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# The Immediate Effects of Nam Prung Scented Lotion (Aromatherapy) on Heart Rate Variability and Stress Reduction

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## Abstract

Namprung Scented Lotion is a modern innovation derived from Namprung, an ancient Thai perfume traditionally used by members of the royal court. A total of 10 participants, targeting ages more than 18 years, who were tested using the Suan Prung Stress Test–20 (SPST-20) to assess perceived stress levels of tension is moderate to high. Participants applied the lotion behind both ears and inhaled the fragrance for 10 minutes. The tools for outcome measurement in this study consist of SPST-20 and heart rate variability-HRV. Repeated measures ANOVA was used to assess the average score on the outcome measurement. The results show a statistically significant between time points ( $P < 0.05$ ) the following: There was a statistically significant reduction in mean stress scores after using the product ( $\bar{x}(sd)_{pre} = 54.2(6.3)$ ,  $\bar{x}(sd)_{post} = 27.7(3.5)$ ). Additionally, SDNN increased significantly from 62.3 (31.5) to 114.8 (44.1), indicating improved parasympathetic nervous system activity and reduced stress levels.

**Keywords:** Immediate, Effects, Nam Prung Scented Lotion, Heart Rate Variability, Stress Reduction

## 1. Introduction

Stress is a widespread mental health issue affecting people across all age groups. It involves physical, emotional, and behavioral responses to various internal and external pressures, including personal health concerns, emotional challenges, and unfamiliar environments (WHO, 2023). Common sources of stress often arise from family conflicts, workplace problems, harassment, and violence (Department of Mental Health, 2019). Traditional local knowledge, particularly Thai massage, has long been passed down as a method for stress relief, promoting not only healing but also overall well-being and beauty (The Foundation for the Promotion of Thai Traditional Medicine Ayurved School, 2005).

If left unaddressed, accumulated stress can lead to depression, mental health disorders, and long-term harm to both physical and psychological well-being (Cooper, 2023). A survey in England found that 49.0% of individuals aged 18–24 experienced high stress levels—more than any other age group—and 60.0% reported that stress stemmed from pressure to achieve (Mental Health Foundation, 2018). Moreover, the 2021 Gallup Global Emotion Survey, encompassing 122 countries, showed that 41.0% of respondents experienced stress, an increase

from 40.0% in 2020 (Ray, 2022). These findings highlight the importance of addressing the factors that contribute to rising stress levels (Chaiphongpachara, T. 2020)

Namprung Scented Lotion is a modern innovation derived from Namprung, an ancient Thai perfume traditionally used by members of the royal court. It was often applied during auspicious ceremonies to symbolize elegance and refinement. This product was developed to transform Namprung into a practical lotion for contemporary use, while preserving its unique fragrance, cultural significance, and skincare benefits. Moreover, the product is infused with a relaxing aroma (aromatic components) (Sudsawart et al. 2025).

The lotion offers a distinct floral aroma that promotes relaxation and reduces stress. Enriched with skin-nourishing vitamins, it helps moisturize and soften the skin. The traditional formula of Namprung is fermented for at least 6–12 months. Although this technique has been utilized for quite some time, there is currently no research documenting its effectiveness in reducing stress. Consequently, the aim of this study is to evaluate the Immediate Effects of Nam Prung Scented Lotion (Aromatherapy) on Heart Rate Variability and Stress Reduction.

## **2. Research Objective**

To determine the Immediate Effects of Nam Prung Scented Lotion (Aromatherapy) on Heart Rate Variability and Stress Reduction.

## **3. Material and methods**

### **3.1 Design**

This study was conducted at the Department of Health Promoting Hospital in Samut Songkhram Province, Thailand. It involved a Quasi Experimental Research design. The Immediate Effects of Nam Prung Scented Lotion (Aromatherapy) on Heart Rate Variability and Stress Reduction was tested using a before-after treatment approach. The research received approval from the Human Research Ethics Committee of Suan Sunandha Rajabhat University (COA.1-109/2022).

### **3.2 Study Sample**

A trial was conducted with 10 participants aged 18–60 experiencing stress. Participants applied the lotion behind both ears and inhaled the fragrance for 10 minutes, twice weekly for 4 weeks.

### **3.3 Intervention**

Before the trial commenced, all participants were evaluated through the Suan Prung Stress Test–20 (SPST-20) to assess perceived stress levels. After this initial screening, the selected participants applied the lotion behind both ears and inhaled the fragrance for 10 minutes, twice weekly for 4 weeks.

### **3.4 Measurement instruments**

The measurement instruments included Suan Prung Stress Test–20 (SPST-20) to assess perceived stress levels, and subjective stress, and Heart Rhythm Scanner PE (Biocom Technologies, USA) for measurement the heart rate variability (HRV) monitoring device to measure physiological stress responses, particularly SDNN (Standard Deviation of NN intervals).

### 3.5 Statistical analysis

The volunteers' demographic was used to analyze the characteristic of the volunteers focusing on mean and standard deviation. Additionally, the paired t-test was used to analyze the variables to compared the means before and after. An analysis of Repeated Measures ANOVA of the treatment with 0.95 level of significance ( $P < 0.05$ ).

## 4. Results

**General Information:** The data revealed that the average age of the volunteers was 42 years. Their average weight was 57.7 kilograms, and the average height was 156.9 centimeters. The majority were female (95.0%). 50.0% had a bachelor's degree or higher. Half of the participants (50.0%) were students. 60.0% were single. 65.0% had no underlying health conditions. 65.0% reported experiencing insomnia. 60.0% did not exercise regularly. 50.0% consumed spicy or strong-flavored food. None of the participants drank alcohol or smoked (100.0%).

**Stress and SDNN Analysis:** Within-group comparison of stress levels showed that the average stress score after the experiment was 27.7, which was significantly lower than the pre-experiment average of 54.2 ( $p < 0.001$ ). Regarding SDNN (Standard Deviation of NN intervals), the within-group comparison showed an average of 114.8 after the experiment, compared to a pre-experiment average of 62.3. However, this difference was statistically significant ( $p < 0.001$ ).

**Table 1:** Differences in Mean Scores of Variables Within the Group Before and After the Experiment

	$\bar{x}$	SD	t	df	p-value
<b>Stress</b>					
Before	54.2	6.3	18.265	19	<0.001
After	27.7	3.5			
<b>SDNN</b>					
Before	62.3	31.5	-4.737	19	<0.001
After	114.8	44.1			

Note.  $P < 0.05$  is statistically significant differences as compare between before and after the treatment from baseline.

## 5. Conclusion

The findings indicate that the use of Namprung Scented Lotion can significantly reduce stress both psychologically and physiologically. The increased SDNN reflects improved autonomic nervous system balance, supporting the lotion's role as an effective stress-relieving innovation.

**Directions for Use:** Apply the lotion behind both ears or on pulse points for optimal fragrance release and skin nourishment. **Caution:** Not suitable for individuals allergic to flower pollen.

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