

## Cognitive Restructuring in the Group Treatment of Test Anxiety among Learners Studying in Remedial Centres in Ibadan, Oyo State

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**ABSTRACT:** This study investigated cognitive restructuring in the treatment of test anxiety among learners studying in remedial centres in Ibadan, Oyo state, Nigeria. 120 learners studying in remedial centres programme in three centres in three Local Government Areas in Ibadan, Oyo State were the participants of this study. The study adopted pre-test-post -test quasi-experimental research design. Four null hypotheses were formulated and tested to guide the study at 0.05 level of significant. Two instruments were used in this study. They are: Test Anxiety Inventory by Spielberger (1980) which was used for screening and Bakare Test Anxiety (1969) which was used to elicit information on the dependent variable. Data obtained in this study was analyzed using the analysis of Covariance (ANCOVA). The results obtained from hypothesis one as revealed a significant main effect of treatment (Cognitive Restructuring Intervention Programme) on test anxiety of learners studying remedial centres. The post treatment outcome of participants based on gender indicated significant interaction effect of treatment on participants' test anxiety. The result obtained from the third hypothesis revealed that there was a significant interaction effect of treatment on test anxiety of learners studying in remedial centres based on their type of school. Result of the fourth hypothesis showed a significant interaction effect of treatment (Cognitive Restructuring Intervention Programme) on test anxiety of learners attending remedial classes based on their study habits. The use of cognitive restructuring intervention programme was effective in the reduction of test anxiety among learners studying in remedial centres. It is recommended that workshops, conferences, symposium and seminars should be organized to train teachers on how to use cognitive restructuring intervention techniques in the classroom to reduce test anxiety among all categories of students.

**KEYWORDS:** Cognitive restructuring, Group treatment, Test anxiety, Learners in Remedial Centres.

### INTRODUCTION

Anxiety is a basic human emotion consisting of fear and uncertainty that typically appears when an individual perceives an event as being a threat to the ego or self-esteem. In some instances, such as avoiding dangerous situations, anxiety can be helpful. However when taken to extremes, it may produce unwarranted results. One of the most threatening events that cause anxiety in students today is testing. When students develop an extreme fear of performing poorly on an examination, they experience test anxiety. Test anxiety is a major factor contributing to a variety of negative outcomes including psychological distress, academic underachievement, academic failure, and insecurity (Hembree, 1998). Many students have the cognitive ability to do well on examinations but may not do so because of high levels of test anxiety. Because of the societal emphasis placed on testing, this could potentially limit their educational and vocational opportunities (Zeidner 1998).

Test anxiety as a form of anxiety is a common phenomenon which refers to a condition in which a person is afraid of his ability to perform a task Spielberger (2010) and it consequently reduces the ability to deal with a situation such as an examination. Some have reported that reducing anxiety actually improves the performance, but some researchers believe that test anxiety provides a person with better study (Holmes & Cassady 2014). Thus, a person who is suffering from test anxiety can be described as a person who knows the study material, but the anxiety and his arousal severely prevent him from

demonstrating his knowledge during the test. In addition, to the extent that people consider the examination intimidating, they show more stressful responses before the examination and equally they face lack of confidence and low self-esteem. Moreover, it may be associated with irrelevant thought to the task, long delay, failure to understand the meaning of words, repeated reading examination questions, fear, distraction and one or more physical symptoms.

According to Harpell and Andrews (2013) test anxiety is composed of three major components: cognitive, affective, and behavioural. Students who experience test anxiety from the cognitive perspective are worriers lacking self-confidence. They may be preoccupied with negative thoughts, doubting their academic ability and intellectual competence. Furthermore, they are more likely to overemphasize the potential negative results and feel helpless when in testing situations (Zeidner, 1998). Some students may feel the need to answer every question on the test correctly. When this does not occur they may think of themselves as being incompetent, thus fuelling negative thoughts such as, "I knew I was going to fail this test," "I know I am going to make a ridiculous grade," or "Everyone knows I am not going to pass the test." In order for students to have the best opportunity for academic success, negative thinking prior or during test must be minimized and controlled. According to Zeidner (1998) test anxiety causes some students to experience physiological reactions such as increased heart rate, feeling nauseated, frequent urination, increased perspiration, cold hands, dry mouth, and muscle spasms. These reactions may be present before, during, and even after the test is completed. In conjunction with the physiological reactions, emotions such as worry, fear of failure, and panic may be present. When students are not able to control their emotions, they may experience higher levels of stress, thereby making it more difficult for them to concentrate. In his further explanation he said that test-anxious students express anxiety behaviourally by procrastinating and having inefficient study and test-taking skills. He also contends that test-anxious students have more difficult time interpreting information and organizing it into larger patterns of meaning. In addition, some students may physically feel tired or exhausted during test administration because they do not have a healthy diet, have poor sleeping habits, and fail to routinely exercise.

Test anxiety is a sort of anxiety which appears in a specific situation that has symptoms like general anxiety, such as sweating, heart beat increase, uneasiness, worry, doubt, hand trembling, dizziness etc ( Hope, Burns, Hyes, Herbertt & Warner 2010). Sarason defines test anxiety as a type of "self-preoccupation" which is determined by understatement and feeling doubt about one's own capabilities. Huppert (2009) asserted that although some anxiety before test taking is normal, and even necessary to do well, test anxious student's experience crippling anxiety that can limit their ability to perform to their real level of proficiency. In sum, test-anxiety is actually, a type of performance anxiety- a feeling someone might have in a situation where performance really counts or when the pressure is on to do well. It is a psychological condition where a person experiences distress before, during, or after a test or other assessment to such an extent that this anxiety causes poor performance or interferes with normal learning. Werner Seidler and Moulds (2011) define test-anxiety as the "set of phenomenological, physiological, and behavioural responses that accompany concern about possible negative consequences or failure on an exam or similar evaluative situation". Although TA is known to depend on situational variables, such as levels of motivation, task complexity, and the practical consequences of high or low performance (Pull 2007), it varies markedly from one individual to another. Thus, Seperhryan, Firooze and Rezaei (2010) assume that some individuals will be relatively calm when it comes to completing a test whilst others will generally "perceive examinations as more dangerous or threatening and experience more intense levels of state anxiety when taking tests".

Life is all about adjustment, to cope with stressful situations and conflicts of life compatibly, humans need to learn some skills. To achieve positive performance, different therapy approaches have been used in the realm of anxiety, which in general can be divided into two clusters: "cognitive therapy" and "behaviour therapy." Research has shown that if individual put knowledge and information to the people and create situations in which these people can experience their learning practically, then the attitude, knowledge and value will change into actual abilities. The ability helps people in any position to know what to do and how to do it (Nabizadeh and Ghasemi, 2010).

## **REMEDIAL EDUCATION**

Remedial classes are non- formal school structure where students who are unable to meet up with the criteria for progressing to the next level of formal schooling attend (Anyanwu & Oyedjeji 2012). These centres are organized for students to enhance their capacity in performance excellently and meet with the academic requirements for progression to the next academic level.

These students are of various categories. For instance, as some are receiving lectures to pass West Africa School Certificate Examination (WASCCE) , National Examination Council (NECO), others are receiving lectures for Joint Admission and Matriculation Board (JAMB) and even General Certificate Examination(GCE) both internal and external examinations. These examinations have the same goal, which is to sit for and pass them in a flying colours.

In Nigeria, though there is no formal record of these centres, observation has shown that these centres are all over major cities and towns across the length and breadth of states in the country. Most of these remedial centres are privately organised, but there even some remedial centres owned by the institution. According to Anyanwu and Oyedeji (2012) the primary concepts of remedial education foster the extension or provision of educational services to the students. This refers to any extension of opportunities for reading, studying and training to young people after completion of their full time programmes ,or following their withdrawal from such programmes. Through such provisions, individuals may upgrade, retain or acquire for themselves new knowledge and skill in specific occupations.

In the same vein, Egunyomi (2011) refers to remedial education as education for distressed adolescents who could not make senior secondary school certificate (WAEC, NECO, JAMB, GCE, NABTECH) and any other external examinations at one, but need extra coaching on subjects related. The remedial classes is mainly for those who had written SSCE, WAEC, NECO or UTME once ,but could not make five credits including English Language and Mathematics that qualify them for higher degree programmes. According to Remedial education connotes that sub set of young adult, who passed through secondary education, but, distressed academically seeks to positively link the needs and aspirations of individuals with educational activities, for development, of their potentialities and for socio-economic and political development of a nation.

Remedial education therefore is an educational activity fashioned out to help beneficiaries or participants make up for or save lost ground as well as for those who are exhausted academically or started but dropped out owing to some reasons. The major focus of remedial studies is the provision of educational opportunities for all categories of individuals irrespective of whatever failure was earlier recorded thereby ensuring continuity in education; ensured the continued relevant of the individuals in the society, ensuring the provision or access to education for all citizens; and helping retrieving the economic wastage that early school learners would have constituted.

According to Spielberger (1980) the reduction of test anxiety alone is not sufficient for improving the academic achievement; but at the same time it is necessary to modify the study habits of students with test anxiety because the students don't attend the test with proper preparation Ping, Subramaniam and Krishnaswamy (2008). Students who have proper study practices as a result have a good preparation may show less anxiety and more focus on the test situation Hashmat , Hashmat , Amanullah and Aziz (2008) in a research found that students with high test anxiety who had gained better studying skills with exercise than students with poor study habits had a better performance . The finding suggests a link between the correct methods of study, test anxiety and score average. They also found that the duration of the study (week) before the test was significantly correlated with score average. The finding suggests that more hours of study may compensate the lack of study skills in the students with high test. While subjects with low test anxiety, for excellence in study skills, spend less time on studying. Rana and Mahmood (2010) obtained a negative correlation between test anxiety and study skills ( $r = 0.52$ ) . Sena , Lowe and Lee (2007) compared the effectiveness of cognitive-behavioural therapy techniques, learning the proper ways of study skills and the mixed method in reducing test anxiety.

Cognitive restructuring therapy emphasizes the role of cognitive processing in excitement and behaviour. Emotional and behavioural responses to a situation are largely the result of perception and interpretation of meaning that is attributed to the event. Cognitive therapist, based on cognitive restructuring, faced with clients who have negative emotions, instead of only focusing on expressing sympathy and support tries to help him, and test the acknowledges related to the negative feeling of "distancing from" and their accuracy as realistic and non-sentimental (Urhahne, Chao, Florineth, Luttenberger & Paechter, 2011).

Although the cognitive approach is often accused of "insensitivity", but proper use of this method has no conflict with support that shows compassion and empathy, although they are not limited to it (Soltani, Aminoroaya & Atari 2008). Research by Pahwa , Goyal, Srivastava, Saldanha and Bhattachary, (2008) also showed that cognitive restructuring has a significant effect on the reduction of test anxiety especially mathematics anxiety (Sepehryan, Firooze Rezai & zanane 2010). Other scholars have used cognitive restructuring therapy for reducing test anxiety. Meichenbaum (1986) by notifying people with test anxiety about their anxious thoughts was to a large extent able to solve their problems ( Jerrell, Cassady & Holmes Finch 2015). The use of cognitive restructuring method in this paper confirms the findings by reducing test anxiety compared with systematic desensitization method. Explanation of this issue is probably related to the fact that the cognitive restructuring by changing the patient's cognitive beliefs and irrational beliefs, guides him to achieve rational and logical attitude and the durability of this type of treatment depends on the conditions governing the treatment and the characteristics of the therapist and the client. Spielberger (2010) in a follow-up study after a month of implementation of the cognitive restructuring therapy reported that this method could also be efficient in the long term, and its impact on test anxiety is useful in the long run and disapproval of the subject in this study on reducing test anxiety may be due to the particular situation of test anxiety and how it is taught.

Holmes et al (2014) effectively reduced test anxiety in the experimental group with cognitive restructuring or other similar techniques. Cognitive restructuring is one of the efficient cognitive techniques. The basic premise in cognitive restructuring is

that emotional and behavioural reactions are not the mere effect of that even, but simply it is due to the interpretation of the events. Cognitive restructuring helps people to learn to focus on the task and the lack of focus on the self-centred responses. According to Soltani, Aminoroaya and Atari (2008) in this method, the therapist notifies students of the thoughts causing anxiety and teaches them to express themselves and their instruments and flush out the maladaptive cognitive responses and eventually teaches them to relatively apply the methods of interpretation and labelling emotional arousal that are continually called in test situations. In various studies related to cognitive methods, treatment of test anxiety was considered and the results of this method indicated significant decrease in test anxiety (Spielberger 2010). Cognitive restructuring has been used to help individuals experiencing a variety of psychiatric conditions, including depression, substance abuse disorders, anxiety disorders collectively, bulimia, social phobia, borderline personality disorder, attention deficit hyperactivity disorder (ADHD), and problem gambling (Rastegar, Akbarzadeh and Heidari (2012).

When utilizing cognitive restructuring in rational emotive therapy (RET), the emphasis is on two central notions: (Pull, 2007) thoughts affect human emotion as well as behaviour and (Huppert, 2009) irrational beliefs are mainly responsible for a wide range of disorders. RET also classifies four types of irrational beliefs: dire necessity, feeling awful, cannot stand something, and self-condemnation. It is described as cognitive-emotional retraining (Jerrel, Cassidy, & Holmes Finch 2015). The rationale used in cognitive restructuring attempts to strengthen the client's belief that (Cooper, Toold, Turner & Wells 2007) "self-talk" can influence performance, and (Frojan-Parga, Calero-Elvira & Montano-Fidlago 2009) in particular self-defeating thoughts or negative self-statements can cause emotional distress and interfere with performance, a process that then repeats again in a cycle. Mood repair strategies are implemented in cognitive restructuring in hopes of contributing to a cessation of the negative cycle (Hope et al, 2010).

When utilizing cognitive restructuring in cognitive behavioural therapy (CBT), it is combined with psycho-education, monitoring, *in vivo* experience, imaginal exposure, behavioural activation, and homework assignments to achieve remission (Miri, Piroozan, Hesam, Naderi, Rezaei, 2013). The cognitive behavioural approach is said to consist of three core techniques: cognitive restructuring, training in coping skills, and problem solving.

Cognitive restructuring (CR) is a psychotherapeutic process of learning to identify and dispute irrational or maladaptive thoughts known as cognitive distortions, such as all-or-nothing thinking (splitting), magical thinking, over-generalization, magnification (Spielberger, 2010) and emotional reasoning, which are commonly associated with many mental health disorders. CR employs many strategies, such as Socratic questioning, thought recording, and guided imagery, and is used in many types of therapies, including cognitive behavioural therapy (CBT) and rational emotive therapy (RET). A number of studies demonstrate considerable efficacy in using CR-based therapies.

## **OBJECTIVES OF THE STUDY**

The general objective of the study is to investigate the effectiveness of cognitive restructuring intervention programme in the group treatment of test anxiety among learners studying in remedial centres.

The specific objectives include:

- to investigate the significant interaction effect of treatment on test anxiety of participants based on gender.
- to assess the significant interaction effect of treatment on test anxiety of participants based on the type of school attended.
- to assess the significant interaction effect of treatment on test anxiety of participants based on their study habits.

## **RESEARCH HYPOTHESES**

The following null hypotheses were formulated and tested at 0.05 level of significant to guide this study.

- Ho<sub>1</sub>:** There will be no significant main effect of treatment on test anxiety of learners studying in remedial centres.
- Ho<sub>2</sub>:** There will be no significant interaction effect of treatment on test anxiety of learners studying in remedial centre based gender
- Ho<sub>3</sub>:** There will be no significant interaction effect of treatment on test anxiety of learners studying in remedial centre based on the type of secondary school attended.
- Ho<sub>4</sub>:** There will be no significant interaction effect of treatment on test anxiety of learners studying in remedial centres based on their study habits

## METHOD

### DESIGN

The study adopted pre-test-post -test quasi-experimental design. This design was adopted because it is capable of establishing cause and effect. More so, the treatment adopted will clearly show the level of reduction in the test anxiety prior to the pre-treatment programme.

### SAMPLE AND SAMPLING TECHNIQUES

120 learners studying in remedial centres programme in three centres in three Local Government Areas in Ibadan, Oyo State were the participants of this study. The three centres are (i) Apex Tutors- Opposite the 2<sup>nd</sup> Gate University of Ibadan in Ibadan North LG, (ii) Mazak Tutors-located in Ojo in Akinyele LG and (iii) Phyllum Edu Consult located in Challenge in Oloyole LG. These centres were selected using purposive sampling techniques while the participants were selected using random sampling techniques after screening for the signs and symptoms of test anxiety. These participants were randomly selected to two experimental and the control group. Out of 120 participants, 68 students who responded were male and 52 were female. Their ages ranged from 17 to 32 years old. 46 were from high socio –economic background while 74 were from low socio-economic background. Concerning the type of secondary school attended 42 attended private secondary schools and almost two-third 78 of the participants attended public secondary school.

### INSTRUMENTS

Two instruments were used for this study; they are:

#### TEST ANXIETY INVENTORY (TAI)

The Test Anxiety Inventory (Spielberger, 1980) is a copyrighted instrument to measure test anxiety level of an individual. In the current study it was used to screen the participants for test anxiety. Professor Emeritus Dr. Charles D. Spielberger developed TAI based upon extensive and intensive research work (Spielberger, & Vagg, 1995; Bembenuddy, 2009). Spielberger (1980) argues that the level of test anxiety of an individual is determined by the total score on TAI. TAI consists of 20 items and each item has four options ranging from Almost Never to Almost Always. The respondent is asked to pick one of the four options which are scored, as follows: Optional Responses Scores Almost Never 1 Sometime 2 Often 3 Almost Always 4 Spielberger et al (1978) argue that the internal consistency of the Test Anxiety Inventory is  $\alpha .86$  and it is significantly correlated with other commonly used anxiety measures. Thus, TAI is a reliable and valid instrument for assessing test anxiety. The four-point scale of the TAI is used to determine the frequency of experiencing the specific symptoms of anxiety in test situations only rather than the trait anxiety.

#### BAKARE TEST ANXIETY SCALE (BTAS)

Bakare Test Anxiety Scale (BTAS) was developed by C G M Bakare in (1969). It has two sections A and B and consists of 37 items which was used to collect data on test anxiety of students along with a demographic section A asking questions about the participants' age, gender, sex, class, subject combination and place of residence whether rural or urban Section B consists of 37 items with 10 point response format. In this scale respondents are expected to indicate items most descriptive of them in the numerical order of magnitude of (6, 7, 8, 9) or those items least descriptive of them in the decreasing numerical order of (4,3,2,1,0). Zero being respondents rating for an item that is totally unlike them. While five (5) is being regarded as the average score of respondent's neutrality. Responses to all items except those requiring personal information are summed up. The maximum score obtainable by a respondent is 370 while the minimum score is 37. Respondents that scored below two hundred (200) on the scale are regarded as those with low level of anxiety, while respondents who score two hundred (200) and above on the scale are regarded as respondents with high anxiety. Some of the items in the scale includes;- *"I sometimes feel my heart beating very fast during important test"* *Thoughts of doing poorly interfered with my performance on tests".* *"Before an important examination, I find my hands trembling".* *"While taking an important examination I perspire a great deal".* *"I dread subjects where the teacher has the habit of giving tests intermittently".* Aremu (1988) reported Bakare,'s Test Anxiety Scale reliability as 0.91 when he used it on university students. Busari (2000) also used it on secondary school students and a test re-test reliability yielded 0.89. The alpha reliability of this scale in the current study was 0.88. The scores obtained by these scholars on Bakare Test Anxiety Scale indicate that the instrument is reasonably stable and thus reliable for use.

## **PROCEDURE**

This study was carried out in four phases; Pre- programme activities, pre-test, treatment and post-test phases. At the pre-session, activities include the recruitment and assignment of participants to the experimental and the control group. At the pre-test stage anxiety scale was administered to the participants. Participants in the experimental group were exposed to eight weeks of treatment. Each session spanned average of 60 minutes. The participants assigned to the control group were given a lecture on punctuality.

There are many methods used in cognitive restructuring, which usually involve identifying and labelling distorted thoughts, such as "all or none thinking, disqualifying the positive, mental filtering, jumping to conclusions, catastrophizing, emotional reasoning, should statements, and personalization. To obtain reliable data and to consider research ethics, the objectives of the research was explained to the participants and they were assured that they anonymously take part in the study. Participation suggested implied consent. After gathering the questionnaires, some of the participants were selected randomly and were interviewed to check the reliability of their responses.

## **COGNITIVE RESTRUCTURING GUIDELINES**

In this study, short-term structured cognitive therapy based on cognitive restructuring was used. To this end, a combination of Meichenbaum- Bacăucognitive method and Ellis–Griger irrational beliefs identification (1977) quoted by Spielberger and Vag (1995) which involves this four steps (i ) Identification of problematic cognitions known as "automatic thoughts" (ATs) which are dysfunctional or negative views of the self, world, or future based upon already existing beliefs about oneself, the world, or the future,(ii) Identification of the cognitive distortions in the ATs (iii) Rational disputation of ATs with the Socratic method and( iv) Development of a rational rebuttal to the ATs.( The implementation process and method of teaching intervention and appropriate study skill covered this four steps) was used for 8 -1 hr sessions and each week for one session. This package was performed on participants in the experimental group by the researcher and two research assistants of the Department Counselling and Human Development Studies trained as research assistant by the researcher. This method is organized in 8 steps as follows:

The 120 participants were randomly assigned to treatment and the control group. The treatment group received eight one hour per week programme of cognitive restructuring training while the control group was left without treatment. The eight weeks of one hour programme witnessed the following activities:

### **TRAINING SESSIONS**

**Session I:** Initial assessment (getting familiar with work logic and work plan) - introducing to anxiety disorder and treatment method-definitions

**Session II:** Discussion of Mastering and identifying behavioural symptoms-explaining the nature of test anxiety, effects and methods of coping with it.

**Session III:** Training in identifying automatic thoughts, negative and irrational self-talk irrelevant to the task and test

**Session IV:** Training the participants on Working on emotional symptoms, identifying negative self-talk, conflicting negative automatic thoughts, recording thinking skills, arbitrary inference, extreme generalization, selective abstraction.

**Session V:** Training in cognitive change techniques, how thoughts creates feelings, techniques of differentiating thoughts from fact, emotional and cognitive factors of test anxiety, readiness for treatment, noting them.

**Session VI:** Training in anxiety evaluation techniques, techniques of ignoring the problems, techniques of immersing in uncertainty.

**Session VII:** Discussion on Changing and correcting family beliefs, techniques of practicing acceptance, preparation for the completion of treatment (undermining dysfunctional beliefs, replacing negative thoughts with positive ones, playing roles)

**Session VIII:** Last session of assessment and follow up-discussing about the substitution strategies.

## DATA ANALYSIS

Data obtained in this study was analyzed using the analysis of Covariance (ANCOVA). ANCOVA was utilized to analyze the data obtained because it has the ability to control errors, adjust treatment means and partition a total covariance estimate missing data. ANCOVA is capable of testing for the significance of the difference among means of the experimental and the control group as well as test for the correlation between the pre-test and post-test measures.

## RESULTS

**Table 1: Post Treatment Comparison of Experimental and Control Group Using ANCOVA**

Source of variation	DF	SS	MS	F. Ratio Obs.	F. Ratio Crit.	Test Decision
Between Group	5	3781558.84	75631.67	129.57	2.01	Reject Ho
Within Group	114	28264.02	247.93			
Total	119	3809822.86	7811.6			

Critical value  $F(5, 119) = 129.57 P > 0.05$

The results obtained as shown in table 1 revealed a significant main effect of treatment (Cognitive Restructuring Intervention Programme) on test anxiety of learners studying remedial centres. Therefore, the first hypothesis, which stated that there will be no significant main effect of treatment on test anxiety of learners studying intellectual disability, is rejected since a significant main effect ( $F=5,114; P>0.05$ ) exists in the treatment of experimental group.

**Table 2: Post Treatment Comparison of Participants based on Gender using ANCOVA**

Source of variation	DF	SS	MS	F. Ratio Obs.	F. Ratio Crit.	Test Decision
Between Group	5	1497186.65	29943.73	115.57	2.11	Reject Ho
Within Group	114	72685.26	637.59			
Total	119	15698719.91	30581.32			

Critical value  $F(5, 114) = 115.57 P > 0.05$

As shown in table 2, the post treatment outcome of participants based on gender indicated significant interaction effect of treatment on participants' test anxiety. With this finding therefore the argument is the sustenance of the alternative hypothesis which supports the existence of significant interaction effect.

**Table 3: Post Treatment Comparison of Participants based on Type of School**

	DF	SS	MS	F. Ratio Obs.	F. Ratio Crit.	Test Decision
Between Group	5	43991.80	8798.36	25.47	2.17	Reject Ho
Within Group	114	11138.94	97.71			
Total	119	55130.74	8896.07			

Critical value  $F(5, 114) = 25.47 P > 0.05$

The post-treatment outcome revealed that there was a significant interaction effect of treatment on test anxiety of learners studying in remedial centres based on their type of school. Thus, the finding failed to support the null hypothesis that was predicted.

**Table 4: Post Treatment Comparison of Participants based on Study Habits**

Source of variation	DF	SS	MS	F. Ratio Obs.	F. Ratio Crit.	Test Decision
Between Group	5	49467.87	9893.45	27.63	2.13	Reject Ho
Within Group	114	144905.54	127.11			
Total	119	63958.41	10020.56			

Critical value  $F(5, 114) = 27.63 P > 0.05$

The results on table 4 revealed a significant interaction effect of treatment (Cognitive Restructuring Intervention Programme) on test anxiety of learners attending remedial classes based on their study habits. Therefore, the fourth hypothesis, which stated that there will be no significant interaction effect of treatment on test anxiety of learners studying in remedial centres based on study habits, was rejected since a significant interaction effect ( $F=5,114$ ;  $P>0.05$ ) exists. Hence the null hypothesis was not supported.

## **DISCUSSION**

The aim of this study was to determine the effectiveness of cognitive restructuring in the reduction of test anxiety symptom among learners studying in remedial centres. The results obtained from the first hypothesis showed that there was significant treatment effect on test anxiety of the participants. The current result is in tandem with the studies conducted by Mann and Piorkowski (2006) using cognitive restructuring, other therapies and control. In those studies, all the treatments used had significant main effects on the subjects but the control showed no therapy effect. The finding of this study is also consistent with that of Unachukwu and Onwuka (2006), which indicated that systematic desensitization as a cognitive restructuring technique was more effective than other therapeutics training in reducing test anxiety of students. According to Onwuka (2008) cognitive restructuring was effective in dealing with simple and specific anxieties and problem that were clearly delineated. Test anxiety happens to fall into this group. With regard to the findings obtained, it seems that cognitive restructuring affects the variables that are in a close relationship with test anxiety and its components, and are further effective in reducing the negative beliefs, increase positive beliefs about worry and correction of negative evaluation. Also a little time is required to describe and explain the methodology underlying rationale. In this study, the students of cognitive group were able to apply easily the techniques in the treatment step. As a result, the present study and studies done in recent years show that cognitive therapy strategies and interventions can be used to prevent or reduce anxiety. The methods help person to reduce the negative and irrelevant thoughts to the task. This finding is in consistent with results of studies done on the effectiveness of cognitive restructuring training, (Kabat - zinn, 2006). Generally, the findings suggest that cognitive reconstructing training is effective in reducing anxiety and affectivity and its concerns.

In answering the second hypothesis which says that there is no significant interaction of treatment on test anxiety of learners attending remedial classes based on gender. The result obtained showed that male and female participants differ significantly in their level of test anxiety. The result of this study corroborates the findings of Soleimani (2014) when he found in his research on the frequency of test anxiety in students and its relationship with academic performance. The current result is also in agreement with that of Nabizadeh and Ghasemi, (2010) which showed in a study that the prevalence of test anxiety in females is more than males. The result was not in agreement with the findings of Chappell, Benjamin, Blanding Michael and Silverstein (2005) who reported that female undergraduates had significantly higher test anxiety than male undergraduates. This result is not also consistent with that of Rezazadeh and Tavaki (2009) who reported that female students have higher level of test anxiety in contrast to male students.

The post-treatment outcome of hypothesis three revealed that there was a significant interaction effect of treatment on test anxiety of learners studying in remedial centres based on the type of secondary school attended. It implies that learners in the remedial centres who attended private secondary schools responded differently to treatment compared to their counterpart who attended public secondary schools. The reason for this result might be because those students who attended public secondary schools were used to stressful situations such as inadequate resources, overcrowded classrooms, financial problems, low motivation etc. which may be strange or alien to those participants with private secondary education. Overall, cognitive restructuring techniques have been shown to be effective in the management of anxiety test. The main goal of cognitive therapy is helping people to achieve reactions compromised with test anxiety. Cognitive restructuring helps students to learn to maintain focus on the task and decentralization to unrelated responses. Thus, teaching cognitive restructuring therapy as well as the proper ways of training is important to prevent and reduce symptoms of anxiety in students.

The results obtained from hypothesis four showed a significant interaction effect of treatment (Cognitive Restructuring Intervention Programme) on test anxiety of learners attending remedial centres based on their study habits. The implication of this is that learning the correct way of study merely modifies the incorrect study methods in students. It only helps reduce the students' anxiety by addressing the defect in the wrong ways of study. But it is clear that training study proper methods is effective for encoding, storing, retelling and using information that is reasonable. Therefore, it can be said that the correct methods of study as a study method reduces the signs of test anxiety. Several studies have also confirmed the effectiveness of different methods especially training study skills (Jing, 2007). In general, the findings of studies (Gladding Samuel, 2009) are consistent that considered the effectiveness of training study proper skills in reducing test anxiety. In this method, students can reduce the study time by learning some correct study skills, and increase the duration of keeping contents in memory and

learning. They can achieve better results with less effort but smarter and in the result, they show less anxiety and worry in the test situations (Busari, 2000).

The findings of this study indicated that exposure to cognitive restructuring intervention programme reduces the test anxiety of learners studying in remedial study centres significantly. The implication is that teachers can use cognitive restructuring techniques to reduce test anxiety of learners studying in remedial study centres which may assist in enhancing their performance in their academic pursuit. The finding also implies that both male and female learners studying in remedial centres can equally benefit from cognitive restructuring intervention programme.

## CONCLUSION AND RECOMMENDATIONS

The use of cognitive restructuring intervention programme significantly reduces the test anxiety of learners studying in remedial centres. Cognitive restructuring and gender of learners studying in remedial centres interact significantly to determine test anxiety. It is recommended that workshops, conferences, symposium and seminars should be organized to train teachers on how to use cognitive restructuring intervention techniques in the classroom to reduce test anxiety among all categories of students.

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