated into products designed for comfort, these natural scents contribute to a positive and consistent user experience that supports overall well-being.

3.2 Durability of the Orbeez Infused with Rosemary and Lemon

Table 2 reflects how users perceived the durability and longevity of the infused Orbeez product. Overall, the responses were generally positive, though with more variation compared to other aspects of the product. Participants reported that the scent remained effective over time ($\bar{x}$ = 3.82) and that the Orbeez maintained their texture well without breaking down easily ($\bar{x}$ = 4.03).

Table 2. *Durability of the scent-infused Orbeez aromatherapy pouch*

	Indicators	Mean	Interpretation
1	The scent of the Orbeez remains effective over time.	3.82	Agree
2	The paper bag is strong enough to prevent leakage or tearing.	2.63	Neutral
3	The Orbeez maintain their texture and do not break down easily.	4.03	Agree
4	The product remains functional after multiple uses.	4.07	Agree
5	The material used for the bag and Orbeez feels durable and sustainable.	3.92	Agree
6	The product withstands normal handling without significant wear and tear.	3.85	Agree
	Composite Mean	**3.72**	**Agree**
	Standard Deviation	**0.45**	

Note: 4.21 – 5.00 (Strongly Agree, SA), 3.41 - 4.20 (Agree, A), 2.61 – 3.40 (Neutral, N), 1.81 – 2.00 (Disagree, D), 1.00 – 1.80 (Strongly Disagree, SD)

The product was also reported to stay functional even after repeated use ($\bar{x}$ = 4.07), and the materials used were described as feeling durable and sustainable ($\bar{x}$ = 3.92). However, one area that stood out for improvement was the paper bag's strength, as some users expressed concerns about leakage or tearing ($\bar{x}$ = 2.63). While most found the product could withstand normal handling ($\bar{x}$ = 3.85), this suggests that enhancements to the packaging might improve overall user confidence. With a composite mean of 3.72, the feedback still indicates general satisfaction with the product's durability. The standard deviation of 0.45 indicates a moderate range of opinions, likely due to varying user expectations or usage scenarios. This means while most users had a favorable view, a few had differing experiences, particularly with the packaging.

According to Rodriguez and Kross (2023), sensory products that maintain both functional and emotional impact over time are more likely to foster long-term user trust and loyalty. Materials that feel durable and perform consistently enhance the perception of reliability, which is especially important for items used in comfort or self-care routines. This insight lays a strong foundation for product development, with opportunities to refine elements such as packaging for an enhanced user experience.

Based on the data in Table 2, consumer perceptions of the packaging's durability and sustainability were mixed. The strength of the packaging, in terms of preventing leakage or tearing, received a neutral rating ($\bar{x}$ = 2.63). This suggests that while the packaging provides some degree of protection, concerns remain regarding its overall durability. Similarly, the product's ability to withstand normal handling without significant wear and tear also received a neutral rating ($\bar{x}$ = 3.85), indicating that some users may have experienced minor durability issues. However, respondents generally agreed that the materials used for both the packaging and product components were durable and sustainable ($\bar{x}$ = 3.92), suggesting that, despite concerns about the packaging's strength, its sustainability is well appreciated. Overall, while the packaging is seen as somewhat durable and sustainable, the feedback suggests that improvements in its strength and resistance to wear would enhance its reliability for long-term use. The perceptions of packaging durability and sustainability are similar to the current challenges faced with eco-friendly bags. According to Ambrose (2020), while eco-friendly bags are being promoted as an alternative to plastic bags, they present mixed environmental benefits. On one hand, these bags are made from environmentally friendly raw materials and align with efforts to reduce plastic waste. However, similar to the neutral ratings for packaging durability, eco-friendly bags also face concerns about their effectiveness and overall environmental impact.

3.3. Effectiveness of the Orbeez Infused with Rosemary and Lemon

Table 3 highlights participants' perceptions of the infused aromatherapy pouch's effectiveness in providing emotional and physical relief. Overall, users provided favorable feedback, particularly regarding how the product helped them manage symptoms of stress, anxiety, and mild nausea.

Table 3. *Effectiveness of the infused Orbeez aromatherapy pouch in alleviating nausea, anxiety, and stress*

Indicators	Mean	Interpretation

1	The scent of the product helps relieve feelings of nausea.	3.42	Agree
2	The aroma provides a calming effect during moments of anxiety or panic.	4.15	Agree
3	Using the aromatherapy pouch makes me feel more at ease in stressful situations.	3.93	Agree
4	The aromatherapy pouch is effective in providing quick relief when needed.	3.99	Agree
5	The combination of lemon and rosemary scents enhances relaxation.	4.58	Strongly Agree
6	I would use this product as an alternative to medicinal remedies.	3.95	Agree
7	I would recommend this product to others for relaxation.	4.08	Agree
	Composite Mean	**4.02**	**Agree**
	Standard Deviation	**0.32**	

Note: 4.21 – 5.00 (Strongly Agree, SA), 3.41 - 4.20 (Agree, A), 2.61 – 3.40 (Neutral, N), 1.81 – 2.00 (Disagree, D), 1.00 – 1.80 (Strongly Disagree, SD)

The scent was described as beneficial in easing feelings of nausea ($\bar{x}$ = 3.42), and many participants noted a calming effect during anxious or panicked moments ($\bar{x}$ = 4.15). The aromatherapy pouch appeared to provide a sense of ease in stressful situations ($\bar{x}$ = 3.93), and users reported that it worked quickly when relief was needed ($\bar{x}$ = 3.99). The combination of lemon and rosemary scents stood out, with participants reporting that the blend enhanced their sense of relaxation ($\bar{x}$ = 4.58). Additionally, some participants expressed a willingness to use it as a natural alternative to medication ($\bar{x}$ = 3.95), and many indicated that they would recommend the aromatherapy pouch to others seeking a simple relaxation aid ($\bar{x}$ = 4.08). With a composite mean of 4.02, the data suggests a strong overall positive response. The standard deviation of 0.32 reflects a fairly consistent experience across users, showing that the aromatherapy pouch is generally effective and well-received for its intended calming and therapeutic purposes.

In a study by Enwright et al. (2023), test anxiety—an affliction known to impair cognitive performance and academic success—was found to affect students significantly. To address this, aromatherapy using a blend of rosemary and lavender essential oils in nasal inhalers was explored as a potential intervention. The results indicated that aromatherapy could help reduce anxiety, providing a calming and therapeutic effect during high-stress situations. This aligns with the present study's findings, which indicate that the lemon and rosemary-scented infused aromatherapy pouch helped users manage anxiety and stress, as reflected in the data from Table 3 ($\bar{x}$ = 4.15).

The effectiveness of both lemon and rosemary scents can be attributed to their unique aromatic and therapeutic properties, as discussed by Jana and Pradhan (2024) and Enwright et al. (2023). Lemon is widely recognized for its refreshing and uplifting aroma, which helps reduce feelings of discomfort and dizziness. Supporting this, Amzajerdi et al. (2019) found that certain aromas significantly alleviated nausea, vomiting, and anxiety, highlighting how scents can ease physical discomfort through olfactory pathways. Lemon also has calming effects that contribute to reducing stress and anxiety. Rosemary, meanwhile, is valued for its soothing and grounding qualities, which support relaxation and help lower anxiety levels. In addition to its calming properties, rosemary is known for its mildly stimulating effects that can enhance mental clarity and emotional balance. Through hands-on observation and testing, researchers found that the combined scent of lemon and rosemary typically lasts around two weeks before fading. However, the study did not investigate the scent's longevity in detail, leaving an opportunity for future research to explore this aspect further.

According to Ghasemzadeh and Hosseinzadeh (2020), rosemary (Rosmarinus officinalis L.), an evergreen shrub native to the Mediterranean and sub-Himalayan regions, has significant therapeutic potential for treating nervous system disorders. Traditionally, rosemary has been used in folk medicine for various purposes, including the treatment of headaches, migraines, insomnia, emotional distress, and depression. In addition, according to Sulistyowati (2021), lemon aromatherapy contains compounds such as limonene, geranyl acetate, nerol, and linalyl acetate, which possess antidepressant, antiseptic, and antispasmodic properties. These compounds may help relieve anxiety, stress, and fatigue. This is related to the findings of Nyumirah and Krishna (2025), who investigated the effectiveness of natural herb aromatherapy in improving mood and reducing discomfort.

4.0 Conclusion

The findings confirm that the infused Orbeez aromatherapy pouch, featuring lemon and rosemary scents, is a practical, user-friendly, and durable aromatherapy pouch for managing discomfort, anxiety, and stress. Participants consistently praised its pleasant aroma, practical design, and ease of use, highlighting its strong

usability and therapeutic benefits. While the aromatherapy pouch's durability was generally affirmed, there were some minor concerns about the packaging's strength, suggesting room for improvement in this area. Overall, the aromatherapy pouch was well-received as a non-invasive, sensory-based alternative to medicinal remedies, with many users expressing a willingness to continue using it and recommending it to others. These results emphasize the aromatherapy pouch's potential as a practical and accessible wellness aid, offering an innovative solution for individuals seeking relief from discomfort, anxiety, and stress.

5.0 Contribution of Authors

The authors confirm their equal contribution to every stage of this research. Each author has reviewed and approved the final version of the paper.

6.0 Funding

This research did not receive funding from any funding agency.

7.0 Conflict of Interest

This study has no conflict of interest of any sort.

8.0 Acknowledgment

We would like to extend our appreciation to the individuals who contributed wholeheartedly to the research process.

9.0 References

Aćimović, M. (2021). Essential oils: Inhalation aromatherapy – A comprehensive review. Journal of Agronomy, Technology and Engineering Management, 4(2), 547–557. https://tinyurl.com/3ytdexfr

Ambrose, D. C. (2020). Biodegradable Packaging – an Eco-Friendly Approach. Current Agriculture Research Journal, 8(1), 04–06. https://doi.org/10.12944/carj.8.1.02

Amzajerdi, A., Keshavarz, M., Montazeri, A., & Bekhradi, R. (2019). Effect of mint aroma on nausea, vomiting, and anxiety in pregnant women. Family Medicine and Primary Care. https://doi.org/10.4103/jfmpc.jfmpc_480_19

Barbaynnis, G., Bandari, M., Zheng, X., Baquerizo, H., Pecor, K. W., & Ming, X. (2022). Academic stress and mental well-being in college students: Correlations, affected groups, and COVID-19. Front. Psychol. 13:886344. https://doi.org/10.3389/fpsyg.2022.886344

Caballero-Gallardo, K., Quintero-Rincón, P., & Olivero-Verbel, J. (2025). Aromatherapy and essential oils: Holistic strategies in complementary and alternative medicine for integral wellbeing. Plants, 14(3), 400. https://doi.org/10.3390/plants14030400

Dilrukshi, C.E.A., Nishiyama, Y., & Nomura, S. (2024). Alleviation of acute stress response by black pepper aroma administration. Journal of Physiological Anthropology. https://doi.org/10.1186/s40101-023-00352-1

Enwright, P., Blank, S., Wells, B. M., Nightingale, L. M., & Torgerud, S. (2023). Effect of lavender and rosemary aromatherapy on test anxiety in chiropractic students. Journal of Chiropractic Education, 37(1), 26–32. https://doi.org/10.7899/JCE-21-44

Ghasemzadeh Rahbardar, M., & Hosseinzadeh, H. (2020). Therapeutic effects of rosemary (Rosmarinus officinalis L.) and its active constituents on nervous system disorders. Iranian Journal of Basic Medical Sciences, 23(9), 1100–1112. https://doi.org/10.22038/ijbms.2020.45269.10541

He, S., Zeng, H., Xue, M., Huang, G., Yao, C., & Ying, F. (2024). Affective stroking: Design Thermal Mid-Air Tactile for assisting people in stress regulation. Applied Sciences, 14(20), 9494. https://doi.org/10.3390/app14209494

Hoxha, V., Bombaj, F., & Shehu, M. (2025). Threats and opportunities for sustainable development goals of aromatic and medicinal plants: A comparative analysis. Journal of Lifestyle and SDGs Review, 5(1), e04151. https://doi.org/10.47172/2965-730x.sdgsreview.v5.n01.pe04151

Jana, P., & Pradhan, A. S. (2024). Medicinal and health benefits of lemon. Journal of Science & Technology, 6(1), 16–20. https://doi.org/10.46243/jst.2020.v6.i1.pp16-20

Nyumirah, S., & Krishna, L. F. P. (2025). Effectiveness of administering lavender aromatherapy with reducing anxiety levels: Literature review. Jurnal SMART Keperawatan, 12(1). https://doi.org/10.34310/m74wrs86

Ozen, N., Berse, S., & Tosun, B. (2023). Effects of using a stress ball on anxiety and depression in patients undergoing hemodialysis: A prospective, balanced, single-blind, crossover study. Hemodialysis International, 27(4), 411-418. https://doi.org/10.1111/hdi.13102

Rodriguez, M., & Kross, E. (2023). Sensory emotion regulation. Trends in Cognitive Sciences, 26(8), 623–635. https://doi.org/10.1016/j.tics.2023.01.008

Różycka-Tran, J., Truong, K. H. T., Bochniarz, K. T., Radoń, S., & Tran, Q. A. (2025). Zen meditation and aromatherapy as a core to mental health: Studies in Vietnamese Monasteries. Religions, 16(4), 497. https://doi.org/10.3390/rel16040497

Rugulies, R., Aust, B., Greiner, B. A., Arensman, E., Kawakami, N., LaMontagne, A. D., & Madsen, I. E. H. (2023). Work-related causes of mental health conditions and interventions for their improvement in workplaces. The Lancet, 402(10410), 1364–1376. https://doi.org/10.1016/S0140-6736(23)00869-3

Sulistyowati, R. (2021). Literature Review: The effect of lemon aromatherapy on Emesis Gravidarum. Eduvest - Journal of Universal Studies, 1(9), 931–942. https://doi.org/10.59188/eduvest.v1i9.74

Weinmann, T., Wibowo, R., Forster, F., Gerlich, J., Wengenroth, L., Weinmayr, G., Genuneit, J., Nowak, D., Vogelberg, C., Radon, K., & Herbig, B. (2025). Association of chronic stress during studies with depressive symptoms 10 years later. Scientific Reports, 15(2379). https://doi.org/10.1038/s41598-025-85311-9

Weston-Green K, Clunas H., & Jimenez N., C. (2021). A review of the potential use of pinene and linalool as terpene-based medicines for brain health: Discovering novel therapeutics in the flavours and fragrances of cannabis. Front. Psychiatry 12:583211. https://doi.org/10.3389/fpsyt.2021.583211