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# Application of Progressive Muscle Relaxation and Deep Breathing in Working Pregnant Women to Reduce Stress Levels During the Covid-19 Pandemic

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ABSTRACT

The COVID-19 pandemic has a considerable impact on the stress level of pregnant women, especially working pregnant women who are at risk of causing premature birth, hypertension in pregnant women, to maternal and fetal death. The purpose of this study was to determine the effect of using progressive muscle relaxation combined with deep breath relaxation on pregnant women working during a pandemic. This study used a *one-group pretest and posttest design.* There were five participants in this study with the criteria of working pregnant women in the third trimester of pregnancy. Samples were selected through a *purposive sampling* method and data analysis using a *Paired T-Test test*. The stress level measurement instrument uses the DASS 42 scale (*Depression Anxiety Stress Scales 42*). The results showed that there was a very significant effect of the use of progressive muscle relaxation and deep breath relaxation on the stress levels of working pregnant women. The implication of this study is to prove that the use of progressive muscle relaxation and deep breath relaxation has an effect on reducing the stress levels of pregnant women working during a pandemic. The limitation of this study is the lack of supporting data such as relationship with husband, workload, and difficulties experienced during pregnancy. For future research it is recommended to consider husband and family support as findings in the study. Other impacts of the application of progressive muscle relaxation and deep breath relaxation need to be further researched using appropriate measurement instruments to measure their effectiveness.

*Keywords: Progressive muscle relaxation, deep breath relaxation, stress, pregnancy*

## Introduction

Covid-19 is an infectious disease caused by infection with the Severe Acute Respiratory Syndrome (SARS) virus, also known as SARS-Cov-2 (WHO, 2023). The COVID-19 pandemic has had an impact on health and health services, including maternal and newborn health services, both in terms of access and quality (Arinda & Herdayati, 2021). Pregnant women, who are one of the groups at risk of COVID-19 transmission, are reluctant to go to health services for fear of being infected and there are recommendations to postpone pregnancy checks and pregnant women's classes (Arisanti, 2021). Barriers to health access can bring health problems for pregnant women, such as premature labor, miscarriage, stunted fetal growth, and (Kotlar et al., 2021).

Pregnancy is a physiological process that results in changes in pregnant women and the surrounding environment (Nabila et al., 2022). Physiological changes in the body and immunity during pregnancy increase the risk of disease infection (Zaigham & Andersson, 2020). Pregnancy can be a complex process of social and psychological transition. This process not only involves biological changes, but also changes various social, cultural, psychological, spiritual, and emotional aspects of a woman (Dafiq et al., 2022). Astuti stated that the pregnancy process results in physiological changes and adaptations in all body systems so that it can cause discomfort. The

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pandemic can be a source of stress for pregnant women (Cholifah et al., 2021). The changes that occur during pregnancy, as well as the impact of the social environment caused by the pandemic, have the potential to cause stress in pregnant women.

Stress during pregnancy is the mother's emotional reaction during pregnancy due to physical and psychological changes. Robbin (Vftisia & Afriyani, 2021) state that stress is a form of tension from physical, psychological, emotional, and mental. Tension affects daily performance and even reduces productivity, pain, and mental disorders. Mumpuni and Wulandari (Yazia & Suryani, 2023) added psychological symptoms of stress that are also experienced by pregnant women such as difficulty concentrating, unable to relax, and uncontrollable emotions towards any demands that cause tension. Marchofdimes (Khayati & Veftisia, 2018) mentions the triggering factors of stress in pregnant women, namely discomfort during pregnancy, mothers experiencing nausea, vomiting, constipation, backache, work, worry about labor and fetal conditions, and hormonal changes. Working pregnant women are likely to be more stressed because they have a dual role that comes from work and family (Yazia & Suryani, 2023). This is because working pregnant women during a pandemic are prone to experiencing feelings of worry about contracting COVID-19, concerns about access to health, as well as concerns about fetal conditions and anxiety about childbirth, which increases tension in the body. In addition, discomfort due to physiological and psychological processes, and work fatigue, also trigger increased stress in pregnant women. Muchsin (2021) mentions several health problems caused by stress in pregnant women such as preeclampsia and hypertension due to pregnancy-related increased hormones. Supported by Verny's statement (Aisyah, 2017) which states that negative thoughts of pregnant women will be channeled through nerve hormones to their babies. Continuous stress can cause premature birth, underweight, irritability, and hyperactivity.

A widely used and proven effective intervention in reducing stress is relaxation techniques. Relaxation is a form of therapy that emphasizes efforts to assist patients in reducing psychological tension by learning to relax. This therapy is based on the assumption that resting the muscles can provide significant benefits (Chaplin, 2006). Pertiwi et al. (2023) explain that relaxation can inhibit the increase in sympathetic nerves so that hormones that increase body dysregulation can be suppressed. Relaxation therapies commonly used are deep breath relaxation, progressive muscle relaxation, and guided imagery. Progressive Muscle Relaxation and Guided Imagery are the most widely used relaxation techniques to overcome stress in pregnant women. This is supported by literature review research conducted by Septianingrum (2015) regarding the effectiveness of relaxation during pregnancy to reduce prenatal stress, anxiety, and fetal response. Hayati et al. (2018) state that underlying the progressive muscle relaxation technique is that it is believed that a person can learn to relax more, to reduce stress. Hasnani (2021) states that there are differences in stress levels in pregnant women after doing deep breath relaxation. Mawardika et al. (2020) is a breathing technique that uses slow and deep breathing techniques using the diaphragm muscle. Breathing relaxation is a breathing exercise that involves slow and deep breathing techniques using the diaphragm muscle. The purpose of this exercise is to gently lift the abdomen and fully expand the chest (Syahida & Mirani, 2021).

Based on the explanation described above, the formulation of this research problem is whether progressive muscle relaxation and deep breath relaxation can reduce stress levels in pregnant women working during a pandemic. This study hypothesizes that there is an effect of progressive muscle relaxation and deep breath relaxation to reduce stress levels in pregnant women working during a pandemic.

## Material and Methods

### *Participants*

There were five participants in this study with the criteria of (1) working pregnant women; and (2) third trimester of pregnancy. The sampling technique used was purposive sampling.

### *Research Design*

This study used a one-group pretest and posttest design. Participants will be given a pre-test before the intervention and a post-test after the intervention to determine any differences in participant conditions.

### *Procedure*

The data collection procedure carried out is that the researcher first asks for the participant's consent by signing an informed consent. The procedure continued by exploring demographic data, namely the name (initials), age, occupation, and education of participants through interviews. Participants were then asked to fill out a measuring instrument to see the stress level of pregnant women before being given the intervention. The intervention was divided into three sessions. In the first session, in session, the description and objectives of the intervention to be carried out were explained in advance, brief material related to stress was provided, and started to practice progressive muscle relaxation and deep breath relaxation which aims to train subjects to enter a relaxed state, session evaluation. In the second session, the intervention aims to train the subject to release the tensions felt to achieve a relaxed state. In the third session, the intervention aims to re-train the subject's ability to carry out progressive muscle relaxation and deep breath relaxation. Furthermore, the researcher again asked participants to fill in the measuring instrument instrument after the intervention was given.

### *Analysis technique*

The data analysis technique used is using the Paired T-Test test which aims to determine the difference in conditions between before and after the intervention is given to the same subject.

### *Research Instruments*

The stress level measurement instrument uses the DASS 42 scale (Depression Anxiety Stress Scales 42). Indicators of stress level assessment are normal level with a score of 0 - 14, mild with a score of 15 - 18, moderate with a score of 19 - 25, severe with a score of 26 - 33, and very severe with a score of >34.

## Results and Discussion

Table 1. Pre-test and Post-test scores (DASS 42 scale)

| No | Participant | Pre-test Score | Post-test Score |
|---|---|---|---|
| 1 | NR | 27 | 17 |
| 2 | TP | 32 | 21 |
| 3 | F | 27 | 15 |
| 4 | NE | 35 | 23 |
| 5 | M | 29 | 15 |

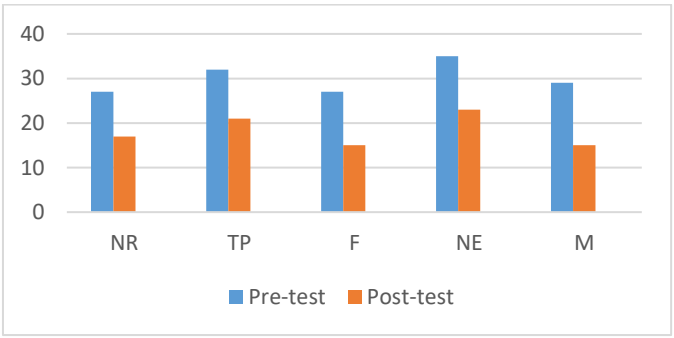


Figure 1. Graph of pre-test and post-test results

Table 2. Paired samples statistics

**Paired Samples Statistics**

| | | Mean | N | Std. Deviation | Std. Error Mean |
|---|---|---|---|---|---|
| Pair 1 | Pre-test | 30.00 | 5 | 3.464 | 1.549 |
| | Post-test | 18.20 | 5 | 3.633 | 1.625 |

The data in Table 2 shows that the mean value of the post-test is lower than the mean value of the pre-test which indicates that there is a decrease in stress symptoms in working pregnant women after the intervention is given or there is a change in the condition of the subject before and after the intervention is given.

Table 3. Paired samples test

**Paired Samples Test**

| | | Paired Differences | | | | | t | df | Sig. (2-tailed) |
|---|---|---|---|---|---|---|---|---|---|
| | | Mean | Std. Deviation | Std. Error Mean | 95% Confidence Interval of the Difference Lower | Upper | | | |
| Pair 1 | Pre-test - Post-test | 11.800 | 1.483 | .663 | 9.958 | 13.642 | 17.789 | 4 | .000 |

Table 3 is the result of the significance of the difference in scores between before and after treatment showing the paired t-test value = 17.789 with p sig = 0.000 smaller than 0.01 ($p < 0.01$). It is concluded that there is a very significant effect of the use of progressive muscle relaxation and deep breath relaxation on the stress level of pregnant women working.

Based on the data found, pregnant women who are actively working during the pandemic are in the third trimester of pregnancy with a gestational age of 29-36 weeks. Pregnant women are in the age range of 24-32 years. Complaints that are often felt by pregnant women include feeling more sensitive, overthinking, getting tired easily, dizziness, difficulty sleeping, reduced appetite, palpitations, high blood pressure, and worry before delivery. In addition, other complaints that arise such as anxiety about contracting Covid-19 and worry about the condition of the fetus trigger the emergence of muscle tension as the body's response to stress. Then, work fatigue and workload are also one of the causes of increased stress in working pregnant women. The results of the pre-test that have been carried out found that the five working pregnant women during the pandemic experienced severe stress levels. This affects changes in the behavior of the participants in their daily lives. So various symptoms of stress appear such as feeling more sensitive, overthinking, easily tired, dizzy, difficulty sleeping, reduced appetite, palpitations, and high blood pressure.

The results of the analysis show that the provision of progressive muscle relaxation and deep breath relaxation is effective for reducing stress levels in third-trimester working pregnant women. This can be seen from the difference in mean scores on the pre-test and post-test which shows a decrease in stress levels in the five participants. After giving three relaxation sessions, the five participants felt comfortable and more relaxed, by relaxing the muscles due to fatigue at work. Jannah and Rachmawati (2021) progressive muscle relaxation is one of the relaxation techniques

that includes breathing muscles that connect the mind and body to feel a relaxed sensation so that the body can rest and maintain energy.

## Conclusion

The use of progressive muscle relaxation and deep breathing relaxation interventions for third-trimester pregnant women who work during a pandemic can reduce stress levels. The stress level of pregnant women before the implementation of the intervention is known to be in the category of severe stress levels and decreases to mild stress levels after being given the intervention. The implication of this study is to prove that the use of progressive muscle relaxation and deep breath relaxation affects reducing the stress level of endemic pregnant women. The limitation of this study is the lack of supporting data such as relationship with husband, workload, and difficulties experienced during pregnancy.

## Suggestions

For future research, it is recommended to consider husband and family support as findings in the study. Other impacts of the application of progressive muscle relaxation and deep breath relaxation need to be further researched using appropriate measurement instruments to measure their effectiveness.

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