Effectiveness of Cognitive Restructuring Technique in the Reduction of Test Anxiety among Senior Secondary School Students in Benin Metropolis of Edo State, Nigeria

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Abstract

This study examined the effectiveness of Cognitive Restructuring Technique in the reduction of test anxiety among secondary school students in Benin metropolis of Edo state. One Hypothesis was formulated by the researcher which was tested at 0.05 level of significant. The pre-test post-test, control group quasi experimental design was used for the study. The population of this study consists of all the public senior secondary schools students in SSII in Benin metropolis, Edo State. The population of this category of students for the year 2018/2019 academic session is 13,889. Of which 6,032 are males and 7,857 are females. Two senior secondary schools from two Local Government Areas in Benin metropolis Edo State were used for the study. The two local government areas were purposively selected for the study. One senior secondary school was also purposively selected from each of the two Local Government Areas. The reason for the purposive selection was because quasi experimental research design does not give room for randomization. The total number of SSII students in the two senior secondary schools that were selected for the study was 418. One intact class that has the highest population of students in each school was selected for the study giving a total sample of 212 students out of which 95 were males and 117 were females. The students were assigned to one treatment group and a placebo control group. The instrument used for collection of data was the Test Anxiety Inventory (TAI). Mean and standard deviations analysis were used to analyze the demographic variables of the participants while, t-test and Analysis of Covariance (ANCOVA) were used to test the hypotheses. The study revealed that Cognitive Restructuring Technique is effective in the reduction of test anxiety scores among secondary school students in Benin metropolis of Edo state. It was recommended that the school counsellors can use Cognitive restructuring technique to manage test anxiety of (among) students.

Keywords: Effectiveness, Cognitive restructuring technique, Test Anxiety, Secondary School, Students.

Introduction

Educational testing plays an important role in decision making through the measurement of individual student's achievement and overall school performance. In schools students are tested from time to time and anxiety is one of the factors that may interfere with test outcome.
Test Anxiety as defined by McDonald (2001), is an experience marked by physical distress when faced with evaluative situations. Test anxiety is a combination of physiological over-arousal, feeling of worry and dread, self-depreciating thoughts, and tension that occur during test situation. It is a physiological condition in which people experience extreme anxiety and discomfort before, during and after taking a test. Test anxiety may stem from an ego threat that includes fear of judgment surrounding poor performance and the subsequent threat to self-esteem. Test anxiety intervention research has primarily examined the effects of cognitive behavior techniques i.e cognitive restructuring, positive reinforcement, relaxation, mindfulness, exposure, role playing, imagery, and skill building interventions to reduce test anxiety and improve test performance (Graham, 2005). Cognitive restructuring technique is a technique of Cognitive Behavioral Therapy for treating patients suffering from depression and anxiety.

Cognitive restructuring involves training individuals to alter thoughts in an attempt to produce appropriate and constructive emotions and behavior. Cognitive – behavior approach has been successfully used to teach clients how to cope with stressors such as test anxiety; and anxiety during flying (Rothman, 2004).Cognitive behavioral coping skills can help the individual move freely from one testing situation to another. If a student perceives a test as stressful, he could apply coping skills in reducing the stress. One of the basic tenets of cognitive restructuring is that people suffer from anxiety and depression because of a performed negative assessment of themselves, attributable to prolonged mental trauma, social aloofness and low self-esteem.
The incidence of examination anxiety abound worldwide, however occurrence rate may differ from one country to another. Roth, Winnie and Heinberg (2002) also support the superiority of cognitive restructuring by emphasizing that it is a very versatile treatment, adaptable to both group and individual settings as it has used children, adolescents and adults across a wide range of cultural and socio-economic backgrounds. The choice of cognitive restructuring is also based on the fact that it is a time efficient treatment with most uncomplicated causes of anxiety being treated in 4 to 14 sessions (Roth, Winnie & Heimberg, 2002). Aderanti and Hassan (2011) reported that Cognitive restructuring has been used successfully to treat a wide variety of conditions, including depression, Post-Traumatic stress Disorder (PTST), addictions, anxiety,

social phobias, relationship issues, and stress. They further stated that the effectiveness of Cognitive Restructuring in treating rebelliousness is not a surprise, because cognitive factors play an important and well documented role in delinquent behaviour since the way people think has a controlling effect on their actions. Eifediyi (2015) found that there was a significant effect of cognitive restructuring in the reduction of examination anxiety of students. Similarly Uyigue (2016) reported that cognitive restructuring was effective in managing adolescents with anxiety disorders in secondary schools. The Cognitive Restructuring theory asserts that humans are directly responsible for generating their own negative emotions and that these self-created negative emotions, over time, lead to dysfunctions, such as stress, depression, anxiety, and even social awkwardness. Cognitive restructuring technique has been found to be the most 'efficacious' intervention for anxiety in adolescents (for example social anxiety, generalized anxiety, post-traumatic stress, obsessive-compulsive, separation anxiety) (Butler, Champman, Forman, & Beck, 2006; Barrett, Healy-Farrell, Piaccutini & March, 2004; Ishikawa, Okajima, Matsuoka & Sakano, 2007). Cognitive restructuring can be used to overcome negative thinking, it can be used to improve mood. It can also be used to think positively. It is also for overcoming fear of failure and fear of success, and for beating self-sabotage. (Greenberger & Fades, 2006). Asikhia (2014) reported that there is a significant effect of treatment (cognitive restructuring training) on subject level anxiety in mathematics.

Becks (2006) carried out a study and revealed that Cognitive restructuring technique is a psychotherapeutic approach that addresses dysfunctional emotions, maladaptive behaviors, cognitive processes and contents through a number of goal oriented, explicit systematic procedures. Therapists use Cognitive restructuring technique to help individuals challenge their patterns of beliefs and replace "errors in thinking such as over generalizing, magnifying negatives, minimizing positives and catastrophizing "with" more realistic and effective thoughts, thus decreasing emotional distress and self-defeating behaviour. Feltham and Horton (2006) reported that cognitive restructuring is the most researched of all the 'talking techniques as outcome studies into the cognitive treatment of anxiety have shown generally good results.

This study strives to employ cognitive restructuring technique as workable treatment technique in reducing test anxiety among secondary school student in Benin Metropolis of Edo state. This technique is selected based on the rationale of cognitive restructuring technique that it is not the

event itself that give rise to anxiety, rather, it is the way the individual thinks about the event that causes anxiety.

One of the most threatening events that cause anxiety in students is testing. Developing extreme fear of performing poorly in a test can cause a student to experience test anxiety. Arogundade (2012) avers that anxiety is common among all students. On all accounts, test anxiety is a problem. For many students, tests and evaluation are recurrent life stressors. Test anxiety can function to lower self-esteem and seriously affect educational and vocational developments. The effectiveness of cognitive restructuring in the reduction of test anxiety in Benin metropolis, Edo State is not known since there was no study found that have investigated the effectiveness of Cognitive restructuring technique on the reduction of test anxiety in Benin metropolis, Edo state. This study therefore sought to find out whether cognitive restructuring technique is effective in reducing test anxiety among senior secondary school students in Benin metropolis, Edo state.

Research Questions

i. Is cognitive restructuring effective in reducing test anxiety scores of secondary school students in Benin metropolis Edo State?

Hypothesis

Ho1: There is no significant effect of cognitive restructuring technique in the reduction of test anxiety scores of secondary school students in Benin metropolis of Edo State.

Method

The quasi-experimental research design was used for the study. The researcher used the non-randomized pre-test post-test control group quasi experimental design. The quasi experimental research design was preferred because the study sample was not randomized. The study was carried out in a school setting where it was not possible to use pure experimental design in order not to disrupt the school program. There are two intact groups in the design (one experimental groups and one control group). Each group received different treatment. The two groups are: Cognitive Restructuring and Placebo-control groups.

Table 1: Non–Randomized Pre-test Post-test Control Group Quasi Experimental Design

	Group	Pre-test	Treatment	Post-test
NR	E_1	O_1	X_1	O_2
NR	C	O_1	Placebo	O_2

Keys:

NR-Non-Radom assignment of treatment to the groups

E_1-Experimental group

C-Placebo-Control group

0_1-Measures of the dependent variable before treatment

X_1-The experimental or independent variable (Cognitive restructuring)

0_2-Measures of the dependent variable immediately after treatment

The population of this study consists of all the public senior secondary schools students in SSII in Benin metropolis, Edo State. Benin metropolis has 45 public senior secondary schools. The population of this category of students for the year 2018/2019 academic session is 13,889. Comprising 6,032 males and 7,857 females. (Source: Edo State Post Primary Education Board, 2019).Two senior secondary school from two Local Government Areas in Benin metropolis Edo State were used for the study. These are Oredo, and Ikpoba/Okha Local Government Areas. The two local government areas were purposively selected for the study. One senior secondary school was also purposively selected from each of the two Local Government Areas. The reason for the purposive selection was because quasi experimental research design does not give room for randomization. The total SSII students in the two senior secondary schools that were selected for the study was 418. Oba Akenzua Secondary School in Oredo Local Government Area and Niger College in Ikpoba/Okha Local Government Area of Edo State were selected for the study. One intact class that has the highest population of students in each school was selected for the study, therefore 90 students was selected from Oba Akenzua. Secondary School while 112 students were selected from Niger College making a total of 212 students. The total number of sample that was used for this study was 212 out of which 95 were males and 117 were females. A pre-test on TAI was administered on the 212 students selected for the study. Students that scored 51 and above in TAI constituted the sample of the study.

The test anxious students in Oba Akenzua Secondary School were administered to the experimental group while the test anxious students in Niger College were administered to the control group. The 40 test anxious students in experiment group received Cognitive Restructuring treatment while 43 test anxious students in control group received placebo treatment (drug abuse). All the treatments lasted for a period of 8 weeks. At the end of the 8 weeks, all the 40 (100%) students completed Cognitive Restructuring treatment sessions out of the 40 test anxious students. Also, all the 43 (100%) students completed the Placebo therapy out of the 43. A post-test using the test anxiety inventory (TAI) was re-administered on the 2 groups.

The research instrument used in this study was the Test Anxiety Inventory Scale (TAI). Test Anxiety Inventory Scale (TAI) was originally developed by Spielberger (1980). In 1997, the instrument was adapted for use in Nigeria after several years of research at revalidating it in order to enhance its suitability and relevance for Nigerians by the Peraform Psychometries Centre (PPC, 1997). Spielberger's Test Anxiety Inventory Scale (1980) is a self-report instrument consisting of 20 items. According to Spielberger (1980), Test Anxiety Inventory Scale is especially designed to measure the test anxiety of high school and college students. It is divided into two sections. Section 'A' has four items which covered demographics information such as age, sex, class, and name of school, while section 'B' contains three subscales: Test anxiety Total (TAI-T), Test Anxiety Worry (TAI-W) and Test Anxiety Emotionality (TAI-E). Eight items of Test Anxiety Inventory measure the TAI-W (items 1-8); eight items measure TAI-E (items 9-16) and the remaining four for measuring TAI-T (items 17-20). Test Anxiety Inventory is a 4 point Likert type scale and the students have to respond to the four options: Almost Never =1, Sometimes =2, Often =3 and Almost Always =4.

The alpha reliability co-efficient of the adopted instrument has been originally established to be 0.66 to 0.81 with individual student as unit of analysis and from 0.67 to 0.88 with class limit as unit of analysis.

Data collection was carried out in three separate phases which were: pre-test, treatment and post-test as described: Training was based on the manuals developed by the researcher. The treatments which lasted for eight weeks were carried out through lecture, questioning, discussion, class assignment and homework assignments.

Mean and standard deviations analysis were used to analyze the demographic variables of the participants while, t-test and Analysis of Covariance (ANCOVA) were used to test the hypotheses using the Statistical Package for Social Science (SPSS) Version 19.The hypotheses were tested at 0.05 level of significance.

The data presented were obtained from 83 students from two senior secondary schools. The presentation of the data comprised the results obtained from the statistical test of research questions and formulated hypotheses for the study. The major issues that were addressed in the study were tackled with one research questions and one hypotheses.

Results

Table 1: Descriptive of Techniques on Test Anxiety Scores at Post-test.

Groups	N	Mean	Std.Dev
Cognitive Restructuring	40	30.85	4.71
Control	43	48.90	6.53

Table 1 shows a mean and standard deviation of 30.85 and 4.71 in anxiety scores for participants exposed to Cognitive Restructuring technique and 48.90 and 6.53 for the control group respectively. The mean scores of students exposed to cognitive restructuring are low. This means that cognitive restructuring technique is effective in the reduction of test anxiety scores of secondary school students. The mean scores of students in the control group were much higher than those in the experimental groups.

Hypothesis 1

There is no significant effect of Cognitive Restructuring technique in the reduction of test Anxiety scores of secondary school students in Benin metropolis, Edo State.

Table 2: Paired Sample –t- Test of Cognitive Restructuring on the Reduction of Test Anxiety.

Test	N	Mean	Std. Dev.	T	Sig.(2-tailed)
Pre	40	54.62	2.92		
				25.567	.000

Post	40	30.85	4.71
Alpha level	.05		

Table 2 shows a calculated t value of 25.567 and a p value of .000. Testing at an alpha level of .05, the p value is less than the alpha level. So the null hypothesis which states that ‘‘there is no significant effect of cognitive restructuring technique on the reduction of test anxiety scores of secondary school students in Benin Metropolis of Edo state’’ is rejected. Consequently there is a significant effect of Cognitive Restructuring technique in the reduction of test anxiety scores of secondary school students in Benin metropolis of Edo state.

Table 3: LSD Pairwise Multiple Comparisons of Cognitive Restructuring and Control on Test Anxiety Reduction.

(I) Group	(J) Group	Mean Difference (I-J)	Std. Error	Sig.
Cognitive Restructuring	Control	-17.665*	1.298	.000
Control	Cognitive Restructuring	17.665*	1.298	.000

Table 3: Shows the compassions between cognitive restructuring and control with a mean difference of -1.7.665 and a p value of .000, showing therefore a significant difference between Cognitive Restructuring and control. Consequently, there is a significant difference in the effect of the techniques (Cognitive restructuring and control) on the test anxiety scores of secondary school students in Benin metropolis of Edo State.

Findings

i. This study has shown that Cognitive Restructuring technique is effective in the reduction of test anxiety scores among secondary school students in Benin metropolis of Edo state.
ii. The findings of this study revealed that there is a significant difference between Cognitive restructuring technique and control in the reduction of test anxiety.

Discussion

The findings showed that treatment with Cognitive Restructuring technique had significant effect in reducing test anxiety scores of secondary school students. The reason for the reduction of students test anxiety scores could be as a result of the students' acquisition of cognitive restructuring skills. Students were taught the negative effect of maladaptive thought that would lead to test anxiety and the positive effects of developing positive thought to get out of the anxiety using the "ABC model of events" They were also taught how to monitor events, thoughts and feelings, so that they can focus on challenging maladaptive thoughts that could lead to test anxiety and developing positive thought to overcome anxiety. Students were asked to develop their dysfunctional thought record. They were further taught how to manage their morale and responses to dysfunctional thinking and behavioral assignments. These were of great benefit to students in Cognitive restructuring technique experimental group. The findings of this study collaborates with the findings ofEifediyi (2015) who found that there was a significant effect of cognitive restructuring in the reduction of examination anxiety of students. Similarly the findings of this study is in line with the findings of Uyigue (2016) reported that cognitive restructuring was effective in managing adolescents with anxiety disorders in secondary schools.Asikhia (2014) confirmed that Cognitive restructuring was effective on the reduction of mathematics anxiety among senior secondary school students in Nigeria. Also, Ishikawa, Okajima, Matsuoka & Sakano, (2007) reported that Cognitive restructuring technique is the most efficacious intervention for anxiety in adolescents. These findings are consistent with existing evidence of the efficacy of cognitive restructuring. Becks (2006) revealed that Cognitive restructuring technique is a psychotherapeutic approach that addresses dysfunctional emotions, maladaptive behaviors, cognitive processes and contents through a number of goal oriented, explicit systematic procedures. Therapists use Cognitive restructuring technique to help individuals challenge their patterns of beliefs and replace "errors in thinking such as over generalizing, magnifying negatives, minimizing positives and catastrophizing "with" more realistic and effective thoughts, thus decreasing emotional distress and self-defeating behaviour.

The findings of this study collaborates with the findings of Aderanti & Hassan (2011) who reported that Cognitive restructuring has been used successfully to treat a wide variety of conditions, including depression, Post-Traumatic stress Disorder (PTST), addictions, anxiety, social phobias, relationship issues, and stress. Feltham and Horton (2001), also support the findings of this study that cognitive restructuring is the most researched of all the 'talking

techniques as outcome studies into the cognitive treatment of anxiety have shown generally good results. The findings of this study are in agreement with other researchers such as Roth, Winnie and Heinberg (2002) who reported the superiority of cognitive restructuring by emphasizing that it is a very versatile treatment, adaptable to both group and individual settings as it has used children, adolescents and adults across a wide range of cultural and socio-economic backgrounds. (Roth, Winnie & Heimberg, 2002) supports the choice of cognitive restructuring based on the fact that it is a time efficient treatment with most uncomplicated causes of anxiety being treated in 4 to 14 sessions.

The findings of this study are similar to the findings of Greenberger & Fades (2006) who confirmed that cognitive restructuring has been found to be the most 'efficacious' intervention for anxiety in adolescents (for example social anxiety, generalized anxiety, post-traumatic stress, obsessive-compulsive, separation anxiety) Cognitive restructuring can be used to overcome negative thinking, it can be used to improve mood. It can also be used to think positively. It is also for overcoming fear of failure and fear of success, and for beating self-sabotage.

Conclusion

Based on the findings of this study, it was concluded that test anxiety scores can be effectively reduced using Cognitive restructuring technique thereby modifying test anxiety behaviours.

Recommendations

Cognitive restructuring technique is effective in the reduction of test anxiety scores of secondary school students. Therefore, school counsellors can use cognitive restructuring technique as appropriate treatment technique for modifying test anxious behaviour of secondary school students

Implications for Counselling

The findings of this study will help practicing counsellors implement treatment programs of cognitive restructuring technique to modifying test anxiety behaviours of secondary school students. The school counsellor can use the treatment packages in this study to draw up treatment

programs for identified test anxious students. School counsellors should see Cognitive restructuring technique as workable for modifying test anxiety behaviour of secondary school students by first identifying test anxious students using pretest and thereafter apply treatment. Treatment should not be prolonged to avoid loss of interest in the programmed by the students.

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