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Original Research Article

A comparative analysis of the use of back massage and Murattal AI-Qur'an on dysmenorrhea pain and anxiety levels

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ABSTRACT

Background: Dysmenorrhea pain and anxiety are ordinary women's health concerns that can significantly impact their quality of life. This study compared the effectiveness of two interventions, back massage and Murottal Al-Qur'an (listening to specific Quran verses), in reducing pain and anxiety associated with dysmenorrhea.
Methods: A randomized controlled trial was conducted involving 69 women diagnosed with dysmenorrhea. Participants were divided into three groups: a back massage group, a Murottal Al-Qur'an group, and a control group. The back massage and Murottal Al-Qur'an groups received their respective interventions for 30 minutes daily during the first three days of their menstrual period. Validated questionnaires were used to assess pain intensity and anxiety levels before and after the interventions. The questionnaires employed were the Numeric Rating Scale (NRS), a well-validated tool that measures pain intensity on a scale of 0 (no pain) to 10 (worst possible pain), and the Zung Self-Anxiety Scale (SAS), an established instrument that assesses various aspects of anxiety using a 4-point Likert scale.
Results: Both the back massage and Murottal Al-Qur'an interventions significantly reduced anxiety levels ($p<0.001$) compared to the control group. Interestingly, the Murottal Al-Qur'an group showed a more significant reduction in pain ($p<0.001$) compared to both the back massage group ($p=0.012$) and the control group (no significant change).
Conclusions: This study suggests that both Murottal Al-Qur'an and back massages can be effective in reducing anxiety associated with dysmenorrhea. However, Murottal Al-Qur'an appears to be a more effective intervention for managing pain intensity during menstruation.

Keywords: Anxiety, Back massage, Dysmenorrhea, Murottal Al-Qur'an, Pain

INTRODUCTION

Dysmenorrhea, a bothersome menstrual pain, affects many women around the world.[1] The prevalence of dysmenorrhea in Indonesia is 64.25%, of which 54.89% suffer from primary dysmenorrhea, while the rest suffer from secondary dysmenorrhea.[2] Dysmenorrhea can cause various symptoms, such as stomach pain, headaches, fatigue, and nausea.[3] Existing dysmenorrhea treatments, such as drugs and hormonal therapy, have limitations, such as side effects and contraindications.[4] Considering the risks and side effects of narcotic treatment, non-drug treatment may be an option.[5]

Several studies show that back massage can be effective in reducing dysmenorrhea pain.[6-8] The physiological mechanisms include muscle relaxation, increased blood flow, and the release of endorphins.[9] A study by Suryantini and Naning found that 30 minutes of back massage can reduce dysmenorrhea pain.[10] Several studies show that back massage can effectively reduce dysmenorrhea pain. One of them is research by Lusiani et

al. They use a purposive sampling technique; 18 respondents were obtained as samples, with the independent variables being endorphin massage and murottal therapy and the dependent variable being menstrual pain in young women before and after being given a combination of endorphin massage and murottal therapy. As a result, endorphin massage techniques combined with murottal therapy can stimulate the body to release and increase the production of endorphins and enkephalins which function to reduce menstrual pain and improve the mental system to reduce aggressive behavior which indicates body chemistry.[11] Apart from menstrual pain, a study found that back massage was proven to reduce anxiety levels.[12]

Murattal Al-Qur'an, as a non-pharmacological therapy, has also been proven to help reduce menstrual pain and increase relaxation. Rahmah and Yuni conducted research using an experimental design with 20 samples selected purposively, using the Wilcoxon test with α=0.05. The study's results showed that murottal and lavender aromatherapy affected the intensity of dysmenorrhea.[13] This finding is confirmed by other research results, which used a quasi-experimental design with 100 subjects aged 15-18 years and purposive sampling techniques. Data analysis used the Wilcoxon, Mann-Whitney, RR, and NNT tests. The results showed that murottal Al-Qur'an significantly reduced pain ($p<0.001$).[14] Apart from treating pain, Murattal Al-Qur'an can help reduce anxiety and increase relaxation.[15] The psychological mechanisms include shifting focus from pain, increasing mindfulness, and creating a sense of calm. 16 A study used a pre-experimental design with 94 students as a sample and the HARS questionnaire as an instrument. The results of the Wilcoxon analysis show that there is an influence of Murottal Al-Quran on the anxiety level of class IX students in facing exams with a p-value of 0.004.[16] A study found that listening to the Murattal Al-Qur'an for 13 minutes can reduce anxiety.[17] Meanwhile, Lismayanti, in her review, found that from the seven articles reviewed, 248 respondents indicated that the Murattal Al-Quran therapy intervention was effective in reducing anxiety in surgical patients.[18]

This study aims to compare the effectiveness of back massage and Murattal Al-Qur'an in reducing dysmenorrhea pain and anxiety levels in women. We suspect that back massage and Murattal Al-Qur'an are effective in reducing dysmenorrhea pain and anxiety levels, but which one is more effective? We need further proof. The implication of this research is the importance of considering non-pharmacological alternatives such as back massage and Murattal Al-Qur'an in the management of dysmenorrhea pain and anxiety in women. The results of this study can provide a basis for health practitioners to consider more holistic and patient-oriented interventions in managing dysmenorrhea pain. In addition, this study also shows the need for further research to understand more deeply the effects and mechanisms of this intervention and compare its effectiveness with other methods over a more extended time.

METHODS

This research employed a quasi-experimental pre-test and post-test control group design. The study was conducted from April to July 2023 at Binaul Ummah Secondary Schools, Kuningan, Indonesia. A total of 69 participants were recruited using purposive sampling.

Inclusion criteria

They were female students experiencing dysmenorrhea and anxiety who met the following inclusion criteria: Aged 16-18 years old and diagnosed with primary dysmenorrhea by a healthcare professional.

Exclusion criteria

Exclusion criteria included secondary dysmenorrhea (caused by underlying medical conditions), pregnancy, neurological disorders, and regular use of pain medication.

Participants were divided into three groups: Group 1 back massage therapy: before the intervention, participants completed pain and anxiety questionnaires. Back massage therapy was then performed for 30 minutes on the first three days of their menstrual period, following a standardized operating procedure (SOP) developed for the study. Questionnaires were administered again after each intervention. Group 2: Murottal Al-Quran Therapy: similar to group 1, participants completed baseline questionnaires. They then listened to recordings of Surah Al-Fatihah and Ar-Rahman for 30 minutes daily during the first three days of their menstruation. Questionnaires were administered again after the intervention period. Group 3: control group: participants in the control group did not receive any specific intervention for dysmenorrhea or anxiety. However, data on their usual practices during menstruation was collected. This study employed the Numeric Rating Scale (NRS) to assess the intensity of dysmenorrhea pain experienced by the participants. The NRS is a well-validated and widely used tool for measuring pain intensity in various clinical settings. It is a simple, self-administered questionnaire that presents a visual analogue scale (VAS) with numerical labels ranging from 0 (no pain) to 10 (worst possible pain). Respondents are instructed to mark the point on the line that best represents their current pain level.[19] The NRS has demonstrated strong psychometric properties, including reliability and validity. Studies have shown the NRS to be a reliable and valid tool for measuring pain intensity in adult populations, including women experiencing dysmenorrhea pain. The Zung Self-Anxiety Scale (SAS) was used to measure anxiety levels among the participants. The SAS is a well-established and validated tool for self-reporting anxiety symptoms in adults. It is a 20-item questionnaire that assesses various

aspects of anxiety, including somatic, cognitive, and affective symptoms. Respondents rate each item on a 4-point Likert scale (1 = never, 4 = always).[20] The SAS has demonstrated robust psychometric properties, including reliability and validity. Research has shown the SAS to be a reliable and valid tool for measuring anxiety levels in adolescents and adult populations. The data was analyzed using the ANOVA test for normally distributed data and the Kruskal-Wallis test for non-normally distributed data. Ethical approval for this study was obtained from the Ethics Committee of STIKes Kuningan. All participants provided written informed consent to participate in the research.

RESULTS

This research involved 69 female respondents who were divided into three groups, Murotal group (n=23), Back Massage group (n=23), and Control group (n=23). Table 1 presents the distribution of respondents based on age, region, family history of dysmenorrhea, and disease history.

Table 1: Characteristics of respondents.

	Murotal		Back massage		Control	
	No.	**%**	**No.**	**%**	**No.**	**%**
Age in years						
Early teens (12-16)	15	65.2	6	26.1	6	26.1
Late teenagers (17-25)	8	34.8	17	73.9	17	73.9
Total	23	100	23	100	23	100
Region						
Java	15	65.2	13	56.5	1	4.3
Outside java	8	34.8	10	43.5	22	95.7
Total	23	100	23	100	23	100
Family history of dysmenorrhea						
There's history	12	52.2	16	69.6	9	39.1
No history	11	47.8	7	30.4	14	60.9
Total	23	100	23	100	23	100
Disease history						
There's history	13	56.5	11	47.8	18	78.3
No history	10	43.5	12	52.2	5	21.7
Total	23	100	23	100	23	100

Table 2: Description of respondents' anxiety and pain between before and after treatment.

Variable	Murattal al-Qur'an (n=23)	Back Massage (n=23)	Control (n=23)
Anxiety (pre)	24.35±1.748	24.48±2.15	22.74±1.573
Anxiety (post)	23.09±1.756	23.09±1.505	23.65±1.526
Pain (pre)	3.13±1.392	3.83±1.435	3.65±1.555
Pain (post)	2.74±1.176	3.48±1.473	3.65±1.555
P value	0.007	0.006	0.001

The proportion of respondents in the early adolescent (12-16 years) and late adolescent (17-25 years) age groups differed between the three groups. In the Murotal group, 65.2% of respondents (15 people) were in their early teens, while 34.8% (8) were in their late teens. In the back massage group, 26.1% (6 people) of respondents were in their early teens, and 73.9% (17 people) were in their late teens. A similar age distribution was also found in the control group, with 26.1% (6 people) of respondents aged early teens and 73.9% (17 people) aged late teens.

The proportion of respondents in Java and outside Java differed between the three groups. In the Murotal group, 65.2% (15 people) of respondents came from Java, while 34.8% (8) came from outside Java. In the Back Massage group, the proportion of respondents in Java was slightly lower (56.5%, 13 people) than outside Java (43.5%, ten people). A very different regional distribution was seen in the Control group, with 4.3% (1 person) of respondents coming from Java and 95.7% (22 people) coming from outside Java.

The proportion of respondents with and without a family history of dysmenorrhea differed among the three groups. In the Murotal group, 52.2% (12 people) of respondents had a family history of dysmenorrhea, while 47.8% (11 people) did not have this history. In the Back Massage group, the proportion of respondents with a family

history of dysmenorrhea was higher (69.6%, 16 people) than those without a history (30.4%, 7 people). In the Control group, the proportion of respondents with a family history of dysmenorrhea was lower (39.1%, 9 people) than those without a history (60.9%, 14 people).

The proportion of respondents with and without a history of disease differed between the three groups. In the Murotal group, 56.5% (13 people) of respondents had a history of disease, while 43.5% (10) had no history of disease. In the Back Massage group, the proportion of respondents with and without a history of disease was almost equal, with 47.8% (11) having a history of disease and 52.2% (12 people) having no history. In the control group, the proportion of respondents with a history of the disease was much higher (78.3%, 18) than those without a history (21.7%, 5 people).

Before the intervention, respondents in the control group showed the lowest average level of anxiety (22.74) compared to the murottal (24.35) and back massage groups (24.48). Interestingly, after the intervention, anxiety scores in the murottal and back massage groups decreased (to 23.09 and 23.09, respectively). On the other hand, the anxiety score in the control group increased (from 22.74 to 23.65).

The data showed that before the intervention, the murottal group had the lowest average pain score (3.13), followed by the control group (3.65) and the back massage group (3.83). After the intervention, the pain score in the murottal and back massage groups decreased, while the pain score in the control group remained (3.65). The most significant decrease occurred in the murottal group (from 3.13 to 2.74), followed by the back massage group (from 3.83 to 3.24).

Table 3: Differences in levels of anxiety and pain between the murattal Al-Qur'an group and the control.

Variable	Murattal al-Qur'an (n= 23)	Control (n= 23)	P value
Fear (post-pre)	-1.26±1.888	0.91±0.99	0.000
Painful (post-pre	-0.39±0.499	0	0.001

Table 3 shows the differences in anxiety and pain levels between the Qur'an Murattal group and the control group. There was a significant difference in anxiety levels between the two groups after the intervention (p-value = 0.000). This finding shows that the Al-Qur'an Murattal intervention is more effective in reducing anxiety compared to the control group. Likewise, the two groups had a significant difference in pain levels after the intervention (p-value = 0.001). It means the Al-Qur'an murattal intervention was more effective in reducing pain compared to the control group.

Based on Table 4, it can be stated that there is a significant difference in anxiety levels between the back massage group and the control group, which is indicated by the value of p=0.000 (p<0.05). However, there was no difference in the average level of pain between the back massage group and the control, which was indicated by the value of p=0.225 (p>0.05).

Table 4: Differences in levels of anxiety and pain between the back massage and control groups.

Variable	Back massage (n=23)	Control (n=23)	P value
Anxiety (post-pre)	-1.39±1.99	0.91±0.99	0.000
Pain (post-pre)	-0.35±1.03	0	0.225

DISCUSSION

Compared with the control group, which did not receive intervention, anxiety scores in the murottal and back massage groups showed a decrease after the intervention. The anxiety score in the control group increased in the post-test assessment (from 22.74 to 23.65), even though they did not receive murottal or back massage intervention. This increase may be due to other factors outside the research, such as the placebo effect, that is, the expectation of treatment despite not receiving any treatment, which can influence the individual psychologically and produce effects similar to the actual intervention. Additionally, stress or anxiety unrelated to the study, such as personal problems or environmental changes, may have influenced anxiety scores in the control group. Changes in weather, political situations, or other unexpected events that occurred during the study could also be factors affecting the increase in anxiety scores in the control group.[21] Overall, the murottal and back massage interventions showed better results compared to the control group in reducing respondents' anxiety. These findings follow a study that provided intervention through endorphin massage and murottal therapy. As a result, the level of menstrual pain decreased significantly.[22] The relaxing effect of listening to regular, soft, slow, beautiful-toned sounds has been proven to reduce a person's anxiety.[23] This process provides a relaxing and calming effect on the soul, can help reduce anxiety and improve mood.[24,25]

The difference in pain scores between groups after the intervention showed a positive trend, with the murottal group showing a more significant reduction in pain scores compared to back massage (from 3.13 to 2.74). The decrease in pain scores in the murottal and back massage group may be caused by several factors, such as the effect of the murottal and back massage intervention, and psychological factors, such as relaxation and improving mood. Listening to murottal Al-Qur'an can have a relaxing impact and increase mental calm, potentially reducing pain.[26] Back massage can help relieve muscle tension and increase blood flow, which can help reduce pain.[27] Both murottal and back massage can help increase relaxation and reduce stress, contributing to reduced

pain.[28,29] Positive interventions can improve mood and optimism, which can help individuals cope with pain.[30]

The results of this study indicate that murottal and back massage interventions can be alternative non-pharmacological therapies to help relieve pain.[31] Although there are differences in pain scores between groups, this study cannot definitively conclude that murottal intervention is more effective than a back massage in relieving pain. Further research is needed with a more robust design and a larger sample for several things, namely, confirming the results of this study, comparing the effectiveness of murottal and back massage interventions more directly, and identifying the working mechanisms of murottal and back massage interventions in relieving pain.

The study involved 69 participants divided into three groups. The relatively small sample size may limit the generalizability of the findings to the broader population. Further research with a larger sample size is needed to strengthen the study's conclusions. The study did not control for all external factors that might influence participants' anxiety and pain levels. Factors such as personal life stress, environmental changes, and the placebo effect in the control group could affect the results. In conclusion, while this study shows promising results regarding the effectiveness of murottal and back massage in reducing anxiety and dysmenorrhea pain, the limitations call for a cautious interpretation of the results. Further research with more robust designs and larger sample sizes is needed to confirm these findings and further explore the intervention mechanisms.

CONCLUSION

Murottal and back massage interventions were effective in reducing anxiety and dysmenorrhea compared to the control group who did not receive the intervention. Anxiety scores in the control group increased after the study, possibly due to other factors such as the placebo effect, stress, or environmental changes. Murottal intervention significantly reduced pain scores more than a back massage.

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