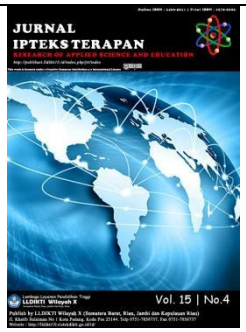

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AROMATHERAPY AS A COMPLEMENT OF COVID-19 THERAPY

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Abstract

Aromatherapy helps COVID-19 patients to prevent, increase immunity, and relieve symptoms of COVID-19 so that it can be used as adjuvant COVID-19 therapy. This study aims to determine the level of public knowledge about aromatherapy that can be used as a complementary therapy for COVID-19 and refute the myth that aromatherapy functions as the primary therapy for COVID-19. This research design is descriptive-analytic, which is carried out in three stages, namely pre-test, presentation of material, and post-test. The pre-test was given together before the presentation of the material. The first material introduces aromatherapy, its benefits and refutes the myth circulating in the community, namely aromatherapy as the primary therapy for COVID-19. The last stage is to give a post-test after delivering the material. The participants for this service are 52 people, carried out online through the zoom application. This activity demonstrated an increase in participants' knowledge about the use of aromatherapy as a complement to COVID-19 therapy.

Keywords: *Aromatherapy, Covid-19, complementary therapy*

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INTRODUCTION

The covid-19 pandemic has lasted more than a year. The first cases in Indonesia were found in February 2020, and currently, Indonesia has 45,203 active daily cases with the highest spread of 24.6% in the DKI Jakarta area. The highest cases occurred on July 15, 2021, with as many as 54,517 cases [1]. Covid-19 management consists of antivirals, Anti-SARS-Cov-2 antibodies, immunomodulators, anti-thrombosis, and supplementation. Proven supplementation is vitamin C, D, and zinc. Another therapy given to people with covid-19 is aromatherapy [2].

Aromatherapy or Essential oil (EO) is a steam distilled plant extract containing volatile terpenoid and phenylpropanoid compounds weighing less than 300 Dalton molecules. The mechanism of action of aromatherapy is anti-inflammatory and antimicrobial. Prall et al., 2020 stated that aromatherapy has an in-vitro antiviral activity for some virus species but not for the SARS-Cov-2 virus (COVID-19) [3].

Aromatherapy helps improve upper respiratory tract symptoms due to COVID-19, so aromatherapy can be used as a complementary therapy. In addition, various essential oils have been studied for the treatment of respiratory disease symptoms. [4]. Its effects on respiratory function and symptoms have been reported in several clinical studies. [5]. One example of essential oils is essential oils, two of the most studied components, eucalyptol and menthol. Eucalyptol is a cyclic ether and monoterpene (1,8-cineole) and naturally appears as a colorless liquid with aromatic properties [6]. Menthol is a chemical compound with 2-isopropyl-5-tilcyclohexanol, in the form of solid crystals, smelling peppermint. Menthol serves as a pain reduction and interacts with Thermoreceptors Transient Receptor Potential (TRP). Menthol cannot be given to COVID-19 patients due to misperceptions about respiratory disorders. One example of essential oils is essential oils, two of the most studied components, eucalyptol and menthol. Eucalyptol is a cyclic ether and monoterpene (1,8-cineole) and naturally appears as a colorless liquid with aromatic properties [2].

The majority of COVID-19 patients are patients with mild to moderate symptoms of the disease. The most common clinical symptom in mild to moderate patients is the symptoms of the respiratory tract. Aromatherapy has a role in bronchial and mucolytic dilation, so breathing is more relieved, and sputum is easier to cough. Overclaim-induced aromatherapy abuse and advertising cause aromatherapy to be considered the main therapy of COVID-19. Aromatherapy treatment leads to the formation of dangerous paradigms and justifications. The ad overclaimed unproven, prompting many to take do-it-yourself care. These concerns have been publicly expressed by regulatory authorities such as the American Food and Drug Administration and the Federal Trade Commission (FDA) [7]. Community service to the correct use of aromatherapy is indispensable for debunking the myth of aromatherapy. [8].

Smartphone usage in Indonesia amounted to 98.2%, with internet usage of 73.7% of the total population with social media activity of 61.8%. The most significant social media users are youtube, WhatsApp, Instagram, Facebook, and Twitter applications. Video streaming applications are also in demand, with the WhatsApp platform being the most extended duration platform, at 30.8 hours

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per week. The TikTok application, counted as a new application, has the fourth-longest duration, 13.8 hours per month. 94% of women aged 15 years and overuse social media, while men use social media as much as 92%. The age range for using social media the most for both men and women is 20-29 years. The education level of most social media users is at the diploma/strata level as much as 97.55%. Students who participate in this community service program are students with a health education background, with an age range of 20-23 years. After being given knowledge about the use of aromatherapy, students are expected to disseminate correct information through social media[9].

The purpose of this study was appointed based on the description above. The researcher wanted to know the extent to which the public knew about aromatherapy and provide information on complementary therapy, namely aromatherapy as a complementary therapy for the primary therapy for Covid 19, and provide an explanation of which information is factual and which information is factual. HOAX is circulating in the community, so that people get correct and reliable information based on the evidence base.

RESEARCH METHODS

The researchmethod is a questionnaire by conducting pre and post-test. Researchers selected samples according to inclusion criteria: students with health backgrounds aged 20-21 years, active in social media, and willing to disseminate information received during service. Students who are not present in the zoom from the beginning to the end of the service activity are included in the exclusion criteria, including some 52 students in the sample group. The research activity hypothesizes that providing knowledge of aromatherapy as a complement to online COVID-19 therapy can increase the knowledge of participants. The method used is adapted to the conditions of the COVID-19 pandemic, namely lectures and online discussions. Online activities are carried out through the Zoom meeting platform, filling out google forms and WhatsApp groups.

The research activities are divided into three stages: the preparation stage, the implementation stage, and the evaluation stage. The preparation stage begins by providing a google form link. The Google Form distributed to participants contains pre-test questions to participants and is filled in simultaneously as filling in 5 minutes. After collecting, the reflection activities proceed to the second stage, the implementation stage. The implementation phase is carried out in the presentation of materials and discussions. The two-way discussion contains questions and answers and explanations of the questions in the pre-test.

The last stage is the evaluation stage. the implementation of the evaluation stage is almost the same as the preparation stage. Participants returned to answer questions on the google form using the same questions. The charging time at the evaluation stage is 5 minutes. The evaluation stage aims to see the level of participants' understanding of the material that has been displayed during the implementation stage.

The questionnaire given to participants contained four questions about

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aromatherapy knowledge. The aromatherapy knowledge tested was the definition of aromatherapy, the benefits of aromatherapy, the use of aromatherapy during a pandemic, and the perception of aromatherapy as a Covid-19 therapy. The results of participants' knowledge about aromatherapy as a COVID-19 therapy were associated with the latest theories and journals so that misperceptions circulated in the community. It can be reset. The assessment of the questionnaire used an ordinal scale. That is, the answer is yes or no. The highest knowledge score was 100, and the lowest was 0. It assessed the increase in knowledge with a positive difference between the post-test and pre-test results. A positive difference means that the post-test result is higher than the pre-test. The assessment is carried out on the total points obtained by the participants.

Before giving the material, participants know that the aromatherapy material provided comes from participants' perceptions, information, and knowledge. After being given the aromatherapy material, participants learned about the aromatherapy material provided from journals and scientific articles provided by resource persons who have competence in aromatherapy. The results of increasing aromatherapy knowledge in students were analyzed using data normality and continued with paired t-test if the data distribution was normal or Wilcoxon test if the data distribution was not as expected.

RESULTS AND DISCUSSION

The pre-test and post-test questions consist of four questions. Pre-test and post-test questions are the same. The first question is to question knowledge about aromatherapy. The second question is the use of aromatherapy as therapy. Then the third question is knowledge about the use of eucalyptus oil as a COVID-19 therapy. The final question is knowledge about aromatherapy as a complementary therapy for COVID-19.

The first pre-test and post-test questions can be seen in Figure 1. Before delivering the material, only 62% knew about aromatherapy. After delivering the material, there was an increase of 34% of students who knew about aromatherapy.

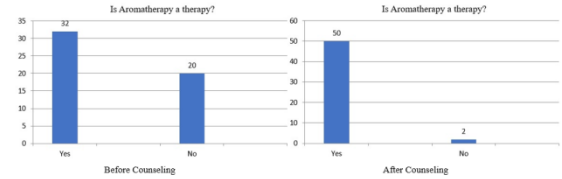

Figure 1. The Knowledge of Aromatherapy

Aromatherapy comes from the word aroma, which means smell. Smell here means a fragrant, pleasant smell and has a calming effect. Therapy comes from the word giving treatment to someone to treat and nourish the body. Aromatherapy is more broadly defined as a therapy that uses aroma as a therapy that nourishes the body, mind, and soul [10], [11].

EO has three functions in plants: forming the pollination process, helping the pollination process, and serving as a food reserve. In general, EO consists of various chemical compounds with the elements Carbon (C), Hydrogen (H), Oxygen (O), Nitrogen (N), and Balerang (S). EO has the formula for the cyclic ether compound 1,8-cineol, with the empirical formula C10H18O and the systematic name 1,3,3-

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trimethyl-2-oxabicyclo [2.2.2] octane. The commercial name of EO is eucalyptol[11]. Various plants contain 1,8-cineol compounds in EO, namely families Annonaceae, Apiaceae, Asteraceae, Burseraceae, Euphorbiaceae, Lamiaceae, Lauraceae, Myrtaceae, Scisandraceae, Verbenaceae, Zingiberaceae. The highest EO content was found in the Lamiaceae family. The EOs that are widely known by the public are eucalyptus oil and eucalyptus oil. The main compound of EO will be strengthened by other compounds that make up the plant. The quality of EO is also influenced by where it is grown, climate, and the method of EO extraction used. [12].

Aromatherapy has been around for thousands of years. Aromatherapy is used as a cure for the disease and an ingredient to improve the quality of life. The use of aromatherapy began to increase sharply since the 21st century. Various studies on the use and manufacture of aromatherapy are growing until now [10].

EO user does not mind the smell, inhale the EO for 2 minutes. Prospective users must inhale three deep breaths after smelling EO. Every day EO is provided with a variety of different mixes. For one month before bedtime, the use of fragrances other than EO is not allowed. Other ingredients that cannot be given are stimulant ingredients such as caffeine, sleeping pills, and alcohol. The use of EO must be kept out of reach of children. EO is given before bed for a month. Daily administration is recorded and followed up for one month. [13].

Muz and Tasci, 2017 provides a guide to the manufacture and use of Aromatherapy. The first step is to provide information on how to make an EO and informed consent. Then, give a few drops of EO on gauze, place 5 cm under the nose until EO can be smelled. Dropping can use other ways, such as the use of a diffuser. If a potential EO user does not like the smell, stop giving EO if the potential Aromatherapy uses essential oils. Aromatherapy or EO comes from various parts of plants, such as flowers, leaves, seeds, roots, and parts of the woody body of plants. EO is contained in epidermal cells, secretory cells, and trichome glands. EO is a by-product of plant metabolism, also known as secondary metabolism. At this time, the use of EO has been widespread, like cosmetics, perfumes, home industry materials, pharmaceuticals, and food ingredients. EO is also mixed into various products to increase the fragrance and efficacy of the product. [11].

EO user does not like the smell, stop giving EO if the potential Aromatherapy uses essential oils. The main compounds that makeup EO from the distillate are terpenoids and phenylpropanoids. Both of these substances have potent antioxidant activity and function as anti-bacterial, anti-fungal, and anti-viral. In addition, EO has been used in the regenerative medicine field, namely for treating degenerative diseases, such as cardiovascular aging, neurodegenerative diseases, and cancer. [11]. The use of EO varies, ranging from inhaled, smeared, burned, and evaporated or distillation. The various uses of EO make it easier for students to obtain information about EO, even though they do not know the benefits of EO. With the implementation of this service, almost 100% of the participating students have

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understood the meaning of aromatherapy or EO.

The second question is discussing the use of aromatherapy that can be used as therapy. During the pre-test, 50% of students answered that aromatherapy could be used as therapy, but 50% of students answered that aromatherapy could not be used as therapy. At the post-test, there was an increase in knowledge of 44%, where only 4% of students could not answer that aromatherapy could be used as therapy. The results of the second question can be seen in Figure 2.

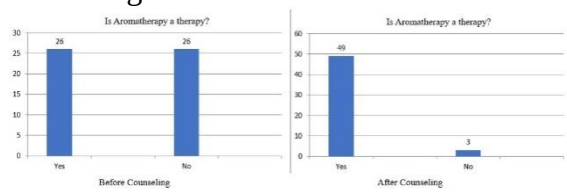

Figure 2. The Knowledge of Aromatherapy as Therapy.

Based on the use of aromatherapy, aromatherapy is divided into five classifications. The first classification is cosmetic aromatherapy. Aromatherapy is used in cosmetic products as a moisturizer, cleanser, tonic, anti-aging, and revitalizing skin. EO is found in soaps, facial washes, skin oils in cosmetics, hair, face, nails, and body skin. The second classification is aromatherapy massage. Aromatherapy massage serves to facilitate the body's blood flow. The third classification of aromatherapy is medical aromatherapy. Medical aromatherapy is aromatherapy that provides prevention and treatment effects against disease. The fourth classification of aromatherapy is olfactory aromatherapy. Olfactory aromatherapy means aromatherapy that is inhaled through the respiratory tract. Aromatherapy smell is helpful for emotional improvement, relaxation, and rejuvenation of body cells. The last classification of aromatherapy is psycho-aromatherapy. Psycho-aromatherapy improves mood and relaxation, as well as refreshment, and gives a sensation of Happiness. Psycho-aromatherapy in the form of natural EO [10].

The benefits of EO in terms of pharmacology include antiviral, antibacterial, antioxidant, anti-diabetic, chemopreventive, and cancer suppression. EO as an antiviral work by increasing the activity of liposomes, inhibiting viral replication, and preventing the spread of viruses between cells, especially in the intracellular herpes simplex virus type 1 (HSV-1). EO as an antibacterial work against strains of pathogenic bacteria such as Listeria monocytogen, L. innocua, Salmonella typhimurium. EO has a bactericidal effect more than the bacteriostatic effect on vegetative cells so that bacteria die more quickly and do not affect the normal bacterial flora on the skin and mucosa. EO can be used as a mouthwash because it will not disturb the normal flora in the mouth. EO can also be used as an antibacterial in the respiratory tract without disturbing the normal flora of the respiratory system. EO, as an antioxidant, works to maintain the balance of the body from oxidative stress. Oxidative stress occurs when there are too many free radicals in the body or too few antioxidants so that antioxidants cannot bind free radicals and neutralize them. EOs that function as antioxidants are found in basil, cinnamon, cloves, oregano, nutmeg, and thyme. EO has the effect of increasing insulin sensitivity in patients with type 2 diabetes. EO will reduce fasting blood glucose levels, reduce triglycerides and cholesterol and activate the enzymes lactate dehydrogenase (LDH), Glutamic

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Pyruvic Trans-aminase (GPT), and Glutamic Oxaloasetic Trans-Aminase (GOT). And Alkaline Phosphatase (AFP) in blood serum. The last role of EO is to play a role in the anti-tumor activity and prevent cancer development. EO also induces glutathione-S-transferase class (GSTP)[10], [12].

Essential oils are complex mixtures of volatile and odorous organic compounds. There are many articles published highlighting the antimicrobial action of various essential oils from different parts of the world. Published literature shows that essential oils have a broad spectrum of antibacterial, antifungal, and even antiviral activity. Essential oils have also been shown to inhibit the growth of drug-resistant strains of microbes that are difficult to even treat with conventional antibiotics. Regarding its mode of action, in fungal pathogens, essential oils form a membrane potential across the cell wall and interfere with ATP assembly, leading to cell wall damage. Essential oils can also destroy mitochondrial membranes that interfere with the electron transport system (ETS) pathway. In pathogenic bacteria, essential oils primarily disrupt cellular architecture, impairing membrane integrity, and interfere with many cellular activities, including energy production and membrane transport. The rupture of membranes caused by essential oils can cause leakage of cellular components and loss of ions. Some essential oils have antiviral activity against many RNA and DNA viruses, such as herpes simplex virus type 1 and type 2 (HSV-1 and HSV-2), dengue virus type 2, influenza virus adenovirus type 3, poliovirus, Junin virus, and coxsackievirus B1 [12].

In the community, aromatherapy products have been widely circulated, although products with brand value are cosmetic aromatherapy products. Other functional aromatherapy products are not widely known for their therapeutic benefits—this is why only 50% of pretest students know about aromatherapy as a therapy. However, after giving the material, the knowledge of student participants has increased at the end of the implementation. Almost all participants know that aromatherapy is a cosmetic product and can also be useful as therapy.

The next question is knowledge about the use of eucalyptus oil as a COVID-19 therapy. Students participating in community service have wrong knowledge before being given the material. All participants considered eucalyptus oil to be used as a COVID-19 therapy. At the end of the presentation, almost all participants answered that eucalyptus oil is not a COVID-19 therapy. The results of participants' knowledge about eucalyptus oil can be seen in Figure 3.

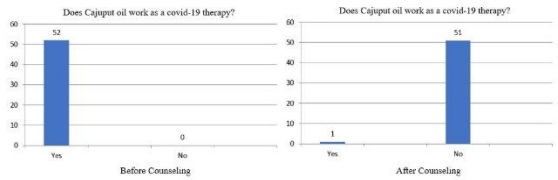

Figure 3. The Knowledge of Cajuput Oil for COVID-19 Therapy

Eucalyptus oil and Cajuput oil are two different compounds. Eucalyptus oil and Cajuput oil come from plants in the same family, namely the Myrtaceae family. Eucalyptus species containing 1,8-cineol compounds are Eucalyptus camaldulensis, Eucalyptus citriodora, Eucalyptus globulus, Eucalyptus globulus Labill, Eucalyptus nicholii, Eucalyptus

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staigeriana, and Eucalyptus tricorns. The highest levels of 1,8-cineol compounds were found in the Eucalyptus globulus by extracting water vapor distillation. Cajuput oil is found in Melaleuca leucadendron, with the highest levels obtained if EO extraction is carried out by the steam distillation method [12]. Eucalyptus species that are often used are Eucalyptus globulus. The composition of Eucalyptus globulus is ± 70% 1,8-cineol. Minor components of EO are -pinene 2-8% and camphor less than 1% [4].

Eucalyptus is a plant native to Australia, which Aboriginal people have long used. Aboriginal tribes eat the roots of Eucalyptus plants because these plant roots contain much water. Another use is that Eucalyptus leaves are made into tea leaves by the Aborigines. The leaves of the Eucalyptus function as a febrifuge. Eucalyptus leaves are known as "Australian Fever Tea"[14], [15].

Treatment using EO Eucalyptus oil has been started since 1778. In 1778, the extraction of EO using the steam detailing technique. EO Eucalyptus is used to treat chest pain and abdominal colic. The development of the use of EO Eucalyptus in the late 1800s was widespread. EO Eucalyptus oil is used to treat respiratory disorders, such as bronchitis, asthma, and coughs. EO Eucalyptus oil is also used in muscle cramps, fatigue, and arthritis. At this time, the use of EO Eucalyptus oil is more focused on improving respiratory disorders, such as shortness of breath, asthma, and cough [15]. Other uses of EO Eucalyptus oil are as an anti-mosquito, anti-acne, relieve nasal congestion, relieve postoperative pain, anti-anxiety, eliminate lice, suppress herpes in the mouth. [15].

EO Eucalyptus oil is more widely known because of several factors such as pleasant and soothing smell, does not leave scars, treats respiratory symptoms, has antibacterial, antiviral, antifungal, and antioxidant effects. The general public popularly uses eucalyptus oil inhalation. The application of EO Eucalyptus oil on the chest area is also known in general, especially in patients suffering from bronchitis. [15].

The function of EO Eucalyptus as an expectorant in upper respiratory tract infections. EO Eucalyptus oil inhibited the induction of Nitric Oxide (NO) synthase mRNA gene expression and NO production from polysaccharides. Another effect is inhibiting pulmonary exacerbations and improving lung function in patients with Chronic Obstructive Pulmonary Disease (COPD). Wang et al., 2017 stated that EO Eucalyptus oil could treat lung pneumonia caused by Klebsiella pneumonia bacteria. Oral administration of EO is effective for pneumonia, bronchiolitis, and pulmonary emphysema [16].

EO Eucalyptus oil for upper respiratory tract infections in inhalation by giving 12 drops of EO in 150 ccs in warm water or with a dose of 1 tablespoon (15 ml) of EO in 1 L of warm water three times a day. Dosage for external use EO Eucalyptus oil 13 ml in 1-liter oil. For use in adults and children, EO is applied three times a day. Application on the face, nose, children, and infants is not allowed. The use of EO in pregnant and lactating women must be under the supervision of a doctor[4].

There are news spread on social media about EO Cajuput oil which is equated with EO Eucalyptus oil. News online daily Kompas.com in July 2021 stated that the celebrity equated Cajuput oil with Eucalyptus oil. This news will be

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read by celebrities' followers and disseminated to friends and relatives. Even celebrities asked for opinions on whether Eucalyptus oil can be drunk after being mixed with water. However, the Eucalyptus referred to by the celebrity is not necessarily EO Eucalyptus oil or EO Cajuput oil. On the news, a doctor who has competence in Internal Medicine stated that there had been no claim of eucalyptus oil efficacious by oral administration. Eucalyptus oil is only recommended for external use [17].

EO Cajuput oil is different from EO Eucalyptus oil. The species of Cajuput oil is Melaleuca Leucadendron Linn. Cajuput oil comes from Southeast Asia and northeastern Australia. Cajuput oil, one of the Indonesian plants, is spread in East Nusa Tenggara, Maluku, Southeast Sulawesi, Bali, and Papua in natural eucalyptus forests. In East Java, Central Java, and West Java in the form of eucalyptus plantation forests. Eucalyptus oil is one type of essential oil, which is widely used for health and pharmaceutical products. [18].

Cajuput oil comes from the leaves and small twigs of the eucalyptus tree. Eucalyptus tree trunks reach 25 meters. The trunk is white and twisted with thick, scaly bark, which originates from the trunk and hangs down. The branching of the eucalyptus tree trunk is irregular. The smell of eucalyptus is similar to the aromatic smell of camphor, rosemary and cardamom [17], [19].

The results of identifying the essential oil components of cajuput oil on fresh leaves using the GC-MS tool contain 32 components. Seven of these components are the main components. The main components were -pinene (1.23%), cineol (26.28%), -terpineol (9.77%), caryophyllene (3.38%), caryophyllene (2.76%), Ledol (2.27%), and elemol (3.14%). After drying, cajuput oil leaves have decreased components to contain 26 components. The main components of dry leaves of cajuput oil still amount to seven components, but most of them have decreased levels, except for cineol, which has increased to 32, 15%. [18].

The quality of Cajuput oil depends on the content of 1,8-cineol. Cajuput oil is of high quality if it has 1,8-cineol content of 65-75%. For example, Cajuput oil Melaleuca leucadendron located on Buru Island has 1.8 cineol levels of 61.69%, and the western part of the island is 70.22%, which means that cajuput oil on Buru Island has high-quality EO levels[20].

Cajuput oil distillation uses the water vapor distillation technique. The distillation process begins after the water in the kettle boils. The leaves are put into the kettle and tightly closed. After 2-3 hours, the resulting water will flow through the chimney. This process is carried out for 12 hours, with two water changes in the kettle. Then the final result is EO and water. Finally, EO is separated from the water. [21].

EO Cajuput oil contains cineol, which functions as a mucolytic, bronchodilator, and anti-inflammatory. The cineol in Cajeput oil provides a warm sensation and relieves pain under the skin but causes irritation. In minimal doses, EO Cajuput oil may be safe to add to food as a fragrance. EO cajeput oil may be safe for undamaged skin, but it can cause allergies[19].

Keedeerach et al., 2020 stated that Cajuput oil from Thailand could be used as a combination therapy for fluconazole-resistant candidiasis cases[22]. Cajuput oil functions as an antifungal for Candida

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albicans resistant to fluconazole[23]. Other studies also state that cajuput oil relieves symptoms of its antiviral effect against Herpes Simplex Type 1, influenza type A, influenza types B and C. Cajuput oil is more significant in influenza type A than influenza types B and C. [24].

Various studies on the efficacy of EO eucalyptus and EO cajuput do not state that the two types of EO do not have efficacy against the COVID-19 virus. EO Eucalyptus and EO cajuput have antibacterial, antifungal, antiviral effects against certain types of viruses. Misperceptions about the effects of EO eucalyptus and EO cajuput occur because of hoaxes spread through social media.

Before the presentation of the material, the community service participants had not been able to distinguish between cajuput oil and eucalyptus oil and the functions of the two types of EO. Participants considered that eucalyptus oil was EO eucalyptus, and eucalyptus oil could be used as a COVID-19 therapy. After giving the material about the difference between eucalyptus oil and eucalyptus oil and the function of the two types of EO. Participants' knowledge increased as evidenced by nearly 100% of community service participants stating that eucalyptus oil cannot be used as a COVID-19 therapy.

The last question from the community service point is aromatherapy as a COVID-19 therapy. The provision of aromatherapy as a COVID-19 therapy is widespread on social media. This news is filtered as previous knowledge of students participating in community service. In the pretest, 100% of community service participants stated that aromatherapy could be used as a COVID-19 therapy. The picture of students' knowledge of aromatherapy as a COVID-19 therapy can be seen in Figure 4.

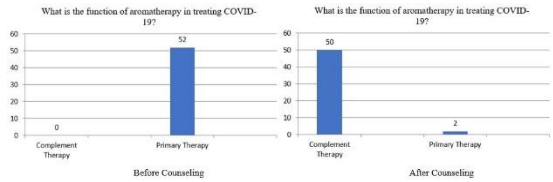

Figure 4. The Knowledge of Aromatherapy as COVID-19 Complement Therapy

The use of aromatherapy as part of complementary therapy for COVID-19 is a complementary therapy. Complementary therapy is a complementary therapy to standard medical treatment, which is a compliment, support, and disease therapy. Primary medical therapy combined with complementary therapy is known as an integrative therapy [25].

Complementary therapies aim to relieve the symptoms of certain diseases. Complementary therapy is not a substitute for surgery, hormonal, and chemotherapy for a disease. The primary therapy is still being carried out, and it is hoped that complementary therapies will relieve clinical symptoms so that patients feel more comfortable and calm during therapy. [25].

Complementary therapies are divided into traditional alternative medicine, touch-based medicine, body techniques, diet and herbal-based medicine, treatment with external energy and body senses, and mind control-based medicine. Traditional medicine therapies include acupuncture, Ayurveda, homeopathy, and naturopathy. Touch-based therapies and body techniques include chiropractic and osteopathy, massage, taichi, and yoga. Dietary and herbal-based medical therapies use

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nutritional settings and herbal ingredients. Treatment of external energy and body senses uses energy utilization and activation of the body's senses, such as reiki, qigong, music, and art therapy. Mind control based treatment is based on hypnosis, biofeedback, and meditation [25].

Aromatherapy or EO therapy is a type of herbal medicine used in various types of complementary therapies. For example, EO is used in Ayurvedic therapy, nutrition, hypnosis, and meditation. EO has a calming effect on the mind, body, and spirit. Therefore, EO is used in various therapies and cases[10].

In the case of COVID-19, EO is a complementary therapy for COVID-19 that plays an important role. EO has been shown to treat many of the symptoms of respiratory disease. Eucalyptol EO can reduce the production of the inflammatory mediators TNF-, Interleukin-6 (IL-6), and Interleukin-8 (IL-8). IL-6 has an essential role in the "cytokine release syndrome," which results in the worsening of the condition of COVID-19 patients [26]. In their research, Dev and Kaur, 2020) stated that eucalyptol EO plays a role in inhibiting the infectious potentization of the SARS-CoV-2 virus by binding to viral proteinases[14].

Another benefit of using EO for symptoms of COVID-19 is to relieve coughs. Eucalyptus citriodora, Eucalyptus globulus, Mentha piperita, Origanum syriacum, and Rosmarinus officinalis EO sprays significantly reduced coughing compared to placebo (Ben-Arye et al., 2011). EO Eucalyptus spp contains 75% menthol. Essential oils reduce the frequency of cough induced in healthy individuals (Morice et al., 1994). When administered orally in formulations including limonene and pinene, Eucalyptol was effective for symptomatic management of chronic sinusitis during the perioperative period in a cohort of 576 cases[27].

Aromatherapy helps improve upper respiratory symptoms in patients with COVID-19. Symptoms that can be improved with EO are cough, nasal congestion, runny nose, and sore throat. In addition, giving EO helps return the sense of smell resulting from anosmia due to the COVID-19 virus. They gave EO through evaporation with hot water or a diffuser, EO encapsulation, ointments, and balsams made from EO. Thus, Eucalyptol EO is perfect for improving the clinical symptoms of the respiratory tract due to COVID-19[2], [28].

Based on its specific composition, EO has a different effect on improving respiratory symptoms. For example, EO, which is an anesthetic, is more effective for dry coug h symptoms. EO with mucolytic effect is better for nasal congestion and catarrhal bronchitis. In addition, EO can improve symptoms of other organs besides the respiratory organs. Non-cajuput EO is beneficial for non-respiratory symptoms of COVID-19 such as nausea, vomiting, dyspepsia, sore throat, anxiety, and headache[2].

EO is also beneficial in post-covid symptoms, namely parosmia. Parosmia is a distortion of smell experienced by post-COVID-19 patients. The patient has an abnormality—analysis of the smell of an object. For example, the smell of coffee that feels like gasoline or cooking that feels like the smell of stale food. Parosmia therapy using EO is very effective in restoring normal olfactory function. Olfactory practice begins with smelling roses, lemons, cloves, and eucalyptus

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twice a day. This exercise takes three months. After three months, the aromatherapy exercise selected new scents, namely thyme, menthol, and Sunkist orange. This exercise also takes three months, and after that, move on to aromatherapy green tea, rosemary, gardenia, and lime[29].

The use of EO as therapy for COVID-19 patients is as a complementary therapy. EO is not the primary therapy for COVID-19. However, the use of EO improves the patient's quality of life and for post-COVID-19 rehabilitation. The EO that can be used for rehabilitation is EO Cajuput Oil[30]. The management of COVID-19 patients remains by the protocols that the Ministry of Health has issued. The use of EO also does not reduce the transmission of COVID-19. Reduction of transmission and virulence of viral infections remains by implementing Health protocols by wearing masks, washing hands, maintaining distance, staying away from crowds, limiting mobility, avoiding eating together, and vaccinating[1].

In this community service program, it was found that the initial knowledge of the service participants had an average less than 50 points. Participants' knowledge after following the material delivered through the online system increased by almost 70 points. The provision of knowledge delivered online significantly increased the knowledge of the participating students with $p < 0.05$. The results of increasing knowledge can be seen in table 1.

Table 1. Knowledge Before and After Counseling

	Mean ±Standar Deviation	Wilcoxon test
Knowledge of participants before service	27,88±18,95	p=0,000
Knowledge of participants after service	96,15±9,11	

Online knowledge sharing has become increasingly popular since the COVID-19 pandemic. Pedagogy system learning has become a trend delivered with asynchronous and synchronous active learning system patterns. Learning preceded by quizzes can determine how much knowledge they have and the suitable method for them. Giving material followed by giving quizzes again can determine whether they can follow the lesson well[31].

In this community service, it can be seen that their knowledge is very lacking on hoax points that are spread in the community. Although some know the definition and function of aromatherapy, the spread of hoaxes has caused them to believe that aromatherapy can be used as the primary therapy for COVID-19. In addition, knowledge about EO cajuput and EO eucalyptus is also very minimal. The minimization of knowledge about Cajuput oil is caused by not distinguishing between EO cajuput and EO eucalyptus. After giving knowledge online, almost 100% of the participants could tell the difference between EO cajuput and EO eucalyptus. Knowledge about aromatherapy as a complementary therapy for COVID-19 has also increased by almost 100%. Participants received knowledge that aromatherapy is a complementary therapy

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for COVID-19 to treat respiratory symptoms, anosmia, and parosmia in COVID-19 patients.

CONCLUSION

In this community service, it can be seen that their knowledge is very lacking on hoax points that are spread in the community. Although some know the definition and function of aromatherapy, the spread of hoaxes has caused them to believe that aromatherapy can be used as the primary therapy for COVID-19. In addition, The service activity of introducing aromatherapy and the effects of aromatherapy during a pandemic to undergraduate nursing students online resulted in a significant increase in knowledge and perception of aromatherapy as a complementary therapy for Covid-19. Aromatherapy reduces respiratory symptoms, anosmia, and parosmia in COVID-19. The number of hoaxes circulating in the community about eucalyptus oil and aromatherapy as the primary therapy for COVID-19 requires more attention. Community service activities must continue to be carried out through social media, online learning, and pamphlets so that people know the difference between EO cajuput and EO eucalyptus and the use of aromatherapy as a complementary therapy for COVID-19

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