Effects of Progressive Muscle Relaxation on Anxiety of Nurses at Covid-19 Units

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A B S T R A C T

Nurse as health workers who care for patients diagnosed with Corona Virus Disease 2019 (COVID-19) may, unfortunately, has been an experience of psychosocial problems in general, anxiety in particular. The primary source of anxiety in nurses throughout the COVID-19 pandemic was fear of turning into infected or unknowingly infecting others. This study aimed to determine the impact of progressive muscle relaxation on anxiety. This quasi-experimental (pre-test-post-test) study turned into conducted on 46 covid nurses inside the hospital of HasriAinun Habibie in Gorontalo. The participants had been selected the use of the purposive sampling approach then divided into two groups, intervention (n = 23) and control (n = 23). within the intervention group, participants obtained progressive muscle relaxation the usage of theory education through video and exercise. DASS (depression anxiety stress Scale) 42 was used to measured anxiety levels. The results confirmed that within the intervention group mean score of anxiety level significantly decreased analyzed by using Wilcoxon signed ranked test (P = 0.000) and there has been a significant difference between groups through Mann Whitney (P=0.011). This study concluded that progressive muscle relaxation can be used as an powerful technique to decrease the anxiety level of nurses in COVID units.

INTRODUCTION

Coronavirus has caused a global pandemic that is currently being felt by almost all countries in the world. The World Health Organization (2020) calls it CoronaVirus Disease 2019 (COVID-19). The COVID-19 pandemic is a non-natural disaster pandemic that can cause a situational crisis.Physical, mental, and psychosocial health problems are the negative impacts arising from this global pandemic. Changes in health status may occur not only in physical health problems but also in mental-emotional problems.

In Indonesia, as reported by the Ministry of Health on 17 June, 2.6% confirmed cases of COVID-19 were healthcare workers (1 077 persons), of which 78.9% recovered, 18.0% were hospitalized and 3.1% died. However, data were collected from 05 May to 14 June from 105 COVID-19 referral hospitals through a questionnaire adopted from the WHO guidance on 'Risk assessment and management of exposure of healthcare workers in the context of COVID-19. Among healthcare workers in the context of COVID-19, around 52,5 % of nurses had been reported to have the highest exposure to COVID-19 (World Health Organization of Indonesia, 2020).

During the Covid-19 pandemic, health workers felt depressed and worried so that anxiety increased in carrying out their duties due to the availability of personal protective equipment (Zhang et al., 2020).Previous studies have reported that the psychological disorders experienced by health workers during the Covid-19 pandemic were mostly caused by fear of transmission and infection in family, friends, colleagues, and the presence of negative stigma from the community (Handayani et al., 2020). Besides, being close to people infected with COVID-19 was related to anxiety (Marashi et al., 2020; Shayganfard et al., 2021)(Shayganfard et al., 2021). This can lead increase in the risk of mental-emotional problems.

According to the page of the Indonesian Psychiatric Association (IPA) on May 14, 2020, the psychological problems experienced by the Indonesian people stated that 68% experienced anxiety, 67% depression, and 77% psychological trauma. One of them is health workers as a group that is vulnerable to being confirmed by COVID-19, especially nursesin China, Turkey, Singapore, Philippines, Spain, Ireland, (Kackin et al., 2020; Leodoro & Santos, 2020; Stelnicki et al., 2020).Among health workers, nurses were reported to experience the highest fear and anxiety levels 92.3% had mild to very severe anxiety, particularly within the early stages of the contemporary COVID-19 pandemic(Alwani et al., 2020).In fact, in Iran,death anxiety experiencing by nurses at COVID-19 intensive care units (Sanadgol et al., 2021).

Regarding Standard Indonesian Nursing Diagnosis (2018), anxiety is an emotional and experiential condition of subjective individuals against objects that are not clear and specific due to the anticipation of the danger that allows individuals to take action to deal with threats. The most common stressors of nurses in isolation wards are a massive infected population, excessive infectivity; concern about circle of relatives's health status; high mortality if not handled in time; and lengthy period of the epidemic, separate from circle of relatives for a long time(Chen et al., 2020).

At the same time as a low level of anxiety is useful to encourage and generate excitement in an individual, persistent exposure to anxiety might also have terrible consequences on their physio-psychological health and work overall performance(Leodoro & Santos, 2020) and could also be more susceptible to becoming infected (Chirico et al., 2021),decreased quality of life (Sulistini et al., 2019). Moreover, depression and burnout stages is probably enhanced all through the COVID-19 outbreak(Stelnicki et al., 2020; Tomlin et al., 2020).

A progressive muscle relaxation technique is one of the simplest forms of relaxation techniques and might help to improve sleep quality and reducing anxiety in patients with COVID-19 (K. Liu et al., 2020). Previous studies have shown a positive effect on improving the emotional state also reducing stress and anxiety of antenatal mothers (Rajeswari & SanjeevaReddy, 2019),congestive heart failure (CHF) patients (Sulistini et al., 2019).Moreover, Progressive muscle relaxation with video aids decreases blood pressure in hypertension patients (Sulaeman et al., 2018).This is also very effective in reducing depression, anxiety, and stress among nursing students (Gangadharan & Madani, 2018).

Emerging, current literature suggests that psychological that immediate and long-term outcomes might be improved with properly implemented proactive and progressive interventions(Stelnicki et al., 2020).Early stages of outbreak in China, mental health professionals, and health authorities provide mental health services online. Indonesian Psychiatric Association (2020) recommends a strategy that is currently being widely considered for both infectious disease outbreak management and providing routine support healthcare services. This is safe for low-risk. Although it does not appear to be at risk of harm, the relevance of this practice to the current situation, the evidence is still very limited.Therefore, the researcher intends to provides online mental health andpsychosocial support, especially for nurses who care COVID-19 patients and experience anxiety. This study aims to explore the effect of progressive muscle relaxation using video on the anxiety of nurses in COVID-19 units.

METHOD

Research participants

This research was conducted at the Hospital of Hasri Ainun Habibie, Gorontalo Province. Participants' requirements are nurses who care for patients with COVID-19 in the COVID unit. Samples were selected using purposive sampling that met the inclusion criteria. Based on these criteria, the sampling technique used is purposive sampling, by determining specific characteristics that are following the research objectives. The inclusion criteria in question are nurses who have anxiety, aged 15-60 years, having smartphones, are willing to be respondents, and participate in researchThis sample consisted of 46 respondents divided into 2 groups: intervention group (n=23) and control group (n=23).

Research procedure

This study used a quasi-experimental research type with a pre-test-post-test design approach with a control group. Quasi-Experimental Research aims to reveal the effect of the intervention/treatment on subjects and measure the outcome of the intervention.This study comparing the level of anxiety before and after the intervention of Progressive Muscle Relaxation(PMR) using videos seven days later after self-training. Furthermore, this level of anxiety was compared with the control group.

When the research was carried out from June to December 2020, starting from the activities of preparing proposals, collecting data, conducting research, and continuing with processing the results and writing research reports.Collecting data was conducted at HasriAinun Habibie Hospital from October to November 2020. After the selection of the nurse who experiencing anxiety, they were divided into 2 groups; control and intervention. Google form questionnaires have been created to determine changes in the anxiety level of COVID-19 nurses at the ninth month later outbreak. Thereafter,itwas disseminated through the WhatsApp group. When participants completed the questionnaire, they were given information on mental health and psychosocial support, the impact of stress and anxiety during the COVID-19 outbreak, meaning and benefits of progressive muscle relaxation through zoom. Along with the virtual conference, progressive muscle relaxation was taught by the researcher to the COVID-19 nurses with the help of a video, with each session lasting for 40-45 minutes. The routine was followed by the nurses in the following seven days lead by the head of the nurse in the COVID-19 unit. The video was made of a researcher by a team of researchers. In progressive muscle relaxation, each muscle group such as eyes, face, arms, shoulder, upper, and lower extremities are tense for 10 seconds and released, taking a few deep breaths. It begins with the top of the body and goes down. The normal steps are tensing a particular body part muscles, squeezing them while holding the breath, and then releasing. To ensure daily practice, daily remains and reinforcement were given through phone in Whatsapp group; dairy of performance was maintained by the nurses sent report such as picture and video in the google form. Moreover, after seven days, there were given evaluation through a google form questionnaire to measure anxiety score.

Instruments

The instrument for measuring mental health and psychosocial support needs using a questionnaire instrument. Mental Health and Psychosocial Support Questionnaires using a standardized questionnaire. Anxiety can be measured using the DASS measurement tool. The validity and reliability tests aim that the instruments used in the research are validity and reliability. Based on the validity and reliability test, the value is obtained. Cronbach's Alpha for each scale of depression, anxiety, and stress, respectively, were 0.9053, 0.8517, and 0.8806 so that the DASS 42 questionnaire was said to be reliable because Cronbach's Alpha value was greater than 0.6.

Data analysis

Data were analyzed using the program Statistical Package for Social Sciences (SPSS) version 16.0. Analysis data using the Shapiro-Wilk normality test because the sample was <50 samples. The result was that most of the data were not normally distributed (p <0.05). The non-parametric analysis is used in this study, the Wilcoxon signed-rank test and Mann Whitney test.

RESULT AND DISCUSSION

This research included pre-experiment with pre-test and post-test with control group design (pre-post-test design with a control group). The independent variable is progressive muscle relaxation, which is dependent on anxiety. This study consisting of 46 COVID-19 nurses from dr. Hasri Ainun Habibie Hospital.

Sociodemographic characteristics are presented in Table 1. A great majority of participants in intervention groups (87.0%) and the control group (82.6%) between the age group of 21-30 years. More than half of the participants within the intervention group (82.6%) and the control group (52.2%) have been women. Education level both in intervention and control group were Ners (43.5%). The majority of participants in the intervention group (82.6%) and the control group (73.9%) were a nurse. In both of the groups, the period of experience work in hospital more than one year (Table 1).

Table 1
Sociodemographics of the participants (N=46)

Item	Experimental Group		Control Group	
	N	%	N	%
Age group (Years)				
21-30	20	87.0	19	82.6
31-40	2	8.7	3	13.0
41-50	1	4.3	1	4.3
Gender				
Male	4	17.4	11	47.8
Female	19	82.6	12	52.2
Education level				
Diploma 3	5	21.7	8	34.7
Diploma 4	8	34.7	5	21.7
Ners	10	43.5	10	43.5
Job				
Nurse	19	82.6	17	73.9
Midwifery	4	17.4	6	26.1
Period of experience work (years)				
< 1	9	39.1	6	26.1
1-10	10	43.5	14	60.9
>10	4	17.4	3	13.0

Table 2
Statistical Indicators of Dependent Variables for Experimental and Control Groups Variables

Anxiety level	Experimental Group				Control Group				Wilcoxon Signed Ranked Test
	Pretest		Post-test		Pretest		Post-test		
	N	%	N	%	N	%	N	%	Z -4.311ᵃ
Normal			21	91.3			17	73.9	Asymp. sig (2 tailed) .000
Mild	11	47.8	2	8.7	12	52.2	5	21.7	
Moderate	10	43.5			10	43.5	1	4.3	
Severe	2	8.7			1	4.3			

Table 2 depicts the contrast of anxiety levels before and after progressive muscle relaxation exercise. Both groups identified with numerous levels of anxiety, most of the people of them had mild and moderate anxiety before intervention.In the intervention group, that is 47.8% and 43.5% respectively. However, after the intervention, anxiety levels significantly decrease to normal (91.3%) and the mild range (8.7%). Besides in the control group, the anxiety levels mild range (52.2%), moderate 43.3%), and severe (4.3%). There was a decrease in the level of anxiety to the normal range (73.9%), to the mild range (21.7%), and moderate range (4.3%).The difference between the scores found that the statistical significance of thetwo-way test on the level of anxiety of COVID-19 nurses is (P = 0.000 <0.05).These results can be concluded that Ho is rejected and Ha is accepted which proves that there is an effect PMR using video on the level of anxiety.Based on the rank analysis on the nurses' anxiety levels in the control group, some participants showed a negative rank value where there was a decrease in anxiety levels after the intervention, there were 19 participants. The positive rank value, where the level of anxiety increased after the intervention 0 participants, and 4 participants showed no change in the level of anxiety between before and after the intervention (ties).

Table 3 shows that based on the test analysis of Mann-Whitney, it is known that the probability value (sig)> 0.05 (0.011 <0.05), which means that the post-test score for the level of anxiety between the two groups was significantly different. It can be concluded that there is a significant difference in the post-test anxiety level in the intervention group and the control group.

This study aimed to determine the effectiveness of progressive muscle relaxation on nurses' anxiety levels considering that there has no longer been any studies on this field in Indonesia. consequently, in explaining the hypotheses, we have tried to point out the closest studies to the existing issue. The findings showed that there is a significant distinction between experimental and control

groups on anxiety levels, after PMR intervention, within the experimental group. This distinction suggests that the

efficacy of this practise upon the experimental group.

Table 3
Statistical indicators of dependent variables

Group	Maan-Whitney U	Z	Asymp. Sig. (2-tailed)
Control Intervention	151.000	-2.546	.011

The present study revealed that anxiety was highly prevalent among the nurses who care for patients diagnosed with COVID-19. Various studies have explained that young people, particularly adolescents and adults, are greater exposed to mental problems which include depression, anxiety, and stress. In phrases of age, young adults (18–30) and adults aged between 31 and 59 years have better levels of stress, anxiety, and depression in contrast with the elderly (60–82 years). The findings obtained in our sample also display that the extent of pressure is similarly excessive for teenagers and adults. These findings are, in part, consistent with the ones of research carried out in Spain(Ozamiz-etxebarria et al, 2020)and China in which young adults mentioned a higher incidence of depressive and anxiety signs and symptoms(Yeen and Zhao, 2020). Furthermore, younger people have been discovered to advantage greater from using relaxation techniques, and relaxation exercises carried out at home had been proven to have a greater impact than therapy periods alone(Wilczyńska et al., 2019). In particular younger people, which could additionally be a factor in their obvious mental vulnerability. For all of those motives, it's far important to make sure powerful communication to keep away from public health risks(Ozamiz-etxebarria et al., 2020)

Nurses who were female, working on the front lines reported having more severe symptoms on all measurements. However, the result shows that they experienced high levels of anxiety. Further,anxiety levels are significantly higher among females (Alwani et al., 2020), female nurses in particular (Leodoro & Santos, 2020; Shayganfard et al., 2021). Moreover, biopsychological characteristics as women are greater vulnerable within the face of stressful events(Hosseinzadeh-Shanjani et al., 2020),which contrasts with the findings of previous studies showing that gender turned into no longer statistically significant(Shayganfard et al., 2021; Wilczyńska et al., 2019), opposite findings have also been reported.

Also, the Indonesian Ministry of Health (2018) states that the prevalence of mental-emotional disorders in people aged> 15 years is 9.8% of the 706,688 population. The highest prevalence of mental-emotional disorders is female (12.1%), education level that has never attended school (13.9%); does not work (13.0%).Stress was also associated with education and age. As age and education increase, the stress felt by COVID-19 decreases. Furthermore, with the increase in the education and age of the employees, their stress levels decreased(Hosseinzadeh-Shanjani et al., 2020). Moreover, the level of education also affects the ability to overcome emotional problems based on the knowledge and information obtained in the formal education path. Someone with higher education will certainly have a wider knowledge than someone with a lower level of education and will have better coping than someone with a lower education so that they canminimize emotional problems.More than half of health workers have good knowledge about how to prevent, treat and treat Covid-19 problems. But there are still many who experience mild anxiety.

However, there is a tendency for anxiety to decrease during the COVID-19 pandemic which occurs after 9 months. Along with the decline in cases in Gorontalo since October 2020, which was obtained from the dinkes.gorontalo.go.id/covid-19/ page. This can affect the level of anxiety of health workers unlike what happened at the start of the pandemic. Most of the nurses are familiar with stress management techniques and constructive coping mechanisms. A study in Australia in April after 4 months of the pandemic found that the mean depression score was 4.6 + 5.0; anxiety 2.2 + 3.4; and stress 5.2 + 4.8. these results are followed by data on reduced physical activity since the onset of the COVID-19 pandemic (Stanton et al, 2020).

The results of research conducted by (Fadli et al., 2020) in April 2020 showed that most of the levels of anxiety experienced by health workers were mild anxiety (65.2%), while those who did not experience anxiety (20.0%). This is very different from the results of research conducted at the beginning of the COVID-19 pandemic where the level of anxiety among health workers was still relatively high. Another study used a survey-based study of mental health from 1,257 health workers who treated Covid-19 patients in 34 hospitals in China at the start of the COVID-19 pandemic, namely January to February 2020. As a result, most of them reported 50% depressive symptoms, anxiety 45%, insomnia 34%, and psychological distress 71.5% (Lai et al., 2020). Besides, the availability of personal protective equipment has an effect of 51.7% on the anxiety of health workers (Zhang et al., 2020).

The results of the study prove that there is an effect of the application of online PMR via video on reducing anxiety levels in COVID-19 nurses. Research results have shown that specific relaxation techniques (progressive muscle relaxation) based on elements in awareness have been shown to reduce anxiety symptoms (Handayani et al., 2020). Despite the fact that there was no study demonstrating the effectiveness of progressive muscle relaxation on COVID-19 nurses, many research have proven its effectiveness on other physical and mental issues which includes stress, anxiety, depression, sleep quality, quality of life, and in different groups.Another study has been shown to significantly strengthen endurance and reduce fatigue in medical trainees, and the following is recommended for certain circumstances such as meditation, breathing exercises (Breath and Relax), and web-based cognitive behavioral therapy (MoodGYM, Stress Gym) (Bansal, Bingemann, Greenhawt, Mosnaim, Anil, Oppenheimer, Sharma, Stukus, Shaker., 2020), improve the sleep quality and other variables related to sleep problems of nurses (Zarbakhsh & Raisi, 2018). Besides, PMR blended with music is an powerful technique to control stress and fatigue and is supportive of more use of problem-focused and emotion-focused coping techniques among ICU nurses(Ozgundondu & Zehra, 2019).

In addition, WHO (2020) refers to the Inter-Agency Standing Committee (IASC) Reference Group for Mental Health and Psychosocial Support (MHPSS) in Emergency Settings, which describes in detail the general principles of

mental health and psychosocial support responses to COVID-19. Certain services may stop during the COVID-19 outbreak. These stops are an opportunity for trained staff to provide MHPSS with an unusual approach, for example via video or telephone calls and social media. Mental health, social services, and welfare programs, national education centers, and local government and nongovernmental organizations can and should play a role in the MHPSS response. Dedicated phone numbers can be an effective tool for supporting worried or distressed members of the public. Examples: WeChat, WhatsApp,

To date, several types of tele-mental healthcare services have been widely implemented for those in need (Connor et al., 2020; S. Liu et al., 2020). Increasingly, share strategies for dealing with psychological stress through e-platforms, mobile apps, and social media (eg, WeChat, Weibo, etc) in China is safe (Bao et al., 2020; S. Liu et al., 2020). Thus in Spain, alarming videos on COVID-2019 are accessible to almost all individuals (Ozamiz-etxebarria et al., 2020). Furthermore, Protecting the mental health of healthcare professionals is a priority for policymakers. In line with the priorities of the WHO, one of five priority of the meeting result from The Asia Pacific Disaster Mental Health Network is optimizing emerging technologies in mental health care (Newnham et al., 2020).Based on the qualitative interviews, 14 of 17 experts agreed that progressive muscle relaxation 'easily learning. The most priority is the relaxation techniques easily reading directions on' (Zhang et al., 2020).

Referring to this, the implementation of this research was carried out online to minimize exposure to the COVID-19 virus.(Yang et al., 2020) explain that mental health professionals and health authorities provide mental health services online for the duration of the COVID-19 outbreak. Rapid transmission of the virus among human beingsprevents psychological service providers from making face-to-face. In contrast, the provisions of health services mental health services are said to be safe. Thus far, several kinds of online mental health services had been widely applied for those in need for the duration of the outbreak in China.

Turnip (2020) explains that the health facility can do indirect psychoeducation such as through social media or directly through training or other public communications. Besides, mental health and psychosocial support that can be done by health facilities are by providing accurate information. It was consistent with (Sulaeman et al., 2018)that using video of Progressive Muscle Relaxation (PMR) in their research. Moreover, the application of this model is carried out online and using videos that can be viewed every time the nurse does independent training. Prepared videos were made available for the nurses.Ningsih, Dwidiyanti, &Hartati (2018) recommend research based on mobile applications to simplify and support exercise programs to reduce stress levels. This end result highlights the significance of developing measures or interventions to promote or optimize personal resilience in the front-line nurses to lessen their anxiety related to COVID-19(Leodoro& Santos, 2020)

We can conclude that there is a decrease in the level of anxiety as the pandemic period passes in a country according to the number of COVID-19 cases in that country. Negative changes in health behavior have been associated with reduced psychological distress in Australian adults during the COVID-19 pandemic. There is a strength of numbers in existing studies, influenced by criteria including changes in various health behaviors, the size of the study sample, the

timing of data collection associated with movement restrictions (lockdown) in Australia (Stanton et al., 2020).

Limitation of The Study

This study became carried out below critical situations as the COVID-19 pandemic, so its outcomes can not be generalized to ordinary and non-critical situations. On the other hand, the present study was carried out only on COVID-19 units of one hospital, so the outcomes can be generalized handiest to similar situations and groups.However, the usefulness and limitations of remote health delivery should also be recognized.There are some limitations of the research that were discovered during the research process. First, all data that is processed comes from the participants' independent reports which are subjective so that they can cause bias. Second, participants are currently health workers who are in close contact with COVID-19 patients with a decrease in the number of cases in the hospital. This requires further research regarding the condition of increasing or decreasing cases in hospitals where health workers work.

CONCLUSION AND RECOMMENDATION

Tele-mental healthcare services have been key important components of stepped take care of both infectious sickness outbreak control and routine supportwhile minimizing the risk of contact with the virus is to conduct video.Moreover, nurses can apply and train progressive muscle relaxation as a complementary therapy to reduce anxiety in COVID-19 patients. This can be a positive consequence of COVID-19 to adapt and develop digital health interventions. The outcomes of the existing study can be used and adopt appropriate methods regarding the mental health of the nursing employees and comparable groups on this non-natural disaster.It is useful in overcoming mental and psychosocial health problems that arise as a result of the future. This effort can also increase the local capacity of health care workers to not only support Mental Health and Psychosocial Support in the current COVID-19 situation but also support preparation for future emergencies.

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