



Effect of aromatherapy on coping with premenstrual syndrome: A randomized controlled trial

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ABSTRACT

Background and aim: Premenstrual Syndrome (PMS) is a health problem which begins approximately one week before menstruation in women occurs as a set of physical and psychological symptoms. This study aimed to determine the effect of aromatherapy on coping with premenstrual syndrome in university students.

Methods: A randomized controlled trial design was used. This study included 40 students in the intervention and 37 students in the control groups. Data was collected by questionnaire form and PMS scale. The intervention and control groups were followed up for 3 cycles in terms of PMS symptoms. The method of inhalation aromatherapy by lavender oil was applied for 5 sessions on average for each cycle.

Results: When PMS mean scores of the intervention and control groups during 3 follow-up periods were compared, it was found that there is a statistically significant difference between intervention and control groups ($p < 0.05$). It was determined that there is a statistically significant difference between the groups in terms of PMS scale and sub-dimensions of anxiety, depressive affect, nervousness, pain, bloating, depressive thoughts mean scores of pre-test and 3rd follow-up ($p < 0.05$).

Conclusions: It was concluded that inhalation aromatherapy can be used for coping with PMS. It is recommended that the students suffering from PMS problems should be informed on the inhalation therapy by lavender oil.

1. Introduction

Premenstrual Syndrome (PMS) is a health problem which begins approximately one week before menstruation in women, lessens with the begin of menstruation, and occurs as a set of physical and psychological symptoms, frequency and severity of which vary from one woman to another.^{1,2} Although these physical and psychological symptoms disappear in a few days, they may become difficult to cope with. This situation may influence the women's daily activities, academic performance, quality of life and productivity.^{3–5} PMS prevalence among university students is between 50.2% and 80.2%.^{6–8} Although some drugs palliate the symptoms of PMS, women seek out traditional and alternative methods, because there is not a treatment which stops all symptoms.⁹ In order to cope with PMS, some alternative methods such as herbal medicine, acupuncture, healthy nutrition, stress control and aromatherapy are available in the literature.^{10,11}

Aromatherapy is a therapeutic method which is administered using essential oils, and it is also one of nursing interventions.^{12,13} The fastest and easiest way that essential oils enter the body is inhalation. When volatile oils are inhaled, olfactory receptor cells are stimulated, and

then the impulse is transmitted to the emotional center of the brain or limbic system. The properties, fragrance and effects of oils determine the stimulation of these systems.¹⁴ Lavender oil is frequently preferred among aromatherapy administrations by inhalation, as being effective to the symptoms such as pain, anxiety, nervousness, sleep problems, and irritability.^{15,16} The symptoms mentioned above are common for PMS, this is why lavender oil aromatherapy can also be used in this field.¹² Besides, lavender oil is known to be used for various women's health problems.^{17,18}

Because of living in a student residence, university students have many problems such as irregular eating habit, loneliness, being away from their families, adjustment problems, and communication difficulties. When physical and psychological symptoms of PMS are added to this period, they may influence the students' health negatively. Selçuk et al. (2014) found that students living in a student dormitory are 4.19 times more likely to have PMS than those living at home. At this point, there is a need for effective interventions to protect the students' health.⁸

Although the PMS is widely experienced by women, only one study about the effects of aromatherapy on premenstrual emotional

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symptoms is available in the literature.¹² Because this study will be the first study evaluating the effectiveness of lavender oil aromatherapy by inhalation, which is a non-pharmacological method for the treatment of PMS, it is conceived to make a significant contribution to the literature. Moreover the study will be both a reference and an evidence for nurses to administer aromatherapy by inhalation in women with PMS.

The aim of this study was to evaluate the effect of aromatherapy on symptoms of PMS in university students. The following hypotheses (H) were tested in this study:

- H₀: Aromatherapy has not an effect on reducing PMS symptoms.
- H₁: Aromatherapy has an effect on reducing PMS symptoms.

2. Methods

2.1. Design and participants

The study was designed as a randomized controlled trial. The study population was composed of 958 students living in a student residence for girls. In order to estimate the sample size, power analysis was performed, and minimum sample size was calculated as 400 (Alfa (α) = 0.05, power (1- β) = 0.98 and the standard deviation = 0.15). A total of 661 students were included in the study sample. The students included in the study were instructed to fill out the PMS scale, in order to investigate the status of their PMS experiences. After implementation of scale, 320 students were found to experience PMS (those who scored above 110 on the PMS scale), 90 of which met the inclusion criteria of the study (Fig. 1).

Power analysis performed to estimate the individual size of the intervention and control groups suggested each group include at least 25 subjects (Alfa (α) = 0.05, power (1- β) = 0.90, the standard deviation %10). Since the study had a long duration, the drop outs due to complications or some unpredictable problems were taken into account, and a total of 90 students were included in the study; 45 students were assigned to the intervention group and 45 to the control group. Inclusion criteria were as follows; scoring above 110 on PMS scale,

experiencing at least five symptoms of PMS every month, being single, having a regular menstrual cycle, not having a chronic disease, not using any method to cope with PMS.

The randomization of the study sample was achieved by stratified and block randomization. Before assigned to the intervention and control groups, the students were stratified according to their scores on the PMS scale and the situation of experiencing at least five symptoms of PMS each month (symptoms are based on American College of Obstetricians and Gynecologists).¹⁹ In order to make the strata balanced, scores of the PMS scale were classified into three categories (140 score and below; 141–160 scores; 161 score and above), the stratum of experiencing at least five symptoms of PMS each month was classified into two categories (5–10 symptoms; 11 symptoms and above). Then the students were assigned to the strata in a way that ensured subjects in each stratum were allocated equally. The students, who were at the student residence during the study period, were randomized to the study groups randomly from boxes prepared by the researcher. In order to ensure randomized distribution of the students, they were instructed to pull a paper out of the box, after they were informed about the study. Thus, the balance of the groups was achieved.

A total of 13 students excluded from the study; one of the intervention group students due to ophthalmia, 4 of the control group students reporting that the odor had disturbed them, and 8 of the control group students stating that they did not want to continue. The study was completed with 40 students in the intervention group, and 37 students in the control group (Fig. 1).

The study was conducted between September 2015 and June 2016. In order to determine the students with PMS, all students filled out the PMS scale in September–November 2015. While the groups were constituted, to prevent the interaction between students, we took into account the rooms where the students were staying.

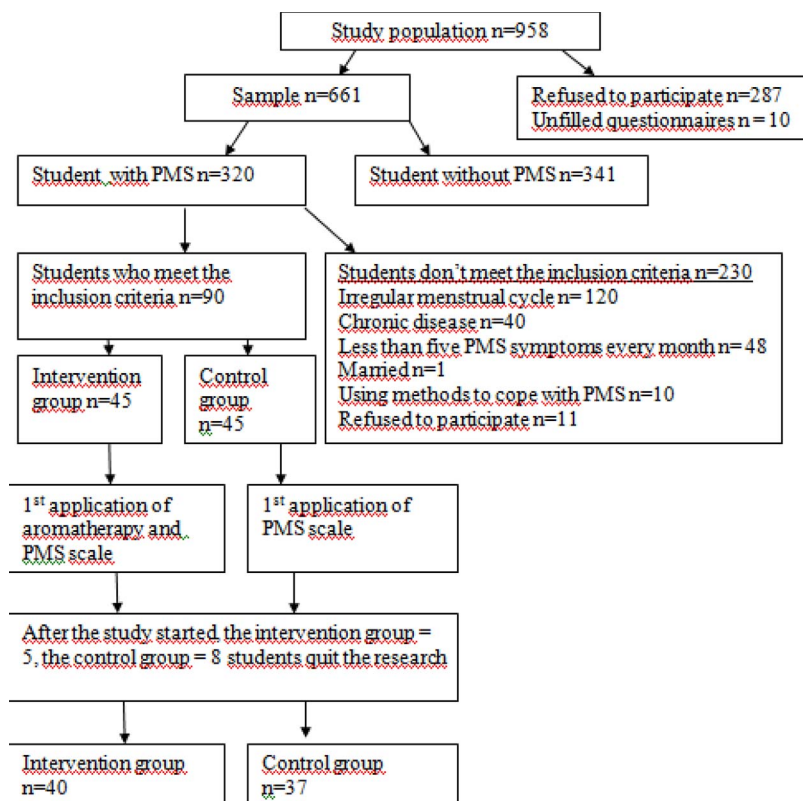


Fig. 1. Research chart.

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