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The Effect of Combination of Natural Sound Music Therapy and *Chamomile Aromatherapy* on Anxiety in Pre-Cataract Surgery Patients

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Abstract
Anxiety is usually experienced by preoperative patients. Cataract surgery is one of the stressors for pre-cataract surgery patients. Preoperative anxiety if not treated appropriately will be fatal to the surgical procedure. The purpose of this study was to determine the effect of a combination of natural sound music therapy and chamomile aromatherapy on the anxiety of cataract preoperative patients. The research design uses "quasi-experimental". The sampling method used purposive sampling with 36 respondents divided into 2 groups. The data analysis test uses univariate analysis to determine the characteristics of respondents. Bivariate analysis using paired t-test and independent t-test to determine the difference between 2 groups. The results of the independent t-test on the control group post test and treatment post test obtained a sig value. (2-tailed) 0.001, indicating a significant difference. The combination of nature sound music therapy and chamomile aromatherapy can reduce anxiety; nature sound music stimulates the limbic system to create a sense of calmness, while chamomile aroma stimulates the thalamus to release serotonin, thus reducing anxiety.
Keywords: nature sound music therapy, chamomile aromatherapy, anxiety, cataracts

INTRODUCTION

Surgery is a procedure that can cause stress both physically and mentally (Handayani et al., 2023) . Anxiety is usually experienced by pre-operative patients (Tola et al., 2021) . One operation that can cause anxiety is cataract surgery. (Anderson & Taareluan, 2019) .

According to *Our World Data* (2017), worldwide the prevalence rate of preoperative anxiety ranges between 11% and 80% (Ferede et al., 2022) . In Indonesia, the results of a study at Dr. Soekardjo Hospital in 2019 found that 50% of preoperative patients experienced anxiety. At Fatmawati Hospital, the incidence of surgery cancellation due to patient anxiety was found to be 10%. Surgery cancellation due to patient blood pressure high is 5%, patients are menstruating 2% and 3% because patient experiencing anxiety (Sayuti et al., 2022) . The incidence of cataract disease in 2020 reached 2,922,344 cases in East Java, especially in Madura, Pasuruan, Situbondo and Jember. At the dr. Soedono Madiun Regional Hospital, in 2023 there were 377 cases of patients who had undergone cataract surgery. According to the 2020 Basic Health Research (Riskesdas) data, 11.3% of the population in East Java did not want to undergo cataract surgery, there were various reasons, namely fear, not daring, and not knowing about surgery (Fatmawati et al., 2022) .

Every cataract patient who will undergo surgery will definitely experience anxiety. Anxiety can be overcome with pharmacological and non-

pharmacological therapy. (Nisa et al., 2021) . Music is a type of anxiety therapy (Handayani et al., 2023) . One type of music therapy that can help reduce anxiety in preoperative patients is nature sound music (Wenda, 2022) . ADDIN CSL_CITATION {"citationItems":[{"id":"ITEM-1","itemData":{"author":[{"dropping-particle":"","family":"Wenda","given":"Saputra","non-dropping-particle":"","parse-names":false,"suffix":""}],"container-title":"Poltekkes Kemenkes Yogyakarta","id":"ITEM-1","issued":{"date-parts":[["2022"]]},"page":"1-10","title":"Pengaruh Suara Alam terhadap Tingkat Kecemasan Pasien Pra Spinal Anastesi di Instalasi Bedah Rumah Sakit Tk. II Dr. R. Hardjanto Balikpapan","type":"article-journal"},"uris":["http://www.mendeley.com/documents/?uuid=905f867b-7697-4ff4-a9ae-1750d2b84afd"]}],"mendeley":{"formattedCitation":"(Wenda, 2022)","plainTextFormattedCitation":"(Wenda, 2022)","previouslyFormattedCitation":"(Wenda, 2022)"},"properties":{"noteIndex":0},"schema":"https://github.com/citation-style-language/schema/raw/master/csl-citation.json"}Research conducted by Imawati (2020) entitled "The Effect of Giving Nature Sound Music *on* Reducing Anxiety Levels in Preoperative Patients at RSI Sultan Agung Semarang", found that there was an effect of giving nature sound music on anxiety levels in preoperative patients.

Apart from natural sound music therapy, another non-pharmacological intervention that is carried out to overcome anxiety is the use of aromatherapy. (Desta et al., 2019) . One of the pure *essential oils* with a calming effect that is widely used is *chamomile oil* (Rafii et al., 2020) . A study conducted by Amalia (2020) entitled "The Effect of Using *Chamomile Aromatherapy* on Anxiety Levels in Preoperative Incision and Excision Patients on the Breast", found that there was a significant effect in administering *chamomile aromatherapy* on anxiety levels in preoperative patients with suspected breast cancer in the premedication room.

A number of studies have discussed the therapy implemented in pre-operative patients to overcome anxiety, the author can conclude that several non-pharmacological treatments are effective in influencing anxiety, but in previous studies, there has been no combined intervention of natural sound music therapy and *chamomile aromatherapy* on anxiety in pre-operative cataract patients.

Based on the description of the background and previous research findings, the author is interested in conducting research by combining natural sound music therapy with *chamomile aromatherapy* in pre-cataract surgery patients. The researcher is interested in knowing whether the benefits will be more significant if the therapy is combined or vice versa, and whether it will have the same benefits if done in pre-cataract surgery patients.

RESEARCH METHODS

This study uses a quantitative method, namely *a quasi-experimental design* with a *two-group pre-test - post-test control group design* . The population in the study was cataract surgery patients at Dr. Soedono Madiun Hospital in 2023 as

many as 377 patients, data obtained from the recapitulation of elective procedures in 2023 at the Central Surgical Installation of Dr. Soedono Madiun Hospital.

The sample in this study were pre-cataract surgery patients who met the inclusion criteria at Dr. Soedono Madiun Regional Hospital. Determining the sample size in this study used the Federer formula a minimum sample size of 16 patients was obtained in each group. This study uses a *non-probability* sampling technique. *sampling* through *purposive technique sampling* . Data collection in this study used the APAIS (*Amsterdam Preoperative Anxiety and Information Scale*) questionnaire containing 6 question items with instructions for filling in a score of 1-5 for each answer .

This research was conducted in the Premedication Room of the Central Surgical Installation of Dr. Soedono Madiun Hospital. in February - March 2024. After going through data processing including coding, scoring, tabulating, data entry, cleaning, the data was then analyzed univariately to see the frequency distribution of each research variable . This study analyzed the general characteristics of respondents, namely age, gender, last education, and occupation in the form of percentages . Bivariate analysis was carried out to determine the correlation between the treatment group and the control group, so the initial step used was to find the results of changes before and after the intervention.

The results were then tested using the normality test, namely by using *Shapiro Wilk* , because the number of respondents <50 and using a numeric data scale (interval), if the assumption of data normality is met, then using a hypothesis test with the *Paired T-Test test* , then a comparison was made between the experimental group and the control group using the *Independent T-Test test* .

RESEARCH RESULT

Table 1 Respondent Characteristics

Characteristics Respondents		Control Group		Treatment Group	
		F	%	F	%
Age	45-59	6	33.3	10	55.6
	60-70	12	66.7	8	44.4
	TOTAL	**18**	**100.0**	**18**	**100.0**
Gender	Man	8	44.4	9	50.0
	Woman	10	55.6	9	50.0
	TOTAL	**18**	**100.0**	**18**	**100.0**
Last education	No school	2	11.1	5	27.8
	SD	8	44.4	8	44.4
	JUNIOR HIGH SCHOOL	3	16.7	3	16.7
	High School/Voc	5	27.8	1	5.6

	ational School				
	S1	0	0.0	1	5.6
	TOTAL	**18**	**100.0**	**18**	**100.0**
Work	Doesn't work	5	27.8	5	27.8
	housewife	4	22.2	3	16.7
	Farmer	2	11.1	3	16.7
	Trader	4	22.2	4	22.2
	Breeder	1	5.6	1	5.6
	Constructio n laborers	2	11.1	2	11.1
	TOTAL	**18**	**100.0**	**18**	**100.0**

Based on the data in the table above, it can be seen that in the control group according to age, most respondents were aged 60-70 years, namely 12 people (66.7%). According to gender, most respondents were male, namely 10 people (55.6%). According to the last education, almost half of the respondents' education level was elementary school, namely 8 people (44.4%). According to occupation, almost half of the respondents were unemployed, namely 5 people (27.8%).

Meanwhile, in the treatment group by age, most respondents were aged 45-59 years, namely 10 people (55.6%). According to gender, it was found that half of the respondents were male, namely 9 people (50.0%) and the other half were female, namely 9 people (50.0%). According to the last education, almost half of the respondents' education level was elementary school, namely 8 people (44.4%). According to occupation, almost half of the respondents were unemployed, namely 5 people (27.8%).

Table 2 Respondents' Anxiety Level

Variables		Mean	Difference	Mode	Median	Min	Max
Control Group	Pre Test	18.50	0.84	18	18	12	26
	Post Test	17.66		16	16	10	25
Treatment Group	Pre Test	21.44	8.44	18	22	16	26
	Post Test	13.00		12	12	8	19

Based on the data in table 4.2, it can be seen that in the pre-test of the control group, *the mean* (average value) is 18.5, which means it shows moderate anxiety. The mode (the most frequently occurring value) is 18, which means it shows moderate anxiety. The median (middle value) is 18, which means it shows moderate anxiety. The min (smallest value) is 12, which means it shows mild anxiety, and the max (largest value) is 26, which means it shows severe anxiety.

Based on the data in table 4.2, it can be seen that the data in the control group post-test, *the mean* (average value) is 17.7 which means it shows moderate anxiety. The mode (the most frequently occurring value) is 16 which means it shows moderate anxiety. The median (middle value) is 16 which means it shows moderate anxiety. The

min (smallest value) is 10 which means it shows mild anxiety, and the max (largest value) is 26 which means it shows severe anxiety.

Based on the data in table 4.2, it can be seen that the data in the pre-test of the treatment group, *the mean* (average value) is 21.4 which means it shows severe anxiety. The mode (the most frequently occurring value) is 18 which means it shows moderate anxiety. The median (middle value) is 22 which means it shows severe anxiety. The min (smallest value) is 16 which means it shows moderate anxiety, and the max (largest value) is 26 which means it shows severe anxiety.

Based on the data in table 4.2, it can be seen that the data in the post-test of the treatment group, *the mean* (average value) is 13 which means it shows moderate anxiety. The mode (the most frequently occurring value) is 12 which means it shows mild anxiety. The median (middle value) is 12 which means it shows mild anxiety. The min (smallest value) is 8 which means it shows mild anxiety, and the max (largest value) is 19 which means it shows severe anxiety.

Based on the data in table 4.2, the difference in the average value between the pre-test of the control group and the post-test of the control group was 0.84 and the difference in the average value between the pre-test of the treatment group and the post-test of the treatment group was 8.44.

DISCUSSION

Pre-Cataract Surgery Patient Anxiety Before Being Given a Combination Natural Sound Music Therapy And *Chamomile Aromatherapy* On Treatment Group

The average value of anxiety levels of pre-cataract surgery patients before the intervention of a combination of natural sound music therapy and *chamomile aromatherapy* in the treatment group was 21.4 indicating severe anxiety with the lowest value of 16 indicating moderate anxiety, and the highest value of 26 indicating panic anxiety.

The results of this study are in line with research from (Mudirman et al., 2019) regarding the "Relationship between Informed Consent and Anxiety in Pre-Appendicitis Surgery Patients" which stated that almost half of the respondents (43.6%) experienced severe anxiety, this was because before the operation, the patient had imagined bad things such as death so that the patient experienced severe anxiety.

According to researchers, preoperative anxiety is common and understandable. Severe anxiety in preoperative patients is a condition in which patients experience high levels of anxiety and interfere with preparation for surgery. Severe anxiety in preoperative patients can have a negative impact on the course of surgery if not handled properly.

Anxiety in Pre-Cataract Surgery Patients After Being Given a Combination *of* Natural Sound Music Therapy and Chamomile Aromatherapy In the Treatment Group

The average anxiety level of post-cataract surgery patients after the intervention of a combination of natural sound music therapy and *chamomile aromatherapy* was 13 indicating moderate anxiety with the lowest value of 8 indicating mild anxiety, and the highest value of 19 indicating severe anxiety. The results of this study are in line with research from Murdiman, et. al. (2019) regarding "The Relationship between Informed Consent and Anxiety in Pre-Appendicitis Surgery Patients" which stated that almost half of the respondents (38.5%) experienced moderate anxiety after being given the intervention, this is because pre-operative patients have imagined the worst possibilities due to surgery in the form of pain, the length of the healing process or even the worst possibility is death.

Pre-Cataract Surgery Patient Anxiety Before Following Hospital SOPs Control Group

The average value of anxiety levels of pre-cataract surgery patients before intervention according to the SOP from the hospital in the control group was 18.5 indicating moderate anxiety with the lowest value of 12 indicating mild anxiety, and the highest value of 26 indicating panic anxiety.

The results of this study are in line with research from (Gustini et al., 2023) regarding "The Influence of Therapeutic Communication on Anxiety Levels in Preoperative Patients" which states that almost half (46.7%) of preoperative patients before being given intervention in the control group experienced moderate anxiety, this was due to the lack of patient information about the surgical procedure they would undergo.

According to researchers, it is normal for pre-operative patients to experience moderate anxiety, this is caused by various factors, one of which is that patients who have never undergone surgery results in a lack of patient knowledge regarding the surgical procedure that will be undergone until the complications after surgery.

Pre-Cataract Surgery Patient Anxiety After Following Hospital SOP in the Control Group

The average value of anxiety levels of pre-cataract surgery patients after intervention according to the hospital's SOP in the control group was 17.7 indicating moderate anxiety with the lowest value of 10 indicating mild anxiety, and the highest value of 25 indicating panic anxiety.

The results of this study are in line with research from Murdiman, et. al. (2019) regarding "The Relationship between Informed Consent and Anxiety in Pre-Appendicitis Surgery Patients" which states that almost half of the respondents (38.5%) experienced moderate anxiety after being given the intervention, this is because pre-operative patients have imagined the worst possibilities due to surgery in the form of pain, the length of the healing process or even the worst possibility is death.

The Effect of Combination of Natural Sound Music Therapy and *Chamomile Aromatherapy* on Anxiety in Pre-Cataract Surgery Patients

Based on the results of the *Independent T-Test* in table 4.6 show comparison of the average value between the pre-intervention treatment group and the pre-intervention control group showed a Sig. (2- *tailed*) value of 0.01 <0.05. These results indicate that there is a significant difference between the level of anxiety after the intervention was given to the treatment group and the control group. Based on the results of the three tests, it shows that there is a decrease in the level of anxiety of pre-cataract surgery patients in the treatment group that was given a combination of natural sound music and *chamomile aromatherapy intervention* as well as in the control group that only followed the SOP from the hospital.

Causes of anxiety according to Hatimah et al. (2022) include threats *that* can come from real and unreal things, conflict , namely the existence of two conflicting desires, fear , namely anxiety caused by fear of everything, and unmet needs , namely unmet human needs will cause anxiety.

Distraction therapy that can be done to reduce anxiety is a combination of natural sound music therapy and *chamomile aromatherapy* . The limbic system, which functions to control human emotional behavior, can be stimulated by listening to natural sound music that makes individuals calm (Ilmiyah et al., 2022) . *Chammomile* essential oil molecules inhaled by patients can also have a positive effect on the central nervous

system, which is caused by the aroma contained in *chamomile oil* , so that it can help stop the release of *adreno corticotriphic hormone* (ACTH), a hormone that causes anxiety in a person, so individuals who live *chamomile aromatherapy* become calmer (Agus et al., 2021) .

According to researchers, the combination of nature sound music therapy and chamomile aromatherapy can be an effective intervention to reduce anxiety in pre-cataract surgery patients. This combination therapy combines two non-pharmacological interventions that have been shown to be effective in reducing anxiety. It is a safe and harmless alternative for patients who may not want to use medication to manage anxiety. Both nature sound music and chamomile aromatherapy have proven relaxation effects. When combined, they can enhance each other's relaxation effects, helping patients achieve a higher level of calm.

CONCLUSION

Based on the results of the study, it can be concluded that in the control group, before following the SOP in the control group had *a mean* of 18.50 indicating moderate anxiety, while after following the SOP from the hospital in the control group had *a mean* of 17.67 indicating moderate anxiety. Before being given a combination of natural sound music therapy and *chamomile aromatherapy intervention* in the treatment group had *a mean* of 21.44 indicating severe anxiety, while after being given a combination of natural sound music therapy and *chamomile aromatherapy intervention* in the treatment group had a mean of 13.00 indicating moderate anxiety. It can be concluded that there is an influence on the control group and the combination of natural sound music therapy and *chamomile aromatherapy intervention* in the treatment group on the anxiety of pre-cataract surgery patients.

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