IMPACT OF GENDER ON THE EFFECTIVENESS OF COGNITIVE RESTRUCTURING TECHNIQUE IN THE REDUCTION OF TEST ANXIETY AMONG SENIOR SECONDARY SCHOOL STUDENTS IN BENIN METROPOLIS, EDO STATE

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ABSTRACT

This study examined the Impact of Gender on the Effectiveness of Cognitive Restructuring Technique in the reduction of test anxiety among secondary school students in Benin metropolis of Edo state. Two Hypotheses were formulated and tested at 0.05 level of significant. The pre-test post-test, control group quasi experimental design was used for the study. 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). 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. The study further revealed a significant impact of gender on the effectiveness of Cognitive restructuring technique. Cognitive restructuring technique was more effective for females than males on the reduction of test anxiety scores. It was recommended that the school counsellors can use Cognitive restructuring technique to manage test anxiety among students. Cognitive Restructuring techniques should preferably be used for female students since the technique is more effective for females in reducing test anxiety scores than males.

KeyWords: Cognitive Restructuring technique, Gender, Test, Anxiety, Students.

INTRODUCTION

Test is an integral part of the education system. Educational testing cut across every stage of education system where students participate in classroom test in the school from stage to stage. Educational testing plays a very significant role in decision making by measuring individual student's achievement and overall school performance. Secondary schools are expected to test students from time to time therefore, testing is an integral part of the educational

system and no student can go through the educational system without participating tests. Anxiety is one of the factors that can interfere with the accurate measurement of student achievement on these tests (Putwain, 2007). Test anxiety is a situation-specific form of anxiety thought to be most closely related to social anxiety (DSM-IV: American Psychiatric Association.1994). Since a common feature of both disorders is the fear of negative evaluation by others, the role cognitions play in experiences of text anxiety in individuals cannot be over emphasized.

Test anxiety is the kind of anxiety that is capable of affecting the student prior, during or after the test. Egbochukwu, Obodo and Obadan (2008) defined test anxiety as an uneasiness or apprehension experienced before, during or after an examination because of concern, worry or fear. Babara (2003) stated that test anxiety is an uneasiness or apprehension experienced before, during or after an examination due to concern, worry, or fear. Though every student may experience some anxiety, anxiety interferes with the learning and test taking of some students to the extent that their grades are seriously affected. A longitudinal study by Cassady and Johnson (2002) showed that students with high test anxiety had lower examination scores than students with average or low text anxiety.

Gender effects of anxiety in students is important since Sex-specific pathways may guide preventative approaches (Cicchetti & Carlson 1998). Previous research suggests that beginning in adolescence, females shows a marked increase in anxiety disorders, where as males do not (Lawinsohn, Gotlib, Lawinsohn, Seeley & Allen (2005). Therefore female develop internalized disorders during adolescence. Graham (2005) findings showed the effectiveness of cognitive restructuring in the reduction of test anxiety among students. Cognitive restructuring, (a technique of Cognitive behavioral therapy) encourages clients to identify dysfunctional thoughts and beliefs relating to their problems and to challenge the validity of these thoughts in order to produce and use more adaptive alternatives. Cognitive restructuring involves training individuals to alter thoughts in an attempt to produce appropriate and constructive emotions and behavior. Cognitive Restructuring Technique has been found to be the most ‘efficacious’ intervention for anxiety in adolescents for example test anxiety, social anxiety, generalized anxiety, post-traumatic stress, obsessive-compulsive, separation anxiety (Cassady & Johnson, 2002; But & Akram, 2013; Asikhia, 2014). 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. Cassady and Johnson (2002) reported that females were more prone to experience high level of test anxiety than their male counterparts and are more likely to learn to surrender positively to test anxiety than males; Females were encountering a high level of distress during test time; poor socio-economic condition and perception of academic competence make them to be most vulnerable to these negative states. Basso, Gallagher, Mikusa and Rueter (2011) observed that in the middle year of secondary school, gender differences in test anxiety start to appear. Butt and Akram (2013) found that females face more test anxiety than males. Uyigue (2016) reported no significant difference in the treatment between males and females using Cognitive restructuring technique in managing adolescents with anxiety disorders in secondary schools. The result revealed that the treatment was equally effective for both males and females. Asikhia (2014) reported that Cognitive restructuring was found to be more effective than the control group and that gender affected students' anxiety in mathematics significantly with male students having more reduction in mathematics anxiety than female students. Uyigue (2016) reported no significant difference in the treatment between males and females using Cognitive restructuring technique in managing adolescents with anxiety disorders in secondary schools. The result revealed that the treatment was equally effective for both males and females.

Research Questions

The following research questions were raised to guide the study:

i. Is cognitive restructuring effective in reducing test anxiety scores of secondary school students in Benin metropolis Edo State?
ii. Is there an interaction effect of cognitive restructuring technique by gender in reducing test anxiety scores of secondary school students in Benin metropolis of Edo State?

Hypotheses

The following hypotheses were tested in the study:

i. 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.
ii. There is no significant interaction effect of the technique by gender on 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 in senior secondary schools in Benin metropolis. (Source: Edo State Post Primary Education Board, 2019). Two senior secondary schools 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 of 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 two research questions and two hypotheses.

Results

Table 1: Descriptive Characteristics of Study Participants

		Variables	N	%
Therapy	1	Cognitive Restructuring	40	30%
	2	Control	43	33%
Gender	1	Male	48	57%
	2	Female	35	43%

The male students constitute 48 (57%) and female students 35 (43%). The post- test participants in control group were 42(33%) while the post-test participant for Cognitive Restructuring was 40 (30%)

Table 2:
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 2 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 3: 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 3 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 4: 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 4: 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 technique (Cognitive restructuring and control) on the test anxiety scores of secondary school students in Benin metropolis of Edo State.

Hypothesis 2 There is no significant interaction effect of the technique by gender on test anxiety scores of secondary school students in Benin metropolis of Edo state.

Table 5: Descriptives of Techniques by Gender Interaction on Test Anxiety Reduction.

Group	Sex	Mean	Std. Deviation	N
Cognitive Restructuring	Male	30.708	4.939	24
	Female	31.067	4.479	15
	Total	30.846	4.710	40
Control	Male	47.208	6.291	24
	Female	51.167	6.299	20
	Total	48.905	6.525	44
Total	Male	37.096	8.782	48
	Female	37.673	11.164	35
	Total	37.344	9.838	83

Table 5 Shows the mean and standard deviation of students exposed to Cognitive Restructuring for male as 30.708 and 4.939 respectively and for female as 31.067 and 4.479 respectively. For students in the control group the mean and standard deviation for males as 47.208 and 6.291 respectively and for females as 51.167 and 6.229 respectively. Treatment was found to be more effective in reducing test anxiety scores of females than of males' students in the experimental group. Whereas the mean scores for females in the control group was high. Meaning treatment is more effective for females than males using cognitive restructuring

Discussion

The findings showed that 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.

Becks (2007) 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. These findings are consistent with existing evidence of the efficacy of cognitive restructuring. The findings showed that treatment with Cognitive Restructuring technique had significant interaction effect of techniques by gender on the reduction of test anxiety scores of secondary school students in Benin metropolis of Edo state. The implication of this finding is that the interaction between techniques and gender influence the test anxiety scores of students. The findings revealed that Cognitive Restructuring was more effective for females than males on the reduction of test anxiety scores. The reason for the significant integration gender effect of the techniques could be as a result of the fact that females are more prone to anxiety. Females develop anxiety earlier in life than males and are less capable of controlling their anxiety. In addition to the above, there are also different social roles and expectations of male and female students. The findings of this study is in support of previous research which suggested that beginning in adolescence, females shows a marked increase in anxiety disorders, where as males do not. Therefore female develop internalized disorders during adolescence (Lawinsohn, Gotlib, Lawinsohn, Seeley & Allen, 2005).The findings of this study also support the findings of Cassady and Johnson (2002) who found that females were more prone to experience high level of test anxiety than their male counterparts and are more likely to learn to surrender positively to test anxiety than males. The findings of this study is in line with the findings of Graham (2005) who showed the effectiveness of cognitive restructuring in the reduction of test anxiety among students. The findings of this study differs from findings of Uyigue (2016) who reported no significant difference in the treatment between males and females using Cognitive restructuring technique in managing adolescents with anxiety disorders in secondary schools. The result revealed that the treatment was equally effective for both males

and females. The findings of this study does not agree with the findings of Asikhia (2014) who found out that gender affected students' anxiety in mathematics significantly with male students having more reduction in mathematics anxiety than female students.

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. Gender had a significant interaction effect on Cognitive Restructuring techniques as the technique was more effective for females than males. Therefore, Cognitive restructuring techniques is more preferable for females in the reduction of test anxiety scores of secondary school students in Benin metropolis of Edo state.

Recommendations

Cognitive restructuring technique is effective in the reduction of test anxiety scores of secondary school students. Therefore, school counselors can use cognitive restructuring technique as appropriate treatment technique for modifying test anxious behavior of secondary school students. School counsellors who are interested in using Cognitive Restructuring technique in reducing test anxiety scores of secondary school students should preferably use the technique for female since this study have revealed that the technique are more effective for females than males.

Implications for Counselling

The findings of this study will help practicing counsellors implement treatment programs of cognitive restructuring technique to modifying test anxiety behaviors 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 behavior 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. The findings of the study have established that Cognitive Restructuring technique is more effective for females than males in the reduction of test anxiety scores of secondary school

students. Therefore, the techniques should be preferably used by counselor as treatment therapy for the reduction of test anxiety among female students.

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