The Effect of Roselle on Anxiety in Menopausal Women

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ABSTRACT

The global population of menopausal women in 2021 is 26% of all women and girls. Anxiety is usually caused by the fear of new problems arising and causing mental emotional disturbances. The rate of anxiety symptoms rises from 3.1% prior to menopause, to 7.0% during the transition to menopause, and further to 7.4% in the post-menopausal phase. Treatment of roselle in rats exposed to stress significantly reduced plasma corticosterene levels and increased brain serotonin levels. Gosypetin contained in roselle is effective as anti-depression and anti-anxiety with a dose of 20 mg/kg. Finding out how roselle affected anxiety in postmenopausal women was the goal of this research. The procedure uses a Quasy Experimental design with a control group that includes a pre- and post-test. Respondents used were 90 divided into 2 groups, namely intervention (45 participants) and control (45 participants) in Ngadirejo and Semampir Villages, Kediri City. The sampling technique used simple random sampling. The intervention group was given standard care and roselle extract as much as 1 x 1 500 mg for 5 days, while the control group only received standard care. With a p-value of 0.000, the experimental group's Paired Sample T-Test for anxiety revealed statistically significant findings. In contrast, a p-value of 0.572 was observed for anxiety in the control group. On the difference between posttest anxiety p-value 0.021. Roselle can reduce anxiety in menopausal women. This study is expected to help health workers to provide roselle extract to menopausal women who experience anxiety as an alternative treatment.

INTRODUCTION

The global population of menopausal women in 2021 is 26% of all women and girls (WHO, 2022). According to the Central Agency on Statistics, the projected number of women over the age of 50 in Indonesia from 2010-2035 is 20.9 million. According to research by Kumaat el al 2017 [1], the number of women experiencing menopause is projected to reach 30.3 million in 2020 and rise by 60 million in 2025. As part of menopause, a woman's fertility declines and her infertility sets in [2].

From the results of the preliminary study, it is known that the number of women aged more than 45 years in the Balowerti Health Center working area in 2022 is 5917 people. Women who will reach the age of more than 45 years and approach menopause can provide an increased risk of getting diseases, one of which is anxiety about many things experienced.

Anxiety is usually caused by worries that new problems will arise and cause mental emotional disturbances. This feeling arises due to fear and ignorance about what a person is experiencing and what will happen next. The extended duration of therapy, increased risk of complications, and potential reduction in life expectancy associated with hypertension might make a person apprehensive [3].

The prevalence of anxiety symptoms increased from 3.1% before menopause, to 7.0% during the menopausal time, and 7.4% in the post-menopausal period [4]. A total of 51% of midlife women aged 40-55 years reported tension/nervousness and irritability, while 25% reported frequent irritability. Women in the perimenopausal stage are more prone to experiencing anxiety compared to those who have not yet reached menopause [5]. Prevention and reduction of anxiety levels can be done by using natural herbal medicines with the potential to reduce anxiety and fewer side effects can be a good substitute for chemical drugs [6].

Roselle is an herbal plant that has been widely used in many countries as a beverage and source of medicine. The part of this roselle flower that is used is the roselle petals. roselle contains phenol/tanin compounds, anthocyanins, flavonoids, phytosterols, saponins and glycosides that show significant anti-anxiety and antidepressant activity [7]. Treatment of roselle in rats exposed to stress significantly reduced plasma corticosterene levels and increased brain serotonin levels [8]. Gosypetin contained in roselle is effective as anti-depression and anti-anxiety by giving a dose of 20 mg / kg [7]. Research participants were menopausal women from the Balowerti Health Centre, and the researchers wanted to know how the herb roselle affected their anxiety levels.

METHOD

This research is a quantitative study that utilises a Quasy Experiment design with a control group approach. The design includes a pretest and posttest. Research techniques with the provision of roselle extract preparations against anxiety in menopausal women, where the level of the subject group will be measured first before being given the intervention and will be measured again after being given roselle. All of the menopausal women who worked in the Balowerti Health Center's Kediri City region made up the study's population.

One hundred and ten menopausal women were eligible to participate in this research. Of them, sixty-five were random assigned to either the intervention or control group. All of these women lived in the vicinity of the Balowerti Health Centre in Kediri City and had hypertension. This research made use of a basic random sampling method.

Data collection was carried out in two stages, namely preparation and implementation in research. Preparations were made by obtaining a cover letter for preliminary studies and research permits. Coordinating with the coordinating midwife to collect the required data in the form of data on the number of women over 45 years of age and the number of anxiety cases in women over 45 years of age. After the preparation is done, proceed to the implementation by taking care of the requirements to the ethics commission to get approval. Cooperate with the coordinating midwife / region and related cadres to determine respondents who fit the criteria. Explain the objectives, benefits, implementation procedures of the study and provide informed consent for proof of consent to become a respondent. Fill in the respondent's data and conduct a pretest in the form of measuring anxiety using the DASS 42 questionnaire. The intervention group was given roselle extract as much as 1x500 mg for 5 consecutive days.

The intervention group was given roselle extract 1x500 mg for 5 consecutive days. After 5 days of intervention, a posttest was carried out to measure anxiety scores using the DASS 42 questionnaire and recorded the results of the examination on the respondent's observation sheet. After all the data is collected, the data is processed and analyzed..

Data processing includes data manipulation, data transformation (coding), and data entry that has been collected into a master table or computer database, then creating a simple frequency distribution or by creating a contingency table. Tabulate the data or enter the data into the table provided.

The Kolmogorov Smirnov test is used in the normality test if the sig value is > 0.05, which indicates that the data follows a normal distribution. The data is not regularly distributed, however, if the sig value is < 0.05. this is done because the number of respondents exceeds 30. In this investigation, the Lavane homogeneity test was used. Decisions are based on whether the data group is from a similarly distributed population if the Sig value of sig. > 0.05, or heterogeneous (with varying variances) if the Sig value of sig. < 0.05. Each variable is described independently in a univariate analysis. In this study, the data analyzed were demographic status in the form of age, occupation, latest education, blood pressure. If you need to examine two variables, you should utilise bivariate analysis. The analytical methods employed consist of the Paired sample t-test and the Independent sample t-test to assess differences between two groups.

The ethical permit used is based on four basic principles of research ethics, in the form of respect for persons (others), beneficience, which is the principle of doing good, non maleficence by reducing harm to subjects and protecting subjects. Justice emphasizes that everyone deserves something according to their rights regarding distributive justice and balanced distribution (equitable). The ethics submission number on the Polkesma Health Research Ethics Commission is 00582235732111122013053000147.

RESULT AND DISCUSSION

This chapter describes the results of research on "The Effect of roselle on Anxiety in Menopausal Women in the Balowerti Health Center Work Area, Kediri City". This research used a random selection technique to choose 90 participants, 45 of whom were assigned to an intervention group and 45 to a control group. Data collection was carried out on June 14, 2023 to June 21, 2023.

Menopausal women who become respondents are selected according to the inclusion criteria and then given an explanation of the research procedures that will be carried out and are welcome to ask questions to the researcher, after the respondent is willing, he can give his consent in the form of a signature on the consent sheet. Respondents will be interviewed to obtain the characteristics of the research sample.

1. Characteristics of Intervention Group and Control Group Respondents

Table 1.

Frequency table distribution of respondent characteristics in the intervention group and control group

Characteristics	Group				p-Value
	(n=45) Intervention Group		(n=45) Control Group		
	F/M	%/SD	F/M	%/SD	
Age	64,22	100%	68,08	100%	0,068[a]
Schooling					0,501[a]
1. Primary	26	57,7%	25	55,5%	
2. Secondary	13	28,8%	11	24,4%	

3. Tertiary	6	13,3%	9	20%	
Job Status					0,264[a]
1. Employed	21	46,6%	25	55,4%	
2. Unemployed	24	53,3%	20	44,4%	
Anxiety	19,28	100%	16,86	100%	0,299[b]

Caption : a : levene test, b : independent sample test

In Table 1, it is indicated that the control group has an average age of 68.8 years, whereas the intervention group's average age is 64.22 years. When looking at the most recent education level, the majority of both groups have completed elementary and junior high school, 51 participants (56.6%), based on employment, most participants in the intervnention and control groups work with a total of 46 respondents (51.1%). Fifteen people (or 51.1% of the total) in the intervention group reported very high levels of anxiety, in the control group most were at a severe level, totaling 19 participants (42.2%).

2. Results of Anxiety Analysis in the Intervention Group in Menopausal Women

Table 2.
Ratio of anxious feelings before and after roselle extract administration in the experimental group

Anxiety	Intervenstion Group (n=45)		p-Value
	Pretest	*Posttest*	
Normal	0	0	
Mild	1	6	
Moderate	7	7	0,000
Severe	14	18	
Very Severe	23	14	
Total	45	45	

Caption : wilcoxon test

From on table 2 regarding the frequency distribution of anxiety in the intervention group, it can be seen that at pretest most were in the very severe category with 23 participants and at posttest most were in the severe category as many as 18 participants.

Table 3.
Anxiety in the intervention group before and after given roselle extract

Variable	Intervention Group (n=45)		p-Value
	Pretest	*Posttest*	
	Mean + SD	Mean + SD	
Anxiety	19,29 + 4,994	16,87 + 4,765	0,000

Caption : pair t-test

Based on the information presented in Table 3, which illustrates the results of the anxiety assessment within the intervention group, the average anxiety score prior to the intervention was 19.29, whereas following the intervention it was 16.87. Based on the average pretest and posttest, the results show that there is a decrease in anxiety scores in the intervention group. Significant outcomes were shown by the paired t-test on anxiety for the intervention group, with a p-value of 0.000 (p-value <0.05). The anxiety value in the intervention group reduced after receiving roselle extract.

3. Anxiety Analysis in the Control Group in Menopausal Women

Table 4.
Frequency of anxiety levels before and after standardized care

| Anxiety | Control Group (n=45) | | p-Value |
	Pretest	Posttest	
Normal	0	0	
Mild	6	2	
Moderate	7	7	0,000
Severe	18	15	
Very Severe	14	21	
Total	45	45	

Caption : wilcoxon test

From on table 4 regarding the frequency distribution of anxiety in the control group, it can be seen that at pretest most were in the severe category with 18 participants and at posttest most were in very severe category as many as 21 participants.

Table 5.
Anxiety in the control group before and after given standardize care

| Variable | Control Group (n=45) | | p-Value |
| | Pretest | Posttest | |
	Mean + SD	Mean + SD	
Anxiety	19,09 + 5,530	19,42 + 5,508	0,000

Caption : pair t-test

Table 5 displays the findings of the anxiety analysis in the control group. The graph indicates that the control group had an average anxiety score of 19.09 before the test and 19.42 after the test. The control group does not exhibit a statistically significant reduction in anxiety levels, according to the average of the pretest and posttest. Results from the control group's paired t-test on anxiety were statistically significant (p value 0.670, p value> 0.05). The results show that the control group did not see any notable improvements in anxiety.

4. Results of Analysis of Differences in Anxiety Levels in Both Groups After Being Given Roselle in Menopausal Women

Table 6.
Differences in anxiety in the intervention and control group

| Variable | Group | | | | p-Value |
| | (n=45) Intervention Group | | (n=45) Control Group | | |
	Mean	+ SD	Mean	+ SD	
Anxiety	16,87	+ 4,765	19,42	+ 5,508	0,068[a]

Caption : pair t-test

Based on the data in Table 6, a comparison was made using an independent sample t-test to evaluate the anxiety levels between the two groups post roselle intake and standard care. Following the analysis, the control group showed an average anxiety level of 19.42, whereas the intervention

group reported an average anxiety level of 16.87. Significant findings were shown by the independent sample t-test on anxiety in both groups, with a p value of 0.000 (p value <0.05). It may be seen that the anxiety levels of the two groups vary after administration of roselle compared to normal treatment.

Table 2 reveals that anxiety has reduced by an average of 2.49 points. After administering roselle extract as an intervention to menopausal women, it was shown that anxiety levels dropped. Depression and anxiety can significantly affect women during the menopausal transition [9]. Based on research conducted in Pakistan, symptoms experienced by perimenopausal to post-menopausal women include palpitations, headaches, irritability, anxiety, lethargy, loss of libido, forgetfulness, lethargy to dyspareunia [10].

Research conducted in Iran administering a single dose of roselle dried petal extract of 50 mg/kg caused a significant decrease in sleep duration. Repeated dosages of roselle extract increased the anxiolytic and sedative effects, according to the research. Reduced sleep time was the primary effect of a single 50 mg/kg dosage. Furthermore, a separate 2019 research found that at dosages of 5 - 20 mg/kg BW, respectively, the gosipetin included in roselle extract exhibited substantial antianxiety and antidepressant effects. This research lends credence to the age-old practice of using roselle to treat neurological diseases. One of the components of H. sabdariffa calyces, gosipetin, has antidepressant and anxiolytic properties [7].

The use of roselle as anti-anxiety can certainly be useful in the medical world, although studies on antianxiety activity on roselle are still not widely found, but it does not rule out the possibility that roselle will be an alternative treatment in the future that is minimal risk. According to the theories described above, it can be concluded that anxiety after being given roselle has decreased compared to before being given to the intervention group.

From on table 3, it shows that the average anxiety results increased by 0.33 from pretest 19.09 to 19.42 at posttest. It can be concluded that anxiety increased in the control group. Some vasomotor symptoms in menopause such as hot flushes on the face, night sweats, irritability, and nervousness are common in perimenopausal women compared to premenopausal women [5]. The vasomotor symptoms commonly felt are called "hot flashes" which are described as a sudden feeling of heat in the scalp, neck, and chest area accompanied by increased heart rate and increased body temperature. In cross-sectional surveys, about 40 percent of premenopausal women experience these symptoms and 85 percent of menopausal women. The exact cause is unknown, but it is believed that decreased estrogen levels and increased FSH levels are responsible for these vasomotor symptoms.

About 85 percent of perimenopausal women experience mood disorders (anxiety, nervousness, palpitations, insomnia, depression and headaches). This has been linked to vasomotor disorders and some studies have linked it to the psyches of women who still find it difficult to accept the menopausal phase they are experiencing. The underlying causes of this mood disorder include a decrease in estrogen levels which have an effect on neurotransmitters that regulate mood regulation, vasomotor changes, and psychic unpreparedness [11]. Anxiety and physical changes in premenopausal women have been linked in prior studies [12]. Health anxiety was less prevalent among menopausal women who exercised more, had greater levels of interpersonal competence, and emotional intelligence [13].

Purpose of exercise gymnastics is to promote healthy maturation on several levels, including the physical, psychological, spiritual, and social [14]. Perimenopausal women may benefit greatly from aerobic exercise, which helps alleviate anxiety, sadness, and poor sleep quality. The benefits become more apparent with increased exercise frequency. In clinical promotion, it has the potential to enhance perimenopausal women's mental health by reducing anxiety, depression, and improving the quality of their sleep [14]. According to Huang et al [13] anxiety problems are common among menopausal women and are correlated with the severity of menopause syndrome.

Anxiety, tension, and other psycho-vegetative symptoms are common throughout the menopausal transition. A tremendous public health benefit may result from early intervention in cases of stress and anxiety [15]. As we age, more attention is needed to manage menopausal symptoms [16].

Multiple methods exist for helping menopausal women overcome their anxiety. One of these is progressive muscle relaxation, which has been shown to significantly reduce anxiety in this population [17]. Another study indicated that a combination of progressive muscle relaxation and natural sound music therapy significantly reduced the value of sleep quality disorders in this population [18]. Lastly, Jacobson's progressive relaxation is an effective intervention for reducing stress in postmenopausal women.

Helping postmenopausal women who have insomnia via the practice of progressive relaxation techniques and good sleep hygiene can be beneficial [19,20], short-term yoga is effective for psychological symptoms in menopausal women intervention [21], Mindfulness-Based Stress Reduction can relieve anxiety symptoms and increase hormone levels in patients [13].

Based on the hypotheses mentioned before and the study's findings, the researcher determined that the control group's anxiety levels did not significantly decrease after receiving routine treatment compared to previously.

Anxiety scores ranged from 19.42 in the control group to 16.87 in the intervention group, as shown in Table 4. After using roselle, menopausal women's anxiety levels can change depending on which group they're compared to.

In managing menopausal symptoms, hormone therapy can be given. Hormone replacement treatment has both short- and long-term advantages for women. Those who begin treatment before the age of 60 or who begin taking hormones within a decade of menopause see a reduction in menopausal symptoms, and those who begin treatment after menopause are less likely to develop chronic illnesses [22]. According to Shifren et al hormone treatment is considered the most effective method for managing vasomotor symptoms that are common after menopause [23]. Among those who are good candidates, hormone therapy may help prevent osteoporosis [24]. The "gold standard" for treating menopausal symptoms, particularly vasomotor symptoms, oestrogen is the predominant active ingredient in hormone treatment. The following oestrogens are used in therapeutic purposes: micronized 17β-estradiol, oestriol, estradiol valerate, estradiol hemihydrate, conjugated equine oestrogens (CEEs), synthetic conjugated oestrogens, and estriol [25]. However, there hasn't been a research that adequately determines how hormone treatment differs in effects based on factors including dosage, formulation, length of use, administration method, starting age, and type[26]. Anxiety problems in menopausal women are not always alleviated by hormone replacement treatment, despite its widespread usage for menopause symptoms [27].

Studies on the neuropharmacological effects of water extract from roselle performed in Nigeria. Using mice as examples, the researchers found that administering roselle at doses of 100–400 mg/kg reduced motor activity and prolonged the effects of pentobarbital. The sodium salt pentobarbital has a history of usage as a hypnotic and sedative for the treatment of temporary sleeplessness. There was a significant decrease in rats' exploratory behaviour when given roselle extract. The effectiveness of apomorphine (1 mg/kg) was considerably reduced by roselle. Similarly, apomorphine-induced stereotypic behaviour was substantially prevented by chlorpromazine (3 mg/kg). The results of this study's analysis of variance revealed that roselle extract includes psychotropic compounds with sedative properties; these compounds have long been used in traditional medicine for this purpose [28].

In another study in Nigeria in 2022 it was also stated that roselle extract has asiolytic and sedative effects that become more pronounced with repeated dosing [29]. Another study published by the Journal of the AAPS in 2023 regarding the antidepressant effect of roselle extract on 120 flies and distributed to six groups. The findings from the research suggest that the extract of roselle could

potentially exhibit antidepressant effects on chlorpromazine-induced depression in Drosophila melanogaster [30].

Based on the theories mentioned earlier and the study's findings, the researcher believes that a significant difference in anxiety levels after receiving roselle in menopausal women can be inferred by comparing the two groups' means and anxiety analysis results.

CONCLUSION

Research on the effects of roselle on anxiety in menopausal women found that, when compared to a control group, those in the intervention group reported less anxiety. Menopausal women's anxiety levels did not decrease significantly after receiving the control group's standard. There is a difference in anxiety in both groups after being given roselle in menopausal women. As input for midwives to provide roselle extract to menopausal women as an alternative treatment to reduce high anxiety levels. The results of the study can be used as information about roselle as an alternative treatment for patients experiencing anxiety. Future research can examine other factors that affect anxiety in menopausal women and other alternatives to overcome this.

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