



THE EFFECT OF BENSON'S RELAXATION THERAPY ON STRESS LEVELS AMONG MEDICAL STUDENTS UNIVERSITAS DIPONEGORO WHO WERE WORKING ON A THESIS

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ABSTRACT

Background: The prevalence of stress in final-year students who were working on a thesis was still quite high. Unmanaged stress could bring a negative impact on the students themselves. Benson's relaxation therapy was a relaxation that combined deep breathing techniques with faith factor and had been known to reduce stress levels. This relaxation was easy to do, safe, and didn't require a lot of time and money. Research related to the effect of Benson's relaxation on student stress levels was also still limited. **Objective:** To analyze the effect of Benson's relaxation on stress levels in students of the Faculty of Medicine Universitas Diponegoro who were working on a thesis. **Methods:** Quasi-experimental study with pre-test and post-test design. This research involved 64 final-year medical students and divided into two groups. A consecutive sampling technique was performed. The experimental group (n=32) were instructed to do Benson's relaxation therapy for 14 days, each day 2 session for 10 minutes, and the control group were instructed to not do any exercise and other relaxation. The stress levels was measured with the Perceived Stress Scale (PSS). Data's significance was analyzed with paired sample T-test and independent sample T-test. **Results:** A significant decrease ($p < 0,001$) in stress level before and after Benson relaxation, from $16,34 \pm 6,91$ to $11,31 \pm 4,79$. The post-test stress level of the experimental group ($11,31 \pm 4,79$) was significantly ($p = 0,001$) lower than the control group ($16,09 \pm 5,79$). Meanwhile, there were no significant differences on the pre-test stress level between two groups ($p = 0,781$). **Conclusion:** Benson's relaxation reduced stress levels in students of the Faculty of Medicine Universitas Diponegoro who were working on a thesis.

Keywords: *Benson's relaxation, Perceived Stress Scale, Stress level, Thesis*

INTRODUCTION

Stress was a mental disorder that caused pressure on a person because they failed to fulfill their needs or desires.¹ Stress was still a common problem in the world and could reduce someone's quality of life. A study stated that as many as 29.6% of the total sample of 9.074 people experienced stress.² Global prevalence data also showed that 36.5% of the total sample of 398.771 people experienced stress, ranging from mild to severe levels.³

Final-year students who were obliged to complete a thesis in order to get a bachelor's degree couldn't be separated from the pressure and obstacles that caused stress. Students could become stressed because of various obstacles and difficulties encountered when working on a thesis. These obstacles and difficulties could be in the form of repeated revision processes, difficulties in finding references, supervisors who were difficult to contact, and slow feedback responses from the supervisor when working on a thesis.^{4,5}

A study in Pakistan stated that out of 312 final-year medical students, 57.7% of them experienced moderate to severe stress.⁶ Another study conducted on final-year students at the University of Muhammadiyah Magelang also stated that 57.4% of the 101 research samples experienced moderate stress and 7% of the sample experienced mild stress.⁵

Stress that wasn't handled properly could bring a negative impact on the students themselves.⁷ Therefore, we needed an activity that could reduce the stress levels on a person, especially final-year students who were facing a thesis. Currently, many simple relaxation therapies had been developed that could positively impact the body, one of them is Benson's relaxation therapy.

Benson's relaxation was the development of a relaxation response method by involving the patient's belief and faith factor, which could create good internal conditions to help patients achieve better health conditions.⁸⁻¹⁰ Among the various relaxation methods, Benson relaxation was one of the easiest to learn and could be applied to anyone.¹¹ The



way Benson's relaxation technique works was to focus attention by getting rid of disturbing thoughts while saying a certain word or sentence repeatedly with a fixed rhythm and surrendering to God while doing deep breathing.^{8,9,12} With the concept of therapy that was easy to do, safe, and didn't require a lot of time and money, Benson's relaxation could be an alternative choice for students who were experiencing stress, especially when working on a thesis.^{13,14}

The level of stress in students could be measured using the *Perceived Stress Scale* (PSS) questionnaire. *The Perceived Stress Scale* (PSS) was one of the most widely used questionnaires to measure stress perception, because the question items and alternative responses were easy to understand.^{1,15} This questionnaire contained 10 questions about the current stress levels by asking about feelings and thoughts during one month earlier.^{1,16} The total score of the PSS questionnaire would divide stress into three levels: mild, moderate, and severe.^{17,18}

In Indonesia, there weren't many studies that discussed the effect of Benson's relaxation on stress levels, especially in college students. Previously, there was a study in India that discussed the effect of Benson's relaxation on the stress level of first-year nursing students with the result that Benson's relaxation could reduce stress levels in these students.¹⁹ Therefore, this study used a different subject so that it was hoped that the benefits of Benson's relaxation on the stress level of medical students, especially those who were working on a thesis, would be known more clearly.

METHODS

This study used a quasi-experimental research method with a pre and post-test control group design. The research took place by online in the house of each research subject and was conducted from July to August 2022.

The selection of research subjects was carried out using consecutive sampling method based on specified criteria and divided into two groups, experimental and control group. The research subjects were students of the Faculty of Medicine, Universitas Diponegoro who fulfilled the inclusion and exclusion criteria. The inclusion criteria for this study were students of the Faculty of Medicine, Universitas Diponegoro semester VI or VII who were working on a thesis; had mild, moderate, or severe stress levels as

measured by the PSS questionnaire; willing to abstain from any sporting activities for 14 days; speak/understand English; and had never done Benson's relaxation before. While the exclusion criteria for this study were undergoing other stress relaxation therapy; being busy in student organizations or working part-time, having a history of being diagnosed with a psychiatric disorder; and was taking antidepressant drugs.

The number of research subjects in each group was 32 people, so the total number of subjects in this study was 64 people.

The independent variable of this research was Benson's relaxation, with the dependent variable was stress levels. Confounding variables were environmental conditions and sleep pattern disturbances. This type of research data was primary data. Data collection started with all research subjects filling out a pre-test form of a *Perceived Stress Scale* to measure stress levels at the beginning. Then the control group was asked to carry out activities as usual and shouldn't exercise or doing other relaxation. The experimental group was asked to do Benson's relaxation.

Benson's relaxation was done twice a day with a duration of 10 minutes for each session. The recommended time was in the morning before breakfast and in the evening before going to bed. Relaxation was conducted for 14 consecutive days. Researchers did follow-up every day to ensure that the experimental group had been doing Benson's relaxation. On the 15th day, all research subjects would be asked to fill out a post-test form of a *Perceived Stress Scale* to measure stress levels at the end of the research.

The data was processed and analyzed using a data processing application (SPSS) for descriptive analysis and hypothesis testing. The data normality test was analyzed using the Shapiro-Wilk test. Hypothesis testing regarding the difference in stress levels between before and after Benson's relaxation therapy was analyzed using a *paired T-test*. Meanwhile, the hypothesis testing regarding the difference in stress levels between the control group and the experimental group was analyzed using an *independent T-test*.



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RESULTS

This research was conducted from July to August 2022 with 64 research subjects from the Faculty of Medicine, Universitas Diponegoro class 2019 who had met the inclusion and exclusion criteria and were willing to take part in the research. Subjects were divided into two groups, each group consisting of 32 people. After being observed until the end of the study, both the experimental and control groups could complete this study, so there were no research subjects who dropped out.

The research subjects consisted of 21 men (32,8%) and 43 women (67,2%). Overall, the median age of the research subjects was 21 years old, with the youngest was 20 years old and the oldest was 23 years old.

Table 1. General Characteristics of Research Subjects

| Characteristics | Group | |
|---------------------------|---------------------|----------------|
| | Experimental (n=32) | Control (n=32) |
| Gender | Male | 10 (31,3%) |
| | Female | 22 (68,7%) |
| Age (in years old) | 20 | 4 |
| | 21 | 16 |
| | 22 | 10 |
| | 23 | 2 |

The measurement of stress levels at the beginning of the study using the PSS (Perceived Stress Scale) questionnaire also divided the research subjects into three levels of stress, which are 20 (31,3%) people with mild stress levels, 41 (64%) people with moderate stress levels, and 3 (4,7%) people with severe stress levels.

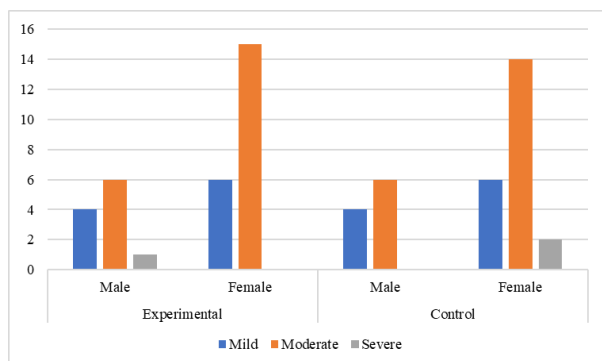


Figure 1. Characteristics of the Research Group

The measurement of stress levels was carried out using the Perceived Stress Scale (PSS) questionnaire twice, which was before the start of the study (pre-test) and after two weeks of the study (post-test). The results of these measurements can be observed in the following table.

Table 2. Stress Levels Before & After Intervention
 *based on PSS score

| Groups | Stress Levels | | p |
|--------------|--------------------|---------------------|-----------------------|
| | Pre-test | Post-test | |
| Experimental | 16,34 ± 6,91 | 11,31 ± 4,79 | <0,001 [¶] * |
| Control | 16,78 ± 5,58 | 16,09 ± 5,79 | 0,511 [¶] |
| p | 0,781 [§] | 0,001 ^{§*} | |

Notes : * Significant (p < 0,05); § Independent t; ¶ Paired t

Based on Table 2, the results showed that the stress levels score during the pre-test in the experimental group (16.34 ± 6.91) was lower than the control group (16.78 ± 5.58). However, statistical tests with independent T-test showed that the difference wasn't significant (p=0.781). The stress level score during the post-test in the experimental group (11.31 ± 4.79) was also lower than the control group (16.09 ± 5.79). But statistical tests with independent T-test showed a significant difference (p = 0.001).

In Table 2, it could also be seen that in the experimental group there was a significant decrease in stress level scores, from 16.34 ± 6.91 at the pre-test to 11.31 ± 4.79 at the post-test (p<0.001; Paired T-test). Meanwhile in the control group, there was also a decrease in the stress level score from 16.78 ± 5.58 at the pre-test to 16.09 ± 5.79 at the post-test, but the decrease wasn't significant (p=0.511; Paired T-test).

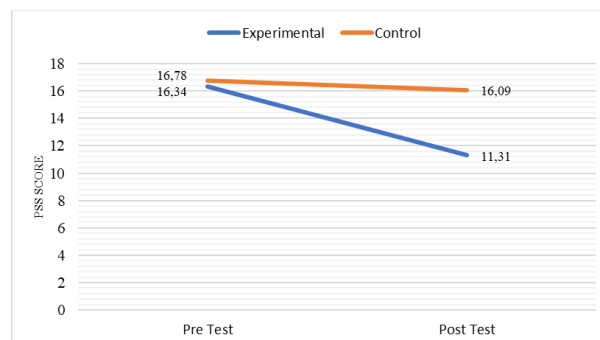


Figure 2. Average PSS Score



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Based on Figure 2, it could be seen that there was a decrease in stress levels, both in the experiment and control groups. However, the decrease in stress levels in the control group wasn't as big as in the experimental group. In the experimental group, there was a significant decrease in stress levels ($p < 0.001$; paired T-test), while in the control group there was a non-significant decrease in stress levels ($p = 0.511$; paired T-test).

Table 3. Confounding Variables

| No. | Confounding Variables | Frequencies (n) |
|-----|---------------------------------------|-----------------|
| 1. | Environmental Conditions | |
| | Set environmental conditions | 32 |
| | Not set environmental conditions | 0 |
| 2. | Sleep Pattern Disturbances | |
| | Having sleep pattern disturbances | 0 |
| | Not having sleep pattern disturbances | 32 |

In Table 3, it could be seen that all research subjects included in the experimental group had the same conditions. Subjects were said to set environmental conditions before relaxation if they could set the relaxation room/ place to be quiet; the room temperature wasn't too hot or cold; and the enlightenment was also sufficient or not too bright. While the subjects were said to have no disturbance in sleep patterns if they had sufficient hours of sleep (6-8 hours every night) with good sleep quality (restful, didn't have difficulty sleeping, and didn't often wake up at night). Subjects in the experimental group always set the environmental conditions for relaxation and didn't experience sleep pattern disturbances during the research.

DISCUSSION

This study involved 21 men (32.8%) and 43 women (67.2%), which was in line with research conducted by Nasrani (2016) which stated that women tend to experience higher stress levels than men.²⁰ In addition, at the beginning of the study, it was found that the highest stress level experienced by research subjects was moderate stress levels as many as 41 people (64%). This was also in accordance with research conducted by Ambarwati, et al. (2017) about the Description of Student Stress Levels. In that study, it was stated that out of 101 respondents, 58 respondents (57.4%) of them experienced moderate stress, followed by mild stress 36 respondents (35.6%) and severe stress 7 respondents (6.9%).⁵

The results of this study showed that there was a change in stress levels after doing Benson's relaxation twice a day, with a duration of 10 minutes for 14 consecutive days. In the experimental group, it was found that there was a significant decrease in stress levels after Benson's relaxation compared to before Benson's relaxation, while in the control group there was also a decrease in stress levels, but this decrease was not significant. In addition, when the stress level in the experimental group after Benson's relaxation compared with the control group, there was a significant decrease in stress levels. This was in accordance with the major and minor hypotheses of the researcher, that Benson's relaxation could reduce stress levels in students of the Faculty of Medicine Universitas Diponegoro who were working on a thesis.

The results of this study were in line with research conducted by Renu S., et al. (2019) which examined the effect of Benson's relaxation on the stress level of first-year nursing students. The study was conducted on 60 respondents with an intervention in the form of Benson's relaxation for 30 minutes. The results of the study proved that Benson's relaxation could significantly reduce stress levels.¹⁹ Similar results were also obtained in a study conducted by Saifan A., et al (2021). The research intervention was Benson's relaxation therapy for 8 weeks with a duration of 10 minutes, twice a day which was carried out on 105 adult respondents. The results of this study showed that there was an effect of Benson's relaxation in reducing stress levels significantly in the intervention group and not significantly in the control group.²¹ In addition, there were no other studies with different results from the results of this study.

The results of this study were also in line with the theoretical basis that Benson's relaxation which involved deep breathing techniques could make the body more relaxed and relieved tension when feeling stressed.²² This was achieved through several mechanisms, most notably related to hypothalamic regulation, decreased sympathetic nervous system activity, and decreased adrenal secretion.²³ When the body took deep breaths, the stretch receptors in the lungs were stimulated. This condition would cause the sending of signals to the medulla oblongata to increase the activity of the parasympathetic nervous system so that the respiratory rate could be reduced. In addition to a decrease in respiratory rate, this



response would also cause vasodilation of blood vessels, which would also reduce blood pressure and heart rate. A decrease in blood pressure, heart rate, and respiratory rate would make the body more relaxed and calm when dealing with stress.^{24,25}

This relaxed feeling then stimulated the hypothalamus to secrete *Corticotropin Releasing Hormone* (CRH). CRH through the HPA axis would stimulate the anterior pituitary to decrease the secretion of *Adrenocorticotrophic Hormone* (ACTH). ACTH then regulated the adrenal cortex to decrease cortisol secretion. This decrease in cortisol secretion would cause stress and feelings of tension to decrease.²⁵

In addition, the involvement of the faith factor in Benson's relaxation also helped in creating a good internal environment, thus encouraging the body to reach a relaxed state in a short time.^{9,13} A relaxed body would suppress the release of epinephrine and cortisol which played a role in stress and increase the release of endorphins and enkephalins as neurotransmitters that could affect the mood to be relaxed and happy.²⁵

Confounding variables in this study included environmental conditions and sleep pattern disturbances. This could be ignored because the condition was maintained the same in the experimental group during the study, and all research subjects had the same confounding factors or homogeneous.

The limitation of this study was that the researcher couldn't control all the activities of the research subjects during the study because it was conducted online. Control of confounding variables, especially sleep pattern disturbances, was still limited. Researchers had tried to control by asking directly via gform so that the data obtained was only based on the subjectivity of the research subject.

CONCLUSION

After two weeks of intervention, it was found that there was a decrease in stress levels in the experimental group compared to the control group. In addition, there was also a significant decrease in stress levels after doing Benson's relaxation compared to before doing Benson's relaxation. Therefore, it could be concluded that Benson's relaxation reduced stress levels in students of the Faculty of Medicine Universitas Diponegoro who were working on a thesis.

ETHICAL APPROVAL

All research procedures received ethical clearance from the Health Research Ethics Commission of the Faculty of Medicine, Universitas Diponegoro, Semarang before conducting the research. The Ethical Clearance number is 168/EC/KEPK/FK-UNDIP/VI/2022.

CONFLICT OF INTEREST

The authors declared no conflict of interest.

AUTHOR CONTRIBUTIONS

Writing-original draft preparation, EHK; writing-review and editing, YP, NDW, and MM.

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