ABSTRACT

Introduction: Many therapies that have been done to overcome the problem of menopausal syndrome have been carried out using hormonal therapy or using drugs, but complementary therapies have not been carried out in Indonesia. The purpose of this study was to analyze the use of citrus aurantium l var amara to overcome the problem of menopausal syndrome.

Method: The data used in this study were data on menopausal syndrome experienced by respondents without giving therapy and after giving complementary therapy, as well as factors of occupation, age, and history of contraception of 42 respondents who had menopause. Data analysis was done by comparing the two groups of intervention (women who had been given the complementary therapy of aurantium l var amara) and control group (women who had not received the complementary treatment).

Results: Women in control group experienced no difference in terms of their menopause complaints (p = 0.206), while women in the intervention group showed improvement of their complaints after routine administration of aurantium l var amara therapy for 5 days (p = 0.032).

Conclusion: Research conducted to analyze the use of citrus aurantium l var amara to treat menopausal syndrome problems proves that aurantium l var amara is effective in dealing with menopausal syndrome problems.

Keywords: essential oil, citrus aurantium l var amara, menopause, syndrome.
conducted in two distinct sample groups, the control group and the intervention group. Both the control group and the intervention group were chosen at random and agreed to take part in the trial all the way through. The first stage is to measure the menopausal syndrome in the control group and the intervention group using a menopause rating scale (MRS) questionnaire, then the intervention group will be given citrus aurantium l var amara essential oil with use for 5 days. Then after 5 days it will be measured again for both the control group and the intervention group about menopause syndrome. This research was conducted in April-June 2021. This research has been conducted an ethical test at Nahdlatul Ulama University Surabaya with ethics number 158/EC/KEPK/UNUSA/2021.

Research samples
Participants in this study were 42 premenopausal women in the Taman Pondok Jati area of Sidoarjo. Researchers used a purposive sampling process, namely selecting respondents from all women aged 45 years. The criteria for selecting participants were women who had experienced menopause, were not on medication or a diet program, were willing to participate in the study until it was completed. Participants in this study were divided into 2 groups, namely the intervention group and the control group.

Research instruments
Menopausal syndrome were measured using a standardized questionnaire in Indonesian, namely the menopause rating scale (MRS). The menopause rating scale is an internationally standardized questionnaire that has been translated into 9 languages, namely English, German, French, Spanish, Swedish, Mexican/Argentine, Brazilian, Turkish, and Indonesian. This questionnaire contains 11 questions consisting of 3 groups, namely questions 1,2,3 about psychological complaints, questions no. 4,5,6,7 are about somatic complaints and questions no. 8,9,10,11 about urogenital complaints. Each question has a range of answers ranging from no symptoms, mild, moderate, severe and very severe symptoms that can be selected based on how the respondent feels.

Research procedure
The intervention group were given citrus aurantium l var amara as a form of therapy for menopausal syndrome which will be used by respondents for 5 days, while the control group will only be measured for perceived menopause syndrome without therapy. In this study, respondents will be given the essential oil of citrus aurantium l var amara where the aromatherapy is used to treat menopausal syndrome in premenopausal women. Aromatherapy concentration of citrus aurantium l var amara essential oil given by mixing 0.1 ml of citrus aurantium l var amara essential oil into 1 ml of water, then the respondent inhales lemon aromatherapy placed in cotton with a distance of ± 2 cm from the nose while breathing deeply for ± 5 minutes in the room and carried out for 5 minutes for 5 days. on the sixth day the respondents filled out the MRS questionnaire in the form of the level of menopausal syndrome after being given aromatherapy (posttest) for 5 days.

The data collection process was carried out through several stages. First, the researcher brought a permit from the institution addressed to the head of the RW Taman Pondok Jati and coordinated with the head of Dasa Wisma to facilitate the process of collecting respondent data. After getting permission and data on postmenopausal women, the researcher explained and provided information about the purpose and nature of the research subjects' participation to become research respondents. Furthermore, the researchers visited the respondents, explained the research procedures and gave a questionnaire to the control group to be filled in and added aromatherapy citrus aurantium l var amara to the intervention respondents. After data collection was carried out, the researchers conducted data analysis.

Data Analysis
Data processing techniques were carried out through an editing process for completeness of research data, followed by scoring and coding. The data will be tabulated to facilitate the process of data analysis using Wilcoxon signed rank test.

The data provided by the respondent will be kept confidential by the researcher and this research is based on beneficence, justice and non-maleficence.

The length of education taken by respondents varied from 12 years as many as 7 respondents, 16 years as many as 30 respondents and 18 years of education as many as 5 respondents. In addition to length of education, another factor that can affect menopausal syndrome is work. The respondents' occupations were categorized as not working (housewives) as many as 13 respondents, private sector as many as 13 respondents, self-employed 2 respondents and civil servants as many as 14 respondents. Characteristics of respondents based on the last use of contraception, categorized as MOW as many as 4 respondents, IUD as many as 9 respondents, pills 6 respondents, injections 11 respondents, condoms 3 respondents and natural as many as 9 respondents.

RESULTS

Distribution of menopausal syndrome in the control group
Figure 1 shows that the distribution based on vasomotor complaints (MRS 1,2), physical complaints (MRS 3, 11), psychosocial complaints (MRS 4,5,6,7) and urogenital complaints (MRS 8,9,10) in the control group before and after there was no significant change. Based on the results of the Wilcoxon signed rank test statistic, it showed that p = 0.206 (0.206 > 0.05), which means that there was no effect on the results of measuring menopause complaints using MRS on respondents both before and after.

Distribution of menopausal syndrome in the intervention group
Figure 2 shows the effect of giving citrus aurantium l var amara on menopausal syndrome. Based on vasomotor complaints (MRS 1,2), physical complaints (MRS 3, 11), psychosocial complaints (MRS 4,5,6,7) and urogenital complaints (MRS 8,9,10) in the intervention group before and after administration of citrus aurantium l var amara changes occurred in almost all complaints felt by respondents. Menopausal syndrome which experienced a significant decrease in the use of neroli oil was in Q4 and Q5, namely feelings
most of the respondents was a problem of physical and mental fatigue, sexuality problems and discomfort in the joints and muscles. The problem of discomfort can interfere with the activities of most of the respondents who are working mothers. Women who experience menopause, hormonal changes occur, namely decreased levels of estrogen and steroids which play a role in the central nervous system and can affect mood and cause anxiety. Menopausal women also experience a decrease in sexual function which is characterized by symptoms of decreased sexual desire and dyspareunia. Women who experience menopausal syndrome may be reluctant to talk about the problems they are experiencing. This is because most of the people here think that it is a natural thing that will be experienced by a woman. Therefore, they do not access professional help, health services or further information so that adequate treatment is rarely sought or received.

This study is in line with research conducted by Caruso, 2016 which states that comprehensive treatment of sexual dysfunction in menopausal women is still quite difficult, this is influenced by many factors. So that an integrated approach is needed to identify the factors that influence and determine sexuality health promotion strategies in postmenopausal women. Other studies also explain that vasomotor symptoms that occur in postmenopausal women such as insomnia, mood disorders and decreased cognitive function can cause social problems and work-related difficulties so that they can significantly reduce quality of life.

**DISCUSSION**

**Distribution of menopausal syndrome in the control group**

Figure 1 shows that the distribution based on vasomotor complaints (MRS 1,2), physical complaints (MRS 3, 11), psychosocial complaints (MRS 4,5,6,7) and urogenital complaints (MRS 8,9,10) in the control group. Before and after there was no significant change. Based on the results of the Wilcoxon signed rank test statistic, it showed that \( p = 0.206 \) (0.206 > 0.05), which means that there was no effect on the results of measuring menopause complaints using MRS on respondents both before and after. Measurements carried out in the control group that did not receive treatment with citrus aurantium 1 var amara essential oil did not experience significant changes in the first and second measurements. This situation will tend to be stable if menopausal women do not get the right therapy according to the complaints they feel. In addition, the function of the body and the hormonal system will also decrease with age. Menopausal syndrome felt by

**Distribution of menopausal syndrome in the intervention group**

Figure 2 shows the effect of giving citrus aurantium 1 var amara on menopausal syndrome. Based on vasomotor complaints (MRS 1,2), physical complaints (MRS 3, 11), psychosocial complaints (MRS 4,5,6,7) and urogenital complaints (MRS 8,9,10) in the intervention group. Before and after the administration of citrus aurantium 1 var amara oil was in Q4 and Q5, namely feelings of irritability and restlessness. Based on the statistical test results, the Wilcoxon signed rank test showed that \( p = 0.032 \) (0.032 < 0.05), which means that the administration of Citrus aurantium 1 var amara can reduced complaints of menopausal syndrome.
irritability and restlessness. Based on the statistical test results, the Wilcoxon signed rank test showed that \( p = 0.032 \) \((0.032 < 0.05)\), which means that the administration of Citrus aurantium \( L \) var amara can reduce complaints of menopausal syndrome. Increasing the time of using aurantium \( L \) var amara consistently can reduce complaints of menopausal syndrome.

The decrease in menopausal syndrome may be due to the use of aurantium \( L \) var amara regularly for a long time which can significantly stimulate the hormone estrogen in the body which will respond to several systems in the body. Citrus has a complex chemical composition and is known as essential oil in the skin and contains flavones, synephrine alkaloids, octopamine, and \( N \)-methyltyramine, and carotenoids.\(^{12}\) The content in this essential oil will stimulate the hypothalamus-pituitary-adrenaline (HPA) which will normalize adrenocorticotropic hormone (ACTH) and corticosterone levels thereby reducing anxiety.\(^{13}\) This essential oil also has the main content of limonene which is proven to have an anxiolytic effect and provide a relaxing effect on the motor system.\(^{14}\) Limone works by stimulating sympathetic nerves and activating histamine \( H1 \) receptors and will induce a similar response, namely vasorelaxants.\(^{15}\)

In this study, most of the respondents were working women so that the menopausal syndrome they experienced would have an impact on their daily lives. However, very few of the number of women who experience menopausal syndrome come to health facilities to get the right therapy. Women generally think that the complaints they experience are normal when a woman is in menopause even though it can interfere with daily life, including work. By providing simple and easy therapy, it can reduce some of the symptoms that occur in menopausal women such as feelings of depression (feeling sad, crying easily, not passionate, mood swings) and feelings of irritability. The mean value at baseline decreased after receiving therapy as much as 0.6 and 0.5.

One of the syndromes experienced by menopausal women is sexual dysfunction. The results of this study support Seo Yeon Choi's 2014 study on the usage of citrus aurantium \( L \) var amara oil, which found that there were differences in sexual dysfunction and stress levels between the control group and the intervention.\(^{16}\) The effects of oxazepam and citrus aurantium on anxiety in individuals having coronary artery implantation surgery were also compared in a different study. On the third day before the procedure, patients in both groups who received citrus aurantium and oxazepam reported less anxiety.\(^{17}\) Another investigation has found that using neroli oil as aromatherapy can enhance sexual performance.\(^{18}\)

### CONCLUSIONS

This study shows that there is an effect of citrus aurantium \( L \) var amara on the reduction of menopausal syndrome. The contribution of this research as an alternative/complementary therapy to overcome the problem of menopausal syndrome. Further research is recommended to analyze the quality of life of women who have received complementary therapy.

### CONFLICT OF INTEREST

Authors declare that there is no conflict of interest in the making of this article.

### AUTHORS’ CONTRIBUTION

Equal contributions from both writers were made during the research and writing of this article.

### FUNDING

Thank you to the Nahdatul Ulama University which has funded this research and to Endang Widayat's maternity home for being willing to become a research site.

### REFERENCES