



Application Of Hand Massage Using Olive Oil And Jasmine To Reduce Anxiety Levels In Families Of Critical Patients

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Article Information	ABSTRACT
Received : 07 May 2026 Revised : 10 June 2026 Accepted : 02 August 2026	The care of critically ill patients in the ICU not only affects the patients' condition but also places significant psychological strain on their families, particularly in the form of anxiety. Unmanaged anxiety can affect families' ability to make decisions and participate in the care process. Non-pharmacological interventions such as hand massage and aromatherapy are potential approaches for reducing anxiety. This study aims to analyse the effectiveness of hand massage using olive and jasmine oils in reducing anxiety levels among the families of critically ill patients. The study employed a case study design with a pre-test and post-test approach involving 12 family members of patients in the ICU. The intervention was administered daily for three consecutive days, with each session lasting 15–30 minutes. Anxiety levels were measured using the Hamilton Anxiety Rating Scale (HARS). The results showed that prior to the intervention, the majority of respondents experienced severe anxiety (50%) and moderate anxiety (25%). Following the intervention, there was a reduction in anxiety, characterised by an increase in the 'not anxious' category (33.3%) and the 'mild' category (41.7%), as well as a decrease in severe anxiety to 8.3%, with no cases of panic observed. The mean anxiety score decreased from 2.58 ± 0.99 to 1.00 ± 1.04. It was concluded that hand massage with olive and jasmine oil is effective in reducing anxiety among the families of critically ill patients. This intervention may serve as an alternative non-pharmacological therapy in family-centred care nursing practice.
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Introduction

Caring for patients in critical condition in the intensive care unit is a complex and uncertain situation, not only for the patient but also for the accompanying family (Asadi & Salmani, 2024). When a family member is treated in critical condition, the family is faced with a variety of pressures, ranging from concerns for patient safety, limited access to interaction, to uncertainty regarding prognosis and treatment outcomes (Qomariyah et al., 2025). This situation often develops into an intense emotional experience, in which the family must adapt to an unfamiliar care environment, complex medical technology, and information that is not always easy to understand (Wulan et al., 2025). In these conditions, the family not only plays the role of a companion, but also an important decision-maker, so that the pressure experienced becomes heavier and has the potential to cause a psychological response in the form of anxiety (Andrian et al., 2025).

Globally, the prevalence of anxiety in families of patients treated in intensive care units is reported to be quite high, ranging between 40% to 70%, although some studies show higher rates in the early phases of treatment (Bialek & Sadowski, 2021). In Indonesia, this phenomenon also shows a similar trend, where most families of critical patients experience moderate to severe anxiety due to lack of information, uncertainty of the patient's condition, and situational stress during the treatment process (Seriaka et al., 2024). This high prevalence confirms that anxiety in the families of critical patients is a real problem and requires serious attention in healthcare practice (Zulfia et al., 2025).

Previous research has shown that a variety of interventions, such as health education, therapeutic communication, and application *family-centered care*, effective in lowering family anxiety through increased understanding, engagement, and emotional support during the patient's treatment process (Faridah et al., 2024; Karen et al., 2021). However, most of these studies still focus on the effectiveness of interventions in general and have not studied their application in more specific service contexts according to family characteristics and health care settings, so evidence on the effectiveness of interventions in these conditions is still limited (Faridah et al., 2024). Based on these gaps, this study was conducted to evaluate the effectiveness of the interventions studied in reducing the level of anxiety of patients' families, so that it is expected to provide scientific evidence as a basis for the development of more holistic, family-centered, and family-centered nursing services.

In line with these needs, non-pharmacological interventions are one of the alternatives that are increasingly being developed because they are considered safe, easy to apply, and have minimal side effects. One of the most widely used interventions is *hand massage* using olive oil (*olive oil*) combined with jasmine aromatherapy. Hand massage works through stimulation of mechanoreceptors on the skin that activate the parasympathetic nervous system, thereby reducing the activity of the sympathetic nervous system, slowing down heart rate, lowering blood pressure, improving peripheral blood circulation, and stimulating the release of endorphins and serotonin which provide relaxation and comfort effects (Pratiwi et al., 2024). The use of olive oil not only serves as a lubricant during the massage process, but also contains bioactive compounds such as polyphenols, vitamin E, and unsaturated fatty acids that have antioxidant and anti-inflammatory properties so that it helps to improve comfort during therapy (Boumezough et al., 2025). Meanwhile, jasmine aromatherapy contains key volatile components such as linalool, benzyl acetate, and benzyl alcohol that are inhaled through the olfactory system, then stimulating the limbic system as the center of emotion regulation. This stimulation increases the release of neurotransmitters such as serotonin and γ -aminobutyric acid (GABA) and lowers cortisol levels, thereby reducing emotional tension, creating a sense of calm, and lowering anxiety levels (Amir et al., 2025). Combination tactile stimulation through *hand massage* and the olfactory stimulation of jasmine aromatherapy produces a more optimal relaxation effect than the use of one of the interventions separately, so it has the potential to be an effective complementary therapy in reducing the patient's family anxiety (Xie et al., 2025).

In practice, olive oil is often used as a medium in massage therapy because it has emollient properties and antioxidant content that provides comfort to the skin (Alnemer et al., 2021). Meanwhile, oil *Jasmine Essentials* (jasmine) is known to have calming effects that can affect the limbic system in the brain, thus helping to lower anxiety and promote feelings of relaxation (Sun et al., 2025). The combination of hand massage with olive oil and jasmine allows for a more optimal therapeutic effect through the combination of tactile and aroma stimulation (Udani et al., 2023).

However, most previous studies are still examining the effectiveness of *hand massage* and aromatherapy as a single intervention, while research that combines *hand massage* using olive oil (*olive oil*) with jasmine aromatherapy in critical patients' families is still very limited. Novelty (novelty) This research lies in the integration of tactile stimulation through *hand massage*

and olfactory stimulation through jasmine aromatherapy in one complementary intervention. The combination is expected to produce a more optimal relaxation effect because *hand massage*. It plays a role in increasing the activity of the parasympathetic nervous system, improving circulation, and stimulating the release of endorphins, while Jasmine aromatherapy provides an anxiolytic effect through the stimulation of the limbic system which contributes to a decrease in stress and anxiety responses (Caballero-Gallardo et al., 2025).

The use of olive oil as a massage medium also provides added value because it has antioxidant and emollient properties that increase comfort during therapy, so that the intervention becomes more comfortable to be accepted by the patient's family (Caballero-Gallardo et al., 2025). Thus, this study not only evaluates the effectiveness of the combination of the two therapies, but also offers an alternative nonpharmacological intervention that is simple, safe, low-cost, easy to apply by both nurses and families, and has the potential to be widely implemented in nursing practice to support family-centered services (*family-centered care*). Based on this description, this study aims to analyze the effectiveness of the implementation *hand massage* using olive oil and jasmine aromatherapy in lowering anxiety levels in the families of critical patients.

Method

This study uses a case study design. The research was carried out in the Intensive Care Unit (ICU) room of Indriati Hospital in March. The subjects in this study are family members of patients who are treated in the ICU and meet the inclusion criteria, namely the nuclear family who are accompanying the patient, able to communicate well, and willing to be research respondents. The technique of taking subjects was carried out purposively in accordance with the characteristics needed in the case study. The intervention provided was in the form of hand massage using olive oil combined with jasmine (jasmine) essential oil. The hand massage procedure was carried out in accordance with relaxation techniques, with a duration of 15-30 minutes on both respondents' hands for 3 consecutive days. Anxiety level measurements were carried out before (pre-test) and after (post-test) the administration of the intervention using standardized instruments, such as the Hamilton Anxiety Rating Scale / HARS anxiety questionnaire. The data obtained were then analyzed descriptively by comparing changes in anxiety levels before and after the intervention

Research Results

Table 1. Respondent Characteristics

Varibel	F	(%)
Age		
40 - 50 years old	3	25
50 – 60 years old	6	50
>60 years old	3	25
Gender		
Male	5	41.7
Women	7	58.3
Jobs		
Labor	7	58.3
Housewives	4	33.3
Merchant	1	8.3
Patient Diagnosis		
STEMI	9	75
Ileus Perforation	1	8.3
SNH	2	16.7
Total	12	100

Based on Table 1, this study involved 12 respondents from families of critical patients. Most of the respondents were in the age range of 50–60 years as many as 6 people (50%). Based on gender, the majority of respondents were women as many as 7 people (58.3%). In terms of employment, most of the respondents were workers as many as 7 people (58.3%). Based on patient diagnosis, most patients have a STEMI diagnosis of 9 people (75%). This data shows that the majority of patients are in a potentially life-threatening acute illness condition.

Table 2. Anxiety Scores before and after the intervention

Anxiety	Before		After	
	F	(%)	F	(%)
No anxiety	-	0	4	33.3
Lightweight	2	16.7	5	41.7
Medium	3	25	2	16.7
Weight	6	50	1	8.3
Panic	1	8.3	-	0
Mean ± SD	2,58 ± 0,99		1,00 ± 1,04	

Based on Table 2, the level of anxiety of respondents before the intervention showed that most of them were in the category of severe anxiety as many as 6 people (50%), followed by moderate anxiety as many as 3 people (25%), mild anxiety as many as 2 people (16.7%), and panic as many as 1 person (8.3%). There were no respondents who were in the non-anxious category before the intervention. After being given an intervention in the form of hand massage using olive oil and jasmine, there was a change in the distribution of anxiety levels. A total of 4

respondents (33.3%) did not experience anxiety, 5 respondents (41.7%) were in the category of mild anxiety, 2 respondents (16.7%) were in the moderate category, and only 1 respondent (8.3%) was still in the category of severe anxiety. No more respondents with panic anxiety levels were found after the intervention. In addition, based on the mean anxiety score, there was a decrease from 2.58 ± 0.99 before the intervention to 1.00 ± 1.04 after the intervention. This shows a significant decrease in anxiety levels after being given an intervention.

Discussion

This study aims to evaluate the effectiveness of the combination of hand massage using olive oil and jasmine aromatherapy in reducing anxiety levels in the families of critical patients in the Intensive Care Unit (ICU). The results of the study showed that the intervention was able to significantly reduce family anxiety levels based on the Hamilton Anxiety Rating Scale (HARS) score, so that the research objectives could be achieved. These findings suggest that non-pharmacological approaches based on therapeutic touch and aromatherapy have the potential to be an effective complementary intervention in supporting the psychological well-being of critical patients' families. The decrease in anxiety obtained not only reflects changes in psychometric scores, but also indicates an improvement in the family's ability to manage stress during the patient's treatment process in the ICU (Unoki et al., 2025). A more stable emotional state allows families to participate more optimally in communication with health workers, understand medical information, and be involved in complex clinical decision-making (Pan & Wang, 2025).

The findings of this study show that the majority of families of critical patients experience moderate to severe anxiety prior to the intervention, confirming that the ICU is an environment with high exposure to psychological stressors. This phenomenon can be explained through *Transactional Model of Stress and Coping*, where anxiety arises as a result of the process *primary appraisal* (assessment of threats) and *secondary appraisal* (individual ability to overcome threats) (Gamaionova et al., 2024). In this context, the patient's unstable condition, high risk of death, the use of various medical devices, and limited communication reinforce the perception of threats in the family. On the other hand, the limited understanding of the patient's medical condition and low control over the situation at hand cause the coping ability to be reduced. The imbalance between situational demands and coping resources is the main factor that triggers anxiety (Sutisnu et al., 2023).

Furthermore, the characteristics of the respondents in this study strengthened their vulnerability to anxiety. The middle adult age group (40–60 years old) generally has a central role in the family structure, especially as the main decision-maker, breadwinner, as well as the provider of emotional support. In the perspective of stress theory, such increased responsibility increases *perceived burden* that contribute to the intensity of anxiety (Kołodziej et al., 2025). In addition, the dominance of patient diagnosis in the form of ST-Elevation Myocardial Infarction (STEMI) which is acute and life-threatening strengthens *threat perception*, thus activating the sympathetic nervous system in response to stress. This activation triggers a response *fight-or-flight* which is characterized by increased heart rate, muscle tension, increased blood pressure, and alertness (Gurbuz & Demir, 2023). When persistent, the condition not only worsens anxiety, but also impairs cognitive function, especially the ability to understand medical information and make rational decisions, which is an important aspect of critical patient care (Xie et al., 2025).

Hand massage interventions combined with olive oil and jasmine aromatherapy in this study showed effectiveness in reducing anxiety (Li et al., 2022). These findings can be explained through neurophysiological approaches and pain modulation theory. Based on *Gate Control Theory*, Stimulation of touch on the skin activates large diameter afferent nerve fibers that are able to inhibit the transmission of pain and stress impulses at the level of the spinal cord thereby reducing the activation of the sympathetic nervous system (Karcz et al., 2024). In addition, therapeutic touch also increases the activity of the parasympathetic nervous system which produces physiological relaxation responses in the form of decreased heart rate, blood pressure, breathing frequency, and muscle tension (Sert et al., 2026). This parasympathetic activation contributes to the creation of a calmer psychological state so that individuals are able to manage emotional responses to situations faced more adaptively.

In addition to these mechanisms, the release of endorphins in response to tactile stimulation also plays a role in increasing *sense of well-being*, reduce the perception of stress, and suppress the activity of the hypothalamic-pituitary-adrenal (HPA) axis that plays a role in the chronic stress response (Preston & Biddell, 2021). This relaxation effect is amplified by jasmine aromatherapy that works through the olfactory pathway towards the limbic system, especially the amygdala and hippocampus, which are centers for emotion and memory regulation (Paryontri & Zakiyah, 2022). The activation of the limbic system results in modulation of emotional responses, decreased activity of the sympathetic nervous system, and increased

feelings of comfort and relaxation. Thus, the combination of hand massage and jasmine aromatherapy produces synergistic effects that work simultaneously through neurophysiological and psychological mechanisms so that it can reduce anxiety levels more optimally than if the two interventions were given separately (Udani et al., 2023).

The results of this study are in line with various previous studies that reported that hand massage is effective in reducing anxiety through increased parasympathetic activity and the release of endorphins that produce physiological relaxation effects (Udani et al., 2023). Research on jasmine aromatherapy also shows an anxiolytic effect through modulation of limbic system activity which plays a role in regulating emotions (Paryontri & Zakiyah, 2022). However, most previous studies have evaluated the effectiveness of hand massage or aromatherapy separately and focused more on patients as recipients of the intervention. This study expands the scientific evidence by combining the two interventions in the families of critical patients who have received relatively little attention, even though the family is the main component of the family-centered care approach.

However, not all respondents showed a decrease in anxiety to the mild category after the intervention. Some families still maintain moderate levels of anxiety despite having received hand massages and aromatherapy. These findings show that critical patient family anxiety is a multidimensional phenomenon that is not only influenced by physiological conditions, but also by individual factors that have not been evaluated in this study, such as personality characteristics, previous experiences with critically ill family members, level of spirituality, social support, coping mechanisms, and the severity of the patient's clinical condition. In addition, the length of stay in the ICU and the uncertainty of the prognosis also affect the success of the intervention (Derang et al., 2025). Therefore, a relaxation-based non-pharmacological approach needs to be combined with psychological support, therapeutic communication, and family education so that the benefits of the intervention are more optimal.

Conceptually, the results of this study show that anxiety in the families of critical patients is the result of complex interactions between situational factors (ICU environment), cognitive factors (threat perception), and physiological factors (activation of the sympathetic nervous system). The interventions provided work by modulating all three aspects simultaneously resulting in a measurable decrease in anxiety through HARS scores (Jelita et al., 2024). These findings reinforce *Transactional Model of Stress and Coping*, explaining that changes in

psychological responses depend not only on the objective conditions the individual is facing, but also on the individual's ability to modify the appraisal process to stress (Gurbuz & Demir, 2023). Thus, touch-based relaxation and aromatherapy approaches are not only supportive, but have a strong mechanistic basis in intervening in the family stress response of critical patients.

The novelty of this research lies in the integration of hand massage using olive oil with jasmine aromatherapy as an intervention package applied to the families of critical patients. In contrast to previous studies that generally evaluated one type of intervention or focused only on patients as therapy recipients, this study developed a more holistic approach by making the family the main target of the intervention. This approach contributes to the development of practice *family-centered care*, which places the psychological well-being of the family as an important part of the successful critical patient care process (César-Santos et al., 2024). Therefore, this study provides a scientific contribution in the form of expanding the evidence on the effectiveness of non-pharmacological interventions that are simple, safe, easy to apply, and potentially integrated in nursing practice in the ICU room.

Practically, the results of this study support the application of hand massage using olive oil and jasmine aromatherapy as complementary nursing interventions that are cheap, safe, easy to do, and do not require special equipment. This intervention can be considered as part of a standard of family-centered care-based nursing services to help reduce family psychological distress while accompanying patients in the intensive care room. From a theoretical perspective, this study strengthens the understanding of the relationship between sensory stimulation, modulation of the autonomic nervous system, and cognitive processes in *the Transactional Model of Stress and Coping*, thus providing a scientific basis for the development of psychosocial interventions based on neurophysiological mechanisms in nursing practice.

This study has several limitations that need to be considered in interpreting the results. First, the use of case study design limits the ability of researchers to explain cause-and-effect relationships strongly compared to experimental designs. Second, the relatively small number of samples causes the generalization of results to a wider population to need to be done carefully. Third, the study only used the Hamilton Anxiety Rating Scale (HARS) instrument so that it did not combine objective physiological indicators, such as cortisol levels, blood pressure, heart rate, or heart rate variability, which could strengthen the explanation of the biological mechanism of the intervention. In addition, studies have not evaluated the long-term

sustainability of the effects of the intervention so it is not yet known whether the reduction in anxiety can be sustained after the patient is discharged from the ICU or after the family faces changes in the patient's clinical condition.

Based on these limitations, further studies are recommended to use a *randomized controlled trial design* with a larger sample size and involve multiple hospitals to improve the external validity of the study results. Subsequent research also needs to evaluate a combination of psychological and physiological outcomes, including stress biomarkers such as salivary cortisol levels or *heart rate variability*, in order to explain the mechanism of intervention work more comprehensively. In addition, longitudinal studies are needed to determine the duration of the therapeutic effects of interventions and their effects on family satisfaction, the quality of communication with health workers, family involvement in clinical decision-making, and the quality of the implementation of family-centered care in critical patients.

Conclusion

These conditions are related to various situational factors present in the ICU, such as uncertainty regarding the patient's condition, the possibility of death, and limited communication between family members and the patient. Such situations can heighten the perception of threat and trigger a stress response in family members. The hand massage intervention using olive oil and jasmine aromatherapy proved effective in reducing anxiety levels among family members of critically ill patients. This is demonstrated by a shift in anxiety categories—from severe to mild or no anxiety—accompanied by a decrease in the average anxiety score following the intervention. The effectiveness of this intervention is supported by interrelated physiological and psychological mechanisms that produce a relaxing effect, thereby helping to create a calmer emotional state for the patients' families.

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