

# Effectiveness of Lavender Aromatherapy and Natural Sound Music Against Anxiety Level in VIA Examination Patients

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**Abstract**—Visual inspection acetic acid (VIA) is a screening to detect the presence of cervical pre-cancerous lesions so that often causes anxiety in patients who are often ignored by health workers. The diagnosis of cancer often caused anxiety and depression for a patient so lose the spirit for life. Early detection of anxiety disorders is very important because anxiety can be complicated the medical condition. This paper proposes lavender aromatherapy and natural sound music to overcome the anxiety of VIA examination patients. Aromatherapy and natural sound music can influence levels of stress hormones in the body and affect brain waves which can cause feelings of relaxation for patients. The design of this study was quasi-experimental using pre and posttest with a control group design, there were 64 categorized into an intervention group (n=16) used aromatherapy, (n=16) used natural sound music, (n=16) used a combination of aromatherapy and natural sound music and control groups (n=16). The intervention was carried out for 15 minutes where respondents waited for the VIA examination. The Kruskal-Wallis test showed a *P*-value of 0,000 (<0.05), which indicated that there was a statistically significant effect of the lavender aromatherapy and nature sound music on the anxiety level in the VIA examination patients.

**Keywords**—Lavender Aromatherapy, Natural Sound Music, VIA Examination Patients

## I. INTRODUCTION

Cancer is the second caused of death in the world. Based on WHO data, there were 9.6 million deaths in 2018 caused by cancer. Globally 1 from 6 death is caused by cancer [1]. The second most common cancer in women is cervical cancer. It is estimated that there are 570,000 new cases of cervical cancer in 2018 (84% of new cases worldwide). WHO reports that are around 311,000 women died of cervical cancer in 2018, more than 85% of this death is in low and middle-income countries [2]. Early detection can prevent death caused by cancer. There are two components in early detection, screening, and early diagnosis. The results of screening can be used as reference material to establish an early diagnosis. One of the screening programs is VIA (visual inspection with acetic acid). The VIA test is a visual test using a vinegar acid solution (2% acetic acid) and the iodine lugol solution on the cervix to see the changed color that occurs after smearing. The aim is to see the presence of dysplasia cells as one of the early detection methods for cervical cancer

[3]. VIA examination is a screening to detected cervical precancerous lesions so that often caused anxiety in patients. A study in Singapore found that there were 12.77% of patients suffering from anxiety, but the anxiety was often ignored by health workers. Most health workers only attention how to treat cancer patients without seeing the anxiety of patients [4]. The cancer diagnosis is often resulted in anxiety and depression in the patient and caused loses of hope for life [5,6]. In general female patients had higher anxiety levels compared to male patients [7]. Anxiety is a common psychiatric condition in patients and is often undiagnosed and not treated adequately. Mental disorders such as anxiety can be accompanied by physical symptoms, and the patient comes to primary care services with physical complaints more often than psychiatric complaints. However, due to various factors, physical symptoms experienced patients with psychiatric conditions are often not well diagnosed [8]. Patients with mental disorders first come to primary care generally with somatic complaints, this complaint is often associated with depression and anxiety [9]. The cause of anxiety disorders until now cant be ascertained. However, various factors influence the occurrence of anxiety disorders in a person. These factors include medical illness, demographic factors, psychosocial stress, and so on [10]. The results showed that anxiety disorders, especially phobias, were associated with ischemic heart disease and anxiety relationships with migraines. Early detection of anxiety disorders is very important to give more quick treatment to the patient and prevent severe mental disorders. Diagnosis and treatment of anxiety are important because anxiety can complicate the treatment of a medical condition [11]. Anxiety also caused a decrease in efforts to search the health assistance and decrease compliance with took medication when somatic disorders appeared [12].

This research proposes giving aromatherapy and music to reduce the level of anxiety experienced by patients. The provision of non-pharmacological therapies such as relaxation is better in reducing anxiety compared to pharmacological therapy [6]. Music can affect stress hormones in the body and affect body systems. Natural sound music is music that has a slow tempo with a low tone and without lyrics is a non-pharmacological therapy that can make relaxation in patients [13]. Besides giving

aromatherapy also proven effective for reducing anxiety in patients [14-17].

II. METHOD

This research is quasi-experimental (pre and posttest with control group design). Performed at the Community Health Center (Puskesmas). The sampling technique used was simple random sampling by close envelope involving 64 respondents. Respondents were categorized into four

groups, namely intervention (n = 16) given aromatherapy lavender, (n = 16) given natural sound therapy, (n = 16) given a combination of aromatherapy and natural sound music and control groups (n = 16). The intervention was carried out for 15 minutes where the respondent waited for time to do an IVA examination that was given a pree and post-test using the DASS 21 questionnaire. The research flowchart is shown in figure 1.

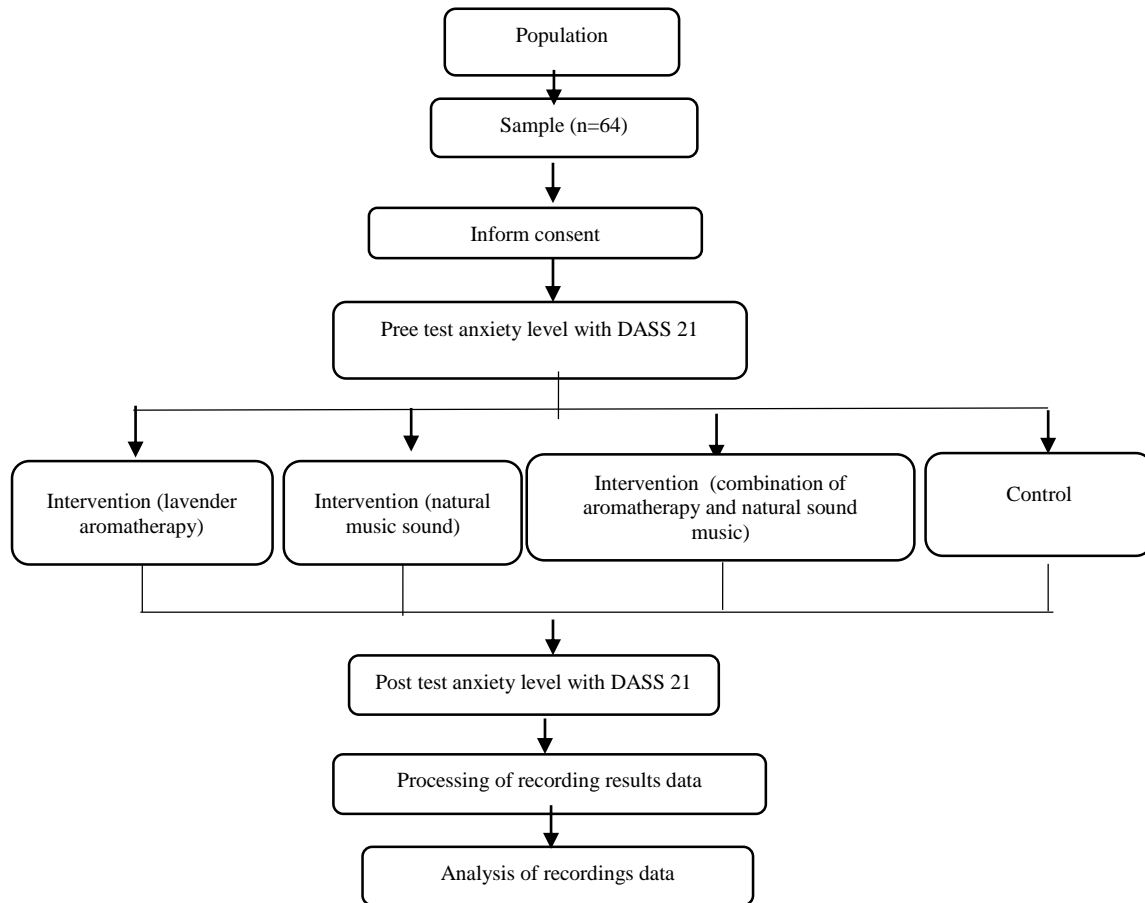


Figure 1. Flowchart

III. RESULT AND DISCUSSION

Respondents were patients who will get a VIA examination. While the data collected comes from the identity data and the results of respondents' answers on the DASS 21 questionnaire sheet. The informed consent was immediately made to the respondents by explaining the procedures and benefits of the study.

A. Characteristics of Respondent

This study shows that the majority of respondents have age 20-35 years (54.7%), education in bachelor (43.8%), and have paritas multipara (57.8%). As presented in Table 1.

TABLE 1. CHARACTERISTICS OF RESPONDENTS

Characteristics of Respondent	Frequency	Percent (%)
Age		
Age 20-35	35	54.7
Age >35	29	45.3

Education		
Junior High	2	3.1
Senior High	17	26.6
Diploma	9	14.1
Bachelor	28	43.8
Post Graduated	8	12.5
Parity		
Primipara	24	37.5
Multipara	37	57.8
Grandemultipara	3	4.7

B. Statistical Analysis

Table 2 shows that there was a mean decrease in anxiety levels in the intervention with aromatherapy group by 5.06, the natural sound music group decreased by 4.18, the combination group with aromatherapy and natural sound music by 6.062 and there was a decrease anxiety level of 0.81 in the control group.

TABLE 2. DIFFERENCE BETWEEN ANXIETY LEVELS BEFORE AND AFTER TREATMENT

Variable	Group	Pre Test	Post Test	Mean rank		p-value
		Mean±SD	Mean±SD	Negative	Positive	
Anxiety Level	Aromatherapy.	9.000±3.425	3.937±1.062	7.50	0	0.001
	Natural sound music	9.875±3.403	5.687±1.990	8.00	0	0.001
	Combination aromatherapy and natural sound music.	10.937±4.250	4.875±2.305	8.50	0	0.000
	Control	8.375±4.209	7.562±2.308	8.69	7.21	0.583

In the test before and after the treatment group, p-value of aromatherapy (0.001), natural sound (0.001) and combination aromatherapy and natural sound (0.000) <0.05 can be concluded in the aromatherapy intervention group, natural sound music, and combination aromatherapy and natural sound music there is a statistically significant difference in the level of anxiety before and after treatment. In the control group obtained values of 0.583 > 0.05, it can be concluded there were no significant differences in the level of anxiety before and after treatment in the control group.

TABLE 3. KRUSKAL-WALLIS TEST

Group	n	Mean Rank	p-value
Aromatherapy.	16	20.84	0.000
Natural sound music	16	34.66	
Combination aromatherapy and natural sound music.	16	26.59	
Control	16	47.91	

The Kruskal-Wallis test demonstrated a significant difference in the rate of anxiety level between aromatherapy, natural sound music, combination and control groups (p=0.00). That means aromatherapy and natural sound music can reduce the anxiety level for a patient with VIA examination.

Anxiety is an individual's response to protection or stressors that will come both from within the individual and from the environment [18]. This emotional response arises from caused that are not specific so that individuals feel uncomfortable and threatened [19]. Anxiety can be a normal or pathological response, this depends on the intensity and duration of the anxiety and coping abilities of the individual [20]. In everyday life, normal anxiety is needed to achieve certain satisfaction and enjoyment at work (performance) but excessive anxiety will interfere with performance and needs to be addressed. This excessive anxiety can be in the form of anxiety that is not tied to the form of ideas, things, or certain conditions caused by various aspects of life such as in a total anxiety disorder, or in the form of anxiety related to certain conditions or situations such as phobic anxiety, social phobia, disorder obsessive-compulsive disorder, and other anxiety [18].

The essential oil used in this study is lavender, which is used to reduce anxiety. Aroma utilizes the olfactory function as a medium for stimulating the aroma of odor that can stimulate the limbic system in the hypothalamus so that it triggers alpha waves to provide a relaxing effect

that is expected to affect reducing anxiety levels [16]. The main substances contained in lavender are linalool and linalyl acetate which are substances that can provide a relaxing effect when anxious and panic. The effect of aromatherapy will only affect the patient's physiological condition [15].

The purpose of giving music therapy is to help patients express feelings, reduce muscle tension and reduce anxiety which will biologically increase muscle energy, causing the frequency of breathing and pulse to be regular and stable blood pressure [11,21,22]. Music can be useful for someone to be more relaxed, cause a sense of security, prosperity, relief of pain and reduce the level of anxiety of patients who will undergo a medical procedure [21,23,24]. Nature sounds music is not part of classical music. This type of music is a discovery due to the modernization of sound recording technology. Nature sounds music is an integrative form of classical music with natural sounds. This musical composition is accompanied by the background sound of ocean waves or the rustling of trees and other natural sounds. This type of nature sound tends to bring the listener closer to the natural atmosphere. For children, the sound of this nature not only arouses certain associations but also is a certain stimulus as a learning tool. This musical accompaniment in a calm situation while studying is very helpful in strengthening his imagination and association [13,25-27].

IV. CONCLUSION

This study showed that aromatherapy and natural sound music can reduce the anxiety level for a patient with a VIA examination. The result of this study can be useful in the planning of VIA examination programs so the patients can feel relaxed and comfortable for VIA examination.

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