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Original Research Article

Effect of stress management intervention I and II: relaxation and combination techniques (relaxation and lemon turmeric and honey) on the stress level of comorbid respondents during the COVID-19 pandemic in west Bogor district

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ABSTRACT

Background: This study aimed to determine the effect of stress management I: progressive relaxation & 5 fingers, and stress management II: relaxation (progressive and 5 fingers) with lemon turmeric honey (lemonyit honey) on the stress level of cormobid respondents in the COVID-19 pandemic era.
Methods: The research design was a quasi-experimental pre-test and post-test control group. The location was in the area with the highest Covid-19 cases and Rukun Warga (RW) with the largest population, namely West Bogor Subdistrict in Curug and Cilendek RW. The study population was all residents aged adults to pre elderly. Samples were taken randomly, by first screening for hypertension, diabetes and respiratory disorders in adults-pre elderly. Samples that fit the inclusion and exclusion criteria were obtained 100 respondents, consisting of 3 groups; namely group 1 = 34 people received progressive relaxation techniques and five fingers for 60-90 minutes, group 2 = 30 people received a combination of relaxation techniques and lemonyit honey, and group 3 (control) = 36 people. Stress levels were measured using the Kurzen stress questionnaire. Data analysis included descriptive analysis and hypothesis testing.
Results: Stress management I and II, effectively controlling stress levels in the Covid-19 pandemic era in comorbid respondents.
Conclusions: Stress management I and II can reduce stress levels during the Covid-19 pandemic in respondents with cormobid. Stress management I and II, can be applied in health care facilities both in hospitals and communities during the Covid-19 pandemic, to reduce the stress levels of clients who have cormobid.

Keywords: Comorbid diseases and lemonyit madu, Stress, Stress management

INTRODUCTION

In 2020 to 2022 there was a new virus outbreak, namely a new type of corona virus (SARS-CoV-2) and the disease was named Corona virus disease 2019 (COVID-19). It is known that the origin of this virus came from Wuhan, China, discovered in late December 2019. The World Health Organization (WHO) named the new virus as

Severe Acute Respiratory Syndrome-Coronavirus-2 (SARS-CoV-2) and the disease as Corona virus disease 2019 (Covid-19).[1] India has the second highest mortality rate in Asia after India. In Indonesia, since the first case was reported on March 2, 2020 to May 1, 2021, there have been 1,672,880 confirmed cases with 45,652 deaths.[2]

This condition indirectly affects the psychology of the community, especially those with other comorbidities. The fear of potential new complications or the risk of transmission to their families is often on their minds. WHO argues that the emergence of a pandemic can cause stress at various levels of society.[1] During a pandemic, everyone must be able to adapt, especially clients who have comorbidities, so as not to cause stress to clients. In addition, this pandemic period also makes many people feel confused, afraid of being infected and frustrated to the point of experiencing a decline in health. Excessive fear and worry can cause stress. Stress caused by the social environment is called psychosocial stress. The Covid-19 pandemic can trigger psychosocial stress.[3]

A number of studies related to pandemics, including avian flu and SARS, have shown negative impacts on the mental health of survivors. Research on SARS survivors shows that in the medium and long term, 41.65% of survivors experience various kinds of psychological disorders.[4] Research in Hong Kong states that psychological problems in SARS survivors as much as 64% experience psychiatric disorders. Dwi Yuwono's research (2020) on 127 studies to be intervened with micro-counseling found that 65% of respondents experienced moderate stress, 5% high stress, and 30% mild stress.[5] Another study related to the Mount Merapi disaster in Central Java conducted by Marga, Sumarni and Dasuki (2015) found that 29.17% experienced severe psychosocial stressors and 70.83% experienced mild psychosocial stressors.[6]

Comorbidities during the Covid-19 pandemic can cause prolonged stress, resulting in decreased immunity. Stress is a normal reaction of the body, when changes occur the body will respond physically, mentally, or emotionally. Stress can be positive and negative. Positive is that it can keep motivation alert and ready to avoid danger, whereas it becomes negative when a person faces constant challenges without relief or relaxation. Stress management is making changes in life if we are constantly under stress, preventing stressful situations by practicing self-care and relaxation, and managing responses that occur. During the pandemic, if stress can be managed well, it will turn stress into eustress or positive stress, as humans become creative and productive.[7] The ability to manage stress is called stress management and one such stress management is relaxation techniques.

Relaxation techniques in this technological era can not only be done in person but also with various digital platforms.[8] Relaxation techniques in the world of health and nursing that can be applied are deep breath relaxation, progressive relaxation, 5-finger relaxation, meditation, yoga, and taichi. The application of stress management in research during this pandemic can be done with a blended method, namely offline and online, with the intervention of providing relaxation techniques and honey lemonyite. Various forms of relaxation, for example progressive muscle relaxation, five-finger, meditation, breathing exercises, visualization, and autogenic, which can help individuals reduce stress, increase the state of relaxation, and improve overall well-being.

Lemonyit honey is an herbal drink consisting of lemon, turmeric and honey. Turmeric is a spice with antioxidant properties, which helps release stress hormones in the body. Curcumin in turmeric, functions as an antidepressant. Lemon contains nutrients that are effective in overcoming stress and can calm the mind and boost the immune system. When lemon is mixed with turmeric, it can overcome stress and depression. Lemon is a healthy fruit that is rich in fiber and free radical-fighting antioxidants in the form of vitamin C and is also rich in calcium. Lemon has other benefits that are more effective than chemical drugs. Inhaling the scent of lemon, either in the form of the whole fruit or its extract, can reduce stress, without causing side effects. Similarly, honey can treat a variety of diseases. Honey contains protein mainly in the form of amino acids and the main enzymes are diastase, invertase and glucose oxidase. Honey also contains zinc, manganese, selenium, vitamin C, thiamine, riboflafin and niacin. Honey is active against bacteria and viruses and its antioxidant activity will neutralize free radicals and help stimulate tissue regeneration for a healthy body.

Based on data submitted by the Bogor City Statistics Agency, the total population of Bogor City in 2021 reached 1,052,359 people, consisting of 533,774 (50.72%) men and 518,585 (49.28%) women with 210,482 households. Based on the age structure, there are 253,135 (24%) people under 15 years old, 697,210 (66.3%) people aged 15-59, and 102,014 (9.7%) people aged 60 years and over. Hypertension ranks second in the top 10 diseases visited by health centers. Of the 56,411 people with hypertension in 2021 in Bogor City, 34,593 (62.3%) were female and 21,818 (40%) were male. The number of diabetes mellitus patients in Bogor City in 2021 amounted to 17041 (2%) cases. The highest number of Covid-19 cases occurred in West Bogor Sub-district with 7,884 cases, while the highest mortality rate was in North Bogor Sub-district with 88 death cases. Researchers are interested in knowing which stress management interventions are effective in reducing stress in cormobid clients by providing relaxation techniques alone, or a combination of relaxation and lemonyit in West Bogor District.

METHODS

The research design used was a quasi-experimental pre-test and post-test control group design. The research location is in the West Bogor Sub district, Bogor City, where the highest number of Covid-19 cases. The target population is all residents aged adults to pre-elderly in West Bogor District. West Bogor Sub-district has the largest number of RWs, namely random sampling, by screening for cormobid in adults - pre elderly in RW Curug and RW Cilendek. Sampling according to the inclusion and exclusion criteria found that the total sample was 100 respondents, consisting of 3 groups, namely group 1 as many as 34 people received progressive relaxation techniques and five fingers for 60-90 minutes, group 2 as many as 30 people received a combination of relaxation techniques and lemonyit honey, and Group 3 (control) as many as 36 people, only received stress education from the puskesmas. Stress levels were measured using the Kurzen stress questionnaire. With a group of adults with comorbid hypertension, Chronic Obstructive Pulmonary Disease (COPD), and respiratory disorders who were willing to become research subjects. The study was conducted from September to November 2021.

The exclusion criteria were adults with the same comorbidities, who were currently ill and undergoing treatment. The number of research subjects successfully recruited in this study was 100 people who were randomly divided into 3 treatment groups. Group 1 totaled 34 individuals, group 2 totaled 30 individuals, and group 3 totaled 36 individuals. Stress levels were measured using the Kurzen stress questionnaire. The intervention was conducted once a week with a duration of 60-90 minutes per session, and the total duration of the intervention was 6 weeks (6 sessions). The intervention in Group 1 was stress management through progressive relaxation and 5-finger relaxation techniques for 60-90 minutes, while Group 2 received the same intervention as Group 1 plus the provision of lemonyit. The control group only received counseling from health workers at the health center. After the intervention, the stress levels of the three groups were reassessed.

Data analysis was performed using a computer program, including descriptive analysis and hypothesis testing. The normality test was conducted using the Shapiro-Wilk test because the sample size was less than 50. The hypothesis test for differences in stress levels between the three groups was conducted using the Mann-Whitney test because the data distribution was not normal. Multivariate analysis was performed using the Kruskal-Wallis non-parametric test.

RESULTS

Table 1 describes the socio-demographic characteristics of the study population. Most of the respondents were female (86%), 80% were married, 86% were not working, 67% were adults, and 50% had primary school education, followed by senior high school (30%) and 20% junior high school. The proportion of characteristics between the intervention and control groups was almost the same, with only a slight difference in education level. The group that received the relaxation technique and lemonyit intervention mostly had a high school education (43.3%), while the other group consisted mostly of individuals with elementary school education.

Table 1: Distribution of comorbid characteristics based on age, gender, marital status, education, occupation and duration of illness (n=100).

Variables	Intervention Group I stress management: relaxation		Intervention Group II stress management: relaxation and honey lemonyit		Control group		Total	
	N	%	N	%	N	%	N	%
Gender								
Male	0	0	8	26.7	6	16.7	14	14
Female	34	100	22	73.3	30	83.3	86	86
Marriage status								
Married	31	91.2	23	78.7	26	72.2	80	80
Widow/widower	3	8.8	7	23.3	10	27.8	20	20
Occupation								
Employed	6	17.6	4	13.3	4	11.1	14	14
Unemployed	28	82.4	26	66.7	32	88.9	86	86
Age								
Adult	28	82.4	17	56.7	22	61.1	67	67
Elderly	6	17,6	13	43.3	14	38.9	33	33
Education								
Elementary	21	61.8	6	20.0	23	63.9	50	50
Junior high school	4	11.8	10	33.3	6	16.7	20	20
Senior high school	9	26,5	13	43.3	7	19,4	29	29

Continued.

Variables	Intervention Group I stress management: relaxation		Intervention Group II stress management: relaxation and honey lemonyit		Control group		Total	
	N	%	N	%	N	%	N	%
College	0	0	1	3.3	0	0	1	1
Comorbid diseases								
Pulmonary tuberculosis	0	0	0	0	2	2.8	2	2
Asthma	2	5.9	3	10.0	1	2.8	6	6
Hypertension	26	75.5	17	56.7	26	72.7	69	69
Diabetes mellitus	6	17.6	10	33.3	7	19.4	23	23

Table 2: Analysis of differences in stress levels in intervention group I, intervention group II and control group (n=100).

Variables	Intervention	SD	P value	Control	SD	P value
Intervention Group I (relaxation)						
Pre-test	9.53	2.12		9.94	2.329	
Post Test	5.68	2.53	0.001	9.75	3.392	0.721
Difference	3.85					
Intervention Group II (relaxation and giving lemonyit honey)						
Pre-test	9.07	1,721		9.94	2.329	
Post Test	4.97	1,712	0.001	9.75	3.392	0.143
Difference	4.1					

Changes in participants' stress are shown in Table 2. It can be seen that the measurement of stress levels in the three groups, namely the group that only received the relaxation intervention, the group that was given the relaxation and lemonyit intervention, and the third group that only received education from the health center, showed that the relaxation technique intervention significantly reduced stress levels from 9.53 to 5.8. The intervention involving relaxation techniques and lemonyit also significantly reduced stress, with the difference in stress reduction being 0.25 higher than that of relaxation alone. The control group showed no change before and after the intervention. In other words, the relaxation technique intervention, with or without lemonyit honey, can effectively reduce stress.

Table 3: Stress level.

Stress level	Mean rank	P value
Intervention Group I: relaxation techniques		
Pre	52.12	
Post	41.00	0,306 (pre)
Intervention Group II: relaxation techniques and administration of lemonyite honey		
Pre	43.93	0.005 (post)
Post	33.92	
Control Group		
Pre	54.44	
Post	73.29	

Table 3 shows that of the three interventions, the stress levels in the three groups showed no difference before the intervention. However, after the intervention with relaxation and a combination of relaxation and lemonyite honey there was a decrease in stress levels, while the control group did not experience a decrease in stress scores but an increase in stress levels. Giving a combination of relaxation and lemonyite honey both have the same effect of reducing stress, with a higher stress reduction score compared to the group that only received relaxation alone.

DISCUSSION

Differences in stress levels in the stress management intervention group I: relaxation techniques with the control group

When giving stress management: relaxation techniques, the results showed a decrease in stress levels from an average of 9.53 down to 5.68 with a p-value of 0.001, while in the control group there was no difference before and after the intervention with a p-value of 0.721. During a pandemic, stress can be managed well by people who are able to adapt in managing stress well can reduce eustress or positive stress because it makes humans creative and productive.[7] Changes in conditions that are very fast and uncertain are very necessary. Having the ability to recognize the causes of stress and being able to carry out various programs to overcome stress. The cause of stress in comorbid clients can be caused by the threat of increasingly severe illness. Comorbidities include

diabetes mellitus, renal, autoimmune, tuberculosis/cancer, asthma, chronic obstructive pulmonary disease (COPD), tumors and the elderly.

Research by James et al (2021) shows that Covid-19 puts pressure on clients so that comorbid clients have resilience in dealing with Covid-19 pressure. If clients have the ability to deal with pressure, it will greatly help clients to carry out stress management in dealing with pressure due to Covid-19.[9] Another study by Ichicura et al (2020) states that psychotherapy is an individual who focuses on problem solving and stress. Management can contribute to reducing the level of depression in comorbid clients with cancer of the oral, laryngeal, pharyngeal region. The problems of cancer clients vary greatly, ranging from: the ability to eat, swallow and breathe makes HNC clients at risk of suffering from depression. Stress if not managed properly can lead to decreased quality of life, low treatment adherence and poor survival. Psychological interventions have beneficial effects for clients with comorbidities.[10]

Saraei et al (2016) research also suggests that stress management affects mental changes and blood sugar levels in type 2 DM clients.[11] The same research by Zamani-Alavijeh et al (2018) states that stress management interventions based on cognitive theory, social interaction can help reduce stress and increase self-efficacy in overcoming problems.[12] In this study, in addition to being given education about stress and stress management, clients were also given relaxation technique interventions to be applied and then continued during the pandemic. The relaxation techniques practiced in this study were progressive relaxation technique and 5-finger relaxation technique.

Progressive relaxation is focusing on tense muscle activity, in order to reduce tension which causes a happy or relaxed effect. The results of Resti's research (2014) state that progressive relaxation techniques can reduce the stress level of clients with asthma, and can reduce the stress level and blood pressure of hypertensive clients.[13] Primasari and Rahmawati's research (2021) states that progressive muscle relaxation therapy can reduce anxiety levels in clients who have physical illnesses which are stressors for clients experiencing anxiety.[14] Meanwhile, relaxation research with the 5-finger technique, to reduce anxiety levels, has been applied to the target population of students and health workers (nurses and doctors). The results of research by Hastuti et al (2015) show that the 5-finger relaxation technique can reduce the anxiety level of students who are working on their thesis.[15] Research by Yuliana et al (2021) states that 5-finger hypnosis can reduce the anxiety level of clients treated at the Jambi Province Mental Hospital. Factors that support a decrease in anxiety levels are cooperation between therapy and clients and the calmness in which relaxation techniques are carried out.[16] The results of research by Sumirta et al (2018) show that there is an effect of clients getting relaxation techniques on the anxiety level of clients with HIV/AIDS.[17] Likewise, the results of research by Saswati et al (2020) that the 5-finger relaxation technique can reduce the anxiety level of diabetes mellitus clients.[18] The combination of deep breath relaxation techniques and 5-finger relaxation techniques can reduce anxiety in clients experiencing joint pain. The combination of progressive relaxation techniques and 5-finger relaxation techniques can reduce the stress levels of clients with comorbidities such as asthma, hypertension, cancer and diabetes mellitus. Relaxation training will reverse the effects of stress on the sympathetic nervous system. The effect of relaxation, increasing sympathetic nerves, inhibits the amount of stress-causing hormones. The production of stress-causing hormones (cortisol) will decrease so that the body can carry out its functions normally and have more energy for the healing process. 5-finger relaxation is one of the self hypnosis that can cause a high level of relaxation, causing a feeling of calm and comfort so that it can reduce tension and stress from a person's mind. Five-finger hypnosis affects a person's limbic system so that it affects the release of stress-causing hormones.

Differences in stress levels in stress management group II: relaxation techniques and lemonyite honey administration with the control group

There is a difference in stress levels before and after the stress management intervention: relaxation techniques and giving lemonyite honey with a p-value = 0.001. While in the control group there was no difference in stress levels with a p-value = 0.143. Group II intervention (stress management: relaxation techniques and giving lemonyit honey) can reduce the stress level of clients with comorbidities.

In this study, clients who had comorbidities in addition to getting relaxation techniques also received honey lemonyit herbal drinks. Lemon contains nutrients that are effective in overcoming stress and calming the mind and boosting the immune system. Mixing lemon and turmeric can be used as an herbal therapy to treat stress and depression. Lemon is a healthy fruit that is rich in fiber and anti-free radical oxidants in the form of vitamin C and is also rich in calcium. Lemon has other benefits that are more powerful than chemical drugs. Inhaling the aroma of lemon, either in the form of whole fruit or extract, can reduce stress, without causing side effects. Ningtyas and Puji Rahayu's research (2017) from the results of the Mann Whitney analysis test found that the results of deep breathing techniques and the provision of Lemon aromatherapy were able to reduce the stress levels of hypertensive clients.[19] Likewise with honey, honey can overcome various diseases. Honey contains proteins, especially in the form of amino acids and the main enzymes, namely diastase, invertase and glucose oxidase. Honey also contains zinc, manganese, selenium, vitamin C, thiamine, riboflaffin, and niacin. Honey is active against bacteria and viruses and its antioxidant activity will neutralize free radicals and help stimulate tissue regeneration for a healthy body.[20] Research by Pratiwi et

al (2021) in Amelinda's research (2018), a literature study was conducted for 5 years from 2016-2020 using the Google Scholar data base stating that Curcuma or curcumin in its rhizome acts as an antioxidant that can inhibit reactive oxygen. Species (ROS) which are unpaired electrons produced by the body can cause pathological conditions known as oxidative stress.[21] The way to suppress stress and reduce ROS production is with antioxidants. One of the antioxidants that can reduce stress and inhibit ROS production is turmeric rhizome. The results of Carera et al (2019) showed that curcumin has antioxidant activity that can cross the brain barrier and increase striatal dopamine levels in neurons. Dopamine is a substance that causes feelings of happiness. Turmeric rhizome is a natural phenol compound in the form of curcumin, as the results of several in vitro and in vivo studies where curcumin has anti-oxidant, anti-inflammatory, anti-poptosis properties and its therapeutic potential in neurodegenerative disorders. Curcumin protects dopaminergic neurons from neuronal damage.[22]

Differences in stress levels of comorbid clients in Stress Management I and II (relaxation alone with relaxation and lemonyit honey) and control groups

Providing relaxation techniques alone with a combination of relaxation and herbal therapy, namely lemonyit honey, can reduce stress levels in comorbid clients. Relaxation makes clients more relaxed and herbal therapy inhibits the formation of cortisol and increases hormones that cause happiness. On the contrary, this study found that the group that did not perform stress management, the stress level would increase. Prolonged stress will cause fatigue and impact the entire body system.

This study has some limitations. The method of assessing the sociodemographic characteristics is inadequate. For example, when asking age, it's not directly divided into categories like under 60 and over 60, or into adult and senior categories. Similarly, the type of accompanying disease in the participants was not classified so it was not known whether the reduction in stress was related to the kind of accompaning disease. Drink preparation interventions are not carried out to test the characteristics of drinks; it is only based on herbal prescriptions from the author's experience.

CONCLUSION

Stress management I and II, namely relaxation techniques alone and their combination, can reduce the stress level of clients who have comorbidities during the Covid-19 pandemic. There is a difference in clients who received stress management intervention I, namely relaxation techniques compared to the control group. There is a difference in clients who receive stress management intervention II, namely relaxation techniques and provision of lemonyite honey compared to the control group.

Suggestions, stress management interventions I and II need to be applied in health care facilities (fasyankes) both in hospitals and communities, namely health centers in an effort to reduce the stress levels of clients who have comorbidities during the Covid-19 pandemic.

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