



# The Effect of Lemon Aromatherapy Cream on Burnout Nurse in Emergency Room



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## Keywords

aromatherapy;  
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## Abstract

Burnout on the emergency room nurses due to routine activities for a long time and if it's not handled, it decreases the quality of nursing services. Due to a patient's condition who needs emergency treatment, the emergency room nurses have a higher workload that causes burnout. Lemon aromatherapy with linalool helps reduce fatigue. The study aims to identify burnout in emergency room nurses due to routine activities for a long time and if it's not handled, it decreases the quality of nursing service. This study is quasi-experiment research with one Pre and post-test group Design without control. The research population is 70 emergency room nurses in a Regional Public Hospital in Central Java, Indonesia. The sampling technique with total sampling obtained 70 respondents. Data collection used MBI-HHS (Maslach Burnout Inventory-Human Service Survey) questionnaire. The study result shows that before giving the intervention, burnout level is medium, at 68,6%. After giving the intervention, it becomes 65,7%. It can be concluded that there is an effect of giving lemon aromatherapy cream on the burnout level of emergency room nurses with a p-value of 0,019 is less than 0,05.

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## 1 Introduction

Burnout is an overfull to monotonous activities that have been carried out for so long, and there are great demands (Wardah & Tampubolon, 2021). Emergency nurses must assist quickly and accurately according to emergency management standards and fast response time (Thalib & Sabidullah, 2017). Nurses who work in intensive care units are more at risk of experiencing burnout. The working environment plays a primary role in the incidence of burnout syndrome (White et al., 2020; Wei et al., 2020). An uncomfortable physical environment and less harmonious working relationships between the workers also put them at risk for burnout (McCormack & Cotter, 2013).

Nurses who work in the emergency room are risky for burnout. Their tremendous workload, patients' condition, long work shifts, and exceeding standard working capacity will result in burnout syndrome (Adinda et al., 2020). In China, 42,3% of nurses had high burnout levels. 53,8% of medical workers in Malaysia have burnout because of their increased working hours and the changing working environment during the pandemic (Roslan et al., 2021). A study conducted in the emergency room showed that the burnout levels of nurses are highest at 3,6%, high at 12,7%, medium at 34,5%, low at 32,7%, and lowest at 16, 4% (Vuspyta et al., 2021).

Nurses with burnout have complaints such as not enjoying work, underestimating patients, being rude in taking care of the patients, being incompetent, and being ineffective (McCaffery et al., 2000; Lu et al., 2002; Dominguez-Gomez & Rutledge, 2009). They also have difficulty empathizing with others, are depressed, easily angry, cynical towards patients, are dissatisfied with their job, and fail at their work (Eliyana, 2018). This is characterized by complaints of feeling often exhausted, having dizzy because the workload is too high and time-consuming (Wati et al., 2020).

The effects of untreated burnout are that an individual looks moody and sad, has depression, chronically exhaustion, weakness, low energy, absence at work, low job performance, and decreased engagement with service recipients (Indiawati, 2022). Nurses' burnout should be treated pharmacologically and non-pharmacologically. Pharmacology measure is by giving lemon aromatherapy cream (Verdiana et al., 2018). Aromatherapy helps relieve fatigue and excessive mental tension, providing a scent of comfort and freshness, reducing anxiety, and overcoming insomnia (Suryafly & Aziz, 2017).

The lemon essential oil can help to relieve stress because it has properties to refresh the mind. Lemon Inhalation Journal Research reveals that the substance contained in lemons, namely linalool helps stabilize the nervous system and can cause a calming effect for anyone who inhales it (Soraya, 2021). One of the innovations to increase interest and make it easier to use lemon is to make it into a topical preparation, including cream (Al Mansur et al., 2017).

Aromatherapy is made of lavender essential oil and geranium with a concentration of 1%, and the total prepared by the professional pharmacist is 2%. Using 3ml base cream and lavender essential oil on the back can reduce the stress levels in ICU nurses, as evidenced by statistically decreasing heart rate and blood pressure of respondents (Kurebayashi, 2018).

A preliminary study conducted in the emergency room in a Regional Public Hospital in Central Java, Indonesia on ten nurses, showed that they often have physical and mental exhaustion (Amarneh & AL-Dwieb, 2022). They have frequent headaches, back pain, loss of concentration, decreased performance, ease of anger, frequent misunderstanding with work colleagues, and reduced work motivation. Based on the study background, the researchers are interested in conducting a study about the effect of giving lemon aromatherapy cream on the burnout of emergency room nurses (Hu et al., 2020).

## 2 Materials and Methods

The study design used quasi-experiment with quantitative of one group pre and post-test design without control. The data collection process was by giving a pre-test about fatigue level, then applying 3ml lemon aromatherapy cream on the back and cervical, and giving the post-test about the level of fatigue. This study has conducted on May 2022. The population is the whole emergency room nurses, 70 nurses in Regional Public Hospital in Central Java, Indonesia. The purposive sampling technique obtained 70 samples with criteria for inclusion of emergency room nurses: education level is minimum Associate Degree, the minimum working period is one year, and willing to be respondents; for exclusion criteria were nurses who were on leave, sick, and respondents who did not participate until the end of this research.

Data is collected using the Maslach Burnout Inventory-Human Services Survey (MBI-HSS) questionnaire with 22 questions, which consist of 9 questions about emotional fatigue, five about depersonalization, and eight about low self-achievement. MBI-HSS questionnaire has been validated with value  $r$  product moment 0,90, and reliability test result with alpha value Cronbach 0,70 (Fauzia, 2019). It also has been validated by EC in Kusuma Husada University with code No EC 38/UKH.L.02/EC/II/2022.

## 3 Results and Discussions

Table 1  
Respondent characteristic

Characteristic	F	(%)
<i>Gender</i>		
Female	46	65,7%
Male	24	34,3%
Total	70	100%
<i>Age</i>		
<40 years old	50	71,7%
>40 years old	20	28,3%
Total	70	100%
<i>Marital Status</i>		
Married	40	57,1%
Single	30	42,9%
Total	70	100%
<i>Last education</i>		
Associate Degree	32	45,7%
Bachelor Degree	38	54,3%
Total	70	100%
<i>Working period</i>		
<5 years	47	67,1%
>5 years	23	32,9%
Total	70	100%

The study result shows several characteristics. The first one is that most of the emergency room nurses are female, which 46 respondents (65,7%). Second, most respondents are under 40 years old (71,7%). Third, 40 respondents are married (57,1%). Fourth, the majority of education level is bachelor's degree in nursing 38 respondents (54,3%), and most of them have a working period < 5 years, of which 47 respondents (67,1%).

The study result obtained that most of the respondents were female, 46 respondents (65,7%). This is in line with Maulia's argument that women show a greater frequency of burnout than men because women often have emotional fatigue. Besides, women also significantly show a higher level of burnout by paying attention to the conflict between career and family than men (Nadya Maulia, 2022). The researcher argues that women

have more burnout than men because, from psychological aspects, women experience fatigue that can affect their mental condition.

Besides, this study result generates that most respondents are under 40 years old. This is also in line with the study of Naimah, which points out that most respondents are young, under 40 years old, and 26 respondents (65,0%). In this study, the respondents have mild fatigue because they can still not adjust to their lack of working experience and feel the work given is severe, so they quickly get tired. According to the researcher, young adults are prone to burnout because they cannot solve problems (Suryasa et al., 2022).

Based on the study result obtained, the characteristic of marital status shows that most of the respondents are married, 40 people (57,1%). Married woman nurses have burnout because a woman is required to be able to do five roles at once, as a wife or husband companion, as a descendant, as a mother, and as a household. These roles are indeed tough for women (Liana, 2020). The researchers argue that married nurse women are prone to burnout because they have multiple careers by sharing their thoughts and energy at home and work.

Furthermore, the study result about educational characteristics shows that the last education majority of the respondent is a bachelor's degree in nursing, 38 respondents (54,3%). This is in line with Nadya's (2021) research, which points out that an individual with a higher level of education will have burnout due to pressure and demand as a nurse role model (Nadya Maulia, 2022). Based on the researchers' analysis of the educational characteristic, those with a bachelor's degree in nursing have burnout because they are stressed with the work in the emergency room (Chick et al., 2020; Evans, 2008).

Moreover, the study result on working period characteristics reveals that the majority of respondents have been working for 1-5 years, 47 respondents (67,1%). This notion is in line with the study of Mawarti (2018), where nurses who have an early working period tend to be more saturated because they are just starting to adapt and master their job. Maslach's theory also supports this argument, which states that burnout tends to happen to someone who has just been hired (Margarine et al., 2022). The researcher concludes that the nurses with an early working period trigger burnout due to work adaptation and new working experiences.

Table 2  
Nurses Burnout level before and after given lemon aromatherapy cream (n=70)

Burnout Level	Pre		Post	
	F	(%)	F	(%)
Low	22	31,4%	46	65,7%
Medium	48	68,6%	24	34,3%
High	0	0%	0	0%
Total	70	100%	70	100%

The study result above shows that the pre-test score of 43-66 is a medium burnout level with 48 respondents (68,6%). This notion is in line with Novianita's (2019) research, which points out that before giving the lemon aromatherapy, the score is 38,4-57,6, which is suitable for burnout levels. Another result shows that 56% of the emergency room nurses in Regional Public Hospital in Central Java, Indonesia have emotionally drained. 58% of nurses are tired at the end of the work. 50% of respondents answer that the number of tasks that should be done according to competence. Nurses who are frustrated because of work are 39% of respondents. 49% of nurses are too hard at work, a nurse who worried about their work can make emotions fluctuate 44,6%; those who have difficulty understanding patients' feelings is 65,5%. Lack of enthusiasm at work is 66%, and 64,9% of nurses are less calm in dealing with emotional problems.

A related factor to burnout is age because young adult nurses aged 25-40, are physically fit and too enthusiastic to handle the patients. It affects the bored nurses because of working routines, so they are not eager to serve the patients (Mariyanti & Citrawati, 2011). This study is following Angreini's study, which shows that early adulthood (26-35) who have burnout is 87,5%. Young adult nurses lack experience and sometimes must adapt to the working environment. Age affects the ability to solve problems at work and burnout (Angreini, 2019). The researchers argue that burnout is characterized by being exhausted at the end of work, lacking enthusiasm, having much work, being too emotional too often, not understanding patients' feelings, and being too hard at work.

After the intervention, the post-test score is 23-44, showing 46 nurses have a low burnout level (65,7%). This notion is in line with a study by [Novianita \(2019\)](#), which finds out that the burnout level becomes low after the intervention. The observation result reveals that difficulty emotionally is 25%, just running errands is 25%, being tired at the end of work is 26,4%, and drained emotion because of work is 25,6%. If respondents inhale aromatherapy, it affects the brain's work so that it can stimulate the release of endorphins. Endorphins are a hormone that causes relaxation and comfort for the respondents, so they do not feel tired ([Wibowo, 2020](#)).

Another study generates that lemon scent stimulates and activates a subject to feel more alert and energized. Lemon aromatherapy given consistently affects the mood better and is more positive. Linalool, one of the substances contained in lemon, helps stabilize the nervous system, so it can have a calming effect for anyone who inhales it ([Soraya, 2021](#)).

Table 3  
The effect of giving the lemon aromatherapy cream to the burnout level (n=70)

Score	Z	P=value
Pre and post-test	-2,353	0,019

The study result shows the difference in burnout levels before and after giving the lemon aromatherapy cream with a p= value of 0,019. According to [Anggreini's](#) research, lemon citrus containing linalool helps give a calm effect to anyone who inhales it. Psychologically, lemon scent oil reduces mental fatigue and burdened feeling ([Anggreini, 2019](#)).

Based on the previous research, aromatherapy's body's physiological mechanism begins with the inhalation process. The entering aroma will be processed in the brain and serves as a pain centre, feeling controller of sadness, happiness, and depression ([Bawaningtyas et al., 2021](#)). Chemical components of entering aromatherapy cause a calming effect, so it can reduce stress or depression ([Khairunisa, 2020](#)). Furthermore, [Dewi's](#) study result reveals that lavender essential oil can provide relaxation benefits and reduce anxiety levels because essential oil contains linalool which functions as an anti-anxiety ([Dewi, 2013](#)).

In this study, giving 3ml lemon aromatherapy cream for three days before bed discloses that the lemon scent of the cream is enough to reduce stress due to work. It also affects several things such as better sleep quality, straightforward understanding of patients' feelings, can solve patients' problems effectively, becoming energetic during work, and easy to create a relaxing and calm situation in handling emotional problems. Lemon oil provides an anti-depressant to accelerate the metabolic rate, which is regulated by the hippocampus for producing rational thinking. It also provides energy and refreshes the body and mind. During the data collection, the response to the giving of aromatherapy cream to the nurses shows that they become more relaxed and fresher and it can reduce fatigue ([Lee et al., 2012](#); [Soltani et al., 2013](#); [Lemon, 2004](#)).

## 4 Conclusion

Based on the study results, it can be concluded that the characteristic of the majority of emergency room nurses is female (65,7%), and most of them are under 40 years old (71,7%). Most of them are married (57,1%), have a bachelor's degree in nursing (57,1%), and most of their working period is less than five years (67,1%). The burnout level of the emergency room nurses before being given the lemon aromatherapy cream is the medium level of 68.6%. After giving the cream, the burnout level reduces, showing a low level of 65,7%. Therefore, giving the lemon aromatherapy cream affects the burnout level of the emergency room nurses with a p=value of 0,019 less than 0,05.

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