



The Effectiveness of Cognitive Behavior Therapy Cognitive Restructuring Techniques to Minimize Students' Academic Anxiety in Science Subjects

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Abstract: The purpose of this study was to determine the effectiveness of counseling cognitive behavior therapy cognitive restructuring techniques in minimizing students' academic anxiety in science subjects. This study used a quasi-experimental research design with nonequivalent control group design. The population in this study were students of class XI at SMAN 3 Mataram who indicated they had a high level of academic anxiety based on the results of pre-test measurements using the adoption instrument from the Achievement Emotions Questionnaire (AEQ). The data analysis technique uses the one way Anova statistical test. The results of this study indicate that group counseling cognitive behavior therapy cognitive restructuring techniques are effective in minimizing students' academic anxiety in science subjects.

Keywords: Academic anxiety; Cognitive restructuring; Counseling cognitive behavior therapy

Introduction

Anxiety is one of the most widely experienced emotions in individuals and is one of the most important constructs of all human behavior. Anxiety is a complex psychological situation that has an impact on cognitive, behavioral and psychological states (Das et al., 2014). Anxiety can be described as a manifestation of feelings of restlessness, nervousness, worry, fear, or unpleasant feelings (Barlow, 2000). In addition, anxiety can be experienced by people of various age groups in their daily lives (Shakir, 2014). Furthermore, anxiety can also be said to be a form of confusion, worry about something that will happen with no clear cause. In addition, anxiety is also associated with feelings of uncertainty, so that individuals feel helpless which is described as a state of apprehension or a state of worry about bad luck that will happen soon (Davidson et al., 2004; Lenka & Kant, 2012). Anxiety can be experienced by everyone without exception, also experienced by a student at school. The

anxiety faced by a student at school is often referred to as academic anxiety (Hooda & Saini, 2017).

In this study, academic anxiety is a type of anxiety related to impending danger from the environment of academic institutions including teachers in certain subjects such as Mathematics, English, Science and others (Mahato & Jangir, 2012). This academic anxiety is a picture of depressed mental feelings as a reaction to a school situation that is considered negative. Furthermore, academic anxiety can be described as a specific form of situational anxiety related to academic circumstances (Cassady, 2010; Tohill & Holyoak, 2000).

Academic anxiety experienced by students can indirectly affect most of their activities at school. When the anxiety felt by students is excessive, it will have a negative effect which causes students to experience psychological pressure so that it has an impact on poor learning outcomes (Hooda & Saini, 2017). According to Pekrun (2006) Academic anxiety experienced by students tends to interfere with the learning process and

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result in decreased achievement, including interfering with the ability of the brain's memory system. Furthermore, Daley (2005) mentioned academic anxiety can occur because students lack mastery of subject matter, are not confident, afraid of being judged, not used to appearing in public, feeling unprepared, and anxiety when questions are asked from the teacher. Hashempour & Mehrad (2014) revealed from the results of his research that academic anxiety affects student learning activities at school which causes the learning process to be carried out ineffectively.

The problem of academic anxiety is experienced by many students at school and this is proven by the results of research from (Freeston et al., 2001) which reveals that many students experience levels of academic anxiety in the high category and have an impact on decreasing their academic achievement at school. Furthermore, if academic anxiety is not handled properly, it can have a negative impact on students where they will try to delay work, skip classes, lie, and try to withdraw from their social life (Mahato & Jangir, 2012; Steel, 2010).

These various problems of academic anxiety can be minimized if students have self-confidence, responsibility and have a positive mindset within themselves (Oei & McAlinden, 2014). As for one effort that can be done to foster a positive mindset so that students have high self-confidence is to apply counseling cognitive behavior therapy cognitive restructuring techniques (Johnco et al., 2014). Counseling cognitive behavior therapy is an effective approach to minimize anxiety (Hans & Hiller, 2013; Hofmann et al., 2012; Carpenter et al., 2018). Furthermore, the application of cognitive restructuring techniques in cognitive behavior therapy counseling helps counsees to be able to identify thinking errors in the form of self-criticism and then proceed with rearranging individual thoughts by denying this self-criticism. In addition, cognitive restructuring techniques are also said to be a series of activities researching and assessing the counselee's beliefs whether they currently have rational or irrational beliefs, through an objective process of assessment related to thoughts, feelings, and actions (Adi et al., 2022).

As for this research, the purpose of applying cognitive restructuring techniques is to help counsees learn to think differently, change wrong, fundamental thoughts and replace them with more rational, realistic, and positive thoughts. Error thinking is expressed through negative self-statements. Negative self-statements indicate irrational thoughts, views and beliefs. It is hoped that the provision of cognitive behavior therapy counseling services with cognitive restructuring techniques can minimize students' academic anxiety in natural sciences with the emergence of cognitive restructuring of irrational thoughts and distorted belief systems to bring changes in emotions

and behavior towards a better direction. With these changes are expected to change negative behavior to be more positive. This statement is reinforced by the results of research from (Olubusayo, 2014) who revealed that the application of cognitive restructuring techniques was very effective in reducing students' academic anxiety.

Erford (2015) explained that cognitive restructuring techniques are effective in their application to minimize academic anxiety because they can be used to provide treatment to individuals whose thoughts are polarized, showing fear and anxiety in certain situations by identifying thoughts that cause feelings of anxiety towards individuals so that they can oppose self-thoughts defeating himself with coping thoughts. In addition, the reason for choosing cognitive restructuring techniques can be seen from several previous research results which show that cognitive restructuring techniques have a positive impact on minimizing anxiety (Fernández & Mairal, 2017; Hanifa et al., 2015; Murphy, 2007). However, previous research also found that cognitive behavior therapy counseling with cognitive restructuring techniques was less effective (Steigerwald & Stone, 1999). So it can be concluded that cognitive restructuring techniques still have the potential for further research to be carried out to determine their effectiveness, especially in reducing academic anxiety.

Based on these findings, this research will reaffirm the effectiveness of cognitive behavior therapy counseling with cognitive restructuring techniques in reducing students' academic anxiety in science subjects at SMA Negeri 3 Mataram.

Method

In this study, 10 students participated consisting of 5 boys and 5 girls. The participants in this study were students at SMA Negeri 3 Mataram, who indicated that they had high academic anxiety in science subjects. The instrument used in this research is an adaptation instrument developed by (Pekrun, 2006) entitled Achievement Emotions Questionnaire (AEQ) which is focused on class related anxiety, learning related anxiety and test anxiety. Furthermore, the adapted questionnaire will be adapted to the adaptation procedure made by Lenz et al. (2017). The adaptation procedures carried out in this study are 1) forward translation, 2) translation review, decentering, and reconciliation of content, 3) team review and further cultural adaptation, 4) qualitative or quantitative evaluation. The purpose of using the Achievement Emotions Questionnaire (AEQ) instrument in this study was to measure the level of students' academic anxiety in science subjects.

This research was conducted on class XI students at SMA Negeri 3 Mataram, as many as 100 people were given the opportunity to fill out the pre-test instrument. From the results of the pre-test assessment, students with a high level of academic anxiety in science subjects were taken according to the criteria set by the researcher and 10 people were selected to be research subjects using the random assignment technique. The research subjects who were selected to be the experimental group were given cognitive behavior therapy counseling interventions with cognitive restructuring techniques for five sessions. While the subjects who were in the control group were given intervention in the form of group guidance for five sessions. Each session of cognitive behavior therapy counseling was given a duration of 45 minutes for each person in the experimental group. As for the control group, group guidance was given a duration of 90 minutes. After the intervention was completed for the two research groups, a post-test assessment was then carried out to see the changes that had occurred. Furthermore, the data obtained from the assessment results were analyzed using One Way Anova to see a decrease in the intensity

of academic anxiety experienced by students in science subjects.

Result and Discussion

Based on the sampling technique used, then 10 students who have high academic anxiety levels in science subjects will be selected and will be divided into two groups, namely the experimental group of 5 people and the control group of 5 people in a random way. Furthermore, the experimental group will be given cognitive behavior therapy counseling with cognitive restructuring techniques and the control group will be given regular group guidance. Meanwhile, after the experimental group was given an intervention in the form of cognitive behavior therapy counseling with cognitive restructuring techniques and the control group was given group guidance, the next thing the researchers did was conduct a post-test assessment. The purpose of conducting a post-test assessment is to determine changes in students' academic anxiety levels in science subjects after being given an intervention. Furthermore, the descriptive results of the research data are presented in Table 1.

Table 1. Descriptive Results of Research Data

Parameter	CR		Parameter	BK	
	Pre-Test	Post-Test		Pre-Test	Post-Test
N	5	5	N	5	5
Score	548	416	Skor	550	539
Mean	109.60	103.20	Mean	110.00	107.80
SD	1.34	1.09	SD	1.00	1.79
$F_{(1,9)}$					24.04, $p < 0.01$

From the Table 1, it was obtained that the pretest results of 5 research subjects in the experimental group before providing cognitive behavior therapy counseling services with cognitive restructuring techniques obtained an average score of students' academic anxiety score of ($M = 109.60$, $SD = 1.34$). After providing cognitive behavior therapy counseling services using cognitive restructuring techniques, the posttest results obtained an average score ($M = 103.20$, $SD = 1.09$). Whereas in the control group given group guidance, the results of the pretest were obtained for 5 research subjects before giving group guidance, the average score of students' academic anxiety was ($M = 110.00$, $SD = 1.00$). After being given group guidance, the posttest results obtained an average value ($M = 107.80$, $SD = 1.79$). This shows that there is a decrease in the level of academic anxiety after being given cognitive behavior therapy counseling with cognitive restructuring techniques in the experimental group which was originally included in the high category to moderate. As for the control group, which was given regular group guidance, there was no change, still in the high category.

Data analysis in this study used the one-way Anova test. The results of the main effect of time on reducing academic anxiety in the experimental group showed a significant effect ($F_{(1,9)} = 24.04$, $p < 0.01$). The effect of time at the time of measurement showed a decrease in academic anxiety in each group where the pretest ($M = 109.80$, $SD = 1.35$) and posttest ($M = 105.50$, $SD = 2.79$). If we compare the results of reducing students' academic anxiety between the experimental and control groups, the experimental group given cognitive behavior therapy counseling with cognitive restructuring techniques is superior in minimizing students' academic anxiety.

This study investigates the effectiveness of counseling cognitive behavior therapy cognitive restructuring techniques in minimizing students' academic anxiety in science subjects. Based on the results of the analysis of the data obtained, it can be concluded that counseling cognitive behavior therapy cognitive restructuring techniques are effective in minimizing students' academic anxiety in science subjects. The results of this study strengthen previous research which revealed that cognitive behavior therapy

cognitive restructuring techniques are effective in minimizing academic anxiety. Research results from (Tolin, 2010) showed that giving cognitive behavior therapy can reduce anxiety in patients. The research shows that patients experience a decrease in anxiety levels after being given cognitive behavior therapy counseling by applying cognitive restructuring techniques. Further, research results (Olubusayo, 2014) also revealed that cognitive behavior therapy counseling by applying cognitive restructuring techniques was effective in minimizing students' academic anxiety in facing exams in mathematics.

Based on the research results obtained, the results of this study emphasize the effectiveness of counseling cognitive behavior therapy cognitive restructuring techniques that are applied to reduce students' academic anxiety in science subjects. As for the application of cognitive behavior therapy counseling, cognitive restructuring techniques provide learning experiences for students to be able to construct irrational mindsets to become rational and have an impact on more positive behavior in academic contexts, both related to classes, study and exams related to science subjects. Cognitive behavior counseling activities using cognitive restructuring techniques that are applied to students focus on cognitions that cause cognitive distortions so that counselees can rearrange wrong thought patterns, and replace negative perceptions with more positive ones, all of these actions can be taken with coping thought exercises or changing Negative thoughts become more constructive thoughts.

Based on the results of the research that has been achieved, it is quite capable of being proof that when you want to reduce students' academic anxiety in science subjects, and in general in dealing with academic demands, it is important to prepare strategies in counseling that are able to touch this area. The use of cognitive restructuring techniques in the cognitive behavior therapy counseling process will facilitate individuals to interact directly with mild to severe anxiety stimuli. In addition, the involvement of significant others is important in maintaining motivation in student learning and cognition to remain positive.

Conclusion

When you want to work with students who have high academic anxiety in science subjects, counselors can provide cognitive behavior therapy counseling services with cognitive restructuring techniques. In addition, several important things that need to be of concern to counselors in the implementation of counseling services using cognitive restructuring techniques are the availability of sufficient service time to modify the counselee's cognitive behavior. When

counselors use cognitive restructuring techniques to provide treatment to individuals whose thoughts are polarized, showing fear and anxiety in certain situations by restructuring thoughts that cause individual feelings to become anxious so that they oppose their own self-defeating thoughts with coping thoughts. However, the results obtained in this study still found limitations in it. This research is limited to reducing students' academic anxiety in science subjects with cognitive behavior therapy counseling with cognitive restructuring techniques, while in the cognitive behavior therapy approach there are still many techniques that can be used to reduce academic anxiety.

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