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THE EFFECT OF PROGRESSIVE MUSCLE RELAXATION AND LAVENDER AROMATHERAPY ON ANXIETY IN PROSPECTIVE IMPLANT CONTRACEPTORS

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ABSTRACT

The implant, also known as a subcutaneous contraceptive rod, contains levonorgestrel (two-rod implant) and etonosgestrel (one-rod implant). Implant contraception has many advantages, but many acceptors are reluctant to do it because they are afraid and anxious about the installation. This contraceptive is 99.8% effective and has a lifespan of 3 years. The first-year failure rate is between 0.2 and 0.5 per woman, making it effective in preventing pregnancy and subsequently controlling population growth.One of the effective non-pharmacological treatments for overcoming anxiety is progressive muscle relaxation therapy and aromatherapy lavender. Progressive muscle relaxation can produce the hormone epinephrine so it can reduce anxiety. Lavender aromatherapy functions to create a relaxing effect so it can reduce anxiety.Based on the research journal of Masdiana & Phonna (2023) and Dewi dkk (2024), both of these treatments are very effective in reducing anxiety because they both function relaxing effect. The research design used in this study was a quasi-experimental study with a one group pretest posttest design. The Wilcoxon test results indicate that progressive muscle relaxation and lavender aromatherapy have an effect on anxiety in prospective contraceptive implant recipients at the Kandeman Batang Community Health Center. It is hoped that the results of this study will be useful for reducing anxiety of prospective KB implant acceptors.

Keywords : Anxiety; Lavender Aromatherapy; Progressive Muscle Relaxation

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INTRODUCTION

The implant, also known as a subcutaneous contraceptive rod, contains levonorgestrel (two-rod implant) and etonosgestrel (one-rod implant). This contraceptive has a high effectiveness rate of 99.8% and a shelf life of 3 years. The first-year failure rate is between 0.2 and 0.5 per woman, making it effective in preventing pregnancy and subsequently controlling population growth (Fajrin, 2021).

Implant contraception is one of the long-term contraceptive methods recommended by the health department.The contraceptive implant has many advantages, but many users are reluctant to use it due to fear and anxiety about the installation. Anxiety can be managed pharmacologically and non-pharmacologically (Nurhasibah, 2022).

Non-pharmacological management can be carried out through family support, relaxation, deep breathing, movement or position changes, massage, hydrotherapy, heat or cold therapy, hypnobirthing, music, Transcutaneous Electrical Nerve Stimulation (TENS), aromatherapy, and acupressure. The advantages of non-pharmacological methods are that they are non-invasive, simple, effective, and have no harmful side effect (Meihartati, 2019).

One effective non-pharmacological treatment for reducing anxiety is progressive muscle relaxation therapy. Progressive muscle relaxation is an activity performed to relieve physical tension. The progressive muscle relaxation process is based on the basic principles of muscle physiology, which states that whenever a muscle is tense, releasing the tension gradually creates muscle relaxation (Saleh, 2023). Progressive muscle relaxation not only has physical effects but also psychological ones, as it can reduce psychological tension, such as mental and emotional relaxation(Setyoadi &Kurshariyadi, 2019). Research by (Masdiana & Phonna, 2023) indicates that progressive muscle relaxation can reduce anxiety.

The mechanism of action of progressive muscle relaxation in reducing anxiety is that progressive muscle relaxation activates the parasympathetic nervous system, which then transmits it to the hypothalamus. This decreases neurosecretory stimulation, thereby releasing Cardiotropin-Releasing Hormone (CRH) into the anterior pituitary gland. This inhibits stimulation of the adrenal cortex, which in turn secretes cathelolamin hormones, particularly epinephrine and norphinephrine, thereby reducing anxiety (Gusty & Erwanto, 2023).

Giving aromatherapy is also an effective non-pharmacological treatment to reduce anxiety. The aromatherapy used in this study was lavender (Lavandula officinalis). This plant has calming properties. The scent of lavender contains ester compounds that have sedative or calming properties and strengthen the nervous system(Wong & Rusdiansari., 2016). Lavender helps slow increased brain activity caused by anxiety. This reduction in brain activity causes people to relax and calm, thus relieving anxiety (Safrudin., 2019). Research by (Dewi, 2024) found that administering lavender aromatherapy can reduce anxiety in implant recipients.

The main ingredients of lavender are linalool and linalyl acetate. Linalool is the main active ingredient, known as a relaxant, and can reduce anxiety and pain. The advantage of lavender essential oil compared to other essential oils is its relatively low toxicity and rarely causes allergies. The linalool and linalyl acetate in lavender have effects similar to benzodiazepines, acting through the limbic system, specifically the amygdala and hippocampus, which promote a sense of calm (Intanwati dkk., 2022). The mechanism of aromatherapy using a diffuser is that aromatherapy is inhaled through the nasal cavity, captured by the olfactory nerves in the olfactory neurons, and the impulses generated by the aromatherapy are then transmitted to the limbic system center of the brain, producing a relaxing effect (Wong & Rusdiansari., 2016).

Based on a preliminary study of five prospective contraceptive implant recipients at the Kandeman Community Health Center in January 2025, four (80%) experienced anxiety, characterized by cold sweats, heart palpitations, and dizziness. Efforts at the Kandeman Community Health Center to reduce anxiety among prospective contraceptive implant recipients through counseling have not been effective.

Previous studies have demonstrated the effectiveness of progressive muscle relaxation and lavender aromatherapy separately in reducing anxiety. However, limited evidence exists regarding the combined effect of both interventions among prospective implant contraceptive acceptors. Therefore, this study aimed to examine the effect of combined progressive muscle relaxation and lavender aromatherapy on anxiety levels.

The problem formulation in this research is “Is there an effect of progressive muscle relaxation and lavender aromatherapy on anxiety among prospective implant contraceptive acceptors”?

METHOD

The study was conducted in the Kandeman Community Health Center, Batang Regency in March-August 2025. This type of research is quantitative. The research design used a quasi-experimental with *one group pretest posttest design.*Treatment is given before the prospective acceptor has the contraceptive implant installed. Furthermore, the level of anxiety was measured before and after the intervention.

The population in this study was all prospective contraceptive implant recipients at the Kandeman Community Health Center in Batang Regency, during the Family Planning Safari program. The average number of prospective contraceptive implant recipients per month was 70. The sample in the study was 23 prospective implant contraceptive users at the Kandeman Community Health Center in Batang Regency. The inclusion criteria in this study were Prospective contraceptive implant recipients

experiencing mild to moderate anxiety (score 45-74) and Prospective users of contraceptive implants who will be using contraceptive implants for the first time. The exclusion criteria were Prospective contraceptive implant recipients who are allergic to lavender aromatherapy, Prospective contraceptive implant recipients with heart disease and a history of cancer, Potential implantable contraceptive acceptors who experience vaginal bleeding without a cause. The sampling technique in this study was purposive sampling.

The variables in this study were progressive muscle relaxation and lavender aromatherapy to reduce anxiety in prospective contraceptive implant recipients. Progressive muscle relaxation and lavender aromatherapy were administered 60 minutes before the procedure. Relaxation was performed for 20 minutes. Lavender aromatherapy was administered for 20 minutes at a dose of 3 drops of lavender essential oil in 40 ml of water using a diffuser. Lavender aromatherapy is given by inhalation.Researchers administered the intervention to respondents independently without the assistance of an enumerator.The instruments in this study used the Progressive Muscle Therapy SOP and Lavender Aromatherapy SOP which had been tested by previous experts.The instrument for measuring anxiety uses the Zung Self-Rating Anxiety Questionnaire. The Zung Self-Rating Anxiety Scale has demonstrated good reliability with Cronbach's alpha 0,70. Bivariate analysis using the Wilcoxon tests (Notoadmojo, 2010).

This research has undergone research ethics testing issued by Karya Husada University Semarang with number 131/KEP/UNKAHA/SLE/VI/2025. The hypothesis in this study is that there is an effect of progressive muscle relaxation and lavender aromatherapy on anxiety among prospective contraceptive implant recipients in the Kandeman Community Health Center area.

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RESULTS

Table 4.1Anxiety of Prospective Birth Control Implant Acceptors Before Administering Progressive Muscle Relaxation and LavenderAromatherapy in the KandemanBatang Community Health Center (n=23)

Combination of Progressive Muscle Relaxation and Lavender Aromatherapy	Mean	Std Deviation	Min	Max
Anxiety among contraceptive implant users (pre-test)	**57,91**	**± 3,753**	**49**	**64**

Table 4.1 shows that the average anxiety level of respondents before being given the combination of progressive muscle relaxation and lavender aromatherapy was 57.91, or mild anxiety. The lowest anxiety score was 49, and the highest was 64.

Table 4.2 Anxiety of Prospective Implant Contraceptive Acceptors After Administering Progressive Muscle Relaxation and Lavender Aromatherapy in the KandemanBatang Community Health Center (n=23)

Combination of Progressive Muscle Relaxation and Lavender Aromatherapy	Mean	Std Deviation	Min	Max
Anxiety among contraceptive implant users (post-test)	**36,52**	**±5,071**	**25**	**44**

Table 4.2 shows that the average anxiety score of respondents after being given the combination of progressive muscle relaxation and lavender aromatherapy was 36.52, indicating no anxiety. The lowest anxiety score was 25, and the highest was 44.

Table 4.3 Results of the Shapiro-Wilk Normality Test for Anxiety

Anxiety	Sig	Information
Pre Test	0,234	Data is normally distributed
Post test	0,040	Data is not normally distributed

Table 4.3 shows that the anxiety data after being given a combination of progressive muscle relaxation and lavender aromatherapy (post-test) obtained a sig: 0.040 <0.05, so the data were considered abnormal. Therefore, the statistical test used in the bivariate analysis was the Wilcoxon test.

Table4.4 The Effect of a Combination of Progressive Muscle Relaxation and Lavender Aromatherapy on Anxiety in Potential Implant Contraceptive Acceptors in the KandemanBatang Community Health Center (n=23)

Anxiety	Mean	Std.Deviation	P Value
Pre Test	57,91	± 3,753	0,000
Post Test	36,52	±5,071	

Table 4.4 The Wilcoxon test showed a p-value <0.05, indicating that Ha was accepted. Therefore, it can be concluded that progressive muscle relaxation and lavender aromatherapy have an effect on the anxiety of prospective KB implant recipients in the Kandeman Community Health Center area.

DISCUSSION

1. Anxiety of Prospective Birth Control Implant Acceptors Before Administering a Combination of Progressive Muscle Relaxation and Lavender Aromatherapy

The results showed that the average anxiety score of respondents before being given the combination of progressive muscle relaxation and lavender aromatherapy was 57.91. This indicates that the respondents' anxiety was mild, as it ranged from 49-64.

Research by Nurhasibah (2022) stated that the majority (85%) of contraceptive implant users felt anxious about the contraceptive implant. Likewise, research by (Dewi, 2024) stated that prospective contraceptive implant users experienced anxiety with an average of 13.

The anxiety experienced by prospective contraceptive implant users may be caused by the implant, which will be inserted into the user's arm through an incision. Potential users perceive the implant as causing physical problems (Suliswati., 2015).

2. Anxiety of Prospective Birth Control Implant Acceptors After Administering a Combination of Progressive Muscle Relaxation and Lavender Aromatherapy

The results showed that the average anxiety score of respondents after being given a combination of progressive muscle relaxation and lavender aromatherapy was 36.52. This indicates that respondents were not anxious because the score ranged from 25 to 44. The intervention of progressive muscle relaxation and lavender aromatherapy was effective in reducing anxiety in prospective contraceptive implant recipients.

The results of this study align with those of (Mulyani dkk, 2024), who found that the majority (93.3%) of respondents were not anxious after receiving lavender essential oil therapy.

This is in line with the opinion that progressive muscle relaxation not only has an effect on physical conditions but also psychological ones, as it can reduce psychological tension, such as mental and mental relaxation (Setyoadi & Kurshariyadi, 2019). Lavender aromatherapy also helps slow brain activity, which is increased by

anxiety. This reduction in brain activity causes people to become relaxed and calm, which in turn relieves anxiety (Safrudin., 2019).

3. The Effect of a Combination of Progressive Muscle Relaxation and Lavender Aromatherapy on Anxiety in Prospective Contraceptive Implant Acceptors

The results of the Shapiro-Wilk normality test showed that the anxiety data after the combination of progressive muscle relaxation and lavender aromatherapy (post-test) obtained a significance level of 0.040 <0.05, indicating that the data were considered abnormal. Therefore, the statistical test used in the bivariate analysis was the Wilcoxon test. The Wilcoxon test obtained a ρ value of 0.000, thus rejecting H0. This indicates that progressive muscle relaxation and lavender aromatherapy have an effect on the anxiety of prospective implant users in the Kandeman Community Health Center area. This indicates that the intervention of progressive muscle relaxation and lavender aromatherapy can reduce anxiety in prospective implant users.

Administering a combination of progressive muscle relaxation and lavender aromatherapy to prospective contraceptive implant recipients can reduce anxiety. This is because progressive muscle relaxation involves tightening (contracting) and releasing (relaxing) specific muscle groups sequentially from head to toe. Progressive muscle relaxation has the effect of reducing sympathetic nervous system activity, which is activated when someone experiences anxiety, resulting in a calmer state. Reduced muscle tension can improve blood flow and make the body feel lighter and more relaxed, resulting in psychological effects such as reduced anxiety. Lavender aromatherapy is administered through inhalation. The scent enters the body through the olfactory system in the nose, which then travels to the limbic system in the brain, reducing levels of the stress hormone cortisol. This results in a calmer and more relaxed body, improving mood and reducing symptoms of anxiety (Gusty & Erwanto, 2023).

This is in line with research by(Masdiana & Phonna, 2023), which states that progressive muscle relaxation can reduce anxiety. Similarly, research by (Dewi, 2024) indicates that administering lavender aromatherapy can reduce anxiety in implant recipients (Dewi, 2024).

The limitations of this study are the small sample and only one group.

CONCLUSION

The results of this study the combination of progressive muscle relaxation and lavender aromatherapy can reduce anxiety in prospective contraceptive implant recipients.

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