



**THE EFFECT OF PROGRESSIVE MUSCLE RELAXATION THERAPY ON
ACADEMIC STRESS LEVELS IN ADOLESCENTS CLASS XII IN PUBLIC SENIOR
HIGH SCHOOL**

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ABSTRACT

Academic stress is an individual's perception and assessment of what is perceived as an academic stressor related to science and education, this condition occurs due to a mismatch between academic demands and abilities of adolescents. This study aims to determine the effect of progressive muscle relaxation therapy on academic stress levels in adolescents of grade XII. The research design used in this study is Quantitative Pre-experimental: pre-post test (one group pre-post test design) with a cohort approach. The population in this study were all adolescents of grade XII Social C Public Senior High School 2 Tuban as many as 36 adolescents and grade XII Science 2 Public Senior High School 4 Tuban as many as 37 adolescents. The total participants of this study were about 73 adolescents selected by cluster random sampling technique obtained 31 adolescents each grade. Data were collected through pre-test and post-test questionnaires. The data was analyzed using the Wilcoxon test with a significance level of $\alpha < 0.05$ using SPSS software version 26 for windows, the results obtained were Asymp sig (2-tailed) = 0.000, which means the smaller the p-value, the more significant the results of the study, so that $p = 0.000 < 0.05$ then H_1 is accepted. This shows that progressive muscle relaxation therapy has an effect on reducing academic stress levels in grade XII adolescents at Public Senior High School.

Keywords: academic stress; adolescent; progressive muscle relaxation therapy

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INTRODUCTION

Academic stress is a common problem faced by high school students, particularly in demanding school environments. Interviews with counselors and students at public senior high schools in Tuban revealed that many students in grade XII experience headaches, fatigue due to full day school schedules, difficulty remembering lessons, and pressure from assignments and daily tests. These conditions indicate that academic stress remains a serious issue that can interfere with students' physical and psychological well-being. Adolescence is a critical stage in which individuals transition from childhood to adulthood, while also facing the pressure of completing their education. High academic demands, strict school regulations, and the need to maintain good grades often become major stressors. Previous studies have shown that academic stress is prevalent both internationally and nationally, with more than 70% of students reporting stress related to school performance, exams, and lack of social or emotional support.

The sources of academic stress can be internal, such as low self-confidence, poor coping strategies, and emotional instability, or external, such as heavy workloads, parental expectations, and competition among peers. The impact can manifest in biological aspects (fatigue, sleep disturbance, muscle tension) as well as psychosocial aspects (anxiety, fear, low motivation). If left unmanaged, academic stress can significantly affect students' health and academic achievement. One method to reduce stress effectively is progressive muscle relaxation therapy. This technique trains individuals

to tense and then relax specific muscle groups, which helps release tension, activate the parasympathetic nervous system, and generate a state of calmness. Research has shown that progressive muscle relaxation can be applied to adolescents as a practical, low-cost, and accessible way to manage stress, especially stress related to academic demands. Based on these conditions, this study aims to examine “The Effect of Progressive Muscle Relaxation Therapy on Academic Stress Levels in Grade XII Adolescents at Public Senior High Schools in Tuban Regency.” The findings are expected to contribute to stress management strategies for students, particularly in the context of academic challenges faced by adolescents.

METHOD

The research design used in this study was a quantitative pre-experimental: pre-post test (one group pre-post test design), which aims to reveal causal relationships by involving one group of subjects (Munir, et al. 2022). This study used a cohort approach to data collection. A cohort research approach is a longitudinal, time-based approach that examines a group of people over a specific period, starting with identifying causes and then following them to their consequences (Munir, et al. 2022). The study population is a group of people who meet predetermined criteria (Nursalam, 2020). The population in this study was all 37 students of class XII MIPA 2 SMAN 4 Tuban and 36 students of class XII IPS C SMAN 2 Tuban. Based on the data obtained by the researcher by distributing questionnaires for the pre-test and post-test, they then edited the data by selecting the collected data and checking the answers. The next step was coding each variable according to the operational definition. Then tabulated into a table and then the data was analyzed using the Wilcoxon test with a significance level of $\alpha = <0.05$ using SPSS software version 26 for windows, the results obtained were Asymp sig (2-tailed) = 0.000, which means the smaller the p-value, the more significant the results of the study, so that $p = 0.000 < 0.05$ then H1 is accepted. This shows that there is an Effect of Progressive Muscle Relaxation Therapy on Academic Stress Levels in Class XII Adolescents at Public High Schools.

RESULT

Identification of Academic Stress in Class XII IPS C Adolescents Before Being Given Progressive Muscle Relaxation Therapy

Tabel 1.

Frequency Distribution of Respondents Based on Academic Stress Levels in Class XII IPS C Adolescents Before Being Given Progressive Muscle Relaxation Therapy

Academic Stress Level	f	%
Light	5	16.1%
Currently	18	58.1%
Heavy	8	25.8%

Based on table 1 above, it can be seen that out of 31 respondents, the majority, 18 (58%) respondents, had moderate levels of academic stress.

Identification of Academic Stress in Adolescents of Class XII MIPA 2 Before Being Given Progressive Muscle Relaxation Therapy

Tabel 2.

Frequency Distribution of Respondents Based on Academic Stress Levels in Adolescents of Class XII MIPA 2 Before Being Given Progressive Muscle Relaxation Therapy

Academic Stress Level	f	%
Light	9	29
Currently	13	42
Heavy	9	29

Based on table 2 above, it can be seen that of the 31 respondents, almost half, 13 (42%) respondents, had moderate levels of academic stress.

Identification of Academic Stress in Class XII IPS C Adolescents After Being Given Progressive Muscle Relaxation Therapy

Tabel 3.

Frequency Distribution of Respondents Based on Academic Stress Levels in Class XII IPS C Adolescents After Being Given Progressive Muscle Relaxation Therapy

Academic Stress Level	f	%
Light	21	68
Currently	10	32
Heavy	0	0

Based on table 3 above, it can be seen that from 31 respondents, the majority of 21 respondents (68%) respondents with mild levels of academic stress.

Identification of Academic Stress in Adolescents of Class XII MIPA 2 After Being Given Progressive Muscle Relaxation Therapy

Tabel 4.

Frequency Distribution of Respondents Based on Academic Stress Levels in Grade XII Adolescents MIPA 2 After Being Given Progressive Muscle Relaxation Therapy

Academic Stress Level	f	%
Light	20	65
Currently	11	35%
Heavy	0	0%

Based on table 4 above, it can be seen that from 31 respondents, the majority of 20 respondents (65%) respondents with mild levels of academic stress.

Analysis of the Effect of Progressive Muscle Relaxation Therapy on Academic Stress Levels in Grade XII Adolescents

Tabel 5.

Academic Stress Levels Before and After Progressive Muscle Relaxation Therapy in Grade XII IPS C Adolescents

Progressive Muscle Relaxation Therapy	Academic Stress Levels			Total
	Light	Currently	Heavy	
<i>Pre-Test</i>	5 (16.1%)	18 (58.1%)	8 (25.8%)	31 (100%)
<i>Post-Test</i>	21 (67.7%)	10 (32.3%)	0 (0%)	31 (100%)

Wilcoxon Signed Ranks Asymp. Sig. (2 tailed)=0,000

From table 5 it can be seen that the level of academic stress before being given progressive muscle relaxation therapy In class XII IPS C SMAN 2 Tuban, 18 (58.1%) experienced academic stress with moderate level of academic stress. After being given progressive muscle relaxation therapy to adolescents in class XII IPS C of SMAN 2 Tuban, it was shown that 21 (67.7%) respondents had mild levels of academic stress.

Tabel 6.

Academic Stress Levels Before and After Progressive Muscle Relaxation Therapy in Adolescents Class XII MIPA 2

Progressive Muscle Relaxation Therapy	Academic Stress Levels			Total
	Light	Currently	Heavy	
<i>Pre-Test</i>	9 (29%)	13 (41.9%)	9 (29%)	31 (100%)
<i>Post-Test</i>	20 (65%)	11 (35%)	0 (0%)	31 (100%)

Wilcoxon Signed Ranks Asymp. Sig. (2 tailed)=0,000

From table 6 it shows that the level of academic stress before being given progressive muscle relaxation therapy In class XII MIPA 2, 13 (41.9%) had high levels of academic stress. After being given progressive muscle relaxation therapy to adolescents in class XII MIPA 2 showed that 20

(65%) respondents had a mild level of academic stress.

DISCUSSION

Identification of Academic Stress Before Administering Progressive Muscle Relaxation Therapy to Adolescents Class XII IPS C at SMAN 2 Tuban and XII MIPA 2 at SMAN 4 Tuban in 2022. The results of the research conducted by the researcher showed that 18 (58.1%) of 31 (100%) of the adolescents of class XII IPS C at SMAN 2 Tuban before being given progressive muscle relaxation therapy based on table 1, namely that most of them had moderate levels of academic stress which were dominated by female adolescents, while the results of the research conducted by the researcher on adolescents of class XII MIPA 2 at SMAN 4 Tuban 13 (42%) of 31 (100%) adolescents based on table 5 showed that almost half of them had moderate levels of academic stress, moderate levels of academic stress, dominated by male adolescents. This is indicated by the results of the Educational Stress Scale for Adolescents (ESSA) questionnaire, which consists of 16 statements completed by 12th-grade adolescents at SMAN 2 Tuban and SMAN 4 Tuban before receiving treatment.

The results of this study are in line with research conducted by Andini & Retno in 2021 that found that public high school students in Sidoarjo Regency had an average level of moderate academic stress with a percentage of 68.2%. According to Qian & Fuqian (2018), academic stress is the psychological pressure felt by individuals due to the stress and psychological tension of the learning process. They believe that stress arises from cognitive processes carried out by students in both external and internal educational environments, which can affect students. Academic stress is a condition in which a student is unable to meet academic demands and perceives them as disruptive (Barseli & Ifdil, 2018). Academic stress is influenced by the hormone cortisol produced by the adrenal glands, a type of steroid hormone that can influence the body's response to stress. Factors causing academic stress are influenced by an individual's internal resources, emotional state, optimism, self-efficacy, and coping strategies (Taylor 2012 in Dewi, 2021). Academic stress is also influenced by external factors such as demanding courses, demands of social status, and pressure to achieve (Alvin, 2007 in Dewi, 2021). Individuals experiencing stress will exhibit a response in the form of tension in several aspects of their being, namely biological and psychosocial. The biological aspect is part of the physiological response to stressors or strain, called reactivity, which is experienced in various conditions such as sleep deprivation and other physiological disorders. Furthermore, the psychosocial aspect encompasses cognitive, emotional, and social behavior (Sarafino & Smith in Lusiana, 2019).

Cognitive (thought) difficulties in focusing attention while studying, forgetfulness, and difficulty remembering learning materials can occur. Affective (feeling) feelings of anxiety, sensitivity, sadness, anger, and frustration can arise. Physiologically, feelings of weakness, malaise, heart palpitations, trembling, dizziness, muscle stiffness, and cold sweats can arise. In addition, stress reactions can also cause changes in individual behavior such as destructive behavior, self-isolation, defiance, procrastination, procrastination at work or completing school assignments, laziness at school, and doing negative things to seek excessive and risky pleasure (Liliana and Lestawati, 2019). Based on the theoretical description and existing facts, before the intervention in the form of progressive muscle relaxation was administered, the researcher concluded that the 12th-grade adolescents were experiencing moderate levels of academic stress. Moderate academic stress can be identified by symptoms such as irritability, irritability, impatience, and anxiety. The academic stress experienced by these 12th-grade adolescents was caused by their activities. dense learning, decreased motivation, mindset and high pressure to achieve. The dominant gender differences in the pre-test results are normal because academic stress can occur in both male and female adolescents, but this does not affect gender. Stressful conditions can have many impacts on a person's physical and psychological development.

The impact can lead to various health problems, such as excessive fear, anxiety, and a desire to escape from the problems faced. This stressful condition can affect a person's thoughts, feelings, physical reactions, and behavior. Interviews with 12th-grade adolescents revealed that when they experience academic stress, they often simply let it go, tending to cry, stay in their rooms, play social media, eat, and sleep. This was further supported by observations from researchers who found that some adolescents slept in class, ate in class, and played online games. The pre-test results were classified as moderate academic stress, meaning students were unable to resolve the academic problems they faced and needed help from others.

Moderate levels of academic stress are found at scores of 51-58 on the academic stress questionnaire. Identification of Academic Stress After Progressive Muscle Relaxation Therapy was Given to Adolescents of Class XII IPS C at SMAN 2 Tuban and XII MIPA 2 at SMAN 4 Tuban in 2022. Based on the research results, it shows the level of academic stress in class XII IPS C adolescents in SMAN 2 Tuban 21 (67.7%) of 31 (100%) teenagers showed that the level of academic stress was mild, which was dominated by female teenagers. While the level of academic stress in class XII MIPA 2 teenagers at SMAN 4 Tuban 20 (65%) of 31 (100%) teenagers showed a mild level of academic stress, which was dominated by male teenagers.

The results of this study are in line with the results of research conducted by Lestiawati and Liliana which showed that academic stress scores after being given treatment in the form of progressive muscle relaxation experienced a significant decrease. The existence of differences in academic stress levels is in accordance with the theory which states that individual responses to the stressors they face will differ from one another, this is caused by various stressor factors and the coping abilities that individuals have (Hidayat and Uliyah 2014 in Liliana and Lestiawati, 2019). Academic stress is a normal and natural experience for students during the learning process. Stress can cause feelings of pressure, and thinking and coping with the challenges faced are adaptive responses. A simple treatment for academic stress in adolescents is progressive muscle relaxation. This therapy aims to provide comfort to the muscles. When stressed, muscles in certain parts of the body, such as the neck, back, arms, and buttocks, become tense. Treatment is performed while observing the changes and sensations in these muscles.

Progressive muscle relaxation therapy is a skill anyone can learn and use to reduce or release tension and achieve comfort without relying on external factors or subjects. Progressive muscle relaxation therapy can be used to manage anxiety, stress, or tension (Gangadharan & Madani, 2018 in Education et al., 2019). This therapy can be given to teenagers who experience academic stress due to fatigue while studying, too much homework, lack of rest, busy schedules and fear of exam results. With practice and instruction, teenagers will feel relaxed in a matter of minutes each day, stretching their muscles, resting their brains and feeling comfortable when sleeping at night (Hanson, 1995). This therapy can also inhibit the suppressed feedback pathway between muscles and thoughts by activating the parasympathetic nervous system and then manipulating the hypothalamus to focus and stimulate positive thoughts and attitudes, which relieve stress and make the subject feel relaxed (Liliana and Lestiawati, 2019).

Based on the facts and theories obtained, researchers argue that there is a significant change in the level of academic stress of adolescents after being given an intervention in the form of progressive muscle relaxation therapy. This change is caused by various factors that can affect the stress conditions of each individual. In adolescents of class XII IPS C SMAN 2 Tuban, there was a significant decrease in the level of academic stress in female adolescents, these female adolescents tend to be able to regulate their emotional conditions. Meanwhile, in adolescents of class XII MIPA 2 SMAN 4 Tuban, there was also a significant decrease in the level of academic stress, especially in male adolescents. These male adolescents tend to be calmer when facing challenges and

difficulties in learning. Individual responses to stressors faced will vary from one another, this is caused by various stressor factors and the individual's coping abilities. It can be seen that the results from both schools both experienced a decrease in the level of academic stress after being given progressive muscle relaxation therapy. Analysis of the Effect of Progressive Muscle Relaxation Therapy on Academic Stress Levels in Grade XII Adolescents at Public High Schools (Tuban Regency). The data analysis in this study used the Wilcoxon test. The statistical test results in this study showed an effect of progressive muscle relaxation therapy on academic stress levels in 12th-grade adolescents at a public high school in Tuban Regency.

Based on table 5, it shows that the level of academic stress in class XII IPS C adolescents before being given progressive muscle relaxation therapy, the majority of adolescents, numbering 18 (58.1%), had a high level of stress moderate academic stress levels dominated by female adolescents, a small portion of mild academic stress levels amounted to 5 (16.1%) adolescents and almost half of severe academic stress levels amounted to 8 (25.8%) adolescents. While after being given progressive muscle relaxation therapy, most adolescents amounted to 21 (67.7%) had mild academic stress levels dominated by female adolescents, almost half of moderate academic stress levels amounted to 10 (32.3%) adolescents and none of the adolescents had severe academic stress levels. Based on table 5.10 shows that the level of academic stress of grade XII MIPA 2 adolescents before being given progressive muscle relaxation therapy almost half consisted of 13 (41.9) adolescents experiencing moderate academic stress levels dominated by male adolescents, almost half of mild academic stress levels amounted to 9 (29%) adolescents and almost half of severe academic stress levels amounted to 9 (29%). Meanwhile, after being given progressive muscle relaxation therapy, the majority of teenagers, 20 (65%) had mild levels of academic stress, dominated by male teenagers, a small number of 11 (35%) had moderate levels of academic stress and none of them experienced severe levels of academic stress after being given treatment. The results of this study are also supported by previous research conducted by Endang Lestiawati and Anita Liliana in 2019 entitled "Progressive and Autogenic Muscle Relaxation to Reduce Stress in Adolescents at SMKN 1 Depok Sleman Yogyakarta." The results of this study showed that progressive and autogenic muscle relaxation therapy was effective in reducing stress in adolescents at SMKN 1 Depok.

Further research by Arman, Anas and Samad on grade XI students of SMA Negeri 8 Makassar in 2019 with the title "The Effect of Progressive Muscle Relaxation on Academic Stress in Students" showed that progressive muscle relaxation can overcome students' stress levels if implemented correctly and the students' academic stress in this experiment was at a very severe level before being given progressive muscle relaxation treatment. The results of the data analysis used in the study were the Wilcoxon Test with the result $p = 0.000 < 0.05$, so H_1 was accepted so it can be concluded that there is an effect of progressive muscle relaxation therapy on the level of academic stress in grade XII adolescents at Tuban Regency State Senior High School. The results of the analysis and interpretation of data obtained from class XII adolescents at SMAN 2 Tuban and class XII adolescents at SMAN 4 Tuban in the mild academic stress category.

After being reviewed by the researcher through interviews with the teenagers, factors emerged that influenced the provision of interventions that were not in accordance with the researcher's expectations, the teenagers said they could not focus and follow along well when doing progressive muscle relaxation therapy with the reason that they had just woken up from sleep, were hungry and were still thinking about unfinished tasks, this was also supported by the results of the researcher's observations during the research process, where it was found that teenagers who had just woken up from sleep, ate in class and played online games. The high levels of stress experienced at both schools were predominantly among 18-year-olds, who are often more emotionally invested and difficult to control. At this stage, adolescents enter a period of confusion and experience several

problems in moral formation due to inconsistent application of concepts of right and wrong. For example, doubts can lead to cheating at school. This cheating behavior is considered normal, and it is justified by environmental pressure to achieve high grades for future success. At this stage, adolescents begin to recognize their obligation to uphold and uphold existing norms, but they are not yet able to take personal responsibility for this.

Teenagers who experience academic stress often simply let it go and tend to cry, stay in their rooms, play social media, eat, and sleep. Then, after undergoing progressive muscle relaxation therapy, academic stress levels decreased in 12th-grade adolescents. After the intervention, progressive muscle relaxation therapy, academic stress levels changed from severe to moderate and then moderate to mild. The research also found that male teenagers and 2 female teenagers were found with consistent scores when filling out the pretest and posttest questionnaires at SMAN 2 Tuban and 9 female teenagers and 6 male teenagers were found with scores remain when filling out the pretest and posttest questionnaires at SMAN 4 Tuban. The existence of these significant changes shows that progressive muscle relaxation therapy. This therapy had an impact on 12th-grade adolescents experiencing academic stress. The success of the therapy was due to the successful implementation of progressive muscle relaxation therapy and the implementation instructions following Standard Operating Procedures. This success was also aided by the cooperative attitude of the adolescents, who carefully followed the researchers' instructions. The success of progressive muscle relaxation therapy had a positive effect on reducing school stress in 12th-grade adolescents.

Cognitive (thought) difficulties in focusing attention while studying, forgetfulness, and difficulty remembering learning materials can occur. Affective (feeling) feelings of anxiety, sensitivity, sadness, anger, and frustration can arise. Physiologically, feelings of weakness, malaise, heart palpitations, trembling, dizziness, muscle stiffness, and cold sweats can arise. In addition, stress reactions can also cause changes in individual behavior such as destructive behavior, self-isolation, defiance, procrastination, procrastination at work or completing school assignments, laziness at school, and doing negative things to seek excessive and risky pleasure (Liliana and Lestiwati, 2019).

A treatment that can be easily performed to manage academic stress in adolescents is progressive muscle relaxation. This progressive muscle relaxation therapy aims to provide comfort to the muscles. When stressed, muscles in certain parts of the body, such as the neck, back, arms, and buttocks, become tense. The treatment is performed while feeling the changes and sensations in the muscles in these areas. Progressive muscle relaxation therapy is a skill that anyone can learn and it is used to reduce or release tension and to achieve comfort without relying on external things or subjects. Progressive muscle relaxation therapy can be used to control anxiety, stress, or tension (Gangadharan & Madani, 2018 in Education et al., 2019). This therapy can be given to adolescents experiencing academic stress due to fatigue while studying, too much homework, lack of rest, busy schedules, and fear of exam results. With practice and instruction, teens will feel relaxed within minutes each day, stretch muscles, rest the brain and feel comfortable when sleeping at night (Hanson, 1995).

This therapy can also inhibit the suppressed feedback pathway between muscles and thoughts by activating the parasympathetic nervous system and then manipulating the hypothalamus to focus and stimulate positive thoughts and attitudes, which relieve stress and make the subject feel relaxed (Liliana and Lestiwati, 2019). Research conducted by Endang Lestiwati and Anita Liliana in 2019 with the title "Progressive and Autogenic Muscle Relaxation to Reduce Stress in Adolescents at SMKN 1 Depok Sleman" Yogyakarta. The results of the study indicate that progressive and autogenic muscle relaxation therapy are effective in reducing stress in adolescents at SMK N 1

Depok. Further research by Arman, Anas and Samad on grade XI students of SMA Negeri 8 Makassar in 2019 with the title "The Effect of Progressive Muscle Relaxation on Academic Stress in Students" shows that progressive muscle relaxation can overcome student stress levels if implemented correctly and the academic stress of students in this experiment was at a very high level before being given progressive muscle relaxation treatment. Based on the problem background above, the researcher is interested in conducting research on "The Effect of Progressive Muscle Relaxation Therapy on Academic Stress Levels in Grade XII Adolescents in "State Senior High School of Tuban Regency"

CONCLUSION

Based on the data obtained by the researcher by distributing questionnaires in the pre-test and post-test, the researcher then edited the data by selecting the collected data and checking the answers. The next step was coding each variable according to the criteria with those listed in the operational definition. Then tabulate into a table and then the data is analyzed using the Wilcoxon test with a significance level of $\alpha=0.05$ with Using SPSS software version 26 for Windows, the result obtained was an Asymp sig (2-tailed) value of 0.000. This means that the smaller the α -value, the more significant the research results, so that $0.000 < 0.05$ Therefore, H1 is accepted. This indicates that there is an effect of Progressive Muscle Relaxation Therapy on the level of academic stress in 12th grade adolescents at a public high school (Tuban Regency).

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