# EFFECTS OF COGNITIVE RESTRUCTURING AND SELF MANAGEMENT COUNSELLING TECHNIQUES IN REDUCING TEST ANXIETY AMONG STUDENTS OF STAFF SECONDARY SCHOOLS IN KANO STATE, NIGERIA


**BY**

**MAIMUNA SANI MUHAMMADU**

**B (ED) EDUCATION/ISLAMIC STUDIES 1989 BUK**

**M (ED) GUIDANCE AND COUNSELLING 1995 BUK**

**SPS/11/PED/00016**


**A THESIS SUBMITTED TO THE SCHOOL OF POSTGRADUATE STUDIES THROUGH THE DEPARTMENT OF EDUCATION, BAYERO UNIVERSITY, KANO IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE AWARD OF DOCTOR OF PHILOSOPHY DEGREE IN GUIDANCE AND COUNSELLING**

**SUPERVISOR**

**PROF. ABDULRASHID GARBA**

**OCTOBER, 2019**

## DECLARATION

"I hereby declare that this work is a product of my research efforts undertaken under the supervision of Professor Abdulrashid Garba and has not been presented anywhere for the award of any degree or certificate. All sources have been duly acknowledged".

_____ _____

**Maimuna Sani Muhammadu** **Date**

**SPS/11/PED/00016**

## CERTIFICATION

"This is to certify that the research work for this thesis and the subsequent write- up of Maimuna Sani Muhammadu (SPS/11/PED/00016) were carried out under my supervision".

_____ _____

**Prof. Abdulrashid Garba** **Date**

**Supervisor**

_____ _____

**Prof. Bello A. Bello** **Date**

**Head of Department**

## APPROVAL PAGE

"This thesis has been examined and approved for the award of Doctor of Philosophy Degree in Guidance and Counselling.

| | |
|---|---|
| _____ | _____ |
| **External Examiner** | **Date** |
| _____ | _____ |
| **Dr. Kabir Bello Dungurawa**<br>**Internal Examiner** | **Date** |
| _____ | _____ |
| **Prof. Abdulrashid Garba**<br>**Supervisor** | **Date** |
| _____ | _____ |
| **Prof. Bello A. Bello**<br>**HOD/Chief Examiner** | **Date** |
| _____ | _____ |
| **Prof. M. I. Yakasai**<br>**Dean, School of Postgraduate Studies** | **Date** |

**ACKNOWLEDGEMENTS**

The researcher is most grateful to Allah the most Beneficent the most Merciful for granting opportunity and good health to undertake this research work. Peace and blessings of Allah the Almighty be upon the leader of all mankind Prophet Muhammad (SAW), his family and companions.

The researcher also wishes to express sincere gratitude to the supervisor, Prof Abdulrashid Garba for his effort and encouragement throughout the conduct of the study. The contributions made by Dr. K. B. Dungurawa, Prof Kabiru Isyaku, Prof Bello A. Bello, the Head of Department, Prof. M. I. Yakasai, Prof. T. M. Garba, Prof. Abdulrashid Dauda, Prof,Garba Sa'ad, Prof. A. Iliyasu, Prof. B. A. Bello, Dr. A. M Garba Kaugama, Dr. Gali Saidu, Dr. Bello Shehu, Dr. M.A. Kwankwaso, Dr Mujtaba Lawan, Dr, Muhammad Ibn Abdullahi, Dr, A. Maigari, Dr. Isa Ado Abubakar, Dr. Zubair Muhammad and all other academic and non-academic staff of the Department for their scholarly and administrative services are also appreciated.

Many people contributed to the successful completion of this work whose names are too numerous to mention here. However, this work cannot be concluded without mentioning the following: Prof. Mustapha Ibrahim Abdullahi and Malam Muhammad Hamza Rogo from the Department of Educational Psychology and Counselling, Faculty of Education, Ahmadu Bello University, Zaria, Dr. M. Mukhtar, the staff and students of Bayero University Kano (BUK) staff secondary school, Federal College of Education Kano (FCEK) staff secondary school and Kano State Polytechnic (KSP) staff secondary school, especially students who served as the treatment groups as well as various sources contacted while conducting the study are also appreciated.

The researcher is extremely grateful to her employers; BUK SMSS Management Board, more grateful to Discovery Learning Alliance (FITILA 1 & 2) and the review panel. Finally, the researcher wishes to thank her colleagues and her children for their support and encouragement.

## DEDICATION

The researcher dedicates this work to her Husband. Muhammadu Jamiu Ahmadu (LADAN) who encouraged and supported me throughout the conduct, compilation, binding and presentation of this research work. May ALMIGHTY ALLAHU (SWT) grant the family members and the entire Muslim Ummah peaceful life and JANNATU FIRDAUS Aamiin.

## TABLE OF CONTENTS

## LIST OF TABLES

## LIST OF FIGURES

## ABBREVIATIONS

**CDTA =** Cognitive Dimension of Test Anxiety

**CRTA =** Cognitive Restructuring of Test Anxiety

**PDTA =** Physical Dimension of Test Anxiety

**PSYDTA =** Psychological Dimension of Test Anxiety

**SMCT =** Self-Management Counselling Technique

**TA** = Test Anxiety

## LIST OFAPPENDICES

## OPERATIONAL DEFINITION OF TERMS

For the purpose of this study, the following terms are operationally defined:

**Test Anxiety:** Refers to manifestation of physical, psychological and cognitive dimensional symptoms on test anxiety conditions, in which students experience intense fear, worry and concern on the performance before, during and after the test as measured by STAI

**Physical Dimension (Types):** This refers to physical signs that students indicated as a result of test anxiety that mostly occur in form of symptoms such as; excessive perspiration, sweating palms and feeling too hot or too cold as measured by subscale of the STAI

**Psychological Dimension (Types):** This refers to negative affective feeling or emotionality that affect students' performance negatively. It could be manifested in form of awful feeling, due to fear of unknown, uncertainty, nervousness and feeling of failure as measured by subscale of the STAI

**Cognitive Dimension (Types):** This refers to distorted cognition that occurs as a result of Test Anxiety in form of symptoms such as negative or self-defeating talks, excessive worry and difficulty in concentration, before test, while taking test and after it as measured by STAI.

**ABSTRACT**

*The study investigates the effects of cognitive restructuring and self-management counselling techniques on Test Anxiety among students of staff secondary schools of Tertiary Institutions in Kano, Nigeria. The main objective of the study is to find out the effects of the two techniques that could reduce symptoms of test anxiety among test anxious students of staff secondary schools in Kano. In an attempt to achieve the objectives, thirteen research questions with corresponding thirteen null hypotheses were formulated to guide the study. Quasi-experimental design involving pretest, posttest control group was employed. The population of the study comprised of one hundred and ninety two (192) of test anxious students, comprising of 82 males and 110 females students from three (3) staff secondary schools. Out of which a sample of forty five TA students (22 males and 23 females) were purposively drawn from three schools (Bayero University Staff Model Secondary School (BUKSMSS), Federal College of Education Staff Secondary School (FCESSS) and Kano State Polytechnic Staff Secondary School KSPSSS). Fifteen respondents were selected through proportionate sampling technique from each of the schools. The first and second schools were exposed to cognitive restructuring (CR) and self-management(SM) techniques while the third school was considered as the control group. Student Test Anxiety Inventory (STAI) with 0.954 reliability index was used to identify test anxious students as well as data collection during the pretest and posttest. The data collected were analyzed using mean scores and standard deviation for the main research question, t-test for independent samples were used, to test the hypotheses 1-12 at 0.05 level of significance and ANOVA was used to test hypothesis 13. The findings, revealed that there is significant effects of CRCT on physical (t- 8.01 p-0.001), psychological (t-5.17 p -0.001) and cognitive dimensions (t- 4.47 p-v 0.001) of T A in BUKMSS treatment group. Significant effects of SMCT on physical (t-6.05 p - 0.001), psychological (t-cal12. 19 p -v 0.001), and cognitive dimensions (t- 12.18 p - 0.001) of TA also exists in the treatment group of students in FCESS. Gender differences revealed that males and females respondents treated with CRCT on physical symptoms had no significant difference observed (t-2.89 p - 0,013), while females respondents treated with SMCT physical (t- 2.51p - 0.026) symptoms of TA were found to have more effects on female counterpart than the males, thus, favored females, hence the SMCT on TA is gender sensitive. It is concluded that CR and SM counselling techniques are effective measures in reducing TA and they are gender sensitive. The techniques are relatively effective. Based on the findings, it is recommended that the two techniques should be used by counsellors in reducing TA symptoms among secondary school students. Gender differences should be considered in choice of appropriate technique.*

# CHAPTER ONE

# INTRODUCTION

## 1.1 Background to the Study

Anxiety is a condition that everyone experiences to certain extent in any stressful situation. For students, one of the most frequent stressful or anxiety provoking experiences is taking a test. All students feel some effects of anxiety associated with test. A small level of anxiety is normal, but severe anxiety can be a serious problem. In a situation where the effect of manifested symptoms of the anxiety is associated with learning and test, with perceived negative consequences of the test results, can leads to manifestations of unwanted reactions in form of signs of test anxiety that, eventually affect students' performance in learning and assessment.

The anxious feeling can occur prior to the test while review for it, during the test situation and after the test. Furthermore, the symptoms can range from physical indicators of test anxiety in form of feeling too hot or too cold, headache, rapid heartbeat and sweating. In addition, it could be inform of Psychological indicators of test anxiety in form of feeling of fear, nervousness, guilty and uncertainty. Moreover, it could be inform of Cognitive indicators or dimensions that involve mental activity, that revolves around the testing situation which include symptoms of irrational thinking, forgetting and becoming blank on test questions.

Subsequently, students who experience some of these mentioned dimensional symptoms of test anxiety challenges gradually realized its' effect on their academic achievement. It could be as a result of too much concern, worry or fear of unknown test outcome, within such negative perceived situation, some students find such anxiety became a serious issue with their learning and test taking, in severe manner, to an extent that their grades are seriously affected. Thus, the unwanted experience constitute a problem to the students due to inability to perform in

accordance to their natural ability, the anxiety produces symptoms that reduce or prevent them from normal functioning.

The researcher's experience while teaching has shown that, majority of test anxiety cases were not recognized easily in the schools. This was because many students rarely seek help for any perceived emotional apprehension from significant adults, in some cases even the above average students exhibited test anxiety symptoms either due to perfectionism and fear of parental scolding due to their inability to score the highest mark. Furthermore, according to Cassidy and Johnson (2002), testing situations create a sense of threat for test anxious students that possibly disrupt their attention and memory function. According to them, such students are usually distracted and hence find it difficult to articulate and comprehend some simple test instruction. Taking the above analyses into consideration, these imply that, test anxiety occurs when the symptoms affect students' performance on a test.

However, the place of test in educational sector is very imperative and undisputable. Despite test anxiety adverse effects, test remains as a monitoring and evaluative tool widely used in schools. Teachers rely on written and oral tests to find out whether students have learned the information presented in the course or not, however most of them are not trained on reduction strategies on test anxiety. Thus, in an attempt to assist students resolve the challenge that persist, the current researcher opined that there is need for awareness on the part of students, an update information on how to approach and conduct test with free mind, use of objective interpretation measures of test result by the stakeholders, with particular reference to parents and teachers and how to use counselling techniques that can reduce the anxiety. In addition, students need awareness on the importance of test in school; hence students must take several of it in the course of their schooling for a number of reasons. The results are used to make important decisions about students and

educational programs including determining levels of subject mastery, report card grade, and grade level for promotions, honors, and graduation Carter, Wehby, Hughes, Johnson, Plank, and Baton-Arwood (2005). In this respect there is need to combat any anxiety that can affect the validity and reliability of the test.

Test anxiety has many implications for many students at all levels of which failure in test is one of them. According to Zondi (2013), test anxiety can result in physiological, cognitive, and psychological effects. Physiological effects include rapid heartbeat, headache, tension and profuse perspiration. Cognitive signs include indecisiveness, being unable to organize thoughts; while psychological signs, involve feelings of nervousness, restlessness and continual doubt. This prevalent problem of test anxiousness reduces working memory, confuses reasoning, increases mistakes, and lowers test scores (Zondi, 2013).

Thus, taking into cognisance the researcher's experience and available literature on test anxiety have created strong motive that inspired the writer taking test as an imperative and indispensable measuring tool, and test anxiety as the posed challenge particularly on the part of students having high test-anxiety who have learned to believe that they will perform poorly and developed irrational thinking detrimental to learning and testing. With particular reference to the researcher's practical experience Bayero University, kano Staff Model Secondatry School(BUK SSS ) as a teacher and school counsellor (1989-2012), observation has shown that test anxiety facilitated worries among the students, led to distorted self-image or an inaccurate self perception and subsequently paved way to different symptoms of the anxiety. This explained that students' irrational thinking and physical discomfort lead to poor esteem.

The condition gradually affected the academic performance of the students in different stages of learning and evaluation, some occurred before the test, possibly in the process of preparation for it as revision, during the test students experienced inability to recall learned information and after the test some became upset due to uncertainty on the outcome of the test. This unwanted situation that affected the students' physical well-being, psychological balance and cognitive thinking that subsequently affect academic performance of the students is the researcher's interest to further explore and examine the use of two effective techniques toward its resolution.

The unwanted condition and attitude need to be changed through the use of appropriate strategy that could reduce the anxiety and promote positive change of students' approach to test with open and realistic mind in a way that enable students read, revise and make adequate preparation before the test, implement test taking skills during it and anticipate success after the test. Previous studies have not adequately captured students' test anxiety challenges before, during and after test as well as the dimensional symptoms of test anxiety. There is need for students to be aware of the skills to adopt that can reduce the test anxiety symptoms, earlier studies have shown that students are not adequately counselled on appropriate skills on how to write test and advantages of having free mind before, during and after the test. However, tests' administration may remain fairly the same, what must be altered is the students' approach to tests. This implies that in an attempt to reduce test anxiety to a comfortable level, a test anxious student need to learn how to alter negative unwanted feelings from being tensed up and rigid to being calm and relaxed. The way students' think about themselves and their abilities have to change too from the expectations of failure to the anticipation of success. These too have not received needed attention thus, the inadequacies created in the previous studies have left a vacuum or gap that need further exploration in the field to minimize or close the gap to certain level thereby abreast the students, the teachers and

counsellors with needed counselling techniques towards combating the test anxiety. The current researcher intended to explore on the use of CRCT and SMCT.

Other attributing factors such as favorable test environment, time factor and achievement motivation that could be employed to reduce test anxiety challenge are mostly not given adequate consideration as pointed in previous studies. Hence, this implies the need for review on the use of test for decision making on the part of test evaluators and test taking on the part of students, considerations to the methods on how the test is set up, as well as environment in which test is taken and time for taking the test are all necessary. In an attempt to promote positive decision making, avoidance of adverse effect of test anxiety and favorable students' decision making on the out outcome of test this research opted for use of appropriate strategy to reduce the anxiety among secondary school students.

Therefore, in an attempt to achieve the laudable objective of the test and reduce variables invaded in the use of tests, there is need for counselling intervention that would help students take test in free or less anxious state of mind or situation, avoid negative uncertainty and psychological imbalance. The need to incorporate counselling service, on test anxiety in secondary schools' program needs to be strengthened too. These observations have not received adequate attention.

Taking into cognisance, the issue of gender differences on test anxiety, previous researches has shown that males typically score lower on measurements of test anxiety than females Najjarian and Ahmadu (2001). The differences in test anxiety constructs affect males and females in different ways. Results from a number of researches showed that worrisome as a physical sign was related to task-orientation and preparation among males while low avoidance coping as a psychological sign related to seeking social support in academic achievement is mostly found

among the females. Others opined that males favour more on task-orientation and preparation than female students and interference was related to avoidance coping in females Stober, (2004).

Further, the researchers showed that there was a gender effect on worry and emotionality on test anxiety among high achieving students. However, females were reported to be more subjected to test anxiety than males; and that females experienced higher worry than emotionality, while males reported little difference between the two dimensions. Thus, with regard to the gender sensitivity on this background literature among others, the researcher wants to further investigate the probability of gender differences on physical, psychological and cognitive dimensional symptoms of the anxiety among the students of staff secondary school students.

Test anxiety if untreated, can persist for years, although it has been a phenomenon burning in the minds of researchers seeking ways to unravel the cryptic threat posed by it. However, in spite of all the laudable efforts put in by previous researchers to curb the frightening effect of test anxiety among students, test anxiety still remains as a challenge and it poses a serious threat to many student populations. This explains the need to explore other psychological techniques.

**1.2 Statement of the Problem**

Test anxiety is a problem experience by some students, when it begins to have adverse effect on their' performance on a test. With consideration to its threat, test anxiety could be a serious problem on students' that has been negatively associated with test performance, achievement of degrees and the selection for occupations. It is a problem experience by some students at all educational levels who suffer from effects of test anxiety, such students find it difficult to cope with test demands. However it is their irrational believe that affect the degree of their concentration, internationalization and storage of facts at preparatory stage and retrieval of information during test taking.

Stressful emotions as a psychological symptom of test anxiety can inhibit a student's ability to absorb, retain and recall information. The anxiety creates a kind of "noise" or "mental static" in the brain that blocks the students' ability to retrieve what is stored in memory, also greatly impairs the ability to comprehend and reason during revision, learning and test taking. Gradually, facilitates manifestation of cognitive symptoms of test anxiety that include interference with student's studies, that subsequently make student experience difficulty in learning and remembering what was known before the test. In this process the anxiety could create serious problem, and too much of it may block student's performance. Despite its seriousness or challenge experienced by difference students at varying degree of intensity, test anxiety can be treated, if what causes it is understood and treated accordingly.

The various efforts put forward by previous writers in addressing the problem of test anxiety among students has been widely acknowledged, yet without satisfaction so far. Most of the writers focused on general treatment of the anxiety without much consideration to causes and effects pertaining to specific dimensional symptoms and appropriate measures that could be used to treat the dimensional symptoms. As such, the researcher opted for empirical investigation on effectiveness of cognitive restructuring and self-management counselling techniques as a combine measures to treat test anxiety challenge with due consideration to its specific areas; physical, psychological and cognitive dimensions.

The researcher's experience in staff secondary schools revealed that some parents, teachers and policy makers view test as a source of rewards and punishments of students, but the primary objective of test that is meant to find out the level of student understanding on the learned course of instruction has been reverted and less emphasized. Thus, the little consideration to its main value as a tool for measuring or assessing the achievement of the educational objectives with due

consideration to difference among the students create a problem that make students to exhibit test anxiety symptoms in their attempt to win the expectation of the stakeholders. This condition in which the need of test anxious students is not adequately considered has adverse effect on the concern students. The affected students that are test anxious students experienced unwanted feeling; worry and uncertainty that make them become so anxious and subsequently affect their learning and performance. Thus, the negative feeling on the outcome of test taking needs further exploration.

Furthermore too much importance has been placed on the use of test with less consideration to other alternatives. This explains a number of inherent variables that cause test anxiety among students ranging from home and beyond it (parents' use of reward for pass and threat for failure), school (teachers' inability to set logical and variety of level questions in accordance with the content of learned materials and differences in students) need further review on the extant of the challenge and use of viable or feasible resolution measures.

Previous researches portrayed that societal victimization on the condition of test anxious students on one side, too much importance attached to test results by education policy makers, inadequate attention or due consideration to the need of test anxious students in the educational programs, and teachers inability to consider differentiated instructions are all attributable to students anxiety condition. These factors and related others culminated in the creation of unwanted physical ill health, psychological imbalance and cognitive distortion that resulted in manifestation of test anxiety symptoms. Therefore, in an attempt to ensure the validity of the test preparation and test performance as well as anticipation of positive result, the researcher opted for use of two effective techniques to ensure that variables mentioned above receive proper attention or consideration. There is need for awareness on specific type of symptoms of the anxiety that affect the physical

health of the students, the psychological well-being and their academic progress. The main thrust of the present study, therefore is to examine the effectiveness of Cognitive Restructuring and Self Management Counselling Techniques in reducing test anxiety among students of Staff Secondary Schools in Kano State.

### 1.3 Objectives of the Study

The objectives of the study were to determine:

1. The effect of cognitive restructuring counselling technique in reducing the physical dimension of test anxiety among students of staff secondary schools in tertiary institutions in Kano State.
2. The effect of cognitive restructuring counselling technique in reducing the psychological dimension of test anxiety among students of staff secondary schools in tertiary institutions in Kano State
3. The effect of cognitive restructuring in reducing the cognitive dimension of test anxiety among students of staff secondary schools in tertiary institutions in Kano State.
4. The effect of self-management counselling technique in reducing the physical dimension of test anxiety among students of staff secondary schools in tertiary institutions in Kano State.
5. The effect of self-management counselling technique in reducing the psychological dimension of test anxiety among students of staff secondary schools in tertiary institutions in Kano State.
6. The effect self-management counselling technique in reducing the cognitive dimension of test anxiety among students of staff secondary schools in tertiary institutions in Kano State.

7. The differences in the effect of cognitive restructuring counselling technique (CRCT) in reducing the physical dimension of test anxiety between male and female students of Staff Secondary schools Kano.
8. The difference in the effect of cognitive restructuring counselling technique (CRCT) in reducing the psychological dimension of test anxiety between male and female students of Staff Secondary schools Kano.
9. The difference in the effect of cognitive restructuring counselling technique (CRCT) in reducing the cognitive dimension of test anxiety between male and female students of Staff Secondary schools Kano.
10. The difference in the effect of self -management counselling technique (SMCT) in reducing the physical dimension of test anxiety between male and female students of Staff Secondary schools Kano.
11. The difference in the effect of self -management counselling technique (SMCT) in reducing the psychological dimension of test anxiety between male and female students of Staff Secondary schools Kano.
12. The difference in the effect of self- management counselling technique (SMCT) in reducing the cognitive dimension of test anxiety between male and female students of Staff Secondary schools Kano.
13. If Cognitive Restructuring Counselling Technique will be more effective in reducing test anxiety among students of staff secondary schools than Self-Management Technique in Kano.

### 1.4 Research Questions

The following research questions guided the study:

1. What is the effect of cognitive restructuring counselling technique in reducing the physical dimension of test anxiety among students of staff secondary schools in tertiary institutions in Kano State?
2. What is the effect of cognitive restructuring counselling technique in reducing the psychological dimension of test anxiety among students of staff secondary schools in tertiary institutions in Kano State?
3. What is the effect of cognitive restructuring counselling technique in reducing the cognitive dimension of test anxiety among students of staff secondary schools in tertiary institutions in Kano State?
4. What is the effect of self-management counselling technique in reducing the physical dimension of test anxiety among students of staff secondary schools in tertiary institutions in Kano State?
5. What is the effect of self-management counselling techniques in reducing the psychological dimension of test anxiety among students of staff secondary schools in tertiary institutions in Kano State?
6. What is the effect of self-management counselling in reducing the cognitive dimension of test anxiety among students of staff secondary schools in tertiary institutions in Kano State?
7. What is the difference in the effect of cognitive restructuring counselling technique (CRCT) in reducing physical dimension of the test anxiety between male and female students of Staff Secondary schools Kano?

8. What is the difference in the effect of cognitive restructuring counselling technique (CRCT) in reducing the psychological dimension of test anxiety between male and female students of Staff Secondary schools Kano?
9. What is the difference in the effect of cognitive restructuring counselling technique (CRCT) in reducing the cognitive dimension of test anxiety between male and female students of Staff Secondary schools Kano?
10. What is the difference in the effect of self -management counselling technique (SMCT) in reducing the physical dimension of test anxiety between male and female students of Staff Secondary schools Kano?
11. What is the difference in the effect of self-management counselling technique (SMCT) in reducing the psychological dimension of test anxiety between male and female students of Staff Secondary schools Kano?
12. What is the difference in the effect of self- management counselling techniques (SMCT) in reducing the cognitive dimension of test anxiety between male and female students of Staff Secondary schools Kano?
13. Which of the counselling treatments (Cognitive Restructuring Counselling Technique and self-management counselling technique) will be more effective in reducing test anxiety among students of staff secondary schools in Kano?

**1.5 Research Hypotheses**

The following hypotheses were formulated and tested at 0.05 levels of significance.

$H0_1$: There is no significant effect of cognitive restructuring counselling technique in reducing the physical dimension of test anxiety among students of staff secondary schools in Kano state.

$H0_2$: There is no significant effect of cognitive restructuring counselling technique in reducing the psychological dimension of test anxiety among students of staff secondary schools in Kano state.

$H0_3$: There is no significant effect of cognitive restructuring counselling technique in reducing the cognitive dimension of test anxiety among students of staff secondary schools in Kano state.

$H0_4$: There is no significant effect of self-management counselling technique in reducing the physical dimension of test anxiety among students of staff secondary schools in Kano state.

$H0_5$: There is no significant effect of self-management counselling technique in reducing the psychological dimension of test anxiety among students of staff secondary schools in Kano state.

$H0_6$: There is no significant effect of self-management counselling technique in reducing the cognitive dimension of test anxiety among students of staff secondary schools in Kano state.

$H0_7$: There is no significant effect of cognitive restructuring counselling technique (CRCT) in reducing the physical dimension of test anxiety between male and female students of Staff Secondary Schools Kano State.

$H0_8$: There is no significant effect of cognitive restructuring counselling techniques (CRCT) in reducing the psychological dimension of test anxiety between male and female students of Staff Secondary Schools Kano State.

$H0_9$: There is no significant difference in the effect of cognitive restructuring counselling technique (CRCT) in reducing the cognitive dimension of test anxiety between male and female students of Staff Secondary Schools Kano State.

$H0_{10}$: There is no significant difference in the effect of self -management counselling technique (SMCT) in reducing the physical dimension of test anxiety between male and female students of Staff Secondary Schools Kano State.

$H0_{11}$: There is no significant difference in the effect of self -management counselling technique (SMCT) in reducing the psychological dimension of test anxiety between male and female students of Staff Secondary Schools Kano State.

$H0_{12}$: There is no significant difference in the effect of self- management counselling technique (SMCT) in reducing the cognitive dimension of test anxiety between male and female students of Staff Secondary Schools Kano State.

$H0_{13}$: There is no significant relative effectiveness between cognitive restructuring counselling technique and self-management counselling technique in reducing test anxiety among students of Staff Secondary Schools in Kano State.

**1.6 Significance of the Study**

It is hoped that the outcome of this study would be significant to a number of beneficiaries which include: Students, Teachers and Parents, Counsellors and Researchers, Psychologists, and Educational policy makers. Effective implementation of the outcomes or application of the findings would subsequently provide effective practice, increased explanation on TA theories and review of policy decision making on test anxious students.

The students who are the core beneficiary of the outcome of this study would be aware of test anxiety components; its dimensional symptoms, causes, effects, preventive measures and how to reduce its signs and symptoms. Students would understand the extent to which test anxiety may affect their studies and also know that despite the very negative effects of the anxiety, test is inevitable. Thus, it will assist them to adapt appropriate strategies to reduce or combat the stressful conditions and improve their test performance. The outcome would enable them to be more aware of the roles of school counsellors who are in a better position to help them reduce the unwanted behavior. The use of CR and SMCT in which they participated during the treatment sessions has trained them in solution finding, would be beneficial to them on others not only to solve T A challenges but also in solving other related issues, such as examination malpractice.

The finding of this study would also help Ministry of Education in formulating appropriate policies that would help reduce test anxiety cases among students, subsequently when the needs of test anxious students are considered, the policies are implemented subsequently the students would have improved academic performance Falaye (2010 ) . Also, it would help curriculum planners to include the intervention techniques in the curriculum of Guidance and Counselling to assist practicing counsellors learn and use the techniques in counselling. In addition, it would sensitize policy decision makers in the country's educational system to recognize the unique roles of counsellors and make it mandatory to employ trained counsellors in both public and private secondary schools. Educational policy makers would be abreast with the need to redress test anxiety issues among students. This would encourage a step forward towards reevaluation of the educational system with a move to address the issue. In an attempt to ascertain the

The finding would also add to the body of teacher's knowledge, they would receive tips on issues of test anxiety among the students and how to help reduce anxiety signs and symptoms among the

students, who exhibited the symptoms during learning and test taking. Also, It would provide more empirical information on effectiveness of the two counselling techniques in reducing the anxiety and that would motivate both teachers and parents too, who could be sensitized through parents teachers association meetings, not only in Nigeria but beyond to use the techniques in the reduction of TA cases among the students in a better perspective than reliance on medication.

The counsellors and researchers would find it handy or useful as an added empirical knowledge on the application of counseling techniques, with particular reference to cognitive restructuring and self-management counseling techniques. Considering the numerous problems faced by students on test anxiety, the students would hopefully be helped by counsellors to reduce their anxiety challenges. The researchers would be abreast too with the current information that would provide some insightful measures to be adopted in their choice of counseling techniques. Thus, it would encourage the researchers to investigate further on anxiety reduction measures on test anxiety that affect students before, during and after the test.

It is hoped that this study would add to theory building on CR, SM and TA. For enhancements of student academic success, general health and wellbeing. With the explanation proffered by the theories, it is hoped that the study would enhance parent/ child relationship, thereby becoming less subjective in their reactions to test result.

Finally, the essence of this study is the contribution the researcher hope to make to knowledge, it is hoped that the findings of this study would significantly increase the body of knowledge, particularly in the TA behavioral modification. Also, hope that it will stimulate more counselling research area of counselling techniques on TA and would be a relevant literature that provides re-sources to parents, students' conducting research, school counsellors, and educational policy

makers on TA as it has been investigated and ascertained the effects of the two counseling techniques in treating test anxious students. Thus, the study hoped to provide basis for establishing theory and practice on effectiveness of the two counseling techniques among psychologists, guidance and counseling practitioners.

### 1.7 Scope and Delimitation of the Study

The scope of this study covered the use of cognitive restructuring and self-management counselling techniques as treatment measures to reduce test anxiety challenge among students of staff secondary schools in SS2 BUK, FCE and Kano State Polytechnic. The schools covered are situated within the above mentioned tertiary institutions of learning in Kano State. The two counselling techniques were used for the treatment of test anxiety only; it focused on reduction of physical, psychological, cognitive, and general dimensional symptoms of the challenge among the students who are in the staff secondary schools SSS2. It examined the general test anxiety symptoms and possibility of its reduction among the students. It covered the year 2017/2018 session only. The independent variables are the two techniques while the dependent variable is test anxiety and no moderating variable.

Delimitations of the study are; other counselling techniques, behavioural problems, class levels and other tertiary institutions. The study focused on the effects of two counselling techniques only; Cognitive Restructuring and Self-Management on the three (3) dimensions of test anxiety symptoms among test anxious students of Senior Staff Secondary Schools (SS2) only in the year 2017/2018 that are within the three selected Institutions. Thus, other techniques are exempted; other public, private and communities' SS1 and SS3 students in staff secondary schools in the year 2017/2018 session are not covered. Finally, other tertiary private, public and community secondary schools as well as other staff secondary schools in Kano and beyond are not covered.

# CHAPTER TWO

# REVIEW OF RELATED LITERATURE

## 2.1 Introduction

This chapter presents the conceptual framework and theoretical foundations of test anxiety (TA). Cognitive restructuring and self-management counselling techniques as the treatment measures are reviewed. It also reviewed some theories related to variables under study, the empirical studies, summary and uniqueness of the study.

## 2.2 Conceptual Framework

It refers to professional definitions of test anxiety, its causes and effects on academic performance.

### 2.2.1 Test Anxiety

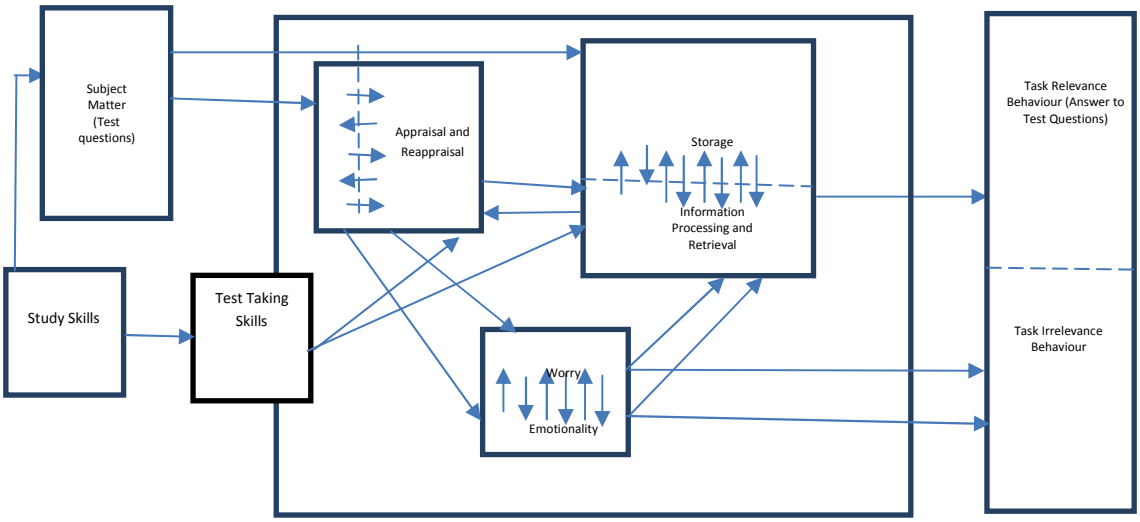
The concept of test anxiety as a specific anxiety trait requires specifications of the antecedent conditions that contribute to the development of the trait. Some researchers such as Driscoll (2004) identified poor cognition and emotionality as the major components of test anxiety. Others like Spielberger and Vagg (1995) identified worry and emotionality too as the major components. It should be noted that each of the combinations has cognitive and behavior symptomized components. For the purpose of this conceptualization, worry and emotionality would be adopted,

Spielberger and Vagg (1995) conceptualized a transactional process model for test anxiety. For them, the particular factors that evoke test anxiety are worry and emotionality and that in addition to that, the nature of interpersonal perceptions and cognitions as well as the information processing and retrieval mechanisms that mediate the effects of worry and emotionality on performance are equally important. They also

identified the important correlates of test anxiety such as study habits and attitudes (study skills) test taking skills (test wiseness) and task irrelevant thoughts.

They presented the diagram in fig. 2.1 which is intended to be a heuristic framework for representing the antecedent conditions and dispositions that influence students' reactions to test, the mediating emotional and cognitive processes involved in responding to evaluative situations and the correlates on the consequences of test anxiety.

**Test Situation Interpersonal Test Taking Process Response**




**Source:** Cohen (2007)

Fig 2.1 Conceptual model for test anxiety

The diagram fig 2.1 above conceptualizes the process of test anxiety. The model is relevant to the concept of test anxiety as it is a structural design that interprets the function of test anxiety, how it occurs and affect the function of the brain and subsequently affect the students' performance in learning and testing. Depending on the individual and his predisposition to test, his study and test taking skills, when one is faced with testing situation, he will immediately refer to his perception about tests. If he is test anxious, the next stage will be his worry and emotionality about the situation affect process for retrieval of stored information. If he is able to overcome the worry and emotionality, his thought will move to information store for processing of the questions before him and retrieving the desired result which will lead to relevant behaviors towards answering the test questions. If he is not able to overcome the worry and emotionality, the next stage will be irrelevant thoughts and behaviors, which may lead to his inability to respond to the questions. For a student who has no test anxiety,

immediately he faces the test situation, his thought goes to his information store and processing commences. The outcome will be his adequate response to the test questions. His thought does not even go into analysis of his perception about the test, let alone entertaining of worry and emotionality.

The testing situation was thought to be an unpleasant experience that interfered with problem solving. They also concluded that the passage of time was unlikely to be therapeutic in reducing it and at best a static anxiety level would exist but more likely the anxiety would become worse. This implied that ones the anxiety is detected the earlier its treatment the better.

Eugene (2003) has defined the term test anxiety as a scientific construct referring to the set of phenomenological, physiological and behavioral responses that accompany concern about possible negative consequences or failure at a test or at a similar evaluative situation. Furthermore, he opined that test anxiety has been considered to include physiological over-arousal, often referred to as "emotionality," along with dread worry and expectations of terrible failure. Hence, Bufka (2009) viewed anxiety as an emotional state in which people feel uneasy, apprehensive, or fearful. Spielberger (2005) explained test anxiety as an unpleasant state characterized by feelings of tension and apprehension, worrisome thoughts and activation of autonomic nervous system, when an individual faces an evaluative achievement-demanding situation.

Seipp (1991) defined test anxiety as an individual's physiological, cognitive and psychological responses that stimulate negative feelings about an evaluation. When an individual experiences test anxiety, these physical and cognitive responses may lead to negative feelings and cognitions about testing situations. According to Olatoye and Afuwape (2003) test anxiety is the

physiological state of mind of a student about a test as expressed by the level of the symptoms; worry, fear, uncertainty, concern and helplessness expressed before, during or even after a test. When an individual becomes anxious, the physiological system becomes aroused, such as the heart beating becomes faster than normal level or the sweat glands producing more perspiration. At the same time the person may develop poor cognition and experience a higher sense of inadequacy.

Okatahi (2006) ascertained that students are often confronted with lots of mental tasks that cause anxiety especially during test periods. Test anxiety as a psychological reaction of students in testing situation has been identified by psychologists as a determinant of academic performance. The cognitive and psychological state is accompanied with feelings of inadequacy, helplessness, and heightened somatic reaction, anticipation of punishment and loss of status.

### 2.2.2 Causes of Test Anxiety

According to Cherry (2016), test anxiety is a learned behavior and the following are some of its causes:

1. The association of grades and personal worth causes test anxiety.
2. Test anxiety can come from a feeling of a lack of control.
3. Test anxiety can be caused by a teacher embarrassing a student.
4. Being placed into course above one's ability can cause test anxiety.
5. Test anxiety can be developed from fear of alienation from parents, family, and friends due to poor grades.
6. Test anxiety can be caused by timed tests and the fear of not finishing the test, even if one can do all the problems

He added that, test anxiety can be biological or mental as the case may be.

**Biological Causes of Test Anxiety**

In stressful situations, such as before and during an exam, the body releases a hormone called adrenaline. This helps prepare the body to deal with what is about to happen and is commonly referred to as the "fight-or-flight" response. Essentially, this response prepares one to either stay and deal with the stress or escape the situation entirely. In a lot of cases, this adrenaline rush is actually a good thing. It helps prepare one to deal effectively with stressful situations, ensuring that one is alert and ready. For some people, however, the symptoms of anxiety they feel can become so excessive that it makes it difficult or even impossible to focus on the test. Symptoms such as nausea, sweating and shaking hands can actually make people feel even more nervous, especially if they become preoccupied with test anxiety symptoms (Cherry, 2016).

**Mental Causes of Test Anxiety**

In addition, (Cherry, 2016) reported there are many mental factors that can play a role in test anxiety. Students' expectations are one major mental factor. For example, if a student believes that she/he will perform poorly on a test, she is far more likely to become anxious before and during a test. Test anxiety can also become a vicious cycle. After experiencing anxiety during one test, students may become so fearful about it happening again that they actually become even more anxious during the next test. After repeatedly enduring test anxiety, students may begin to feel helpless to change their situation. Furthermore, on a similar studies, Mohammed (2014) presented the following as some of the causes of test anxiety:

**1. Physiological Causes**

Physiological causes of anxiety are the causes that are traceable to the activities in the human body. There is natural regulation of such activities, but when such activities do not meet the regulated point or they go beyond the point, then problems such as test anxiety may come up. Physiological causes of anxiety are therefore mainly the cause of general or character anxiety. However, since people with general anxiety are also more likely to be test anxious, they are listed as causes of anxiety. Perkins (2008) says "Anxiety attacks or anxiety disorders are not a mental health problem. He pointed out that we all experience anxiety from time to time in response to emotional issues, but this type of anxiety passes after the event is over. Anxiety that continues for no reason and occurs out of nowhere has a physiological basis, not a psychological one". Some of these physiological factors according to Perkins include:

i. Food allergies
ii. hormonal imbalances
iii. depleted or out of balance neurotransmitters
iv. nutritional deficiencies
v. low blood sugar
vi. mold allergies
vii. chemical sensitivities
viii. excessive sugar intake

Perkins (2008) explain each of the above points further for clarity, apart from unpreparedness an fear of negative test result, test anxiety can emanate as a result of physiological factors that trigger manifestation of the anxiety, such factors include:

**i) Food Allergies:** Food allergies or food sensitivity or food intolerance is very rampant but often unacknowledged or undetected. There is very little awareness in our society about these phenomena, but it has serious impact on both physical and mental health. It can be associated with poor digestion, weak immune system, heredity, repeated exposure to some food, nutritional deficiency etc. This may cause an individual's anxiety.

**ii) Hormone Imbalance:** Is a very common condition in our society in both men and women. It mostly occurs in women at thirties (30s) and men at forties (40s). Hormones have profound impact on our brain and body. Unstable menstrual period in women and their preparation for menopause may be causes of anxiety. Even in men, such changes expected in preparation for the stage of andropause may cause individuals to be anxious.

**iii) Depleted Neurotransmitters:** They are essentially the communication system of the body, mind and the nervous system. Neurotransmitters literally govern every system of the body either directly or indirectly. When they are depleted in an individual, body activities may be disrupted which may cause anxiety.

**iv) Nutritional Imbalance:** Many disorders that are mistaken for mental disorder in individuals are actually caused by some things in their diet or some things lacking in their diet. Many cases of depression, addiction, hyperactivity, learning disorders, anxiety, alcoholism, schizophrenia and even behavior problems such as crime and violence respond positively with changes in diets and nutritional supplementation.

**v) Low Blood Sugar:** When the glucose level in the blood becomes very low, the brain cannot function very well. Glucose is the main source of energy that the body needs to function. When

blood sugar becomes low anxiety and many other disorders may come up. Low blood sugar causes strokes, brain damages and many other irreversible damages in the body.

**vi) Mold Allergies:** Molds are invisible microscopic organisms. They exist everywhere in our en environment, including the air we breathe. Molds produce toxins that can damage our health as any damaging chemical can do. They are also found to be a major cause of anxiety.

**vii) Chemical Sensitivity:** Exposure to multiple chemicals is also a major cause of anxiety disorder. Growing number of people are beginning to develop serious health problems because of their continuous contacts with chemicals.

**viii) Excess Sugar Intake:** Sugar has much destructive effects on human mind and body, including damaging, altering and disrupting proper function of the nervous system, endocrine system, metabolic system, cardiovascular system as well as functions of organs like liver, kidney, colon and pancreas. It is also known to have directly or indirectly caused serious anxiety problems.

**2. Psychological Causes**

**i) Excessive Motivation to Succeed:** When students are highly motivated to succeed in an academic test, the thought of failure also comes into their minds. This negative thought may affect their preparation for the test thereby becoming very anxious (Liz, Dave, Keven & Laura, 2009).

**ii) Perfectionism:** Some students tend to be perfectionists and over-achievers, who will be dissatisfied with anything less than a perfect score. Regardless of their intellectual abilities and study or testing skills, nothing human is perfect which means they could still answer questions wrongly. To these students, the few questions that they could not answer could make them

anxious, so much that it will seriously affect the outcome of the test (Encyclopedia of Applied Psychology, 2004).

**iii) Fear of Parental Punishment:** With the aim of motivating students to perform well in their tests, some parents promise their children gifts if they pass their tests, while at the same time threatening them with punishment should they fail the tests. Consequently the children become over anxious because of the negative consequences the test may bring to them if they fail. The thought of the punishment may not even end with the parents. Even the society may see them as incapable if they fail the test Bint & Abdul Raof, (2011) cited in Muhammad (2014)

**3. Environmental Causes**

i) The Environment in which one studies is also important for effective study skills. This helps in reducing test anxiety. University of Buffalo (2011) outlined the following as the requirements for a good environment for effective study:

a. Less noise;
b. Less interruption;
c. Adequate lighting;
d. Normal room temperature;
e. Neatness in the environment;
f. Comfortable seats;
g. Necessary equipment available.

ii) **Unfavourable Test Environment:** Even when the students prepare well for the test and get to the venue well on time, they sometimes have to scout for the seats to use, after going round to

trace the class or avenue. This is especially relevant to high-stakes examinations taken nationwide but with particular reference to continuous assessment test where some students have to rush and secure independent seat. The unfavorable weather conditions, the intimidating invigilators, the commotions sometimes caused by unprepared students, inadequate testing materials, all combined together to create tension in the students who found themselves in an overcrowded classroom where the test is taken.

**4. Personal Causes**

**i) Ability Level:** The intellectual ability levels of students have been known to account for their test anxiety. If students have confident in their abilities, especially with excellent previous performances in similar situations, they are less likely to be anxious about any forthcoming test. However, if they had failed woefully in a similar test, the negative consequences of the failure remain fresh in their minds which heighten their anxiety (Encyclopedia of Applied Psychology 2004, in Falaye, 2010).

**ii) Poor Study Skills:** This is another serious factor that leads to test anxiety. There are instances when students would spend a great deal of their time reading, but because of poor study skills, the scheduled time would come when they are not fully prepared for the test (Rizwan and Nasir, 2010). A number of research evidences have shown that efforts on reducing test anxiety are usually ineffective unless poor studying habits are remedied ( Zeidner 2004).

**iii) Poor Test Taking Skills:** It is not enough to have effective study skills to avoid test anxiety, although it may reduce the pretest anxiety. Inability to use effective test taking skills, when a test anxiety symptom occurs in the "classroom" may equally result to debilitating conditions that may

hinder the student from effectively reading and understanding the questions. The obvious outcome of the test will be that it may not be a true test of the students' abilities (Falaye, 2010).

**iv) Poor Time Management:** Some students find it difficult to manage their time, where for example they find it difficult to decide whether to complete an assignment or get ready for a scheduled test. (Bint & Abdul Raof, 2011) cited in Muhammad (2014)

**5. Logistical Causes**

**i) Increasing Complexity of Teaching and Learning Processes:** With developments in the educational sector, the course contents have become very complex so also the systems adopted for evaluating the teaching and learning situations. This complexity further makes the students very anxious by worrying too much about the possible negative outcome of the test. These anxious feelings become so high that they affect the adequate preparedness of the students.

**ii) Lack of Implementation of Other Alternatives:** There are many ways of testing students understanding of the instructional materials. It has however been established that most practical means of evaluating educational instructions is through testing. If other available and acceptable means of evaluation such as continuous assessment, project assessments and assignments were adequately used, the anxiety in class test would probably not have reached the level experienced by test anxious students.

**iii) Evaluative versus Competitive Functions of Tests:** In almost every practicable educational system, the competitive functions of test seem to be given special consideration at the expense of the evaluative functions. Ideally, a test is to evaluate whether or not students have been able to comprehend the instructions that have been passed to them, and to decide on those who need

some remedial ate ntion to be able to catch-up. In practice however, right from pre-primary school stage to senior secondary school level, positions are announced, using the outcome of the test. All these seriously create avoidable tensions in students as they become very anxious and agitated. They become unsure whether they would do well or not and ponder more on the consequences of performing poorly.

### 2.2.3 Ten Ways to Untwist Thinking

Burns (1998) opined the following ten ways to untwist one's irrational thinking on cognitive dimensional symptoms.

1. **Identify the Distortion:** Write down your negative thoughts so you can see which of the ten cognitive distortions you are involved in. This will make it easier to think about the problem in a more positive and realistic way.

2. **Examine the Evidence:** Instead of assuming that your negative thought is true, examine the actual evidence for it. For example, if you feel that you never do anything right, you could list several things you have done successfully.

3. **The Double-Standard Method:** Instead of putting yourself down in a harsh, condemning way, talk to yourself in the same compassionate way you would talk to a friend with a similar problem.

4. **The Experimental Technique:** Do an experiment to test the validity of your negative thought. For example, if during an episode of panic, you become terrified that you're about to die of a heart attack, you could jog or run up and down several flights of stairs. This will prove that your heart is healthy and strong.

5. **Thinking in Shades of Grey:** Although this method may sound drab, the effects can be illuminating. Instead of thinking about your problems in all-or-nothing extremes, evaluate things on a scale of 0 to 100. When things don't work out as well as you hoped, think about the experience as a partial success rather than a complete failure. See what you can learn from the situation.

6. **The Survey Method:** Ask people questions to find out if your thoughts and attitudes are realistic. For example, if you feel that public speaking anxiety is abnormal and shameful, ask several friends if they ever felt nervous before they gave a talk.

7. **Define Terms:** When you label yourself 'inferior' or 'a fool' or 'a loser,' ask, "What is the definition of 'a fool'?" You will feel better when you realize that there is no such thing as 'a fool' or 'a loser.'

8. **The Semantic Method:** Simply substitute language that is less colourful and emotionally loaded. This method is helpful for 'should statements.' Instead of telling yourself, "I shouldn't have made that mistake," you can say, "It would be better if I hadn't made that mistake."

9. **Re-attribution:** Instead of automatically assuming that you are "bad" and blaming yourself entirely for a problem, think about the many factors that may have contributed to it. Focus on solving the problem instead of using up all your energy blaming yourself and feeling guilty.

10. **Cost-Benefit Analysis:** List the advantages and disadvantages of a feeling (like getting angry when your plane is late), a negative thought (like "No matter how hard I try, I always screw up"), or a behaviour pattern (like overeating and lying around in bed when

you're depressed). You can also use the cost benefit analysis to modify a self-defeating belief such as, "I must always try to be perfect."

### 2.2.4 How to Overcome Test Anxiety

According to Ohata (2005), the following are the ways to overcome test-anxiety in three (3) main situations: Before, during and after Test.

**1. Before the Test:** The following are some of the ways to combat test anxiety before test.

i. **Adequate Preparation:** Preparation is a key element for reducing anxiety. The higher your level of preparation, the lower your level of anxiety. Moreover, getting ready for your test, increases your self-confidence (Zeidner, 1998 cited in Muhammad, 2014)

ii. **No Cramming:** Avoid cramming for a test. This is an ineffective way of studying. If you cram the night before you might be able to pass some parts of your test, but you will remember nothing afterwards. The realistic way is to read at convenient time free of pressure. Understand the material or fact learnt and engage in regular practice before the test. Trying to learn weeks-worth of material the day before the test does not work either. Usually this is not a good time to learn much because you feel anxious. You feel pressured, and probably guilty, for studying at the last minute, therefore you cannot concentrate very well.

It is not realistic to believe or tell someone that when you study ahead of time you do worse than when you study the day before. Years of research on how to study are against you! If this happens to you it is because you are either, studying in advance without learning or you have developed the negative habit of learning under pressure. Both are ineffective ways of learning and both can easily create anxiety.

iii. **Review all the Information:** Study from your book, notebook, and any other materials used in class. Combine their information. Work on mastering the main, as well as specific concepts presented in your class.

iv. **Ask Yourself Questions:** When studying, transform the headings into questions, and .answer them using the different sources of information used in class. Ask yourself what kind of questions your instructor may ask you. Try to answer them too. Moreover, ask your instructor for samples of previous tests, and practice with them or ask some able senior mate for guidance and consult your school librarian of past test papers in your area.

v. **Use Flash Cards:** Yes, you can use this type of help to organize your study. This kind of help will allow you to allocate your time in an effective way. You will be able to determine what you already know, and spend more time reviewing those materials that need more studying.

vi. **Change the Way You Think about Studying to positive Thinking and Mindfulness:** Changing the way you think about studying can improve your performance. Studying and grades are not a measure of your self- worth. You may be investing too much of your personal definition on studying and grades. This kind of thinking can lead you to see studying as an insurmountable task. These kinds of beliefs are very effective in creating anxiety and stress. And these reactions can reduce, in turn, your capacity to concentrate, and learn. Confirming that studying is an impossible task for you (Does the concept "vicious circle" ring a bell?). A test is only a test. Keep in mind that there will be others. This will help you remove part of the emotional charge we put on our tests, reducing your stress, and allowing you to study better.

vii. **Eliminate Negative Self-talk:** Avoid thinking of yourself in a negative way. Avoid getting entangled in negative aspects related with studying. Focus on what needs to be done and do it. You will be surprised how much time students spend doing everything else not studying. And negative thoughts are an example of "everything else."

viii. **Invest Time in Planning:** Plan ways to improve your study. Evaluate your plan accordingly with your performance. Plan ways to keep what you did right; and plan ways to improve what can be improved.

ix. **Put Your Grade in Perspective:** Your grade is not necessarily a reflection of your preparation. Most of my students believe that the success of a test anxiety reduction program should be measured by the grades obtained. The reality is that your grades will not improve immediately. It will take time and more than one test to see that kind of results. Therefore, your performance should be evaluated against what you did. If you had a good plan, and you stick to it that is what really counts; even if the grade was not as high as you would have liked it to be. You might have improved significantly, but the test may have been more difficult than expected. The reverse is also possible; you may have failed your plan and still gets a good grade, (for instance, the test included those questions you knew all about.) Again, you should use more than your actual grade to evaluate your performance.

x. **Develop Reasonable Expectations:** Take your tests one at a time. Set realistic goals. Show as much as you know as you can. Hope for a result that matches the stage of development you have reached at this point. Unrealistic expectations will only lead to frustration, which, in turn, will become a good excuse to give up.

xi. **Keep in Mind that you are more than a Test Taker:** Students concerned about tests usually neglect other aspects of themselves. Do not forget that taking a test is only one of the important things in your life. You should also care for your biological, emotional, psychological, and social needs.

xii. **Study According to your Ability:** Study for short periods of time. Follow a moderate pace. Do not forget that your mind can not take more than your ability. Take a break.

xiii. **Rest the Night before the Test:** Distract your mind with activities other than studying. Rest. Get plenty of sleep. A refreshed mind will allow you to do your best. An overly tired mind will not function at its best. (This is the reason why studying overnight usually does not pay off).

xiv. **Do Not Abuse Yourself:** Once you feel you know what you need to know, quit studying, and do something relaxing. The only reason why you keep studying way after you are reasonably prepared is your lack of confidence. Be patient. Learning when to stop takes time. Accomplishing it boosts your sense of self-confidence and self-esteem.

xv. **Face the Day of the Test with Pride:** Take responsibility for your actions. If you studied enough, be proud of yourself. What really matters at this point is not the potential grade, but the fact that you did what you were supposed to do. This is an accomplishment in itself.

xvi. **Eat a Sensible Breakfast:** Do not abuse food before the test. Some students use food as a way to reduce anxiety. Indulging in food on the day of the test may backfire on you, impairing your performance by making you feel physically uncomfortable (or sick) during the test.

xvii. **Relax during the Hour before the Test:** Do something relaxing the hour before the test. It is too late to try to learn what you did not learn before. Last minute cramming will cloud what you have learned before. It will also undermine your confidence.

xviii. **Arrive at the Classroom Early, But Do Not Stay There:** Arrive at the classroom early if you want to select a good seat (a seat away from distractions.) Then, go out of the room and use the remaining time to walk and relax.

xix. **Avoid "Stress-Carriers:"** Politely avoid classmates who produce anxiety and affect your disposition to the test. Do not let them scare, stress, or upset you.

xx. **Bring a "Stress-Saver" with you:** Bring a magazine or newspaper to read if waiting for the test stresses you.

xxi. **Use Physical Relaxation:** Learn and use tensing and relaxing techniques to fight off the tension and anxiety

xxii. **Check Your Internal State:** How are you? How is your anxiety level? If it is high or moderately high, take some time to relax. Even though it takes time away from your test, relaxing increases your chances to do a more efficient job, saving you time instead.

xxiii. **Coach Yourself:** Sometimes students get anxious after finding out that do not know the answer to the first or second question. Tell yourself that you are going to do your best. Tell yourself that you are going to answer the questions you know first, then the questions you are not really sure about, and, finally, the questions you do not know. Follow your plan.

xxiv. **Review Your Test:** Before you begin answering the questions, review the entire test. Read the instructions carefully; twice if necessary. Stick to your plan; begin working on the easiest questions first.

2. **During the Test:** The following are some of the ways to overcome test anxiety according to Blerkcomp and Jana Cirile (2009) cited in Muhammad (2014).

   i. **Outline Answers on Essay Questions:** Develop a short outline of your answers for essay questions. This will help you to organize your answer, avoid irritating repetitions, and skip circular arguments.

   ii. **Give Short Answers for Short-Answer Questions:** Answer short and to the point. Use specific terms and ideas. If you cannot remember a technical term, describe it in your own words.

   iii. **Read Options Carefully:** Read all the options of multiple choice questions. Eliminate the most obvious. Use qualifying words such as "always," or "only," to eliminate others. If unsure, rely on your first hunch, then mark the question with an asterisk or a star and move on. If you have time at the end, go back and review your marked questions.

   iv. **Wear Your Watch:** Do not rush through the test. Keep track of the time. Pace yourself. If you are running out of time, concentrate on those questions which you can answer. Make sure you match the number of the question with the number of your answer on the Scranton.

   v. **Do Not Get Stuck:** Do not get stuck on one question. Skip it and solve the next one. Go back to the question after you finish answering those you can. Remember that you do not get points for trying.

   vi. **Relax your Tension:** If your tension is hampering your capacity to do your best, tense and relax your body as needed during the test. This exercise releases one tension. Breathing deeply, in and out, also helps to release anxiety.

vii. **Ask Questions:** Ask for more information if you are not sure about a question in your test. Asking your instructor a question can also help to distract you and reduce your anxiety.

viii. **Talk to Yourself:** If your anxiety continues, tell yourself phrases like "I can be anxious later, now I am going to continue my test." Use any type of internal dialogue (nobody else need to hear you) that can help you do better in your test.

ix. **If Worse Comes to Worse, Use any other Legal Trick to Distract Yourself:** If anxiety continues, use any acceptable way.

Distract yourself from the area; to distract yourself from it. Request permission to go to the bathroom or get a drink. If nothing else works, go sharpen your pencil!

3. **After the Test:** The following are some measures to be followed for reduction of test anxiety after the test as opined by Ohata, (2005)

i. **Reward Yourself:** Whether you did well or not, reward yourself for taking, and surviving your test. You deserve it.

ii. **Later on:** Evaluate your study plan. Were you prepared for it? Were you able to control your anxiety and relax Find out what you did right and repeat it the next time? Find out what needs more work. Do not dwell on your mistakes. You are supposed to make some. Use them as a guide for what needs to be improved, and work on improving them.

iii. **Then:** Develop an improved plan and begin studying for your next test!

### 2.2.5 Dimensions (Types) of Test Anxiety

Test anxiety might be a feeling of failing a test that prevents the students from reaching an acceptable standard, expectation or the criteria set by the teacher. Some students believe about their incompetency inform of self-knowledge which play an important roles in analyzing situation that could be threatening when students have feeling of low competency about their ability they are likely to anticipate negative outcome such as failure, under uncertain condition and an irrational cognitive thinking. Thus, evaluating situation including tests is perceived as most threatening by students who have low competency. Student who experience high level of stress across a wide range of situations experience more anxiety level that than those who experience lower level of anxiety. Those students with anxiety have a state anxiety that is in high level of nervousness specific to testing.

Therefore, the dimensional symptoms are related to preparedness to test, level of test skill, acquisition and utilization as well as nature of test environment. This shows that symptom of test anxiety can range from moderate to severe. Students who exhibit moderate symptoms are still able to perform relatively well on test; other students with severe anxiety will often experience dimensional symptoms of test anxiety. Common physical symptoms according to Muhammad (2014) include the following as the common symptoms of test anxiety in physical, psychological and cognitive types of TA.

1. **Physical Symptoms:**

a. Perspiration, sweaty palms, feeling too hot or too cold

b. Headaches, upset stomach, nausea

c. Rapid heartbeat shallow/ irregular breathing, dizziness

d. Muscle tightness

e. Blurred vision

f. Dry mouth

g. Cramps
h. Queasiness
i. Physical fatigue
j. Pins and Needles
k. Frequent use of toilet
l. Hands/Body/Legs shaking
m. Faintness/Fainting

During state of test anxiety, the body release adrenaline. Adrenaline is known to cause physical symptoms that accompany test anxiety such as increase heart beat rate, sweating and rapid breathing. In many cases, having adrenaline is a good thing; it is helpful when dealing with stressful situation ensuring alertness and preparation. But for some students, the symptoms are difficult to handle making it impossible to focus on test. In this type of situation it aggravates physical symptoms of test anxiety.

**2. Psychological Symptoms:**

Psychological dimension involve feeling of anger, hopelessness and worry. According to Muhammad (2014), these include the following:

a. Feeling fearful
b. Guilty
c. Angry
d. Depressed or uncertain
e. Bewilderment
f. Goingmad

g. Loss of confidence

h. Sorrow

i. Frustration and unfavourable comparison of oneself to others

**3. Cognitive Symptoms:**

In addition he said, Cognitive symptoms occur due to poor concentration, confusion and poor organization. The inability to concentrate leads to impaired performance on test. Students often experience cognitive type of anxiety due to irrational thinking, fidgeting during or outreach avoidance of the test. The following are the common cognitive symptoms of test anxiety.

a. Negative or self-defeating talk

b. Excessive worry

c. Difficulty in concentrating

d. Difficulty in identifying key ideas

e. Difficulty in organizing and expressing thoughts

f. Going blank on test questions

g. Disintegration

h. Depersonalization

i. Short term memory loss

j. Perfectionism

k. Little or no motivation

l. Fear of the unknown

The above classification showed that, when a student manifested one or more symptoms from specific dimensional symptoms, it indicates the type of test anxiety challenge he or she

experienced. An observer could detect physical symptom of the anxiety from a test anxious student who experienced sweaty palms during the test. Student who experienced feeling of anger, uncertainty and worry during preparation for test or after it could be suffering from psychological symptoms while those who experienced difficulty in concentrating, identifying key ideas or going blank on test questions could be considered as having cognitive symptoms of test anxiety

**4 General Symptoms;** This includes some symptoms from the specific dimensional symptoms in which a test anxious student manifested multi symptoms of test anxiety. This study focuses on both specific and general symptoms of test anxiety and the possibility of its reduction among the students through the use of effective techniques.

### 2.2.6 Treatments of Test Anxiety

Multiple test anxiety interventions have exhibited promising results; however, the bulk of the research has been conducted with college students and adults (Ergene, 2003 & Gregor, 2005). In a meta-analysis of fifty-six studies, a comparison of treatment versus no treatment revealed that participants who complete test anxiety interventions appear to be better off than about 74% of those who remain untreated (Ergene, 2003). This rate of improvement should encourage the provision of treatment for younger ages because interventions for elementary pupils could prevent test anxiety or lessen the need for more intensive resources at a later age.

Most of the early intervention research relied heavily on behavioral techniques, and they continue to be used frequently in test anxiety treatment. The primary goal of behavioral intervention is to manage physiological arousal and develop coping behaviors, rather than decrease worries and irrational thoughts (Zeidner, 1998). Studies show that systematic desensitization and relaxation

training are the most common behavioral interventions, and both have effectively decreased test anxiety (Eugene 2003, Meichenbaum 1972, Wigfield & Eccles 1989).

A more recent study by Larson, El Ramahi, Conn, Estes, and Ghibellini (2010) found that diaphragmatic breathing and progressive muscle relaxation training produced reductions in test anxiety for third graders. Other behavioral interventions such as anxiety induction, anxiety management training, and modeling have successfully reduced test anxiety (Sarason, 1975; Zeidner, 1998). However, the latter appear to have little effect at improving performance. This study proposed Client Centered Counselling Techniques to resolve the challenge.

### 2.2.7 Cognitive RestructuringTechnique

Cognitive Restructuring (CR) is conceptualized as a psychotherapeutic process of learning to identify and dispute irrational or maladaptive thoughts known as cognitive distortion, such as splitting, magical thinking, filtering over-generalization, magnification and emotional reasoning, which are commonly associated with many mental health disorders (Gladding, 2009). Cognitive restructuring counselling technique is one of the most successful techniques suitable for dealing with anxiety, stress, depression social phobia, irrational thinking, eating disorder and anger management. If cognition is an important cause of abnormal behaviour, it follows that such behaviour can be treated by changing cognition. Cognitive restructuring counselling technique (CRT) is useful for helping a client to learn the truth and therefore act differently and thus gives him or her self-treatment whenever he or she has faulty cognition.

Cuncic (2014) defined CR as a cognitive-behavioural technique used to identify and correct negative thinking patterns. The technique involves altering negative automatic thought that occur in anxiety-provoking patterns situations. As thoughts are challenged and disputed, their ability to

elicit anxiety is weakened. According to Ford-Martin (2014), cognitive restructuring is a psychosocial therapy that assumes that faulty cognitive, or thought pattern cause maladaptive behaviour and emotional responses. The treatment focuses on changing thoughts in order to adjust psychological and personality problems. According to Carter (1998), cognitive learning theory assumed that individuals were not passive observers in their environment, rather they were active, goal oriented and capable of taking responsibility for their decisions, actions and consequently excise control over their behaviours.

Cognitive restructuring was formed on the basis that thinking influences behaviour, (Blum, 2002). It is assumed that event that happened to a person does not cause stress, anxiety, depression or other disorder, but the way the individual thinks or feels about the event especially, if the individual thinks negatively about the event. Thus, cognitive restructuring is an attempt to help the client to cognitive analysis, or appraisal of his thinking. It is also called a cognitive reframing because therapist helps in teaching the clients to become more conscious of the fact that they are unconsciously appraising and judging all the various stimulus events that come their way, and then teach them to consciously take charge of that appraisal process so as to make sure that their conclusions are accurate and free of biases and mistakes.

Cognitive restructuring involves learning how to think differently to change fundamental "faulty thinking" and replace it with more rational, realistic, and perhaps positive thinking. Sometimes stress can lead a student to elicit a chain reaction of thoughts that starts with a small, simple problem and leads to a full-blown anxiety and panic over unrealistic fears. The irrational thoughts if left unchecked can cause or lead to undue anxiety or stress. Cognitive restructuring (CR) can help the client in identifying irrational thought or "faulty thinking" and can also help in disputing irrational or maladaptive thoughts.

### 2.2.8 Forms of Cognitive Distortions

In a natural contest, it is believed that everything we think is an automatic thought. A problem arises only when our automatic thoughts manifest as cognitive distortions. Cognitive distortion according to Hope, Burn, Hyes, Herbert and Warner (2010, p. 1) are characterized in six categories. They can be (1) self-evaluated thoughts (2) thoughts about the evaluation of others, (3) evaluative thoughts about the other person with whom we interact (4) thoughts about coping strategies and behavioral plans (5) thoughts of avoidance, and (6) any other group of thoughts.

Brittany and Thompson (2009) have identified various manifestations of cognitive distortion among people. This includes all-or-nothing thinking, overgeneralization, and mental filter, disqualifying the positive, jumping to conclusion, emotional reasoning, personalization, magical thinking and magnification.

**(1)** **All-or-nothing thinking:** This happens when a person thinks in extremes, with no gray areas or muddle round (Comer, 1996). Such a person use words like always and never when describing things. This type of thinking can increase stress in one‘s life and may make problems seem bigger than they are in reality.

**(2)** **Overgeneralization:** Those prone to this tend to take isolated events and assume that all future events will be the same. For example, a student who over generalizes may disrespect any teacher believing that all teachers will always pardon disobedience.

**(3)** **Disqualifying the Positive:** Those who disqualify the positive tend to treat positive events like flinches, thereby clinging to a more negative world view and set of low expectations for the future (Scott, 2014). When you try to help such a person solve a problem, he or she is always on the negative side.

(4) **Jumping to Conclusions:** A lot of people especially students are into this type of cognitive distortion. Rather than letting the evidence bring them to a logical conclusion, they set their sights on a conclusion (often negative), and then look for evidence to back it up, ignoring evidence to the contrary (Scott, 2014). For example, a student who decides that everyone in his new class will hate him, and knows that they are only acting nice to him in order to avoid punishment, is jumping to conclusion. Conclusion-jumpers can often fall prey to mind reading (where they behave that they know the true intentions of others without talking to them or verifying such claim) and start predicting how things will turn out in the future and behaving these predictions to be time.

(5) **Magical Thinking:** This is the attribution of causal relationship between actions and events to superstitious beliefs. Magical thinking can cause a person to experience fear of performing certain acts or having certain thoughts because of an assumed correlation between doing so and threatening calamities (Coleman, 2012).

(6) **Emotional Reasoning:** It is a cognitive process that occurs when a person believes that what he or she is feeling is true regardless of a presented evidence. Emotional reasoning can amplify the effects of other cognitive distortions. For example, a student may feel insecure about her understanding of a test material even though she is perfectly capable of answering the questions. If she acts on her insecurity about failing the written test, she might assure that she misunderstands the material and guess at the answers randomly.

### 2.2.9 Cognitive Restructuring Working Template

The cognitive restructuring template is meant to be used as a guideline to learning the process of CR with students. CR was chosen for this template because it provides a basic framework for most behavioural models. The template provides the beginning researcher with steps to take and

questions to ask that promote collaboration between the researcher and client. There are suggested questions under each heading to help start the process. After using the initial questions, guide the client through each process, asking questions that occur to you.

Although there is no one script for any counselling session, it is the hope of the researcher that this template will serve as an impetus to learning.

The following are effective strategies for test anxiety reduction

**Tools for Change**

Cognitive restructuring researchers shift the focus from the client (or student) with the problematic behavior to the system (such as fellow students, teachers, family and other significant persons) to help engage in shared responsibility. Cognitive restructuring researchers use the following specific techniques:

**Cognitive Rehearsal:** The client recalls a problem from the past, and the researcher and the client work together to develop strategies to the problem so that if it occurs in future, the client has a plan.

**Validity Testing:** The researcher tests the validity of the client‘s beliefs or thoughts, giving the client time to defend his or her viewpoint. If the client cannot defend the beliefs or thoughts they are said to be invalid.

**Writing in a Journal:** The client may be asked to journal thoughts and situations that occur daily. The researcher and the client then review the journal to figure out any maladaptive thought patterns that could affect the client‘s behavior.

**Guided Discovery:** The researcher guides the client through a scenario; enabling the client to understand any cognitive distortions.

**Modeling:** This involves role–playing exercises by the researcher so that the client may learn new ways of responding to certain situation.

**Homework:** The researcher commonly gives assignments to clients to help them learn new ways of dealing with current dilemmas.

**Cognitive Restructuring Counselling Intervention; Phases**

**Phase 1: Joining and Building Rapport**

Cognitive restructuring researchers should be genuine, empathic, and active listeners and convey understanding by asking clarifying questions and validating all the group members. Assignment begins in the first session and is an ongoing process throughout therapy. To prepare clients for the assessment, Cormier and Cormier (1998) recommended communicating the purpose, such as the following:

Today I would like to focus on the concerns that have been bothering you the most. In order for me to find out exactly what you are concerned about, I will be asking for some specific information. This information will help us identify exactly what you would like to work on in our sessions. How does this sound to you?

After the clients agree, some of the following questions can be used as a guide:

a. How did you make the decision to come to counselling?
b. What are your present concerns in your life?
c. What situations are not going on well as you would like?

**Phase 2: Understanding the Presenting Issue**

The following questions could be asked to identify the present issues:

Which of the problems that you have described are you most concerned with today?

a. What feelings are you experiencing when you think of these situations?
b. What do these situations prevent you from doing?
c. What thoughts make you feel worse?
d. How would you feel if you did not have these thoughts?
e. Where is the proof that what you are telling yourself is true?

**Phase 3: Assessment of (students) Group Dynamics**

Researchers identify students' schemata through identifying automatic thoughts and maladaptive assumptions. Researchers may use a problem analysis, functional analysis and a behavior analysis.

When you have these thoughts and experience those feelings as a result of the concerns, how do you respond to others?

"How do others respond to you when this happen?"

To the students: "What do each of you think when your (class mate) has these experiences? How do these thoughts affect your interactions"? "What do you each think about when these experiences happen to one of your class mates when he or she works so hard to help"?

**Phase 4: Goals**

In CRT, the clients decide the counselling goals. The researcher helps the clients to change problematic thinking so that feelings and behavior will change. Here are some comments or questions that a researcher might use during this phase:

"What would you each like to be that you are doing at the same time in your life"?

“Who in your class do you think would be most relieved when (a class mate) is no longer having these problems”?

“If you (or identified person) did not have these problems; how would your relationships be different in your class”?

“What would you like to change in your relationship with your class mates so that the problem is less of a burden”?

“What do you need, want, and expect of each other”?

**Phase 5: Amplifying Change**

The researcher continues to assess and evaluate the students’ progress throughout treatment. Homework is given to amplify new behavior that are defined and discussed in session. The researcher continuously recognizes change when clients first report improvements in functioning. The researcher notes changes in activities and inquires about the thoughts and belies that contribute to the clients’ mood and behaviors.

“I am noticing that you are each getting along better today in our session. Can each of you tell me what you are thinking about and feeling to help this happen?”

“It seems that you have each had a better week. Can you each tell me how your thoughts contributed to what you did that help things to be better?”

“In your opinion, what have other people in your school or family been doing recently that has helped your behaviour to change?”

**Phase 6: Termination**

Clients terminate when they achieve their therapeutic goals. Most researchers allow clients to schedule the follow up sessions to aid in maintaining progress.

The above discussion on conceptual and theoretical literature, enable the current researcher to use appropriate instrument, treatment packages and appropriate statistics for data analysis.

### 2.2.10 Self-management

Self-management technique is a technique that has emerged as an effective approach for improving classroom behavior (Barry and Messer, 2003). Self-management strategies can be separated into measures based on the principles of contingency management or cognitive control strategies (Lewis, 2012). Treatments based on the principles of contingency management highlight the correlation between behavioral responses and their consequences. Strategies, such as self-monitoring, self-reward and self-recording are examples of contingency-based self-management procedures (Stober & Pekrun, 2004). In the other hand, cognitive-based self-management strategies emphasize the origin of the response. The cognitive-based self-management makes it necessary that test anxious students should examine the thought process that comes before a response.

The rationale for these treatments is the belief that behavioral self-control can be increased by enhancing specific, cognitive, or meta-cognitive skills that are believed to underlie and promote impulse control (Waschbush & Hill, 2001). The modification of the thought process is the goal of this treatment. Self-management techniques for the purpose of this study are an individual's personal application of behavioral change tactics in order to produce the desired change in behavior.

A self-management program is a set of regular activities to help students with high test anxiety challenge to actively participate in reducing the dimensional symptoms affecting their performance and belief before, during and after test with the use of self-monitoring techniques. Thereby making appropriate decisions to manage the reduction process. It has been shown that self-management programs were successful in several stressful conditions, also helped students in pain management and reducing the TA symptoms. Recent researches have shown that there is no "gold standard," universally accepted definition of self-management. Rather, several terms are used, sometimes interchangeably, depending on the context and focus of the discussion.

### 2.2.11 Components or Forms of Self-management Technique;

The most common forms of self-management interventions include self-monitoring, self-evaluation, and self-management treatment packages.

1. **Self-monitoring:** This is an intervention in which a student observes and records his or her own behavior, self-monitoring is the most frequent type of self-management intervention in school-based literature (McDougall, 1998). Self-monitoring is exemplified by a study conducted by Broden, Hall, and Mitts (1971), in which an eighth-grade girl was taught to monitor her study behavior and an eighth-grade boy monitored his talk-outs; both students kept track on paper forms. The girl's study behavior increased when she monitored her own behavior, and the boy's talk-outs decreased when he recorded instances of talk-outs. Even though some conditions in Broden et al. provided praise and attention to the on-task behavior, self-monitoring alone produced large gains in on-task behavior and large reductions in talk-outs. This self management strategy could be applied to TA challenge in which a client can monitor the causes and effects a specific dimensional symptom, use self monitoring strategy

to study and record the reduction rate sustain the unique effective measures and discard the non effective ones.

2. **Self-evaluation:** Is an intervention in which the cliet compares his or her performance to a criterion set by someone else. This technique is exemplified by Rhode, Morgan, and Young (1983) who taught this self-evaluation method in two phases. In the first phase, teachers were taught to evaluate and monitor student behavior on a 5-point scale in 15-min intervals. Then, students were taught to evaluate and monitor their own behavior and match their teachers' ratings. Lastly, matching was discontinued for students who met a pre-selected level of behavior. In the second phase, the intervention was implemented in a general education setting where students were taught self-management, provided with feedback on their classroom behavior, and given rewards (i.e., point exchange) until gradually, the feedback and rewards were removed.
3. **Self-management**: Self-monitoring and self-evaluation are frequently combined, or "packaged," with rewards, feedback, and goal setting. According to a review by McDougall (1998), approximately half of all self-management interventions included external rewards. For example, in both Broden, (1971) and Rhode et al. (1983), the participants monitored and evaluated their behavior, self-management behaviors were rewarded, and the clients were provided feedback on their performance. Therefore, it is clear that self-management interventions are frequently packaged and contain more components than monitoring or evaluation alone.

Several studies have addressed combining rewards or feedback in some form of self-management intervention. Broden, (1971) found a small improvement in study behavior when praise was added to self-recording (80% increased to 88% on average). In addition they found that when

self-recording was removed, study behavior reduced to 77%. Lalli and Shapiro (1990) found that external rewards may not produce substantial effects. In their study, self-monitoring alone was compared to self-monitoring combined with contingent reward for the number of sessions it took for the children to reach mastery on a list of sight words. During self-monitoring alone, it required 8.25 sessions on average to reach criterion. During the self-monitoring combined with contingent reward, the students reached criterion within 6.75 sessions. However, in a second group, it took three out of four students more sessions to master sight words with contingent reward than with self-monitoring alone.

### 2.2.12 Proficiency Levels of Self-Management

Factors to be considered to ensure effective self-management techniques

**Level One:**

a. Set up own time manage strategy if there are no too many interruptions.
b. Accepts feedback on own performance.
c. Adopt endurance measures when experiencing obstacles.
d. Observe the organization's code of conduct and expected workplace behavior.
e. Be punctual and reliable.
f. Treat issues one at a time and as they arise.

**Level Two:**

a. Manages time efficiently and effectively.
b. Gives and seeks feedback on own performance.
c. Perseveres in the face of performance obstacles for the achievement of work objectives.
d. Consistently chooses an ethical course of action for workplace behavior.
e. Is reliable and punctual.

f. Consistently demonstrates a preference for openness, honesty and integrity.

g. Is well prepared and organized for meetings, team contributions and work assignments.

h. Forms relations with seniors, staff and peers that produce trust and approachability.

**Level Three:**

a. Time management and personal organization is a natural component of everyday conduct.

b. Actively seeks feedback on own performance and voluntarily improves own performance.

c. Generally overcomes performance obstacles and is successful in the workplace.

d. Prefers openness, honesty and integrity.

e. Thinks about things in advance and is well prepared and organized for events and tasks as they arise.

f. Is proactive, able to prioritize tasks and activities.

g. Manages other's time and advises and coaches others on effective self-management strategies.

## 2.3 Theoretical Framework

Many theories in counseling and psychotherapy professions have attempted to explain the concept and mechanisms of test anxiety. Attentional theory, attentional control theory and cognitive-attentional interference theory are hereby briefly discussed. Specific efforts were also made in conceptualizing theories on test anxiety. However, this does not suggest that the solutions to the disorder are found in the theories alone.

**2.3.1 Attentional Theory;** Cassady and John (2002)

There are two main groups of attentional theories that attempt to explain compromised performance in test situations.

**(1) Explicit Monitoring Theories**

They state that when a person is expected to perform a specific skill, the pressure may cause an increased self-consciousness and inward focus, which can disrupt their ability to successfully perform that task. Thinking about step-by-step procedures can inhibit one's ability to execute a task. Students who are put into the high-pressure condition of test taking had increased errors, and an increased ability to recall details demand by a test question. This indicates that the pressured students were monitoring themselves more, which impacted their ability to successfully recall the details on logical steps that need to be followed.

(2) **Distraction Theory; Cassady and John (2002)** This theory states that high-pressure environments create a dual-task situation, in which the person's attention is divided between the task at hand and unhelpful thoughts about the situation and possible negative consequences of poor performance. Attention is an important part of working memory, which is the system that actively holds several pieces of relevant information in the mind while inhibiting irrelevant information. Working memory has a limited capacity, and the addition of stress and anxiety reduces the resources available to focus on relevant information.

In situations in which individuals need to concentrate their attention on a specific task, emotional stimuli can divert their attention to a greater degree than non-emotional stimuli. Emotional stimuli will often dominate a person's thoughts, and any attempt to suppress them will require additional working memory resources. When working memory divides resources between the aversive cognitions and the task-relevant material, then the person's ability to use the relevant information on a test will suffer.

People who suffer from test anxiety are more likely to experience negative cognitions while in evaluative situations. Furthermore, test anxious persons have been found to divert their attention towards threatening and anxiety related stimuli more than none motional stimuli.

Researches have accordingly found that tasks that rely heavily on working memory are the ones that suffer the most during pressure. Shortfalls in performance that are caused by test anxiety seem to be related to the extent to which the student has full access to their working memory.

When comparing these two theories in the context of academic performance, a majority of work supports distraction theories. One reason for this is that many of the skills performed in the classroom require heavy demands on working memory. However, there are different kinds of pressure situations. There is monitoring pressure, in which an individual's performance is impacted due to the presence of an audience, and outcome pressure, in which an individual's performance is influenced by the consequences of the testing results.

In a study, DE Caro, (2011) found that performance on a rule-based task, that relies heavily on working memory, was impaired by outcome pressure, but not monitoring pressure, whereas performance on an information-integration task, which does not require attentional control, was hurt by monitoring pressure, but not outcome pressure. These findings indicate that performance is compromised in different ways depending on the type of task, and the types of pressure, and that both theories can be correct.

Thus, this study based its theoretical framework on the Distractive theory and other relative theories that explain how students' retentive memory on learned facts, materials, in formations and knowledge in general are affected by internal and external variables during information processing and its retrieval. This could be as a result of poor study skill and test taking skill or due to excessive worry and emotionality.

**2.3.2 Attentional Control Theory;** Eysenck, (2007)

Eysenck, Santos, Derekshan, and Calvo, (2007) elaborate upon the distraction theory and propose the attentional control theory.

The attentional control theory assumes that anxiety primarily affects attentional control, which is a key function of the central executive. Attentional control is the balance between the two attentional systems, the goal-directed system, influenced by the individual's goals, and the stimulus-driven system, influenced by salient stimuli. According to the attentional control theory, anxiety disrupts the balance between these two systems. The stimulus-driven system becomes stronger at the expense of the goal-directed system, thereby impairing the efficiency of the inhibition and shifting functions of the central executive.

In support of this theory, there is strong evidence that anxiety largely impairs processing efficiency rather than performance effectiveness. Performance effectiveness refers to the quality of performance whereas processing efficiency refers to the amount of resources used to attain an effective performance. There is also evidence that anxiety impairs both the inhibition and the shifting function. Therefore, this theory suggests that students who scored high in test anxiety will have to allocate more resources to the task at hand than non-test anxiety students in order to achieve the same results. In general, people with higher working memory capacity do better on academic tasks, but this change when people are under acute pressure. According to Beilock, Sian, Ramirez, and Gerardo (2011) found that pressure led individuals with a high working memory capacity to perform worse on a complicated task, whereas individuals with a low working memory capacity got the same low results with or without pressure. This was because people with high working memory could use it better, but more demanding problem solving strategies in the low pressure condition, which they had to abandon, in the high pressure condition.

The low working memory people never used these demanding strategies in the first place. Evidence for similar working memory effects in children has also been found. Evidence that trait

anxiety might have different effects on working memory than state or acute pressure situations. who found individuals' performances on a task showed a decrease in accuracy due to trait anxiety from individuals with low or average working memory capacity, but did not significantly decrease for individuals with high working memory.

### 2.3.3 Cognitive-Attentional Interference Theory

The cognitive-attentional interference theories in the 1980s opined that poor study skills would result in high test anxiety because students would anticipate failure as a direct result of their low or inadequate execution of study skills. Measuring test anxiety and performance together shows a relationship, but the two variables are not causally related. Intervention research made by Ergene, (2003) indicated that a study skill training alone is not as effective at reducing anxiety. Treatments that target the cognitive component of anxiety and research comparing the relative effects of study skills with negative cognitions tend to suggest the latter directly interfere with performance.

These ideas have been incorporated into cognitive-attentional interference theory of test anxiety (Sarason, 1984) and more recently into processing efficiency theory and attentional control theory (Eysenck, 2007). Given the articulate way in which these theories account for the negative impact of anxiety, a key question for one is why the measured effect of test anxiety on test performance is not bigger. There are a number of possible answers, all of which suggest the effect would be much higher but for their positive mediating effect.

First, metacognition and coping play a central role in the Zeidner and Mathews' (2005) self-regulatory model. The basic idea is that it is not anxiety per se that is responsible for a negative impact on performance, but how a student copes with or responds to that anxiety. One such factor that has received some attention is the maintenance of clinical anxiety. In the context of test

anxiety, this could manifest self thinking that if one question cannot be answered, the person believes he/she will fail the whole test and the whole life will become a failure.

Second, students are prepared thoroughly for tests in English schools also planned compulsory revision in organized lessons, optional revisions at lunch time and after school, in the Easter holidays, repeated test practice using past papers (Putwain, 2008c). The processing efficiency model would predict such practices should reduce the effects of anxiety on cognitive resources through rehearsal and increasing familiarity.

Third, there are different types of highly test-anxious students (Zeidner, 1998, presents a typology of six categories) who vary in their susceptibility to the negative influence of test anxiety. Including them all in a single analysis may hide the fact that for some students there is a much stronger effect than for others. A similar line of reasoning is advanced by Mathews et al. (1999), who suggest that test anxiety may be characterized primarily by metacognitive beliefs or a maladaptive coping style.

### 2.3.4 Self-Management Counseling Techniques and the place of Humanistic Theory

Basically the Humanists focus on personal responsibility and personal growth; it is a more positive outlook on life. They also focus on being a fully-functioning adult, being able to process and accept information no matter how unpleasant it is. "Although it may be unpleasant, anxiety isn't always a bad thing. In fact, anxiety can help us stay alert and focused, spur us to action and motivate us to solve problems (Smith, R. Segal, J. Segal 2010)."

Precisely, the current researcher adopted eclectic theory and focused on selected appropriate combination of theories that have been probed as more authentic to form a stand on the explanation of causes and effects of test anxiety on learning and assessment. The main focused theories are; Distractive, Attentional Control and Cognitive- Attentional Interference theories.

## 2.4 Test Anxiety and Gender Difference

Probably owing to the traditional sex roles among others, females have shown more evidence of test anxiety than their male counterparts. According to Robinson (2011), taken African culture into consideration females are typically more prone to test anxiety than males, with the difference peaking during grade that is 5 to 10 and declining thereafter. Robinson also pointed out another study which found out that there was a small inverse relationship between test anxiety and Performance, further detail of which showed low test anxious female graduate students had significantly higher performance than high test anxious female graduate students.

Generally, it is believed that females have a greater likelihood of experiencing test anxiety. Some theorize that this is because society has different expectations for the genders. Many children are reared according to societal norms and morals that determine which roles are appropriate for which gender. Silvestri, (1986) on cultural roles versus opined that due to the biased upbringing, children perceived activities to be either masculine or feminine in nature. Excelling in an area that is not gender-appropriate often leads to punishment. This early conditioning encodes certain gender-specific behaviors and activities, as well as gender-specific expectations.

Generally, males are expected to achieve in math, science, and technology, whereas females are reared to be interested in the arts and humanities Silvestri (1986). The expected success off females in a given scientific task is generally lower than that of their male counterparts, even if they are equally competent. This societal belief has led to the theory that explained, the notion that females are more highly test anxious than males. This concept has been studied and some researches supported the assertion that females are more test anxious with regard to math studies and have lower levels of test anxiety with regard to verbal tests than their male counterparts (Benson & Bandalos, 1989; Dew & Galassi, 1983; Meece, Eccles, and Wigfield,

1990; Richardson and Suinn, 1972; Rouxel, 2000; Wolters, Yu, and Pintrich,(1996).

However, in other researches, these differences have been proved non-significant and slight (Fan, Chen, and Matsumoto, 1997; Hyde, Fennema, and Lamon, 1990; Pajares & Graham, 1999). It can be comfortably asserted that more researches need to be conducted to determine whether TA can be a result of gender- based differences or not, or if the etiology is rooted in the different types of academic disciplines (Furst, Gershon, and Weingarten, 1985).

This societal belief has not been overwhelmingly supported in the research community with regard to the published literature. Many studies support the notion that males and females experience no significant differences in general test anxiety (D'Ailly & Bergering, 1992; Everson & Millsap, 1991; Mwamwenda, 1993; Payne, 1984; Rhone, 1986; Sowa & LaFleur, 1986; Zoller & Ben-Chaim, 1990). These studies reviewed a variety of testing tools, such as the Test Anxiety Inventory (Spielberger, Gonzalez, Taylor, Anton, Algaze, Ross, & Westberry, 1980), the Test Anxiety Scale for Children (Sarason, Lighthall, Davidson, Waite, and Ruebush, 1960), and the "Test Anxiety Profile (Oetting & Deffenbacher, 1980)". All these assessment tools utilized a Likert-type scale for self-evaluation.

However, several studies have found significant differences with regard to general as well as specific test anxiety. This ambiguity in the literature has led to further research to define whether test anxiety is can determine the overall general difference on gender or if there is another variable such as subject matter that indicates significant gender differences. A prime example of this is the comparison of two studies conducted by Mwamwenda (1993; 1994). In the year 1993 study, Mwamwenda found no difference in test anxiety and academic achievement (based on self-reported grade point average). There was nothing offered in the study with regard to actual grade point average. He conducted this study on undergraduate

students at a South African University. A year later, another study conducted by the same researcher found a significant gender difference as well as lowered academic performance (across genders for high test-anxious individuals).

Once again, the researcher used students from South African University; however, these were under graduate students, and the academic achievement was based not on a self-report, but on actual scores on an educational psychology test. This comparison does not only use two studies, but the studies are so similar in culture, race and location. It was the same primary researcher, who believed in the ambiguity within the body of literature with regard to test anxiety in general.

**2.5 Review of Empirical Studies**

Previous studies on the effectiveness of cognitive restructure and self-management counselling techniques on test anxiety and other related techniques were reviewed. Muhammad (2014) investigated the effectiveness of the Cognitive Restructuring and Systematic Desensitization techniques in the Control of High stakes Test Anxiety among Final Year Secondary School Students in Kaduna Metropolis. It was conducted to ascertain which of the two techniques was more effective in controlling the problem.

The study sample consisted of three hundred final year students consisting of males and females. It was a quasi-experimental study in which students were assigned to two experimental and two control groups. One of the experimental groups was treated with cognitive restructuring while the other was treated with systematic desensitization. Each of the treatments was carried out within eleven counselling sessions. Individual counselling method was adopted in the study. Each of the subjects was administered with pretest and posttest, using the Westside Test Anxiety Scale designed by Driscoll (2004).

Seven research hypotheses were formulated and tested at 0.05 levels of significances. The first and second hypotheses were comparisons between pretest and posttest of the treatment groups to confirm the efficacy of the two counselling techniques. The third hypothesis confirmed that the cognitive restructuring technique was more effective than the systematic desensitization technique. The fourth and fifth hypotheses were comparisons between posttests after the treatment and control groups which further confirmed the efficacy of the counselling techniques. The sixth and seventh hypotheses also confirmed that cognitive restructuring and systematic desensitization were very effective in controlling poor cognition and emotionality of the students respectively.

The t-test statistic was used in testing hypotheses 1 and 2, 4 and 5. The ANCOVA statistic was used in testing hypothesis 3, while the binary logistic model was used in testing hypotheses 6 and 7. All the seven hypotheses were rejected. After treatment, it was discovered that although the two techniques were effective, cognitive restructuring counselling technique was more effective than the systematic desensitization in controlling the disorder.

However, the current study is different and unique in terms of the objectives, hypotheses formulated and statistic tools used to measure the hypotheses. That is, the current study used T-test to test hypotheses one to twelve and ANOVA was used to test hypothesis thirteen (13). Also the period, the place or setting, the population and sample used in the two studies are different.

Yusuf (2002) conducted a postgraduate study on the effectiveness of some methods of behavior therapy in the treatment of test anxiety. The experiment was carried out on some undergraduate students of the Federal College of Education, Zaria. Two hundred and forty (240) students were studied. The methods used were self-control therapy, implosive therapy and flooding therapy. The researcher found that all the methods were effective in the treatment, although self-control had the

highest effect of decreasing the disorder, followed by implosive therapy. The flooding therapy was the lowest effective method. The study was quite related to the current study in terms of using behavior modification techniques in reducing the test anxiety of students. However, the techniques used were quite different and the population of the study was also different in many respects. The self-control techniques that prove more effective is the part of self-management techniques employed in the current research, but this study showed the two techniques are relatively effective.

Ada, Nwokolo and Azuji (2016) investigated the Effect of Self-management Technique in reducing Test Anxiety among secondary school students. Two research questions were posed and two hypotheses formulated to guide the study. The study is a quasi-experimental research and employed a 2x2 factorial design pretest-posttest experimental control group, comprising two groups ( Experimental group and control group) using one treatment group (Self-Management Technique) The population comprised all the secondary school students in Onitsha urban areas with test anxiety. A total of 77 students were selected from two schools using a standardized instrument titled “Test Anxiety Inventory”.

The instrument, Test Anxiety Inventory was administered to both the experimental group and the control group before and after treatments, making up the pretest and posttest. The data relating to the research questions were analysed using mean scores. The data relating to the null hypotheses were analysed using the Analysis of Co-variance (ANCOVA). The result of the study showed that self-management technique was effective and significant in reducing test anxiety. However, the current study is unique in terms of number of counseling techniques used to treat test anxiety challenge. The respondents are also different. The setting, the period and the scopes and limitations of the researches are different.

Osiki and Busari (2006) have used self-statements monitoring techniques in reducing test anxiety among adolescent under achievers while Egbochukwu (2008) have successfully employed systematic desensitization therapy in the reduction of test anxiety among adolescents in Nigeria. Most studies on self-management are western-based, and findings from such studies indicated that self-management technique is effective in handling behavioral problems of students in school. The researchers have shown that, since Self-management technique is said to be effective in reducing test anxiety among adolescents in those areas, it becomes important to replicate a study of this kind in Kano State Staff Secondary Schools. The acknowledgement of the effectiveness of self management counselling indicates the similarity with the current study however unique in its scope. However, the extent to which self-management procedures can be used across multiple settings has been investigated by several authors.

In a study by Brooks, Todd, Tofflemoyer, and Horner (2003), it was pointed out that a 10-year-old girl diagnosed with Down syndrome was provided with a tape recorder with a self-monitoring prompt and was taught to evaluate her on-task behavior. The monitoring sheet offered several opportunities for the child to recruit attention as an alternative to engaging in attention-maintained disruptive problem behaviors. Therefore, both replacement behaviors (i.e., hand rising) and alternative behaviors (i.e., academic engagement) were taught using the same self-monitoring system. Results showed drastic increases in academic engagement across all phases. During the first intervention phase, academic engagement increased to 77% from 11% of the time. These results were replicated across several phases and in several different settings. This study is unique and different in terms of its setting and counselling techniques compared to the counseling techniques used in the other. The preceding studies provided a rationale for using self-management interventions as a component of broader function-based interventions.

Ingram, (2005) took this approach a step further by comparing a function-based intervention that included self-management components to an arbitrarily designed (non-function-based) intervention that included self-management components. The difference between the two plans was primarily that the rewards for appropriate behavior during the function-based intervention were matched to the function that the problem behaviors served (e.g., asking for a break was reinforced using a break).

During the non-function-based intervention, replacement behavior was reinforced using a token system for which the child could turn in tokens for tangible rewards. The results showed a drastic difference between interventions that were based on FBA and interventions that were not. For instance, in one case, the disruptions occurred during 49% of all intervals at baseline, 9% of intervals during the function-based intervention, and 49% of intervals during the non-function-based intervention. The current study used self management in reducing TA symptoms.

Some researchers have utilized self-management components for specific purposes such as reducing behaviors in particular classroom settings or during certain classroom activities that students find difficult. Kamps, Wend land, and Culpepper (2006) used a self-monitoring intervention to reduce disruptive behaviors of a child who had difficulty in large group settings.

An additional participant in Kamps et al (2006), engaged in off-task behaviors to obtain both sensory stimulation and escape from tasks. The participant was asked to monitor on-task and off-task behaviors in intervals of 1-2 min. Results indicated that disruptive behaviors decreased to near-zero levels when the intervention was in place, while on-task behaviors increased. In one case, 59% on-task behavior during an initial baseline condition increased to over 90% with intervention. While others had conducted functional analyses in the settings in which the behaviors occurred, Kamps et al. used more rigorous procedures for analyzing function in the

classroom than had previously been done in the self-management literature. The researcher's approach is different compared to the present studies with particular reference to intervention strategies.

Ahmed (2016) investigated the effects of cognitive restructuring and graded exposure counselling technique on school phobia among secondary school students in Kaduna Metropolis, Nigeria. The study was guided by five (5) research questions and five (5) null hypotheses. This study employed a quasi-experimental, non-equivalent control group, pre-test – post-test design. The population of this study was 415 junior secondary school students whereas 36 students were purposively sampled and used for the study. The instrument used for data collection was, Screen for Child Anxiety Related Disorders (SCARED). Data were analyzed using mean, standard deviation, t-test and ANCOVA. Findings revealed that; male and female students exposed to CRT had a reduced school phobia in favor of female students with ($t = 0.819$, $p = 0.432$), Male and female students exposed to GET had a reduced school phobia in favor of male secondary school students with ($t = 0.948$, $p = 0.366$).

Students exposed to CRT such as validity testing, modelling, and systematic positive reinforcement had a reduced school phobia as compared to those in control group ($t = 20.108$, $p = 0.000$), Students exposed to GET such as hierarchy of fears had reduced school phobia than their counterparts in the control group ($t = 18.432$, $p = 0.000$) and Gender was not a significant factor among those exposed to both CRT and GET on reducing school phobia among secondary school students ($f= 0.76$, $p=0.783$). The instrument used is different from the current study as well as gender consideration.

Gender difference is an integral factor in test anxiety; according to the State-trait theory worry and emotionality determine the type of test anxiety. In other words, thinking styles could

affect the way one perceives, reacts to people, and situations, and that these cognitions could vary across the genders. Thus, increased test anxiety among the female students can be the result of stereo type expectations. Grades can trigger anxiety specifically when students associate their academic performance with their self-esteem. Such an anxiety can be responsible for the underperformance of female students. In the current study ,it is hypothesized that there could be significant gender differences in types of test anxiety; physical components of test anxiety, psychological components of test anxiety and cognitive components of test anxiety referred to dimensional symptoms, could show the differences of gender in the effect of the counselling techniques on test anxiety.

Nelson and Knight's (2010) study on TA and self efficacy showed that students can avoid negative outcomes of test by thinking of past achievements, which will build courage and endurance, and in turn will increase their self-efficacy. Those who focus on the area that they are skilled at, cope better and have lower anxiety. Positive thinking techniques can be transferred into the classroom and use to help students excel in academic achievement as well. Students who perceive themselves as being competent are more likely strive to learn how to do better on challenging tasks such as test. Those with high levels of self-efficacy show lower level of test anxiety, possibly because they believe in themselves and are able to imagine a successful outcome. However, this study cannot be unconnected with the current study, students with high esteem do have lower TA and this could provide possible base for reducing high rate of TA challenge among the students.

Chen (2004) studied the effects of test anxiety, time pressure, ability and gender (as independent variables) on response aberrance (dependent variable). Test-taking behaviour associated with TA and time pressure namely start-up anxiety, random guessing, and early quitting were examined

with respect to TA levels among others and normal or aberrant responses of the testees. Participants in the study were 450 junior-high-school-grade-o I students in first semester of the 2003 academic year in China. The self-report study reveals that students with higher test anxiety level were more likely to acknowledge the start-up anxiety behaviour and the earlier quitting behavior. It was however found that test anxiety does not affect the testees' response aberrance; it means that the effect of TA does not affect the testees' response but may probably vary with content areas.

The current study is at variance with this study that is more interested on the effect of TA on the testees' performance; before, during and after the test. However, supporting the argument with the result of a study by Zeidner, 1981 (cited in Chen 2010) which was conducted on cross cultural adaptations of the Test Anxiety Inventory (T A l) in 14 countries. The study reveals that females on average scored higher than their male counterpart, this is in support of the current study that shows difference of gender in test dimensions among students of staff secondary schools.

Chen (2010) further said except for Turkey and China, gender differences were statistically significant in other countries. That the female subjects in the research however obtained a lower mean score than the males in some countries in contrast to the US in which the females demonstrated higher levels of TA. Also though the studies were on TA, the types of study designs differ. They used survey and correlation designs while the current study adopted quasi experimental research, the setting, period and populations are also different.

McCarthy & Goffin (2005) conducted a study on; selection of test anxiety study, exploring tension and fear of failure across the sexes in simulated selection scenarios. The study found that test anxiety was found to be bi-dimensional and negatively related to performance on a cognitively based selection instrument. The study also found that gender moderated the relation

between TA and test performance, with stronger association for males. This study is quite related to the current study as they are both on TA. However while it was a correlation study, the current study is an experimental research with effective or possible ways of reducing the TA. The period setting, population and sample are also different.

Ndirangu, Muola, Kithuka and Nassiuma (2009) conducted a study to determine the relationship between TA and academic performance among students in Nyeri District in Kenya. A correlation study design was used. The target population was about 83,000 students, 600 teachers out of which eighty students from 4 schools and 12 teachers were randomly sampled. The study was carried among form four students and their teachers. The result of the study shows that there was a statistically significant difference ($p < 0.01$, $t = -3.736$) between TA levels before and after the test. It was also established that both boys and girls were equally affected by TA. The results further shows that teachers do not adequately help students cope with TA, while concluding that there was no significant difference relationship ($r = 0.06$) between TA and academic performance. This and the current study are related in the field of TA but they are different in their designs.

Falaye (2010) investigated the level of cognitive test anxiety of selected undergraduates'

students of Obafemi Owolowo University, lle-lfe, in comparison with their learning outcomes. A total of 92 students participated! in the study. Results showed that students cognitive test anxiety was generally low It was also discovered that the Cognitive Test Anxiety negatively affects performance level Analysis of the results of the study showed that the higher the level of students CTA the lower the level of students' learning outcome and vice-versa. However, sex difference did not lead to corresponding difference in CTA and performance levels. This was also different compared to TA and performance as against the current study that seeks to find

ways of reducing the types of symptoms of TA.

Mahmood and Rana (2010) also investigated the relationship between TA and academic performance of students at the postgraduate level. Four hundred and fourteen (414) students in Lahore University, Pakistan participated in the study. The study found that ~~a~~ significant negative relationship existed between TA scores and students' performance scores. Result showed that a cognitive factor (cognitive) contributes more in TA than affective fact (psychological). The study concluded that TA is one of the factors which are responsible for students' underachievement and low performance but it can be managed by appropriate training of students in dealing with factors causing it. Thus the study compared the relationship between TA and performance but concluded that TA can be reduced by reducing the causes of the disorder. The current study concord with the study however established that CR and SM counseling techniques as the major effective ways of reducing TA.

Tuulia and Juliane (2011) investigated the effects of TA on test performance, using Computer Adaptive Testing (CAT) versus conventional Fixed Item Testing (FIT). A total of 110 students (aged 16 to 20) from a German secondary modern school, Filled a short form of Test Anxiety Inventory - General (TAI-G) and were presented with an item from the Adaptive Matrices Test (AMT) on the computer either on CAT form or FIT form with a selection of items arranged in order of increasing item difficulty. In a moderated regression approach, a significant interaction of TA and test mode was revealed. The effect of mode on the AMT score was stronger for students with higher scores on TA than for students with lower TA. It was also discovered that getting information about CAT led to significantly better results than receiving standard test instructions.

This study was a step higher than some other correlation studies in traditional testing mode. The

modern testing techniques were also found to have been affected by the TA. It however failed to attempt finding ways of reducing the TA, which is the primary focus of the current study .In addition; despite its difference from the current study it provided an insight on the type of test that could facilitate TA.

Binti and Abdul (2011) conducted a study on how to overcome TA from the perspectives of senior students of the Faculty of Education in the University of Technology, Malaysia. The study found that most participants perceived TA as normal feelings and thus did not bother much to overcome it. Two ways were also discovered as means of overcoming TA, which can be categorized as physical reactions and cognitive or mental reactions. Cognitive reactions were further divided into two, which are self-motivation and religious.

The study is similar to the current study as they both aim at ways of reducing TA. However, while the study adopted a survey method of enquiry, the current study uses experimental method. The author, location and division of TA dimension (types) also differed.

### 2.6 Summary and Uniqueness of the Study

This chapter presented the review of the work done in the field of test anxiety and other related variables. Test anxiety has been pointed as a challenge that made some students felt uneasy and apprehensive. It has been an alarming condition that has drawn attention of stakeholders including counsellors, researchers, parents and teachers on how to resolve and sustain positive achievement of educational objectives. A careful study of the existing literature exposed the limitation in the efforts of the professionals in the field especially in the local context, many researchers have conducted a number of studies but the problem of test anxiety still persist in some schools and students' test performance is affected.

The related theoretical framework, causes and effects of test anxiety have been reviewed; the result showed that test anxiety like other similar disorders can be effectively reduced. Attempts are made to theoretically explain the nature of test anxiety that prevailed among students, that has been in existence for a long time without a lasting solution. The theoretical explanation showed that there is a strong difficulty in linking test anxiety with a particular theoretical explanation, but combinations of theories were considered in the review that included attention, attentional control, cognitive- attentional interference and distraction theories have been reviewed in this chapter as they are linked with the anxiety that is test anxiety.

The reviewed theories have brought to light, the major causes of the test anxiety as listed in the review. It can be summarized that the major causes are mainly from within the individual's physical state, psychological conditions, cognitive distortion and utilization of inadequate skills, while others are attributable to the condition of test environment and other variables that affect the individuals including the parents and teachers' attitude. A number of researchers have opined on divergent views on symptoms of TA and their general signs and symptoms. However, the physical symptoms of test anxiety can be visibly seen by close observers but ascertaining the dimensions of test anxiety requires the use of validated instrument.

Thus, Students Test Anxiety Inventory (STAI) as an instrument was used for this study. Other specific dimensional symptoms included; psychological and cognitive symptoms of the disorder that could be considered more as innate ideas but manifested in different related symptoms of test anxiety. The symptoms either specific or general types could be detected through the use of the STAI. The chapter also reviewed the concepts, features, types of TA and criticism of the techniques. It has been reviewed that in an attempt to reduce the symptoms, there is need for students' adequate preparation for the test, provision of relevant skills, conducive test

environment and positive teacher –student relationship couple with use of appropriate techniques. Situational period for its occurrence; before, during and after the test are reviewed and how student could approach test with free mind at preparatory, during and post test stages by the students themselves and through the help of professional counsellor was reviewed.

The study also found in the literature that despite the adverse effects of test anxiety and the apparent unfavorable perception of it by the students, the counselling profession can do a lot to effectively assist the students to reduce the disorder. This brought about somehow debatable conceptions of counselling techniques and psychotherapy by the practitioners in the field. It is factual that the two practitioners have the purpose of helping students to resolve the challenges. However, in an attempt to be fully functional in the society and to prevent the personal challenges of test anxious students from degenerating into academic problems among the students, the related studies have shown a need for an update research through the use of more appropriate strategies toward resolving the challenge.

The current study devise strategy that is unique to resolve the challenge, it was found in the literature that despite the advert effects of TA on academic performance and general wellbeing of the students on the other side, most students do not patronize the school counselors in resolving their TA challenges. The schools' counselors in secondary schools can do a lot to effectively assist students reduce the anxiety symptoms or resolve it. Chosen techniques of cognitive restructuring and self-management have also been reviewed. Even though the Literature portrayed that the TA could be reduced through medication as in therapeutic method, CRCT and SMCT are shown to be more unique and reliable because the withdrawal of drugs have been criticized and sometimes result in a relapse.

Empirical studies on test anxiety and cognitive behavioral modification techniques were also reviewed. Also, attempts have been made to explain empirical work conducted on test anxiety and use of cognitive behavioral techniques. It should be mentioned however, that of all the studies reviewed, no literature was available to the researcher on the effectiveness of cognitive restructuring and self-management counselling techniques as a combine reduction techniques on test anxiety. This study therefore, practically provided empirical data that explained and established relative effectiveness of the two techniques in the reduction of dimensional and general symptoms on test anxiety. Hence, it is hoped that the outcome of this study will reduce the existing gap between Nigeria and the Western world in terms of research studies in the counselling efforts to reduce the scourge of the disorder that is test anxiety (TA)

Thus, the uniqueness of this study is shown in terms of variables under the study, the choice of unique population and sample of students of staff secondary schools alone, the setting, that is, Kano State tertiary institutions of learning having staff secondary schools in Kano State, unique developed treatment packages, and more importantly is the categorized dimensions (types) of test anxiety symptoms that affect the students' performance at pre-test, during test and post-test.

The dimensions of test anxiety into physical, psychological and cognitive types of symptoms. This specificity and the generalization are quite unique compared to previous studies. Also, no available literature within the scope of the current researcher's knowledge that has shown any previous research that work on the combine techniques used in this study for the reduction of test anxiety symptoms. Therefore, the combine strategies adopted for the reduction of test anxiety in this study is quiet unique and it had been established the two unique techniques are effective measures. Considerations made to gender differences and appropriate choices of educational level (co-educational) are some variables that made it unique.

Based on all the reviewed related researches, conclusively, what made the study unique are: types or dimensions of test anxiety use of Cognitive Restructuring and Self-Management as a combined Counselling Techniques, Gender Differences and their effects, Conditional periods of TA and appropriate adopted instrument used for the study.

# CHAPTER THREE

# METHODOLOGY

## 3.1 Introduction

This chapter presents the research design adopted, population, sample, sample size and sampling technique and the instrumentation was explained. The validity and reliability of the instrument, administration, scoring of the instrument, procedure for data collection and procedure for data analysis are also discussed.

### 3.2 Research Design

This study adopted quasi-experimental research design involving pre-test post-test control group procedure. According to Nworgu (1991), quasi-experimental design establishes cause and effect relationships. Kolo (2003) indicated that quasi-experimental design involves the manipulation of one or more independent variables but there is no random assignment to conditions. This study seeks to find out the effect of cognitive restructuring and self-management counselling techniques on test anxiety among students of staff secondary schools in tertiary institutions of Kano State. In this design, the experimenter (researcher) under controlled condition manipulated the independent variables which are cognitive restructuring and self-management counselling techniques and observed their effects on the three dimensions of test anxiety among students of staff secondary schools in tertiary institutions in Kano State. The design is diagrammed represented according to Best and Kahn (2010) as follows:

| | | | | |
|---|---|---|---|---|
| Experimental groups: | E | $0_1$ | $x_1$ | $0_2$ |
| | E | 03 | $x_2$ | $0_4$ |
| Control group; | C | 05 | | 06 |

**Non randomized pre-test, post –test of 3** x 2 factorial design

Key:

$\mathbf{0_1}$, $\mathbf{0_3}$ and $0_5$ refer to pre-test (Observation before treatment)

**X1** refers to the treatment package (1) for $\mathbf{0_2}$

**X2** refer to the treatment package (2) for $\mathbf{0_4}$

—— refer to no treatment package for (3) for $\mathbf{0_5}$ and $\mathbf{0_6}$

$\mathbf{0_2}$, $\mathbf{0_4}$ and $\mathbf{0_6}$ refer to post-test (Observation after treatment)

The first and second groups represented the experimental group, while the third group represents the control group. The representations were as follows:

$0_2$ = Experimental group 1 (Cognitive Restructuring Counselling technique)

$0_4$ = Experimental group 2 (self-management Counseling technique)

$0_6$ = Control group 3 (no treatment)

01, 03 and 05 represent the observations before the commencement of the treatment (pre-test).

02, 04 and 06 represent the observation after the treatment (post-test)

X = represents the treatment

From the symbol and explanation it can be adduced that the designed involves three groups. Two groups received treatments while another served as control group. There was pre-test for the entire groups before treatment and post-test after the treatment.

## 3.3 Population and Sample

### 3.3.1 Population of the Study

The population of the study consists of two hundred and ninety two (292) identified as test anxious students, selected from three (3) senior staff secondary schools two (SSS II) in Kano, Nigeria. After administering the instrument titled, Student Test Anxiety Inventory (STAI), it was estimated that, there were one hundred and ninety two (192) students who indicated the high symptoms of test anxiety dimensions on the instrument (STAI).Based on the three (3) categorized tertiary institutions in Kano namely; Universities, Colleges of Education and Polytechnics. The secondary schools are meant for the staff children of the institutions. One staff secondary school was chosen to represent each of the three (3) categorized tertiary institutions.

The first chosen school was Bayero University, Kano Staff Model Secondary School (BUKSMSS), the second school was Federal College of Education Staff Secondary School (FCESSS) and third school is Kano State Polytechnic Staff Secondary School (KSPSSS).

Table 3.1: Population of Test Anxious Students in Selected Schools

| **Schools** | **Number of Test Anxious Students** | | **Total** |
|---|---|---|---|
| | **Males** | **Females** | |
| BUKSMSS | 31 | 33 | 64 |
| FCESSS | 33 | 32 | 65 |
| KSPSSS | 30 | 33 | 63 |
| **Grand Total** | **94** | **98** | **192** |

**Source: Schools' Principal**

### 3.3.2 Sample Size

The schools are co-education staff secondary schools, that comprised of one hundred and ninety two (192) identified male and female test anxious students from Senior Staff Secondary Schools two (SSS II): Bayero University, Kano Staff Model Secondary School (BUKSMSS), has thirty one (31) males and thirty three (33) females. Federal College of Education Staff Secondary School (FCESSS) has thirty three (33) males and thirty two (32) females while Kano State Polytechnic (Legal) Staff Secondary School (KSPSSS) has thirty (30) males and thirty three (33) females. The first two (2) schools were considered as the representation for experimental groups while the third school is taken as the control group. The table 3.1 shows the picture of the population.

Table 3.2: Sample Size of T A Students of Staff Secondary Schools

| **Schools** | **Treatments** | **The Sample Size used for the Study** | |
|---|---|---|---|
| | | **Males** | **Females** |
| BUKSMSS | CRCT | 7 | 8 |
| FCESSS | SMCT | 8 | 7 |
| KSPSSS | CG | 7 | 8 |
| **Total** | | **22** | **23** |

### 3.3.3 Sampling Technique

Purposive sampling technique was used in selecting the sample for the study. In purposive sampling researchers identified the cases to be included in the sample on the basis of their judgment of the possession of particular characteristics being sought. In this way, they build up a sample that is satisfactory to their specific needs (Cohen, 2007). Gay (2009) states that,

researchers using this technique select sample using their experience and knowledge of the group to be sampled.

Purposive sampling technique according to Driscole (2007) is applied in research when the researcher is testing the feasibility of a proposed study and when the sample to be used in the study possess specific types of knowledge, skills or characteristics not possessed by the general members of the population. Taken the above explanation into account, the study easily employed purposive sampling technique to select sample of the study based on some reasons one of which is that the characteristics exhibited by test anxious students are not possessed by others who are of the same level and standard. This therefore explains that the befitting sampling technique in selecting students with peculiar characteristics such as test anxiety and who are part of the population of the study. Thus the researcher therefore purposively identified a total of forty-five (45) test anxious students based on their qualification in satisfying the test requirement. That is obtaining high test anxiety scores among the identified test anxious students.

In addition, based on the relative number of the population proportionate sampling technique was used to determine the number of sample from each group that is, experimental groups and the control. Thus, the sampling method used for this study is Non probability or Non randomized techniques. The schools do not have equal number of test anxious students for that the researcher used Proportionate sampling method in the selection of fifteen test anxious students from each school. Therefore, both proportionate and purposive techniques were used accordingly.

### 3.4 Data Collection Instrument

The instrument used for this study was re titled by the current researcher as Student Test Anxiety Inventory (STAI). Initially, titled Test Anxiety scale (TAS) developed by Driscole (2004) with ten general items only, but modified by the current researcher with additional ten items (100%) and renamed STAI to suit the research objectives. The scale has five-point response options and

was divided into four sections (A to D). Section A seeks for demographic information of the respondents while section B contains 7 items indicating statements on physical aspects or symptoms of test anxiety, section C contains 5 items' statement on psychological areas of TA while section D contains 8 items statement pertaining to cognitive indicators or symptoms of TA.

The procedure for scoring the instrument and its interpretation were made through the guideline stated in the manual written by Driscole (2004). The items mainly asked questions on aspects of physical, psychological and cognitive dimensions of TA which interfered with concentration on the test questions. The instrument was revalidated by Egbochukwu and Obadan (2005). It has been adapted to Nigerian context and has been used extensively in Nigeria. It is a self-report psychometric scale which was developed to measure individual differences in test anxiety as a situation-specific trait.

### 3.4.1 Scoring Procedure

The instrument consist of twenty (20) items that contained statements referring to indicators on symptoms of test anxiety, that students are likely to exhibit before, during and after test. The items are categorized into three (3) subscales depicting three specific dimensions of test anxiety. The instrument has five (5) points Likert scale response options. Interpretation of the score indicates that the higher the score in the test, the higher the level of test anxiety. Respondents who score forty (40) and above on the general scale are to benefit from a treatment or the intervention. A respondent to the instrument can score a maximum of 100score and a minimum of 20 score. Respondents are required to tick one (1) of the five options as applied to their specific test anxiety dimensional area which they have been experiencing for at least the period between six months to one year.

Physical Dimension: The seven items under section B that are concerning physical dimension of test anxiety could be scored in the following manner: A respondents could obtain the highest possible score under physical dimension as follows. The scale of physical dimension is (7 items x 5 options) = (35), while the lowest score is (7 items x 1 option) = 7. The range is 35 that is, maximum score (35) minus the minimum score (7) that is, 28. The midpoint of the range is 14 while the cut-off is 28 and 14 which in either case is 14. Thus, respondents who score any mark from 14 to 28 were considered as students having symptoms under physical dimension of test anxiety who need the intervention while students who score below 14 indicate no significant sign of physical dimension of test anxiety. Thus, maximum score is 28 and minimum score is 14.

In scale C under the psychological dimension of test anxiety, the highest score is 25 that is (5 items x 5 options) and the lowest score is 5 that is, (1 item x 5 options) the range is 25 that is, maximum score (25) minus the minimum score (5), that is (25 - 5) = 20, the midpoints range is 10.Therefore, the respondents under psychological symptom of test anxiety can score 10 to 25. Such respondents are considered as having significant psychological dimension of test anxiety and could benefit from the intervention while respondents who score below 5 where considered having low or no significant symptom of test anxiety.

While in scale D the highest scores is 40 that is, (8 items x 5 options) and the lowest score is 8 that is, (8 x 1). The range is 32 that is, the maximum score (40) minus the minimum score (8), the midpoint of the range is 16.Thus, respondents with cognitive symptoms, who score from 16 to 40 are considered as having significant symptoms of cognitive test anxiety and could benefit from the intervention while those having below 16 where considered as having low or no symptom of cognitive test anxiety.

Overall: that is, physical, psychological and cognitive overall scores. The maximum score is one hundred (100) and the minimum score is twenty (20) that is, (20 items x 5 options) = 100 while the lowest score is (20 items x 1 option) = 20. The range is eighty (80) that is, a maximum score (100) minus minimum score (20) = 80 that is (100 - 20) = 80. Therefore, minimum score plus the midpoint of the range is 20 + (80 ÷ 2) = 20 + 40 = 60. Thus, respondents who obtain scores from 20 are considered having low or no significant symptoms of test anxiety. However, considering the three dimensional areas and the obtained minimum or maximum scores respondents could obtain to indicate high test anxiety and possibility of benefiting from the intervention is 40 percent. The method of scoring is to add the sum of the twenty (20) items obtained divided by the sum of twenty (20) that is (the number of the items) will give the test anxiety score.

In an attempt to reduce test-anxiety challenge there is need for an instrument to identify those students who are anxious and might benefit from an anxiety-reduction intervention.

The Students Test Anxiety Inventory has twenty (20) items for screening the respondents. The instrument is meant to identify students with specific areas of anxiety challenge. Thus, considering the number of the terms in the inventory, its administration and responses could be done or within 30-35 minutes. It has been used by school counselors over several years.

The method for scoring is summarized on the table below;

Sum of the 20 items divided by the sum of 20 that could give test anxiety score.

| **Dimensional Areas** | **Minimum Score** | **Maximum Score** |
|---|---|---|
| Physical symptoms | 14 | 35 |
| Psychological symptoms | 10 | 25 |
| Cognitive symptoms | 16 | 40 |
| **Total** | **40** | **100** |

The maximum score is 100 percent while the minimum score is 20 percent. The score that qualifies and identifies test anxious respondents for the treatment is 40 percent and above. Thus, students who obtain forty (40) scores in the entire twenty (20) items of the instrument are selected, as those having high test anxiety and are qualified for benefiting from the reduction intervention.

Below is the rating scale. With the use of five (5) point Likert scale respondents are to rate how true or otherwise each of the item statement is to them from extremely or always true, to not at all or never true. Below is the rating method.

| 5 | 4 | 3 | 2 | 1 |
|---|---|---|---|---|
| Extremely (or always) True | Highly(or usually) True | Moderately (or sometimes) True | Slightly (or seldom) True | Not at all (or never) True |

**3.5 Validation of the Instrument**

Content and Construct Validity; in an attempt to establish the content validity of the modified instrument, it was presented to a number of experts in the Department of Education, some colleques and some lectures in the Faculty, Bayero University Kano. The construct validity was approved that the test measured the test anxiety indicators that is meant to be measured. The content validity was also ascertained that the test items' statements have covered appropriate areas or test anxiety dimensional symptoms and situational periods on TA that were set out to be measured. They made additional input and suggestions on the content and construct validity of the instrument and ensured that the instrument reflected the objectives of the research. Their contributions were implemented in the instrumentation. See the attached appendixes 11- 1V on the modifications /instrumentation.

### 3.5.1 Validity of the Instrument

The modified instrument was subjected to Exploratory Factor Analysis (FTA) in order to determine the underlying factors, reduce the number of items and establish the construct validity. The validity indicators such as the Keiser Ollkin (KMO of sampling Adequacy and Bartlett's test of sphericity were all found adequate and satisfactory.

### 3.5.2 Reliability of the Instrument

In addition, Apart from the reliability of the instrument established by the initial author, the modified instrument was subjected to Internal and External reliability tests. The result of the assessment for the internal consistency of the modified instrument, showed the consistency on how closely related is the stated set of dimensional TA Symptoms or the items are related as a group that is the whole twenty items' statements. Cronbach's Alpha co efficient was used, to measure the internal consistency of the twenty items on test anxiety and it showed a relatively high consistency level. See Appendix V

The external reliability refers to the extent to which a measure varies from one use to another, that is a measure of consistency over time, with similar data from the same or similar samples. With regard to this research, the current researcher made pilot testing and used test re test to establish the external reliability of the instrument. Students (30) of Sa'adatu Rimi College of Education Kumbotso SS2 was used as the sample on 17$^{th}$ January, 2018 and 15$^{th}$ February, 2018 for the administration of test retest to ensure the stability of the instrument and re ascertain the external reliability of the (modified) instrument.

The school chosen has same characteristics with those used in the main study. The requirements are the same too with the two experimental groups and a control group chosen for the main study. Thirty (30) students in SS II were selected for the pilot test as stated above. Thirty (30) copies of

STAI were administered, collected and result won kept in view. After two weeks interval the same instrument was re administered to the same respondents. The two scales were correlated to obtain the external reliability of the instrument. Based on the analyzed data in the study, the instrument used has consistency of the content and construct validity. Thus, test and retest technique used in establishing the reliability of the instrument showed Alpha at r .954 as the reliability index. Thus, it is ascertained that the instrument was both valid and reliable for the study. See Appendix V.

The details of the computations of the Cronbach's alpha based on a pilot test with a sample size 30 are summarized in table 3.4 below.

Table 3.4: Reliability Statistics for the STAI Instrument Tested in Three Dimensional Areas

| Factors | Number of Items | Sample Size | Cronbach's Alpha |
|---|---|---|---|
| Physical | 7 | 30 | .827 |
| Psychological | 5 | 30 | .782 |
| Cognitive | 8 | 30 | .862 |
| **Total** | **20** | | |

From the above reliability indices information the instrument was considered reliable as far as internal and external consistency is concerned. Thus, the instrument was adopted as Student Test Anxiety Inventory (STAI). See appendix V

**3.6 Procedure for Data Collection**

This started from the time the researcher obtained letter of introduction from the Department of Education, Bayero University, Kano to enable her receive approval for data collection and treatment administration from the management of the selected schools. The STAI was

administered to the students with the help of their teachers in order to identify students who usually suffer from test anxiety in the school. After identifying the students, a test anxiety inventory (STAI) was administered to serve as pre-test. After the treatment, the instrument was re-administered to both the treatment and control groups in order to obtain their post-test data for analysis.

### 3.6.1 Control of Intervening Variables

This refers to the experimental procedures for eliminating or holding constant the differential effect of all intervening variables that could possibly interfere with the outcomes of the study. If control is lacking, the researcher may not know whether the changes observed on the dependent variable is due to the introduction of the independent variables or due to some intervening variables that were not controlled. Thus, in order to ascertain the effect of the independent on the dependent variable, this study ruled out other alternative explanations by carefully controlling the intervening variables. This has been control in this research in the following manners:

1. **Experimental Mortality:** It is possible while the experiment is going on some of the respondents might drop out due to sickness, death (differential loss) and change of unfeasible location. To control this, the researcher sampled more respondents than required from the result of pre-test. After the treatment process, post-test of the exact number of respondents selected in each group was used in the analysis.
2. **Selection Bias:** To control this variable, the researcher used purposive sampling technique. It is the process of selecting students who scored the required points or marks that qualifies him/her to be selected.
3. **Interaction Effect:** To control this variable, the forty five (45) selected samples were proportionately grouped among the three schools. Fifteen (15) students of Bayero University,

Kano staff secondary school were exposed to cognitive restructuring while fifteen (15) students of staff secondary school F.C.E Kano received treatment with self-management counselling technique whereas fifteen (15) students identified with test anxiety from Kano state polytechnic staff secondary school served as the control group. The two treatment schools are located in two different locations as such the subjects could hardly meet.

4. **Effect of Testing Twice:** When the same test is used in pretest and posttest, it is likely that the familiarity with the pretest may affect the participant's response in the posttest. The researcher therefore controlled this by personally administering the instrument. Also, the time span between the pretest and posttest which lasted about two months had significantly weakened this intervening variable.
5. **Absenteeism:** Effect of absenteeism was controlled by selecting only those who showed willingness and interest to participate in the program and subsequent establishment of attendance agreement plan and attendance taking before and after each treatment session.

The above listed factors are the measures used to control possible threats to Internal Validity of the experiment that could include: Experimental Mortality, History, Selection, Testing and Maturation Interaction. Threats to External Validity also could occur that could limit the degree to which generalizations could be made from this research's experimental conditions and findings to other populations or settings. Thus measured had been taken in the use of appropriate variables and clear focus on Independent and Dependent Variables, Population, Validity and Reliability of the Instrument.

### 3.7 Procedure for Intervention

The treatment procedure was conducted for the two experimental groups in three phases for the period of six weeks in progressive sessions. Each experimental received the intervention separately as follows:

#### 3.7.1 Pre-Treatment Phase

The first phase was the pre-treatment phase where the researcher collected baseline data from three schools comprising of the two treatment groups and a control group by administering the adopted Students Test Anxiety Inventory to the students in order to identify the samples of the study. The identified test anxious sample or Students otherwise known as subjects, were given the Students Test Anxiety Inventory to serve as pre-test. Data collected during the pre-test were scored, analyzed and saved. The data gave an information on the entry behaviour of the group individuals and was also used for future comparison with the post-test result in order to determine the effectiveness or otherwise of the techniques.

#### 3.7.2 Treatment Phase

The treatment sessions basically involved the use of cognitive restructuring and self-management counselling techniques. The sessions were conducted for a period of six weeks. There were a total of six sessions for the entire treatment group one with the use of CR who were respondents of B.U.KSSS. Every session lasted for a period of 35minutes. The second group had treatment for six weeks too and received six counselling sessions, and every session lasted for thirty (30) minutes. The respondents were students of FCE Staff Secondary Schools who were treated with Self-Management Counselling Techniques. The third group was the students of Kano State Polytechnic Staff Secondary School and who did not receive treatment, but was the control group.

### 3.7.3 Post-Treatment Phase

The post-treatment phase was the third stage in the procedure. Data were also collected in this stage by re-administering the STAI to both the treatment and control group after receiving an equal number of six weeks of the treatment. Detail description is started below;

**Administration of posttest (after Cognitive restructuring Treatment)**

Objectives: i) To round off the counselling relationship.

ii) To ascertain the effects of the counselling process carried out in the last six sessions.

iii) To discuss other relevant issues not discussed in the previous sessions.

iv) To administer the posttest on the respondents (clients).

Step I The researcher warmly welcomed the clients into the final session of the counselling treatment.

Step II The counselor appreciated the collaborative efforts they had throughout the weeks of the counseling process.

Step III The clients were requested to express what resulted from the substitution of their distorted thoughts with more realistic thoughts.

Step IV Discussed some general aspects of test anxiety and the counseling process which was concluded.

Step V The respondents were told to get ready for another test (post-test) which was the concluding part of the counseling process. The posttest was administered, clients completed their responses, and the Researcher collected it for analysis.

**Administration of post test (after Self –Management Treatment)**

Step 1: Researcher welcomed all the clients distributed in the two groups (treatment and control groups) and commended them for untied cooperation and contribution made towards successful completion of the counselling process.

Step 2: The clients presented their self-management techniques and acknowledged their self-acceptance and assertiveness in the use of the control measures.

Step 3: The researcher asked some of the clients to explain the accepted self-management techniques that could enhance the reduction of test anxiety behavior.

Step 4: clients expressed their satisfaction/happiness for the counselling help sessions.

Step 5: The researcher informed the clients of the end of the counselling sessions

Step 6: Administration of the posttest to all the clients in the three groups, the items on the instrument was reshuffled but each statement was the same before using it as posttest.

**3.8 Procedure for Data Analysis**

The data collected were analyzed using descriptive statistics in form of means and standard deviation to answer the research questions while independent t-test was used to test hypotheses one to twelve (1-12). t - test was chosen because it is the appropriate statistical tool for determining the significance of the difference between means of two groups (Gay, 2009). Analysis of variance (ANOVA) was used to test hypothesis thirteen (13).

# CHAPTER FOUR

# DATA PRESENTATION AND ANALYSES

## 4.1 Introduction

This chapter presents data presentation and analysis. The chapter contained the demographic data of the respondents which were presented using frequencies and percentages, descriptive statistics of means and standard deviation shown in bars used to show the levels of pretest and posttest in answering the thirteen research questions while the null hypotheses were tested using t-test for independent sample. All the study hypotheses 1- 12 were tested at 0.05 levels of significances and ANOVA was used for hypothesis 13

Also, one way analysis of variance (ANOVA) was used on the pre-test results of all groups to confirm that there is no difference in the level of test anxiety among the groups in the study and to make sure all other differences in the post-test scores are due to the effect of the treatment.

## 4.2 Summary of Data

Table 4.1 Distributions of the respondents with respect to the Institution, Population and Sample

| INSTITUTIONS | POPULATION | | Total | SAMPLE | | Total |
|---|---|---|---|---|---|---|
| | Male | Female | | Male | Female | |
| | Percentages ( % ) | | | | | |
| BUK Staff Sec School | 31 33% | 33 34% | 64 33% | 8 36% | 7 30% | 15 33% |
| FCE Staff Sec School | 33 35% | 32 32.6% | 65 34% | 7 32% | 8 35% | 15 33% |
| Poly Staff Sec School | 30 32% | 33 34% | 63 33% | 7 32% | 8 35% | 15 33% |
| Total | 94 100% | 98 100% | 192100% | 22100% | 23 100% | 45100& |

The table 4.1 presents the summary of the data with respect to the three Institutions

Table 4.2 Distribution of Respondents by Two Treatments and a Control Groups

| Treatment Group / Groups | Gender Male | Female | Frequency | Percentage % |
|---|---|---|---|---|
| E) Cognitive Restructuring | 8 | 7 | 15 | 33.3% |
| E) Self-management | 7 | 8 | 15 | 33.3% |
| C) Control(no treatment) | 7 | 8 | 15 | 33.3% |
| **Total Number** | **22** | **23** | **45** | **100%** |

The above table 4.2 shows the distribution of respondents by groups. Three groups of comprising of male and female students were used, the first group comprises of 15 or 33.3% of male and female respondents who indicated high test anxiety symptoms and could benefit from reduction intervention using cognitive restructuring counselling techniques (CRCT). The respondents were the beneficiaries from Bayero University Kano Staff Secondary School, while the second group also comprises of 15 or 33.3% of respondents who indicated high test anxiety symptoms and qualified for reduction intervention using self-management counselling techniques (SMCT). The respondents were the beneficiaries from FCE Kano Staff Secondary School. The third group was also 15 or 33.3% respondents from Kano State Polytechnic Staff Secondary School who were having high test anxiety challenge, but did not receive reduction intervention. Thus, they were considered as control group; however, they were kept busy on business skills through lecture method.

## 4.3 Data Analysis

Below are the detail analyses of the thirteen hypotheses and the finding using tables and figures that showed the Pre test and Posttest Results?

### 4.3.1 Hypotheses Testing

**Hypothesis One:** There is no significant effect of cognitive restructuring counselling technique between pretest and posttest on physical dimension of test anxiety of students of staff secondary school in Kano state.

Table 4.3: t-test for independent sample between pre-test and post-test of CRCT on physical dimension

| Group | NO | Mean | Std. Dev. | t-cal | Df | P-Value |
|---|---|---|---|---|---|---|
| Pre Test | 15 | 28.13 | 6.01 | 8.01 | 28 | 0.001 |
| Post Test | 15 | 13.53 | 3.70 | | | |

The t-test yielded a p-value of 0.001 at 0.05 level of significance, indicating that the p-value < α i.e 0.001 < 0.05. Therefore, the null hypothesis which states that there is no significant effect of cognitive restructuring counselling techniques (CRCT) on physical dimension on test anxiety among Students of Staff Secondary Schools is hereby rejected. This implies that there is significant effect of cognitive restructuring counseling techniques on reduction of test anxiety. The counsellors can decide to use the techniques in treating students with physical dimension of test anxiety to help them resolve or reduce the physical dimensional symptoms of test anxiety.

**Hypothesis Two:** There is no significant effect of cognitive restructuring counselling technique between pretest and posttest on psychological dimension of test anxiety among staff secondary school students in Kano state.

Table 4.4 t-tests for independent sample between pre-test and post-test of CRCT on psychological dimension

| Group | NO, | Mean | Std. Dev. | t-cal | Df | P-Value |
|---|---|---|---|---|---|---|
| Pre Test | 15 | 20.67 | 2.92 | 5.17 | 28 | 0.001 |
| Post Test | 15 | 13.07 | 4.89 | | | |

The t-test yielded a p-value of 0.001 at 0.05 level of significance, indicating that the p-value < α i.e 0.001 < 0.05. Therefore, the null hypothesis which states that there is no significant effect of cognitive restructuring counselling techniques (CRCT) on psychological dimension on test anxiety among students of Staff Secondary Schools in Kano state is hereby rejected. This shows that there is significant difference on the effect of cognitive restructuring counseling techniques on psychological dimension of test anxiety. Therefore, cognitive restructuring counseling techniques could be used for reduction intervention to treat students with psychological dimension of test anxiety among the students having such challenges.

**Hypothesis Three:** There is no significant effect of cognitive restructuring counselling technique between pretest and posttest on cognitive dimension of test anxiety among students of staff secondary schools in Kano state.

Table 4.5 t-tests for independent sample between pre-test and post-test of CRCT on cognitive dimension

| Group | NO. | Mean | Std. Dev. | t-cal | Df | P-Value |
|---|---|---|---|---|---|---|
| Pre Test | 15 | 30.33 | 5.47 | 4.47 | 28 | 0.001 |
| Post Test | 15 | 22.67 | 3.77 | | | |

The t-test yielded a p-value of 0.001 at 0.05 level of significance, indicating that the p-value < α i.e 0.001 < 0.05. Therefore, the null hypothesis which states that there is no significant effect of cognitive restructuring counselling techniques (CRCT) on cognitive dimension on test anxiety among Students of Staff Secondary Schools in Kano state is hereby rejected; it means that there is

significant difference on the effect of cognitive restructuring counselling techniques (CRCT) on reduction of cognitive dimension of test anxiety. School counselors can decide to use it for the treatment of cognitive dimension of test anxiety among the students of staff secondary schools.

**Hypothesis Four:** There is no significant effect of self-management counselling technique between pretest and posttest on physical dimension of test anxiety among students of staff secondary schools in Kano state.

Table 4.6 t-tests for independent sample between pre-test and post-test of SMCT on physical dimension

| Group | NO, | Mean | Std. Dev. | t-cal | Df | P-Value |
|---|---|---|---|---|---|---|
| Pre Test | 15 | 23.00 | 5.07 | 6.05 | 28 | 0.001 |
| Post Test | 15 | 13.80 | 3.00 | | | |

The t-test yielded a p-value of 0.001 at 0.05 level of significance, indicating that the p-value $<\alpha$ i $0.001 < 0.05$. Therefore, the null hypothesis which states that there is no significant effect of self-management counselling techniques (SMCT) on physical dimension on test anxiety among Students of Staff Secondary Schools in Kano state is hereby rejected. Therefore, this explains that there is significant effect of SMCT on reduction of physical dimension of test anxiety. School counsellors can decide to use it for reduction treatment of physical dimension of test anxiety among the students of staff secondary schools in Kano State.

**Hypothesis Five:** There is no significant effect of self-management counselling technique between pretest and posttest on psychological dimension of test anxiety among students of staff secondary school in Kano state.

Table 4.7 t-tests for independent sample between pre-test and post-test of SMCT on psychological dimension

| Group | NO, | Mean | Std. Dev. | t-cal | Df | P-Value |
|---|---|---|---|---|---|---|
| Pre Test | 15 | 24.07 | 4.51 | 12.19 | 28 | 0.001 |
| Post Test | 15 | 8.133 | 2.29 | | | |

The t-test yielded a p-value of 0.001 at 0.05 level of significance, indicating that the p-value < α i.e 0.001 < 0.05. Therefore, the null hypothesis which states that there is no significant effect of self-management counselling techniques (SMCT) on psychological dimension on test anxiety among students of staff secondary schools in Kano state is hereby rejected. Therefore, this explains that there is significant effect of SMCT on reduction of psychological dimension of test anxiety. School counsellors can decide to use it for reduction treatment of psychological dimension of test anxiety among the students of staff secondary schools in Kano State.

**Hypothesis Six:** There is no significant effect of self-management counselling technique between pretest and posttest on cognitive dimension of test anxiety among students of staff secondary schools of tertiary institutions in Kano state.

Table 4.8 t-tests for independent sample between pre-test and post-test of SMCT on cognitive dimension

| Group | NO, | Mean | Std. Dev. | t-cal | Df | P-Value |
|---|---|---|---|---|---|---|
| Pre Test | 15 | 33.80 | 2.54 | 12.18 | 28 | 0.001 |
| Post Test | 15 | 15.80 | 5.13 | | | |

The t-test yielded a p-value of 0.001 at 0.05 level of significance, indicating that the p-value < α that is 0.001 < 0.05. Therefore, the null hypothesis which states that there is no significant effect of self-management counselling techniques (SMCT) on cognitive dimension on test anxiety among staff secondary school students in Kano state is hereby rejected. Therefore, this explains

that there is significant effect of SMCT on reduction of cognitive dimension of test anxiety. School counsellors can decide to use it for reduction treatment of cognitive dimension of test anxiety among the students of staff secondary schools in Kano State.

**Hypothesis Seven:** There is no significant difference in the effect of cognitive restructuring counselling techniques (CRCT) between pretest and posttest on physical dimension on test anxiety between male and female students of staff secondary schools in Kano State.

Table 4.9 t-tests for independent sample between pre-test and post-test for CRCT on physical dimension on test anxiety between male and female students

| Gender | NO, | Mean | Std. Dev. | t-cal | Df | P-Value |
|---|---|---|---|---|---|---|
| Male | 8 | 11.14 | 2.48 | 2.89 | 13 | 0.013 |
| Female | 7 | 15.63 | 3.38 | | | |

The t-test yielded a p-value of 0.013 at 0.05 level of significance, indicating that p-value < α i.e 0.013 > 0.05. The null hypothesis which states that there is no significant effect of cognitive restructuring counselling techniques (CRCT) on physical dimension on test anxiety between male and female students of staff secondary schools in Kano State was therefore rejected. The finding shows that there is significant difference in the use of CRCT in treating physical dimension of test anxiety among male and female students of senior secondary schools.

**Hypothesis Eight:** There is no significant difference in the effect of cognitive restructuring counselling techniques (CRCT) between pretest and posttest on psychological dimension on test anxiety between male and female students of staff secondary schools in Kano State.

Table 4.10 t-tests for independent sample between pre-test and post-test for CRCT on psychological dimension on test anxiety between male and female

| Gender | NO, | Mean | Std. Dev. | t-cal | Df | P-Value |
|---|---|---|---|---|---|---|
| Male | 8 | 10.571 | 3.952 | 2.048 | 13 | 0.061 |
| Female | 7 | 15.250 | 4.773 | | | |

The t-test yielded a p-value of 0.061 at 0.05 level of significance; indicating that p-value > 0.061 > 0.05. Thus, the hypothesis that says there is no significant difference on CRCT on psychological dimension of test anxiety between male and females Students of Staff Secondary Schools in Kano State was therefore accepted. The finding shows that there is significant difference in the use of CRCT is very effective in treating psychological dimension of test anxiety among male and female students of senior secondary schools.

**Hypothesis Nine:** There is no significant difference in the effect of cognitive restructuring counselling techniques (CRCT) between pretest and posttest on cognitive dimension on test anxiety between male and female students of Staff Secondary schools in Kano State

Table 4.11 t-tests for independent sample between pre-test and post-test for CRCT on cognitive dimension on test anxiety between male and female students

| Gender | NO, | Mean | Std. Dev. | t-cal | Df | P-Value |
|---|---|---|---|---|---|---|
| Male | 8 | 22.143 | 3.024 | 0.489 | 13 | 0.633 |
| Female | 7 | 23.125 | 4.486 | | | |

The t-test yielded a p-value of 0.633 at 0.05 level of significance, indicating that p-value > α i.e 0.633 > 0.05. Thus, the hypothesis that says there is no significant difference on CRCT on psychological dimension of test anxiety between male and females students of staff secondary

schools in Kano State was therefore accepted. The finding shows that there is significant difference in the use of CRCT is very effective in treating cognitive dimension of test anxiety among male and female Students of Senior Secondary Schools. The technique is more effective to be use among the male test anxious students.

**Hypothesis Ten:** There is no significant difference in the effect of SMCT between pretest and posttest on physical dimension on test anxiety between male and female students of staff secondary schools in Kano State.

Table 4.12 t-tests for independent sample between pre-test and post-test for SMCT of physical dimension on test anxiety between male and female students

| Gender | NO, | Mean | Std. Dev. | t-cal | Df | P-Value |
|---|---|---|---|---|---|---|
| Male | 7 | 15.57 | 2.48 | 2.51 | 13 | 0.026 |
| Female | 8 | 12.25 | 3.38 | | | |

The t-test yielded a p-value of 0.026 at 0.05 level of significance, indicating that p-value < α i.e0.026 < 0.05. The null hypothesis which states that there is no significant effect of self-management counselling techniques (SMCT) on physical dimension on test anxiety between male and female students of Staff Secondary schools in Kano State was therefore rejected. There is significant difference in the effect of self-management counselling techniques on the physical dimension of test anxiety. The technique favors female students than the male students.

**Hypothesis Eleven:** There is no significant difference in the effect of self-management counselling techniques (SMCT) between pretest and posttest on psychological dimension on test anxiety between male and female students of staff secondary schools in Kano State.

Table 4.13 t-tests for independent sample between pre-test and post-test for SMCT of psychological dimension on test anxiety between male and female students of staff secondary schools in Kano State

| Gender | NO, | Mean | Std. Dev. | T | Df | p-value |
|---|---|---|---|---|---|---|
| Male | 7 | 7.857 | 1.345 | 0.423 | 13 | 0.679 |
| Female | 8 | 8.375 | 2.873 | | | |

The t-test yielded a p-value of 0.679 at 0.05 level of significance, indicating that p-value > α i.e 0.679 > 0.05. Thus, the null hypothesis which states that there is no significant effect of self-management counselling techniques (SMCT) on psychological dimension on test anxiety between male and female students of staff secondary schools in Kano State is rejected. It favors the males more than the females.

**Hypothesis Twelve:** There is no significant difference in the effect of self-management counselling techniques (SMCT) between pretest and posttest on cognitive dimension on test anxiety between male and female students of staff secondary schools in Kano State.

Table 4.14 t-tests for independent sample between pre-test and post-test for SMCT of cognitive dimension on test anxiety between male and female students

| Gender | NO, | Mean | Std. Dev. | t-cal | Df | P-Value |
|---|---|---|---|---|---|---|
| Male | 7 | 15.00 | 4.000 | 0.551 | 13 | 0.591 |
| Female | 8 | 16.50 | 6.141 | | | |

The t-test yielded a p-value of 0.591 at 0.05 level of significance, indicating that p-value > α i.e 0.591 > 0.05. Thus, the null hypothesis which state that there is no significant effect of self-management counselling techniques (SMCT) on cognitive dimension on test anxiety between male and female students of staff secondary schools in Kano State rejected. It favors the males more than the females.

**Hypothesis Thirteen:** There is no significant difference in the relative effectiveness of cognitive restructuring counselling technique and self-management counselling technique between pretest and posttest on test anxiety among students of staff secondary schools in Kano State.

Table 4.15 Analysis of variance (ANOVA) on pre-test Anxiety scores of student exposed to CRCT and SMCT treatment and those in control group.

| **Source** | **NO,** | **Sum of Square** | **df** | **Mean Square** | **F** | **Sig.** |
|---|---|---|---|---|---|---|
| Between group | | | 4 | 7.337 | 4.911 | 0.08 |
| Pre-test | 15 | 29.347 | | | | |
| Within group | | | 40 | 1.494 | | |
| Post-test | 15 | 59.764 | | | | |
| Post- test | 15 | | | | | |
| **Total** | **45** | **89.111** | **44** | | | |

Table 4.15 shows the pretest anxiety mean scores of respondents identified with test anxiety from their respective schools exposed to CRCT and SMCT and those in control group. The F-value for pre-test anxiety scores is 4.911 and P-value of 0.08 was obtained which is higher than 0.05 alpha level of significant. This analysis shows that no significant difference exists among the groups.

The analysis of variance was conducted to evaluate whether sampled subjects identified with test anxiety could be combined as a group. It examines pre-treatment difference among groups in order to ascertain the differential effects of the two treatments. Thus, analysis of variance (ANOVA) was conducted to remove effects of any source of variation that would otherwise affect the experimental effects. Therefore, any other differential effects observed between pre-test and or control group and post-test group is due to treatment effect not group variations. Hence, the null hypothesis which states that there is no significant difference in the relative effectiveness of

cognitive restructuring counselling technique and self-management counselling technique on test anxiety among students of staff secondary schools in Kano State is accepted. The Bar Chart also showed it clearly in the Pre test and Posttest difference.

## 4.5 Summary of Findings

There was significant reduction in the level of physical dimension of test anxiety symptoms among the students of senior staff secondary schools (SS II) in Kano state, after being treated with cognitive restructuring counselling technique (CRCT) from the mean physical dimension scores, the students had lower physical dimension symptoms on test anxiety.

There was significant reduction in the level of psychological dimension of test anxiety symptoms among the students of senior staff secondary schools (SS II) in Kano state, after being treated with cognitive restructuring counselling technique (CRCT) from the mean psychological dimension scores, the students had lower psychological dimension symptoms on test anxiety.

There was significant reduction in the level of cognitive dimension of test anxiety symptoms among the students of senior staff secondary schools (SS2) in Kano state, after being treated with cognitive restructuring counselling technique (CRCT) from the mean cognitive dimension scores, the students had lower cognitive dimension symptoms on test anxiety.

There was significant reduction in the level of physical dimension of TA among students of staff senior secondary schools (SS II) in Kano state, after being treated with self-management counselling technique (SMCT) from the mean physical dimension scores, the students had lower level physical dimension symptoms of test anxiety.

There was significant reduction in the level of psychological dimension of TA among students of staff senior secondary schools (SS II) in Kano state, after being treated with self-management counselling technique (SMCT) from the mean psychological dimension scores, the students had lower level psychological dimension symptoms of test anxiety.

There was significant reduction in the level of cognitive dimension of TA among students of staff senior secondary schools (SS II) in Kano state, after being treated with self-management counselling technique (SMCT) from the mean cognitive dimension scores, the students had lower level cognitive dimension symptoms of test anxiety.

There was significant difference between male and female students in the reduction level of physical dimension of TA among them, after being treated with CRCT in respect to physical dimension on TA. It favors the male having lesser physical dimension mean score than their females' counterpart. The results shows that CRCT have significant effect on physical dimension on TA between male and female students of senior staff secondary school in Kano state, thus the hypothesis is rejected.

There was significant difference between male and female students in the reduction level of psychological dimension of TA among them, after being treated with CRCT in respect to psychological dimension on TA. It favors the male having lesser psychological dimension mean score than their females' counterpart. The results show that CRCT have significant effect on psychological dimension on TA between male and female students of senior staff secondary schools in Kano state, thus the hypothesis is rejected.

There was significant difference between male and female students in the reduction level of cognitive dimension of TA among them, after being treated with CRCT in respect to cognitive

dimension on TA. It favors the male having lesser cognitive dimension mean score than their females' counterpart. The results show that CRCT have significant effect on cognitive dimension on TA between male and female students of senior staff secondary schools in Kano state, thus the hypothesis is rejected.

There was a significant difference between the male and female students in the reduction level of physical dimension of test anxiety among them, after being treated with SMCT in respect to physical dimension on test anxiety, thus the SMCT has significant effect on the physical dimension and favors the males more than the female counterparts. The hypothesis is rejected.

There was a significant difference between the male and female students in the reduction level of psychological dimension of test anxiety among the students after being treated with SMCT in respect to psychological dimension on test anxiety, thus the SMCT has significant effect on the psychological dimension of TA and it favors the male more than the females' counterparts. Thus, the hypothesis is rejected

There was a significant difference between the male and female students of senior staff secondary school in Kano state, after being treated with reduction level of cognitive dimension of test anxiety among them, the SMCT in respect to cognitive dimension on test anxiety, the significant effect on the cognitive dimension and favors the male more than the females' counterparts.

There was no significant difference in the relative effectiveness of CRCT and SMCT on test anxiety dimensions among students of staff secondary schools in Kano State. The two counselling intervention techniques adapted were effective in the reduction of TA dimensional levels.

## 4.6 Discussions

This research work aimed at determining the effects of cognitive restructuring and self-management counselling techniques on test anxiety among students of staff secondary schools in Kano State, Nigeria. Findings from the study are discussed below;

The findings from hypotheses 1-3 showed that cognitive restructuring counselling technique (CRCT) as a reduction intervention has significant effect on physical, psychological and cognitive dimensions on test anxiety among students of staff secondary schools in tertiary institutions in Kano state. The result showed that there was significant reduction on physical, psychological and cognitive dimensions on test anxiety among students of staff secondary schools in Kano State after being treated with the cognitive restructuring counselling technique (CRCT). This showed the efficacy of the cognitive restructuring counselling technique in reducing physical, psychological and cognitive dimensions on test anxiety among students of staff secondary schools in Kano state. This finding is in line with the findings of Mohammed (2014) who indicated the effectiveness of CRCT in reducing High-Stakes Test Anxiety among Final Year Secondary School Students in Kaduna Metropolis. The finding also corroborate with the findings of Ahmed (2016) who found that students exposed to cognitive restructuring counselling techniques such as validity testing, modeling, and systematic positive reinforcement had a reduced school phobia.

The findings from hypotheses 4-6 of the study showed that from the data collection on self-management counselling techniques (SMCT) has significant effects on physical, psychological and cognitive dimensions on test anxiety among students of staff secondary school (SS2) in tertiary institutions in Kano state. The result shows that there was significant reduction on physical, psychological and cognitive dimensions on test anxiety among students of staff secondary schools in Kano State after being treated with the self-management counselling

techniques (SMCT). This showed the effects of the self-management counselling technique in reducing physical, psychological and cognitive dimensional symptoms on test anxiety among students of staff secondary schools in Kano state. This findings is in line with the findings of the of Ada, Nwokolo and Azuji (2016) who found that self-management technique was effective and significant in reducing test anxiety among secondary school students.

Furthermore, the findings from hypotheses 7-9 result showed that cognitive restructuring counselling techniques (CRCT) has significant effects on physical dimension on test anxiety between male and female students of Staff Secondary schools in Kano State. Result showed that the physical dimension on test anxiety reduced more in male students than in their female counterparts. This is in line with the findings of Ahmad (2016) and Lawal (2016) who in their separate studies found a significant difference between male and female students exposed to cognitive restructuring counselling techniques. Ahmad founds that school phobia reduced more in female students over their male counterparts. The gender difference under hypotheses 7-9 support the two studies that used secondary school students as the populations and the systematic counselling techniques. It also confirmed the study conducted by Muhammad (2014).

The Findings from hypotheses 10-12 revealed that there is significant effect of cognitive restructuring counselling techniques (CRCT) on psychological and cognitive dimensions on test anxiety between male and female students of Staff Secondary schools in Kano State. Though, the male students seem to have less anxiety, the difference between the two groups is statistically significant. This finding contradicts the findings of Ahmad (2016) and Lawal (2016) who in their separate studies found insignificant difference between male and female students exposed to cognitive restructuring counselling techniques. However this result showed that the physical dimension on test anxiety reduced more in female students than in their male counterparts.

In addition, the findings showed that there is significant effect of self-management counselling techniques (SMCT) on psychological and cognitive dimension on test anxiety between male and female students of Staff Secondary schools in Kano State. Though the male student seems to have less anxiety as regards psychological dimension, female students have less text anxiety as regard to cognitive dimension. The difference between the two groups is not statistically significant.

Furthermore, the finding on hypothesis 13 showed that there is no significant difference in the relative effectiveness of the two counselling techniques. The bar have shown this in the graph. However**,** the F-value for pretest anxiety score is 4.911 and P –value of 0.08 was obtained which is higher than 0.05 alpha level of significant. This analysis shows that no significant difference exists among the groups. The analysis of variance was conducted to evaluate whether sampled subjects identified with test anxiety could be combined as a group. It examines pre-treatment differences among groups in order to ascertain the differential effects of the two treatments. Thus, analysis of variance (ANOVA) was conducted to remove effects of any source of variation that would otherwise affect the experimental effects. Therefore, any other differential effects observed between pre-test and or control group and post-test group is due to treatment effect not group variations. Hence, the null hypothesis which states that there is no significant difference in the effectiveness of cognitive restructuring counselling technique and self-management counselling technique on test anxiety among students of staff secondary schools in Kano State is accepted.

# CHAPTER FIVE

# SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

## 5.1 Introduction

The chapter presents the summary of the research work, the conclusions emanating from the findings and also subsequent recommendations arising from the study are also discussed. The chapter also gives suggestions for further studies.

## 5.2 Summary

One of the major concerns of this study was on students' test challenge that could be manifested in physical, psychological and cognitive dimensional symptoms among the students of secondary school level. The researcher is moved by the adverse effects of test anxiety on the students' academic achievement during preparatory stage for test, during test performance and posttest experience. Thus, the study investigated the effects of cognitive restructuring and self-management counselling techniques on the reduction of test anxiety dimensional symptoms among students of staff secondary schools in Kano, Nigeria. The study focused on thirteen research questions with the corresponding thirteen null hypotheses developed to guide the researcher. The objectives of the study include an attempt to find out the relative effectiveness between cognitive restructuring counselling technique and self-management counselling technique on test anxiety among students of staff secondary schools and to identify whether gender differences exist in the effectiveness of the two techniques. Hypotheses 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11 and 12 were rejected as there were significant effects on the differences between the variables that were observed, between the groups, while hypothesis 13 was accepted as there were no relative differences in the effectiveness of the two used counselling techniques.

The review of related literature presented the concept of test anxiety, dimensions and effects on academic achievement are discussed extensively. The two intervention strategies, that is, cognitive restructuring and self-management counselling techniques, their effects on physical, psychological and cognitive dimensional symptoms were also discussed. Theoretically, the study was guided by four theories; Attention, Distraction, Attention Control and Cognitive Attention are explained in connection to test anxiety. Tips on what triggers it to the level of behavior disorders Rivera (2011) are highlighted. Empirical studies were reviewed, summary and uniqueness of the study was also presented.

The methodology of the study used quasi-experimental research design involving pre-test post-test control group was adopted. The population comprised of two hundred and ninety two (292) test anxious students that included males and females, purposely selected to represent the three categorized tertiary institutions of learning in Kano State that have staff secondary schools. The population sample comprised of a total of forty five 45 test anxious students in which fifteen (15) students (8 males, 7 females) selected from BUKSMSS who were treated with cognitive restructuring counselling technique. Another fifteen (15) students (7 males, 8 females) selected from FCESSS were treated with self-management counselling technique while the last group also consist of 15 students (8 males, 7 females) selected from KSPSSS were used as the control group.

The instrument used for data collection was titled, Students Test Anxiety Inventory (STAI).It consists of twenty (20) items based on 5-point Likert scale, ranging from 1 (never), 2 (seldom or slightly), 3 (moderately or sometimes) and 4 (higher or usually) and 5 (extremely or always). The instrument was used as the first step to collect data (before and after the treatment sessions that is for pretest and posttest) by the researcher.

The test instrument contains four sections (A to D). Section A seeks for demographic data of the respondents while section B contains seven (7) items of physical dimensional symptoms on test anxiety, section C contains five (5) items on psychological dimensional T A symptoms, while D contains eight (8) items on cognitive dimension of test anxiety symptoms. The procedure for scoring the instrument and its interpretation was found in Driscoll (2004). The items mainly asked questions on aspects of physical, psychological and cognitive dimensions (types) which interfered with students' concentration, conception and performance before, during and after the test. The instrument was modified by the researcher with additional ten items, as regards the reliability of Students Test Anxiety Inventory the Cronbach's alpha showed 0.954 for the entire pilot study It implies that the instrument is good and reliable. Hence, the instrument has excellent reliability as far as the internal consistency is concerned.

In collecting the data, the researcher administered the STAI to the students with the help of their respective teacher-counsellors in order to identify students who experienced test anxiety in the school. After identifying the students, a test anxiety inventory (STAI) was administered to them that served as pre-test. With regard to the two (2) intervention groups, they were treated with CRCT and SMCT respectively for a period of six weeks for each group. Thereafter the treatment, the instrument was re-administered to both the treatment and control groups in order to obtain their post-test data for analyses.

The analysis of the data obtained from the study was done which included data presentation, hypotheses testing, summary of findings and discussion on the findings. Thirteen research questions were answered using mean scores and standard deviations of the respondents, while inferential statistics t-test using independent sample was used to analyze the study hypotheses at 0.05 level of significance using SPSS version 2s0 was applied and ANOVA was used to answer

hypothesis 13. The findings after the analysis showed that the techniques were very effective in reducing physical, psychological and cognitive dimensions of test anxiety, gender difference sensitivity and relative differences in the effectiveness of the two techniques are also established.

Finally, the study summarized chapters one to five, made conclusion, suggested recommendations based on the study and recommendations made for further studies.

**5.3 Conclusions**

The physical, psychological, and cognitive dimensions on test anxiety reduced more in male students than in their female counterparts. Thus, the null hypotheses were rejected as they favored male students (respondents), that indicated gender sensitivity among male and female students of Staff Secondary Schools in Kano State. It was also concluded that self-management counselling techniques (SMCT) have significant differences in the reduction of physical, psychological and cognition dimensions of test anxiety between male and female students but SMCT favored more female students (respondents) on physical dimension of the anxiety than the male counterparts. Conclusively, this implied that the two counselling techniques are effective in reducing Test Anxiety challenge among male and female students of Secondary Schools in Kano State.

On the relative effectiveness of the two counselling techniques on test anxiety reduction among the students, the result showed that there is no significant difference in the relative effectiveness of the two counselling techniques. Thus, the null hypothesis is accepted and it is concluded that the techniques are relatively effective.

## 5.4 Recommendations

Based on the findings of this study, the following recommendations were made:

### 5.4.1 Recommendations from the Study

The following are the recommendations from the study.

1. The study has established the effectiveness of CRCT in the reduction of physical, psychological and cognitive dimensional symptoms of TA. Thus, Counsellors, researchers, teachers, policy makers and parents should be encouraged and motivated to adopt the use of cognitive restructuring counselling technique in an attempt to treat students with the three dimensional symptoms of test anxiety.
2. The study has ascertained the effectiveness of SMCT as a reduction measure in treating physical, psychological and cognitive dimensional symptoms of TA, therefore Counsellors, researchers, parents and teachers should be encouraged and motivated to adopt the use of self- management counselling technique to treat the three dimensional symptoms (challenges) of test anxiety among students of staff secondary schools in Kano and other States of Nigeria.
3. CRCT and SMCT have shown as gender sensitive techniques, that CRCT favored more males while SMCT favored more females in physical dimensions of TA. Hence, Counsellors, researchers, teachers and parents should be encouraged and motivated to adopt the use of appropriate technique(s) on appropriate dimensional symptoms of TA in treating male and female test anxious students in Staff secondary schools in Kano Nigeria.
4. The study has shown the effectiveness of the two techniques in reducing dimensional (types) symptoms of TA. Thus, Counsellors, teachers and Parents should be

encouraged and motivated to use cognitive restructuring and self-management counselling techniques in treating students' with any or combinations of the dimensions of test anxiety in other Secondary schools in Southern Nigeria.

5. Based on the study's findings, Counsellors, researchers and teachers should also be encouraged and motivated to consider the students' educational level of the students before the choice of appropriate technique to be employed in treating male and female students' dimensions of test anxiety in the Northern Nigeria.
6. Counsellors, researchers and teachers should be encouraged to employ cognitive restructuring and self-management counselling technique to find out the specific dimensional area of test anxiety among students of senior Secondary Schools in Kano Nigeria.
7. Counsellor, researchers and teacher should be encouraged to employ self-management counselling technique to treat female students with physical type of test anxiety challenge in senior secondary schools within Kano Municipality.

### 5.4.2 Recommendations for Further Studies

Based on the delimitation of the current study in different related areas, the followings are the suggestions for further studies.

1. The effects of other combine counseling techniques such as emotional empowerment training and self efficacy or solution focused brief and on Staff positive reinforcement counselling techniques on test anxiety among Pupils Primary Schools in Kano can be investigated to ascertain the relative effectiveness of the techniques. The outcome of such studies will further provide the school counselors with a wider range of techniques to use in helping their test anxious Pupils.

2. This study focused on secondary school level only and effects of test anxiety conditions also affects students of other educational levels or other population.
3. Effect of test anxiety conditions also affects other population. The behavioral attitude or problems could be emanated from biological, social, academic or other related variables. Appropriate techniques could be used to reduce the negative effects of TA on the test anxious students among the students' population in Community Secondary Schools.
4. This study was also limited to the effects of physical, psychological and cognitive dimensional symptoms regardless of other behavoural dimensions of test anxiety on other population. Further investigations could be carried out to find out behavioral symptoms of test anxiety challenge among different population with particular reference to students of junior secondary school level
5. This study is limited to staff secondary school male and female students in Kano, Nigeria. Further investigation could be conducted on the effects of systematic desensitization and self management counselling techniques on TA among female test anxious students in private and community schools
6. The population of this study is limited to students of senior secondary schools (SSS2) only in Kano state Nigeria. However, the population could be extended to incorporate all SSS2s from the four (4) zones in Nigeria taking a state to represent each zone.
7. This study is limited to use of group counselling techniques, however, effect of individual and group counselling techniques could be investigated on their effect in finding specific areas of test anxiety dimensions.

8. This study adopted Students Test Anxiety Inventory as an instrument to collect the data an additional instrument can be developed by a researcher to supplement the collection of the data for the study.

## REFERENCES


Adebayo, I. I. (2010). *Efficacy of Positive Reinforcement and Self Control Group Counselling Interventions Techniques in Remedying Adjustment,* London: Book café publisher.

Ader, E., & Erktin, E. (2010). Coping as self-regulation of anxiety: A model for math achievement in high-stakes tests. Cognition, Brain, Behavior, 14, 311–332. Retrieved from http://www.cbbjournal.ro/

Adewuyi T. O., Taiwo O. K., & Olley B. O. (2012). Influence of examination anxiety and self-efficacy on academic performance among secondary school students. Ife Psychologia, 20, 60–68.

Ahmed, A. (2016). *Effect of positive reinforcement on the level of absenteeism among secondary school students in Daura Zonal Inspectorate of Education of Katsina State*. Unpublished Masters Theses, Department of Educational Psychology and Counselling, Ahmadu Bello University, Zaria.

Ahmed, W., Minnaert, A., Kuyper, H., & van der Werf, G. (2011). Reciprocal relationships between math self-concept and math anxiety. Learning and Individual Differences, 22, 385-389. Retrieved from http://www.journals.elsevier.com/learning-and-individual-differences.

Akanbi S. T. (2010). Test anxiety as a correlate of academic achievement among senior secondary school in Ogbomoso area of Oyo State. African Journal of Educational Research, 14, 89–97.

Anyamene, A., Nwokolo, C. and Azuji, I. (2016). Effects of Self-Management Technique on Test Anxiety among Secondary School Students. The Journal of Social Sciences Research. Vol. 2, No. 9. Pp: 159-166.

Alderson, M., Starr, L., Gow, S., & Moreland, J. (1999). The program for Rheumatic Independent Self-management: A Pilot Evaluation. *Clinical Rheumatology, 18,* 283-292.

Bandura, A. (1977). *Social Learning Theory.* Englewood Cliffs, N.J. Prentice-Hall.

Bandura, A. (2000). Self-efficacy: *The Foundation of Agency*. In W.J. Perrig (Ed.), Control of Human behaviour, Mental Processes and Consciousness (pp. 17-33). Mahwah, NJ: Lawrence Erlbaum.

Barlow J, Edwards R, Turner A. (2009). The experience of attending a lay- led, chronic disease self-management programme from the perspective of participants with multiple sclerosis. *Psychol Health (10)*:1167–80.

Barlow, J., Wright, C., Sheasby, J., Turner, A., & Hainsworth, J. (2002). Self-management approaches for people with chronic conditions: A review. *Patient Education and Counseling, 48,* 177-187.

Barrows J., Dunn S., & Lloyd C. A. (2013). Anxiety, self-efficacy, and college exam grade. Universal Journal of Education Research, 1, 204–208.

Beck, J. Nwaman, G. (2005). The Basic Principle of Cognitive Behaviour Therapy. Psych Central. Retrieved on May 19, 2007, from http//pro.psychcentral.com.

Beilock, S. L. and Ramirez, G. (2011). *The Psychology of Learning and Motivation* (Vol 55): Cognition in Education. Mestre, Jose P. (Ed.); Ross, Brian H. (Ed.); San Diego, CA, US: Elsevier Academic Press, Vol 55, pp. 140-141

Bensoussan, M. (2012). Alleviating Test Anxiety for Students of Advanced Reading Comprehension. RELC Journal, 43(2), 203–216. doi:10.1177/0033688212449511

Binta, N. and Abdulrauf, A.H. (2011). *Overcoming Test Anxiety:* Perspectives of Senior Students of the Faculty of Education, University of Malaysia. Pdf Special Education, Retrieve August 3rd, 2011.

Blum, N. Pfohl, B.St. John, D. (2002). *A Cognitive Behavioural System Based Group Treatment for out Patient with Boarder Line Personality Disorder* - A Preliminary Report. Camp Psychiatric.

Boeree, G.C. (2008). *Personality Theories*: Albert Bandura, Shippenshurg University, (www.ship.edu) Retrieved on May 30, 2013.

Bouton, M.E. (2007). *Learning and Behaviour: A Contemporary Synthesis*, Sunderland, and M.A.: Sinauer.

Brittany, N.M. & Thompson, E.D. (2009). Cognitive behavioural Therapy for anxiety in children diagnosed with autism spectrum disorders: Modification trends. *Journal of Research in Austin Spectrum Disorders*. Vol. 4, issue 3, July-September. Pp. 346-354

Broden, M., Hall, R. V., & Mitts, B. (1971). The effect of self-recording on the classroom behavior of two eighth-grade students. *Journal of Applied Behavior Analysis, 4,* 191-199.

Bufka, L., Barlow, F. and David, H. (2009). *Anxiety*. Microsoft Encarta [DVD]. Redmond, WA: Microsoft Corporation.

Burn, M. (1989). *Child Psychiatry and You*. MOSCOW; Mir Publishers, University of Buffalo (2011).

Caldarella, P. & Merrell, K.W. (1997). *Common dimensions of social skills of children adolescent*: Taxonomy of school psychology review, 26 (2), 265-279.

Cancio, E., West, R., & Young, K. R. (2004). Improving mathematics homework completion and accuracy of students with EBD through self-management and parent participation. *Journal of Emotional and Behavioral Disorders, 12,* 9-22.

Carter, J. (1998). *Social Skills training in beyond behavior modification:* A cognitive behavioural approach to behavior management in the school, (3rd ed.) Austin, Texas.

Cassady J. C. (2010). *Test anxiety: Contemporary Theories and Implications for Learning*. In J. C. Cassady (Ed.), Anxiety in School: The Causes, Consequences, and Solutions for Academic Anxieties (pp. 7–26). New York, NY: Peter Lang.

Cassady J. C, and Johnson R. E. (2002). *Cognitive Test Anxiety and Academic Performance.* Contemporary Educational Psychology, 27, 270–295. https://doi.org/10.1006/ceps.2001.1094

Cassady, J. & Johnson, R. (2001). *Cognitive Test Anxiety and Academic Performance.* Contemporary Educational Psychology, 27, 270–295.

Chapell M. S., Blanding Z. B., Silverstein M. E., Takahashi M., Newman B., Gubi A. & McCann N. (2005). Test Anxiety and Academic Performance in Undergraduate and Graduate Students. *Journal of Educational Psychology,* 97, 268–274.

Chapell, M. S, Blanding, Z. B., Takahashi, M., Silverstein, M. E., Newman, B., Gubi, A., McCann, N. (2005). Test anxiety and academic performance in undergraduate and graduate students. *Journal of Educational Psychology, 97*, 268-274.

Chen, H. (2012). *The Moderating Effects of Item Order Arranged by Difficulty on the Relationship between Test Anxiety and Test Performance.* Creative Education, 3, 328–333.

Clark, N.M., Becker, M.H., Janz, N.K., Lorig, K., Rakowski, W., & Anderson, L. (1991). Self-management of chronic disease by older adults. A review and questions for older adults. *Journal of Aging and Health, 3*, 3-27.

Cohen, J. (2007). Effects of Test Anxiety, Time Pressure, Ability and Gender on Response Aberrance. Unpublished PhD Dissertation Submitted to the Ohio State University. Educational Policy and Leadership.

Comer, R.J. (1996). *Fundamentals of Abnormal Psychology*. Avoidant Personality Disorder, pp. 428-430. Third Edition, New York: Worth.

Creer, T., Renne, C., & Christian, W. (1976). Behavioral contributions to rehabilitation and childhood asthma. *Rehabilitation Literature, 37*, 226-232, 247.

Culler, R. and Holahan. C. (1980). Test anxiety and academic performance: The effects of study-related behaviours" *Journal of Educational Psychology 72 16-20.*

De Caro, M.S., Thomas, R.D., Albert, N.B., and Beilock, S.L. (2011). *"Choking Under Pressure: Multiple Routes to Skill Failure"* (PDF). J Exp Psychol Gen. 140 (3): 390–406.

DePhil M. B., Brilot B., & Nettle D. (2011). Anxiety: An evolutionary approach. *Canadian Journal of Psychiatry*, 56, 707–715.

Diana, R. (2013). *Cognitive Restructuring: What is it.* Medically reviewed by Lindsey Marcellin, M.D. retrieved from http://www.everydayhealth.com

Driscole, R. (2004). *Westside test anxiety scale*. Retrieved from www.amtaa.org/scale Westside.html. June 13th, 2011.

Driscole, R., B. Holt, & Hunter (2005). Accelerated Desensitization and Adaptive Attitudes Interventions and Test Gains with Academic Probation Students. ERIC 13 pp.

Driscole, R. (2006). Stars-Pac Accelerated Anxiety Reduction: Rationale and Initial Findings. ERIC. 18 pp

Egbochukwu, E.O., Obodo, B. and Obadan, N.O. (2008). Efficacy of Rational-Emotive Behaviour Therapy on the reduction of test anxiety among adolescents in secondary schools. European Journal of Social Sciences, 6(4): 152-164.

Epstein, M., Atkins, M., Cullinan, D., Kutash, K., and Weaver, R. (2008). *Reducing behavior problems in the elementary school classroom*: A practice guide (NCEE #2008-012).

Ergene, T. (2011). *The Relationship among Test Anxiety, Study Habit, Achievement Motivation, and Academic Performance among Turkey High School Students*. Education and Science, 36, 320–330.

Ergene, T. (2003). *Effective Interventions on Test Anxiety Reduction.* Hacettepe University: Turkey. www.amtaa.org/res/ergene.pdf

Eysenck, M. W., Santos, R., Derekshan, N., & Calvo, M. G. (2007). *Anxiety and Cognitive Performance:* Attentional Control Theory. Emotion, 7(2), 336–352.

Falaye, A. (2010). Cognitive Test Anxiety and Learning Outcomes of Selected Undergraduate Students. *The African Journals.* Vol. 10(2).

Fantuzzo, J. W., & Polite, K. (1990). School-based, behavioral self-management: A review and analysis. *School Psychology Quarterly, 5 (3)*, 180-198.

Fletcher, K. L., & Speirs Neumeister, K. L. (2012). *Research on perfectionism and achievement motivation*: implications for gifted students. Psychology in the Schools, 49, 668–677.

Funnell, M.M., & Anderson, R.M. (2004). Empowerment and self-management of diabetes. *Clinical Diabetes, 22(3),* 123-127.

Funnell, M.M., Anderson, R.M., Arnold, M.S., Barr, P.A., Donnelly, M.B., Johnson, P.D., Taylor- Moon, D., & White, N.H. (1991). Empowerment: An idea whose time has come in diabetes education. *Diabetes Educator, 17*, 37-41.

Gaudry, E., & Spielberger, C. (1971). *Anxiety and Educational Achievement*. New York: Wiley.

Gay, L.R. (2009). Educational Research: Competencies for Analysis and Applications. (9th Ed). Macmillan Publishing Company.

Glasgow, R.E., Wilson, W., & McCaul, R.D. (1985). Regimen adherence: A problematic construct in diabetes research. *Diabetes Care, 8,* 300-301.

Grills-Taquechel, A. E., Fletcher, J. M., Vaughn, S. R., & Stuebing, K. K. (2012). *Anxiety and reading difficulties in early elementary school*: Evidence for unidirectional- or bi-directional relations? Child Psychiatry & Human Development, 43, 35–47.

Gruman, J., & Von Korff, M. (1996). *Indexed bibliography on Self-management for People with Chronic Disease*. Washington, DC: Center for Advancement in Health.

Hembree, R. (1988). Correlates, causes, effects, and treatment of test anxiety. *Review of Educational Research, 58, 47-77*

Hoff, K., & DuPaul, G. (1998). Reducing disruptive behavior in general education classrooms: The use of self-management strategies. *School Psychology Review, 27,* 290-303.

Holman H, Lorig K. (2004). *Patient self-management: a key to effectiveness and efficiency in care of chronic disease.* Public Health Rep (3):239–43.

Hope, D.A., Burn, J.A., Hyes, S.A., Herbert, J.D. and Warner, M.D. (2010). *Automatic Thoughts and Cognitive Restructuring in Cognitive Behavioural Group Therapy Social Anxiety Disorder.* Cognitive Therapy Research.

Huberty, T. J. (2009). *Test and performance anxiety.* Principal Leadership, 10, 12–16. Retrieved from http://www.nasponline.org/

Ingram, K., Lewis-Palmer, T., & Sugai, G. (2005). Function-based intervention planning: Comparing the effectiveness of FBA function-based and non-function-based intervention plans. *Journal of Positive Behavior Interventions, 7,* 224-236.

Ju Hyun Lee (1999). "Test Anxiety and Working Memory". *Journal of Experimental Education.* 67 (3): 218–240.

Kamps, D. M., Wendland, M., & Culpepper, M. (2006). Active teacher participation in functional behavior assessment for students with emotional and behavioral disorders risks in general education classrooms. *Behavioral Disorders, 31,* 128-146.

Kern, L, Dunlap, G., Childs, K., Clarke, S. (1994). Use of a Classwide self-management program to improve the behavior of students with emotional and behavioral disorders. *Education and Treatment of Children, 17*, 445-458.

Khalaila R. (2015). *The relationship between academic self-concept, intrinsic motivation, test anxiety, and academic achievement among nursing students:* Mediating and mediating effects. Nurse Education Today, 35, 432–438.

Kim, K., Oh, I.-S., Chiaburu, D. S., & Brown, K. G. (2012). Does Positive Perception of Oneself Boost Learning Motivation and Performance? *International Journal of Selection and Assessment,* 20, 257–271.

Kolo, F.D. (2003). Basic Research Concepts for Behavioural Researches. Zaria: Stevano Printing Press, Samaru.

Lalli, E. P., & Shapiro, E. S. (1990). The effects of self-monitoring and contingent reward on sight word acquisition. *Education and Treatment of Children, 13 (2),* 129-141.

Lawan, M. (2016). *Effect of Cognitive Restructuring and Social Skills Training.* A Dissertation for Doctor of Philosophy Degree in Education, ABU Zaria.

Lewis, G. (2012). *Classroom Based Cognitive behavioural therapy in reducing symptom of depression in high risk adolescent:* Pragmatic cluster randomized control trial. BMJ: 345: doi: 10.113/bmj.e6058.

Liebert, R., and Morris, L. (1967). Cognitive and emotional components of test anxiety: A distinction and some initial data. *Psychological Reports, 20, 975-978.*

Lim, H. (2007). Effects of attributions and task values on foreign language use anxiety. *Journal of Education and Human Development*, 1(2), 1-20. Retrieved from http://www.scientificjournals.org/journals2007/articles/1135.pdf\

Liz, D., Kevin, P. W. and Laura, N. (2009). *Causes and Consequences of Test Anxiety Key Stage 2 Pupils:* The Editorial Role of Emotional Resilience, Symptom Presented At The British Educational Research Association Conference, September, 2009.

Lorig, K. (1993). *Self-management of chronic illness: A model for the future. Generations XVII(3),* 11-14.

Mahmood, N. & Rana, R.A. (2010). The Relationship between test anxiety and academic achievement. Bulletin of Educational Research. Dec. 2010. Vol. 32 no. 2.

Mandler, G. & Sarson, S. B. (1952). A Study of Anxiety and Learning. *Journal of Abnormal and Social Psychology,* 47, 166-173.

Mandler, G., & Sarason, S. B. (1952). A study of anxiety and learning. *Journal of Abnormal and Social Psychology, 47, 166-173.*

Mattick, R. (1989). Exposure and Cognitive Restructuring for Social Phobia: A Contribute Study. *Journal of Behaviour Therapy,* Vol. 20 pp. 3-23.

McCarthy, J. M. and Goffin, R. D. (2005). Selection Test Anxiety: Exploring tension and fear of failure across the sexes in simulated selection scenarios. Retrieved from *International Journals of Selection and Assessment. Vol. 13, No. 4.*

McDonald A. S. (2001). *The prevalence and effects of test anxiety in school children.* Educational Psychology, 21, 89–101.

McDougall, D. (1998). Research on self-management techniques used by students with disabilities in general education settings: A descriptive review. *Remedial and Special Education, 19,* 310-320.

Mooney, P., Ryan, J. B., Uhing, B. M., Reid, R., & Epstein, M. H. (2005). A review of self-management interventions targeting academic outcomes for students with emotional and behavioral disorders. *Journal of Behavioral Education,* 14, 203-221.

Muhammad, H.B. (2014). Effects of Cognitive Systematic Desensitization on Test Anxiety among Senior Secondary School Students III (SSS 3) in Kaduna Metropolis; Kaduna State Nigeria. (Unpublished Doctoral Thesis). ABU Zaria-Nigeria.

Muhammed, M.A., Jegak, U. and Balakrishnan, P. (2014). Job Satisfaction among secondary school teachers. *Journal of Kemanusiaan bil*. 13,6.

Nalagawa-Kogan, H., Garber, A., Jarrett, M., Egan, K.J., & Hendershot, S. (1988). Self-management of hypertension: Predictors of success in diastolic blood pressure reduction. *Research in Nursing & Health, 11,* 105-115.

National Health Service (2001). *The expert patient: A new approach to chronic disease management for the 21st century*. London, UK: Department of Health.

Naveh-Benjamin. M & McKeachie, W, J & Lin, Y. (1987). Two types of test anxious students: Support for an information-processing model. *Journal of Educational Psychology, 79, 131-136.*

Nelson, J. M., and Harwood, H. (2011). Learning disabilities and anxiety: A meta-analysis. *Journal of Learning Disabilities*, 44(1), 3–17.

Nelson, J. R., Smith, D., Young, R., & Dodd, J. (1991). A review of self-management outcome research conducted with students who exhibit behavioral disorders. *Behavioral Disorders, 16,* 169-179.

Ndirangu, G. W., Muola, G. M., Kithuka, M. R. and Nassiuma, D. K. (2009). An Investigation of the Relationship between Test Anxiety and Academic Performance in Secondary Schools in Nyeri District, Kenya. *Global Journal of Education Research*. Vol. 5, No. 1 & 2.

Nwajei A. D. (2013). *Test anxiety, depression and academic performance assessment and management using relaxation and cognitive restructuring technique.* Psychology, 4, 18–24.

Nworgu, B.G. (1991). Educational Research: Basic Issues and Methodology. Ibadan: Wisdom Publishers Ltd. 192 pp.

O'Leary, S. G., and Dubey, D. R. (1979). Applications of self-control procedures by children: A review. *Journal of Applied Behavior Analysis, 12,* 449-465.

Ohata, K. (2005). *Potential Sources of Anxiety for Japanese Learners of English:* Preliminary Case Interviews with five Japanese College Students in the U.S., TESL-EJ, Volume 9, Number 3, 1 – 21.

Okatahi, A.O. (2006). Reduction of Test Anxiety among secondary school student through study-skill training. Ahmadu Bello University *Journal of Educational research and Development,* 1 (3), 49-54

Olatoye, R.A. and Afuwape, M.O. (2003). Test anxiety as determinants of examination under achievement among some Nigerian secondary school students. *Ibadan Journal of Education studies, 3 (182), 32-39.*

Osiki, J.O. and Busari, A.O. (2006). Effects of Self-statement monitoring technique in the reduction of test anxiety among adolescent under achievers in Ibadan metropolis. The Nigerian Journals of Guidance and Counseling, 8(1): 133-41.

Owens, M., Stevenson, J., Hadwin, J. A., & Norgate, R. (2012). *Anxiety and depression in academic performance:* An exploration of the mediating factors of worry and working memory. School Psychology International, 33, 433–449.

Ozodi, T. O. (2010) A Psycho-Spiritual Approach to Healing Personality Disorders Journal of Cognitive Psychotherapy; Winter, vol. 21 Issue 4, p346.

Panagopoulou-Stamatelatou, A. (1990). The use of behavioural self-management in primary school settings: *A review*. *Educational Psychology, 10,* 207-225.

Peterson, L., Young, K. R., Salzberg, C., West, R., & Hill, M. (2006). Using self-management procedures to improve classroom social skills in multiple general education settings. *Education & Treatment of Children, 29,* 1-21.

Putwain, D.W. and Best, N. (2011). *Fear Appeals in the Primary Classroom: Effects on Test Anxiety and Test Grade.* Learning and Individual Differences, 21 580-584

Redman, B.K. (2004). *Patient self-management of chronic disease: The health care provider's challenge*. Sudbury, MA: Jones & Bartlett Publishers

Rhode, G., Morgan, D. P., & Young, K. R. (1983). Generalization and maintenance of treatment gains of behaviorally handicapped students from resource rooms to regular classrooms using self-evaluation procedures. *Journal of Applied Behavior Analysis, 16 (2),* 171-188.

Rivera, R. (2011). *Anxiety Disorder – Causes, Myths and Reality Grandville:* Calm Clinic.

Rizwan, A. R. and Nasir, M. (2010). The Relationship between Test Anxiety and Academic Achievement. *Bulletin of Education and Research. Lahore: University of the Punjab.*

Robbins, S.P., Chatterjee, P., & Canda, E.R. (1998). *Contemporary Human Behaviour Theory: A Critical Perspective for Social Work*. Boston: Allyn & Bacon.

Robinson, B. W. (1966). A study of anxiety and academic achievement. *Journal of Consulting Psychology*, 30(2), 165–167. Retrieved from http://www.apa.org/pubs/journals/ccp/index.aspx

Rosenbaum, M. S., & Drabman, R. S. (1979). Self-control training in the classroom: A review and critique. *Journal of Applied Behavior Analysis, 12*, 467-485.

Sarason, S. B., & Mandler, G. (1952). Some correlates of test anxiety. *Journal of Consulting and Clinical Psychology, 47, 810-817.*

Sarason, S. B., Davidson, K. S. Lighthall, F. F. Waite, R. R. & Ruebush. K. (1960). *Anxiety in elementary school children*. New York: John Wiley & Sons, Inc.

Scott, E.S. et al (2014). Evaluating Adolescents' Decision-Making in Legal Context. *Law and Human Behaviour,* 19.

Seipp, B. (1991) Anxiety and academic performance. A meta-analysis of findings. *Anxiety Research 4, 27-41.*

Semple, R., Lee, J., Rosa, D., & Miller, L. (2010). A Randomized Trial of Mindfulness-Based Cognitive Therapy for Children: Promoting Mindful Attention to Enhance Social-Emotional Resiliency in Children. *Journal of Child and Family Studies*, 19(2), 218–229.

Sharf, R.S. (2004). *Theories of Psychotherapy and Counseling.* Pacific Grove: Books Cole.

Sieber, J. E., O'Neil Jr., H. F. and Tobias, S. (1977) *Anxiety, Learning and Instruction.* Hillsdale, NJ: Erlbaum.

Sonja, Milena, Jana, Cirila (2009). *Students Social behavior in relation to their academic achievement in primary and secondary school*: Teachers perspective. University of Slovenia.

Spielberger, C. D. (2005). *The Nature, Assessment and Reduction of Test Anxiety in Academic benefits from test- anxiety reduction programs.* Symposium at the American Psychological Association Convention: Washington, D.C.

Spielberger, C. D. and Vagg, P. R. (1995) 'Treatment of Test Anxiety: Application of the Transactional Process Model', in C.D. Spielberger and Vagg (eds) Test Anxiety: Theory, Assessment and Treatment, pp. 197-212. Washington, DC: Taylor and Francis.

Spielbergert C. D., Anton, W. D., & Bedell, J. (1976). *The nature and treatment of test anxiety. In Zuckerman, M., & Spielberger, C. D. (Eds.), motions and anxiety: New concepts, methods and applications.* Hillsdale, New Jersey: Lawrence Erlbaum Associates. Publisher

Stage, S. A., & Quiroz, D. R. (1997). A meta-analysis of interventions to decrease disruptive 8-10; classroom behavior in public education settings. *School Psychology Review, 26,* 333-368.

Stober, J. and Pekrun, R. (2004). Advances in test anxiety research. Anxiety, Stress and Coping, 17(3): 205-11

The George Washington University Counselling (2011). Counselling and Psychotherapy theories in context and practice. Skills, strategies and techniques. New Jersey: John Wiley & Sons Inc.

Tillfors, M. & Ekselius, L. (2009) *Social phobia and avoidance personality disorder:* Are they separate diagnostic entities or do they reflect in spectrum of social anxiety? School of Law, Psychology and Social Work, Orebro University, Orebro, Sweden, Maria. Isr. J. Psychiatric related science.

Tuulia, M. O. and Juliane, C. (2011). Consequences of test anxiety n adaptive versus fixed item testing. European Journal of Psychological Assessment. Vol. 27 (3).

University of Buffalo. (2011). Test Anxiety. Retrieved from www.ub.counselling.buf on November 17th, 2011.

Van Blerkomp, (2009). *Test Anxiety.* Retrieved from www.ub.counselling.bufon November, 17th 2011. University of Buffalo.

Vockell, E. (n.d.) Educational psychology: A practical approach. Retrieved from: http://education.purduecal.edu/Vockell/EdPsyBook/

Waschbush, D.A. and Hill, G.P. (2001) Alternative treatments for children with attention-defici/hyperactivity disorder: What does the research say?/ The Behaviour Therapist, 24:161-71.

Wine, J. (1971). *"Test Anxiety and Direction of Attention"*. Psychological Bulletin. 76(2): 92–104.

Yahaya, L.A. (2006). Effects of cognitive restructuring on the attitudes of secondary school students in Ilorin towards HIV/AIDS patients. *Ilorin Journal of Sociology. Vol. no. 1*

Young, D. J. (1999). *Affect in Foreign Language and Second Language Learning*. Boston, MA: McGraw-Hill.

Young, D.J. (1991). Creating a low-anxiety classroom environment: what does the language anxiety research suggest? *Modern Language Journal, 75/4, 426-437.*

Yusufu, S.D, (2002). *The effects of self-control, implosive and flooding therapeutic methods in the treatment of test anxiety among undergraduate students.* Unpublished PhD Dissertation Submitted to the Department of Education, Ahmadu Bello University, Zaria.

Zeidner, M. (1988). *Test Anxiety: The State of the Art*. New York: Plenum Press.

Zeidner, M. (2004). *Test Anxiety: The State of the Art*. New York: Plenum Press.

Adebayo, I. I. (2010). *Efficacy of Positive Reinforcement and Self Control Group Counselling Interventions Techniques in Remedying Adjustment,* London: Book café publisher.

Ader, E., & Erktin, E. (2010). Coping as self-regulation of anxiety: A model for math achievement in high-stakes tests. Cognition, Brain, Behavior, 14, 311–332. Retrieved from http://www.cbbjournal.ro/

Adewuyi T. O., Taiwo O. K., & Olley B. O. (2012). Influence of examination anxiety and self-efficacy on academic performance among secondary school students. Ife Psychologia, 20, 60–68.

Ahmed, A. (2016). *Effect of positive reinforcement on the level of absenteeism among secondary school students in Daura Zonal Inspectorate of Education of Katsina State*. Unpublished Masters Theses, Department of Educational Psychology and Counselling, Ahmadu Bello University, Zaria.

Ahmed, W., Minnaert, A., Kuyper, H., & van der Werf, G. (2011). Reciprocal relationships between math self-concept and math anxiety. Learning and Individual Differences, 22, 385-389. Retrieved from http://www.journals.elsevier.com/learning-and-individual-differences.

Akanbi S. T. (2010). Test anxiety as a correlate of academic achievement among senior secondary school in Ogbomoso area of Oyo State. African Journal of Educational Research, 14, 89–97.

Anyamene, A., Nwokolo, C. and Azuji, I. (2016). Effects of Self-Management Technique on Test Anxiety among Secondary School Students. The Journal of Social Sciences Research. Vol. 2, No. 9. Pp: 159-166.

Alderson, M., Starr, L., Gow, S., & Moreland, J. (1999). The program for Rheumatic Independent Self-management: A Pilot Evaluation. *Clinical Rheumatology, 18,* 283-292.

Bandura, A. (1977). *Social Learning Theory.* Englewood Cliffs, N.J. Prentice-Hall.

Bandura, A. (2000). Self-efficacy: *The Foundation of Agency*. In W.J. Perrig (Ed.), Control of Human behaviour, Mental Processes and Consciousness (pp. 17-33). Mahwah, NJ: Lawrence Erlbaum.

Barlow J, Edwards R, Turner A. (2009). The experience of attending a lay- led, chronic disease self-management programme from the perspective of participants with multiple sclerosis. *Psychol Health (10)*:1167–80.

Barlow, J., Wright, C., Sheasby, J., Turner, A., & Hainsworth, J. (2002). Self-management approaches for people with chronic conditions: A review. *Patient Education and Counseling, 48,* 177-187.

Barrows J., Dunn S., & Lloyd C. A. (2013). Anxiety, self-efficacy, and college exam grade. Universal Journal of Education Research, 1, 204–208.

Beck, J. Nwaman, G. (2005). The Basic Principle of Cognitive Behaviour Therapy. Psych Central. Retrieved on May 19, 2007, from http//pro.psychcentral.com.

Beilock, S. L. and Ramirez, G. (2011). *The Psychology of Learning and Motivation* (Vol 55): Cognition in Education. Mestre, Jose P. (Ed.); Ross, Brian H. (Ed.); San Diego, CA, US: Elsevier Academic Press, Vol 55, pp. 140-141

Bensoussan, M. (2012). Alleviating Test Anxiety for Students of Advanced Reading Comprehension. RELC Journal, 43(2), 203–216. doi:10.1177/0033688212449511

Binta, N. and Abdulrauf, A.H. (2011). *Overcoming Test Anxiety:* Perspectives of Senior Students of the Faculty of Education, University of Malaysia. Pdf Special Education, Retrieve August 3rd, 2011.

Blum, N. Pfohl, B.St. John, D. (2002). *A Cognitive Behavioural System Based Group Treatment for out Patient with Boarder Line Personality Disorder* - A Preliminary Report. Camp Psychiatric.

Boeree, G.C. (2008). *Personality Theories*: Albert Bandura, Shippenshurg University, (www.ship.edu) Retrieved on May 30, 2013.

Bouton, M.E. (2007). *Learning and Behaviour: A Contemporary Synthesis*, Sunderland, and M.A.: Sinauer.

Brittany, N.M. & Thompson, E.D. (2009). Cognitive behavoural Therapy for anxiety in children diagnosed with autism spectrum disorders: Modification trends. *Journal of Research in Austin Spectrum Disorders*. Vol. 4, issue 3, July-September. Pp. 346-354

Broden, M., Hall, R. V., & Mitts, B. (1971). The effect of self-recording on the classroom behavior of two eighth-grade students. *Journal of Applied Behavior Analysis, 4,* 191-199.

Bufka, L., Barlow, F. and David, H. (2009). *Anxiety*. Microsoft Encarta [DVD]. Redmond, WA: Microsoft Corporation.

Burn, M. (1989). *Child Psychiatry and You*. MOSCOW; Mir Publishers, University of Buffalo (2011).

Caldarella, P. & Merrell, K.W. (1997). *Common dimensions of social skills of children adolescent*: Taxonomy of school psychology review, 26 (2), 265-279.

Cancio, E., West, R., & Young, K. R. (2004). Improving mathematics homework completion and accuracy of students with EBD through self-management and parent participation. *Journal of Emotional and Behavioral Disorders, 12,* 9-22.

Carter, J. (1998). *Social Skills training in beyond behavior modification:* A cognitive behavioural approach to behavior management in the school, (3rd ed.) Austin, Texas.

Cassady J. C. (2010). *Test anxiety: Contemporary Theories and Implications for Learning*. In J. C. Cassady (Ed.), Anxiety in School: The Causes, Consequences, and Solutions for Academic Anxieties (pp. 7–26). New York, NY: Peter Lang.

Cassady J. C, and Johnson R. E. (2002). *Cognitive Test Anxiety and Academic Performance.* Contemporary Educational Psychology, 27, 270–295. https://doi.org/10.1006/ceps.2001.1094

Cassady, J. & Johnson, R. (2001). *Cognitive Test Anxiety and Academic Performance.* Contemporary Educational Psychology, 27, 270–295.

Chapell M. S., Blanding Z. B., Silverstein M. E., Takahashi M., Newman B., Gubi A. & McCann N. (2005). Test Anxiety and Academic Performance in Undergraduate and Graduate Students. *Journal of Educational Psychology,* 97, 268–274.

Chapell, M. S, Blanding, Z. B., Takahashi, M., Silverstein, M. E., Newman, B., Gubi, A., McCann, N. (2005). Test anxiety and academic performance in undergraduate and graduate students. *Journal of Educational Psychology, 97*, 268-274.

Chen, H. (2012). *The Moderating Effects of Item Order Arranged by Difficulty on the Relationship between Test Anxiety and Test Performance.* Creative Education, 3, 328–333.

Clark, N.M., Becker, M.H., Janz, N.K., Lorig, K., Rakowski, W., & Anderson, L. (1991). Self-management of chronic disease by older adults. A review and questions for older adults. *Journal of Aging and Health, 3*, 3-27.

Cohen, J. (2007). Effects of Test Anxiety, Time Pressure, Ability and Gender on Response Aberrance. Unpublished PhD Dissertation Submitted to the Ohio State University. Educational Policy and Leadership.

Comer, R.J. (1996). *Fundamentals of Abnormal Psychology*. Avoidant Personality Disorder, pp. 428-430. Third Edition, New York: Worth.

Creer, T., Renne, C., & Christian, W. (1976). Behavioral contributions to rehabilitation and childhood asthma. *Rehabilitation Literature, 37*, 226-232, 247.

Culler, R. and Holahan. C. (1980). Test anxiety and academic performance: The effects of study-related behaviours" *Journal of Educational Psychology 72 16-20.*

De Caro, M.S., Thomas, R.D., Albert, N.B., and Beilock, S.L. (2011). *"Choking Under Pressure: Multiple Routes to Skill Failure"* (PDF). J Exp Psychol Gen. 140 (3): 390–406.

DePhil M. B., Brilot B., & Nettle D. (2011). Anxiety: An evolutionary approach. *Canadian Journal of Psychiatry*, 56, 707–715.

Diana, R. (2013). *Cognitive Restructuring: What is it.* Medically reviewed by Lindsey Marcellin, M.D. retrieved from http://www.everydayhealth.com

Driscole, R. (2004). *Westside test anxiety scale*. Retrieved from www.amtaa.org/scale Westside.html. June 13th, 2011.

Driscole, R., B. Holt, & Hunter (2005). Accelerated Desensitization and Adaptive Attitudes Interventions and Test Gains with Academic Probation Students. ERIC 13 pp.

Driscole, R. (2006). Stars-Pac Accelerated Anxiety Reduction: Rationale and Initial Findings. ERIC. 18 pp

Egbochukwu, E.O., Obodo, B. and Obadan, N.O. (2008). Efficacy of Rational-Emotive Behaviour Therapy on the reduction of test anxiety among adolescents in secondary schools. European Journal of Social Sciences, 6(4): 152-164.

Epstein, M., Atkins, M., Cullinan, D., Kutash, K., and Weaver, R. (2008). *Reducing behavior problems in the elementary school classroom*: A practice guide (NCEE #2008-012).

Ergene, T. (2011). *The Relationship among Test Anxiety, Study Habit, Achievement Motivation, and Academic Performance among Turkey High School Students*. Education and Science, 36, 320–330.

Ergene, T. (2003). *Effective Interventions on Test Anxiety Reduction.* Hacettepe University: Turkey. www.amtaa.org/res/ergene.pdf

Eysenck, M. W., Santos, R., Derekshan, N., & Calvo, M. G. (2007). *Anxiety and Cognitive Performance:* Attentional Control Theory. Emotion, 7(2), 336–352.

Falaye, A. (2010). Cognitive Test Anxiety and Learning Outcomes of Selected Undergraduate Students. *The African Journals.* Vol. 10(2).

Fantuzzo, J. W., & Polite, K. (1990). School-based, behavioral self-management: A review and analysis. *School Psychology Quarterly, 5 (3)*, 180-198.

Fletcher, K. L., & Speirs Neumeister, K. L. (2012). *Research on perfectionism and achievement motivation*: implications for gifted students. Psychology in the Schools, 49, 668–677.

Funnell, M.M., & Anderson, R.M. (2004). Empowerment and self-management of diabetes. *Clinical Diabetes, 22(3),* 123-127.

Funnell, M.M., Anderson, R.M., Arnold, M.S., Barr, P.A., Donnelly, M.B., Johnson, P.D., Taylor- Moon, D., & White, N.H. (1991). Empowerment: An idea whose time has come in diabetes education. *Diabetes Educator, 17*, 37-41.

Gaudry, E., & Spielberger, C. (1971). *Anxiety and Educational Achievement*. New York: Wiley.

Gay, L.R. (2009). Educational Research: Competencies for Analysis and Applications. (9th Ed). Macmillan Publishing Company.

Glasgow, R.E., Wilson, W., & McCaul, R.D. (1985). Regimen adherence: A problematic construct in diabetes research. *Diabetes Care, 8,* 300-301.

Grills-Taquechel, A. E., Fletcher, J. M., Vaughn, S. R., & Stuebing, K. K. (2012). *Anxiety and reading difficulties in early elementary school*: Evidence for unidirectional- or bi-directional relations? Child Psychiatry & Human Development, 43, 35–47.

Gruman, J., & Von Korff, M. (1996). *Indexed bibliography on Self-management for People with Chronic Disease*. Washington, DC: Center for Advancement in Health.

Hembree, R. (1988). Correlates, causes, effects, and treatment of test anxiety. *Review of Educational Research, 58, 47-77*

Hoff, K., & DuPaul, G. (1998). Reducing disruptive behavior in general education classrooms: The use of self-management strategies. *School Psychology Review, 27,* 290-303.

Holman H, Lorig K. (2004). *Patient self-management: a key to effectiveness and efficiency in care of chronic disease.* Public Health Rep (3):239–43.

Hope, D.A., Burn, J.A., Hyes, S.A., Herbert, J.D. and Warner, M.D. (2010). *Automatic Thoughts and Cognitive Restructuring in Cognitive Behavioural Group Therapy Social Anxiety Disorder.* Cognitive Therapy Research.

Huberty, T. J. (2009). *Test and performance anxiety.* Principal Leadership, 10, 12–16. Retrieved from http://www.nasponline.org/

Ingram, K., Lewis-Palmer, T., & Sugai, G. (2005). Function-based intervention planning: Comparing the effectiveness of FBA function-based and non-function-based intervention plans. *Journal of Positive Behavior Interventions, 7,* 224-236.

Ju Hyun Lee (1999). "Test Anxiety and Working Memory". *Journal of Experimental Education.* 67 (3): 218–240.

Kamps, D. M., Wendland, M., & Culpepper, M. (2006). Active teacher participation in functional behavior assessment for students with emotional and behavioral disorders risks in general education classrooms. *Behavioral Disorders, 31,* 128-146.

Kern, L, Dunlap, G., Childs, K., Clarke, S. (1994). Use of a Classwide self-management program to improve the behavior of students with emotional and behavioral disorders. *Education and Treatment of Children, 17*, 445-458.

Khalaila R. (2015). *The relationship between academic self-concept, intrinsic motivation, test anxiety, and academic achievement among nursing students:* Mediating and mediating effects. Nurse Education Today, 35, 432–438.

Kim, K., Oh, I.-S., Chiaburu, D. S., & Brown, K. G. (2012). Does Positive Perception of Oneself Boost Learning Motivation and Performance? *International Journal of Selection and Assessment,* 20, 257–271.

Kolo, F.D. (2003). Basic Research Concepts for Behavioural Researches. Zaria: Stevano Printing Press, Samaru.

Lalli, E. P., & Shapiro, E. S. (1990). The effects of self-monitoring and contingent reward on sight word acquisition. *Education and Treatment of Children, 13 (2),* 129-141.

Lawan, M. (2016). *Effect of Cognitive Restructuring and Social Skills Training.* A Dissertation for Doctor of Philosophy Degree in Education, ABU Zaria.

Lewis, G. (2012). *Classroom Based Cognitive behavioural therapy in reducing symptom of depression in high risk adolescent:* Pragmatic cluster randomized control trial. BMJ: 345: doi: 10.113/bmj.e6058.

Liebert, R., and Morris, L. (1967). Cognitive and emotional components of test anxiety: A distinction and some initial data. *Psychological Reports, 20, 975-978.*

Lim, H. (2007). Effects of attributions and task values on foreign language use anxiety. *Journal of Education and Human Development*, 1(2), 1-20. Retrieved from http://www.scientificjournals.org/journals2007/articles/1135.pdf\

Liz, D., Kevin, P. W. and Laura, N. (2009). *Causes and Consequences of Test Anxiety Key Stage 2 Pupils:* The Editorial Role of Emotional Resilience, Symptom Presented At The British Educational Research Association Conference, September, 2009.

Lorig, K. (1993). *Self-management of chronic illness: A model for the future. Generations XVII(3),* 11-14.

Mahmood, N. & Rana, R.A. (2010). The Relationship between test anxiety and academic achievement. Bulletin of Educational Research. Dec. 2010. Vol. 32 no. 2.

Mandler, G. & Sarson, S. B. (1952). A Study of Anxiety and Learning. *Journal of Abnormal and Social Psychology,* 47, 166-173.

Mandler, G., & Sarason, S. B. (1952). A study of anxiety and learning. *Journal of Abnormal and Social Psychology, 47, 166-173.*

Mattick, R. (1989). Exposure and Cognitive Restructuring for Social Phobia: A Contribute Study. *Journal of Behaviour Therapy,* Vol. 20 pp. 3-23.

McCarthy, J. M. and Goffin, R. D. (2005). Selection Test Anxiety: Exploring tension and fear of failure across the sexes in simulated selection scenarios. Retrieved from *International Journals of Selection and Assessment. Vol. 13, No. 4.*

McDonald A. S. (2001). *The prevalence and effects of test anxiety in school children.* Educational Psychology, 21, 89–101.

McDougall, D. (1998). Research on self-management techniques used by students with disabilities in general education settings: A descriptive review. *Remedial and Special Education, 19,* 310-320.

Mooney, P., Ryan, J. B., Uhing, B. M., Reid, R., & Epstein, M. H. (2005). A review of self-management interventions targeting academic outcomes for students with emotional and behavioral disorders. *Journal of Behavioral Education,* 14, 203-221.

Muhammad, H.B. (2014). Effects of Cognitive Systematic Desensitization on Test Anxiety among Senior Secondary School Students III (SSS 3) in Kaduna Metropolis; Kaduna State Nigeria. (Unpublished Doctoral Thesis). ABU Zaria-Nigeria.

Muhammed, M.A., Jegak, U. and Balakrishnan, P. (2014). Job Satisfaction among secondary school teachers. *Journal of Kemanusiaan bil*. 13,6.

Nalagawa-Kogan, H., Garber, A., Jarrett, M., Egan, K.J., & Hendershot, S. (1988). Self-management of hypertension: Predictors of success in diastolic blood pressure reduction. *Research in Nursing & Health, 11,* 105-115.

National Health Service (2001). *The expert patient: A new approach to chronic disease management for the 21st century*. London, UK: Department of Health.

Naveh-Benjamin. M & McKeachie, W, J & Lin, Y. (1987). Two types of test anxious students: Support for an information-processing model. *Journal of Educational Psychology, 79, 131-136.*

Nelson, J. M., and Harwood, H. (2011). Learning disabilities and anxiety: A meta-analysis. *Journal of Learning Disabilities*, 44(1), 3–17.

Nelson, J. R., Smith, D., Young, R., & Dodd, J. (1991). A review of self-management outcome research conducted with students who exhibit behavioral disorders. *Behavioral Disorders, 16,* 169-179.

Ndirangu, G. W., Muola, G. M., Kithuka, M. R. and Nassiuma, D. K. (2009). An Investigation of the Relationship between Test Anxiety and Academic Performance in Secondary Schools in Nyeri District, Kenya. *Global Journal of Education Research*. Vol. 5, No. 1 & 2.

Nwajei A. D. (2013). *Test anxiety, depression and academic performance assessment and management using relaxation and cognitive restructuring technique.* Psychology, 4, 18–24.

Nworgu, B.G. (1991). Educational Research: Basic Issues and Methodology. Ibadan: Wisdom Publishers Ltd. 192 pp.

O'Leary, S. G., and Dubey, D. R. (1979). Applications of self-control procedures by children: A review. *Journal of Applied Behavior Analysis, 12,* 449-465.

Ohata, K. (2005). *Potential Sources of Anxiety for Japanese Learners of English:* Preliminary Case Interviews with five Japanese College Students in the U.S., TESL-EJ, Volume 9, Number 3, 1 – 21.

Okatahi, A.O. (2006). Reduction of Test Anxiety among secondary school student through study-skill training. Ahmadu Bello University *Journal of Educational research and Development,* 1 (3), 49-54

Olatoye, R.A. and Afuwape, M.O. (2003). Test anxiety as determinants of examination under achievement among some Nigerian secondary school students. *Ibadan Journal of Education studies, 3 (182), 32-39.*

Osiki, J.O. and Busari, A.O. (2006). Effects of Self-statement monitoring technique in the reduction of test anxiety among adolescent under achievers in Ibadan metropolis. The Nigerian Journals of Guidance and Counseling, 8(1): 133-41.

Owens, M., Stevenson, J., Hadwin, J. A., & Norgate, R. (2012). *Anxiety and depression in academic performance:* An exploration of the mediating factors of worry and working memory. School Psychology International, 33, 433–449.

Ozodi, T. O. (2010) A Psycho-Spiritual Approach to Healing Personality Disorders Journal of Cognitive Psychotherapy; Winter, vol. 21 Issue 4, p346.

Panagopoulou-Stamatelatou, A. (1990). The use of behavioural self-management in primary school settings: *A review*. *Educational Psychology, 10,* 207-225.

Peterson, L., Young, K. R., Salzberg, C., West, R., & Hill, M. (2006). Using self-management procedures to improve classroom social skills in multiple general education settings. *Education & Treatment of Children, 29,* 1-21.

Putwain, D.W. and Best, N. (2011). *Fear Appeals in the Primary Classroom: Effects on Test Anxiety and Test Grade.* Learning and Individual Differences, 21 580-584

Redman, B.K. (2004). *Patient self-management of chronic disease: The health care provider's challenge*. Sudbury, MA: Jones & Bartlett Publishers

Rhode, G., Morgan, D. P., & Young, K. R. (1983). Generalization and maintenance of treatment gains of behaviorally handicapped students from resource rooms to regular classrooms using self-evaluation procedures. *Journal of Applied Behavior Analysis, 16 (2),* 171-188.

Rivera, R. (2011). *Anxiety Disorder – Causes, Myths and Reality Grandville:* Calm Clinic.

Rizwan, A. R. and Nasir, M. (2010). The Relationship between Test Anxiety and Academic Achievement. *Bulletin of Education and Research. Lahore: University of the Punjab.*

Robbins, S.P., Chatterjee, P., & Canda, E.R. (1998). *Contemporary Human Behaviour Theory: A Critical Perspective for Social Work*. Boston: Allyn & Bacon.

Robinson, B. W. (1966). A study of anxiety and academic achievement. *Journal of Consulting Psychology*, 30(2), 165–167. Retrieved from http://www.apa.org/pubs/journals/ccp/index.aspx

Rosenbaum, M. S., & Drabman, R. S. (1979). Self-control training in the classroom: A review and critique. *Journal of Applied Behavior Analysis, 12*, 467-485.

Sarason, S. B., & Mandler, G. (1952). Some correlates of test anxiety. *Journal of Consulting and Clinical Psychology, 47, 810-817.*

Sarason, S. B., Davidson, K. S. Lighthall, F. F. Waite, R. R. & Ruebush. K. (1960). *Anxiety in elementary school children*. New York: John Wiley & Sons, Inc.

Scott, E.S. et al (2014). Evaluating Adolescents' Decision-Making in Legal Context. *Law and Human Behaviour,* 19.

Seipp, B. (1991) Anxiety and academic performance. A meta-analysis of findings. *Anxiety Research 4, 27-41.*

Semple, R., Lee, J., Rosa, D., & Miller, L. (2010). A Randomized Trial of Mindfulness-Based Cognitive Therapy for Children: Promoting Mindful Attention to Enhance Social-Emotional Resiliency in Children. *Journal of Child and Family Studies*, 19(2), 218–229.

Sharf, R.S. (2004). *Theories of Psychotherapy and Counseling.* Pacific Grove: Books Cole.

Sieber, J. E., O'Neil Jr., H. F. and Tobias, S. (1977) *Anxiety, Learning and Instruction.* Hillsdale, NJ: Erlbaum.

Sonja, Milena, Jana, Cirila (2009). *Students Social behavior in relation to their academic achievement in primary and secondary school*: Teachers perspective. University of Slovenia.

Spielberger, C. D. (2005). *The Nature, Assessment and Reduction of Test Anxiety in Academic benefits from test- anxiety reduction programs.* Symposium at the American Psychological Association Convention: Washington, D.C.

Spielberger, C. D. and Vagg, P. R. (1995) 'Treatment of Test Anxiety: Application of the Transactional Process Model', in C.D. Spielberger and Vagg (eds) Test Anxiety: Theory, Assessment and Treatment, pp. 197-212. Washington, DC: Taylor and Francis.

Spielbergert C. D., Anton, W. D., & Bedell, J. (1976). *The nature and treatment of test anxiety. In Zuckerman, M., & Spielberger, C. D. (Eds.), motions and anxiety: New concepts, methods and applications.* Hillsdale, New Jersey: Lawrence Erlbaum Associates. Publisher

Stage, S. A., & Quiroz, D. R. (1997). A meta-analysis of interventions to decrease disruptive 8-10; classroom behavior in public education settings. *School Psychology Review, 26,* 333-368.

Stober, J. and Pekrun, R. (2004). Advances in test anxiety research. Anxiety, Stress and Coping, 17(3): 205-11

The George Washington University Counselling (2011). Counselling and Psychotherapy theories in context and practice. Skills, strategies and techniques. New Jersey: John Wiley & Sons Inc.

Tillfors, M. & Ekselius, L. (2009) *Social phobia and avoidance personality disorder:* Are they separate diagnostic entities or do they reflect in spectrum of social anxiety? School of Law, Psychology and Social Work, Orebro University, Orebro, Sweden, Maria. Isr. J. Psychiatric related science.

Tuulia, M. O. and Juliane, C. (2011). Consequences of test anxiety n adaptive versus fixed item testing. European Journal of Psychological Assessment. Vol. 27 (3).

University of Buffalo. (2011). Test Anxiety. Retrieved from www.ub.counselling.buf on November 17th, 2011.

Van Blerkomp, (2009). *Test Anxiety.* Retrieved from www.ub.counselling.bufon November, 17th 2011. University of Buffalo.

Vockell, E. (n.d.) Educational psychology: A practical approach. Retrieved from: http://education.purduecal.edu/Vockell/EdPsyBook/

Waschbush, D.A. and Hill, G.P. (2001) Alternative treatments for children with attention-defici/hyperactivity disorder: What does the research say?/ The Behaviour Therapist, 24:161-71.

Wine, J. (1971). *"Test Anxiety and Direction of Attention"*. Psychological Bulletin. 76(2): 92–104.

Yahaya, L.A. (2006). Effects of cognitive restructuring on the attitudes of secondary school students in Ilorin towards HIV/AIDS patients. *Ilorin Journal of Sociology. Vol. no. 1*

Young, D. J. (1999). *Affect in Foreign Language and Second Language Learning*. Boston, MA: McGraw-Hill.

Young, D.J. (1991). Creating a low-anxiety classroom environment: what does the language anxiety research suggest? *Modern Language Journal, 75/4, 426-437.*

Yusufu, S.D, (2002). *The effects of self-control, implosive and flooding therapeutic methods in the treatment of test anxiety among undergraduate students.* Unpublished PhD Dissertation Submitted to the Department of Education, Ahmadu Bello University, Zaria.

Zeidner, M. (1988). *Test Anxiety: The State of the Art*. New York: Plenum Press.

Zeidner, M. (2004). *Test Anxiety: The State of the Art*. New York: Plenum Press.

Zelazo, P. D., & Lyons, K. E. (2012). *The potential benefits of mindfulness training in early childhood:* A developmental social cognitive neuroscience perspective. Child Development Perspectives, 6(2), 154–160.

**Zondi, (2013)**

Zimmerman, M.A. (2000). *Empowerment theory: Psychological, organizational and community levels of analysis*. In Rappaport, J. & Seidman, E. (Eds.), Handbook on Community Psychology (pp. 43-63). New York: Kluwer Academic/Plenum.

# APPENDIX I

## APPENDIX II

## BAYERO UNIVERSITY, KANO

## FACULTY OF EDUCATION

## DEPARTMENT OF EDUCATION

### MODIFICATION OF THE INSTRUMENT ITEMS

| Title | Initial items | Modified areas | Modifier (with experts' approval) | Current modified version (STAI) |
|---|---|---|---|---|
| **Westside test Anxiety scale(WTAS)** | | Students Test Anxiety Inventory (STAI) | The Researcher.<br>No of items in STAI | |
| **1** | Major examination | Test | (15) | |
| **2** | Exam and exam | Test | (17) | Phys 2 11 Psych |
| **3** | Exam | Test | | Phys 3 13 Cog |
| **4** | Exam, exam | Test | (9) | Phys4 14 Cog |
| **5** | Exam | Test | (19) | |
| **6** | Exam | Test | (20) | Phys 6 16 Cog |
| **7** | Exam | Test | | Phys 7 18 Cog |
| **8** | Exam | Test | | |
| **9** | Exam | Test | | |
| **10** | Written Assignments | Test | | |

## APPENDIX III

## BAYERO UNIVERSITY, KANO.

## FACULTY OF EDUCATION

## DEPARTMENT OF EDUCATION

### INSTRUMENTATION DEVELOPMENT

| S/N | Factors (construct) | No, of items | Sources (Items adopted with modifications) |
|---|---|---|---|
| **1** | Physical Indicators | Seven | Items No, 1and 5 by Driscole (2004).<br>Items No, 2,3,4,6 and 7 self-developed |
| **2** | Psychological Indicators | Five | Items No, 8, 9, 10, and 12 by Driscole (2004). Item No, 11 self – developed |
| **3** | Cognitive Indicators | Eight | Items No,15,17, 19, and 20 by Driscole (2004).Items' No,13,14,16 and 18 self – developed |

## APPENDIX IV

## BAYERO UNIVERSITY, KANO

## FACULTY OF EDUCATION

## DEPARTMENT OF EDUCATION

### MODIFIED INSTRUMENT

**Physical Dimension Items**

| S/N<br>Label | ITEMS<br>Title; S T A I | Always true(5) | Usually true(4) | Sometimes true(3) | Seldom true(2) | Never true(1) |
|---|---|---|---|---|---|---|
| Phy 1 | I struggle with written tests or avoid doing them because whatever I do will not be good enough. I want to be perfect | | | | | |
| Phy 2 | I freeze up on important test. | | | | | |
| Phy 3 | During test I feel very tense | | | | | |
| Phy 4 | I don't feel confidence and relaxed while taking test. | | | | | |
| Phy 5 | I feel out sorts or not really myself when I take important test. | | | | | |
| Phy 6 | I start feeling very uneasy just before | | | | | |

| | | | | | | |
|---|---|---|---|---|---|---|
| | getting a test paper. | | | | | |
| Phy 7 | The harder I worked at taking a test, the more confused I get. | | | | | |

**Psychological Dimension Items**

| **Label** | **Items; Psychological Dimensions** | | | | | |
|---|---|---|---|---|---|---|
| **Psy 1** | I worry so much before a test that I am worn out to do my best on the test. | | | | | |
| **Psy 2** | During important test, I think that I am awful or that I may fail. | | | | | |
| **Psy 3** | After a test I worry about whether I do well enough. | | | | | |
| **Psy 4** | Even if I am well prepare for a test, I feel very nervous about it. | | | | | |
| **Psy 5** | I feel my heart beating very fast during important test. | | | | | |

**Cognitive Dimension Items**

| | | | | | | |
|---|---|---|---|---|---|---|
| **Cog 1** | I wish test did not bother me so much | | | | | |
| **Cog 2** | I worry a great deal before taking an important test | | | | | |
| **Cog 3** | `The closer I am to a test the harder is it for me to concentrate on the materials. | | | | | |
| **Cog 4** | I seem to defeat myself while on important test | | | | | |
| **Cog 5** | During tests I get so nervous that I forget facts that I really know. | | | | | |
| **Cog 6** | After the test is over I try to stop worrying about it. | | | | | |
| **Cog 7** | I lost focus on important test and I cannot remember materials, that I knew before the test | | | | | |
| **Cog 8** | I finally remember the answer to test questions after the test is already over. | | | | | |

## APPENDIX V

## BAYERO UNIVERSITY, KANO.

## FACULTY OF EDUCATION

## DEPARTMENT OF EDUCATION

### RELIABILITY TEST OF THE THREE (3) FACTORS;

Reliability Test for Physical Factor (N=20)

| Label Section B | Items | Mean | Std. Deviation | Cronbach's Alpha |
|---|---|---|---|---|
| Phy1 | I struggle with written tests or avoid doing them because whatever I do will not be good enough. I want to be perfect. | 3.33 | 1.22 | .793 |
| Phy2 | I freeze up on important test. | 3.40 | 1.46 | .787 |
| Phy3 | During test I feel very tense | 3.36 | 1.24 | .788 |
| Phy4 | I don't feel confidence and relaxed while taking test. | 3.40 | 1.38 | .811 |
| Phy5 | I feel out sorts or not really myself when I take important test. | 3.16 | 1.22 | .809 |
| Phy6 | I start feeling very uneasy just before just before getting a test paper. | 3.42 | 1.34 | .814 |
| Phy7 | The harder I worked at taking a test, the more confused I get. | 3.49 | 1.39 | .809 |
| Reliability Index | Over all = Cronbach's Alpha .827 | | | |

The internal consistency of the twenty [20] items were subjected to reliability tests that are distributed into three factors: Physical dimension having seven [7] items, then psychological dimension having five [5] items and cognitive dimension having eight items. The overall items under physical items are satisfactory and adequate at .827 however individual internal consistency stood at .787 to .814 respectively indicating the instrument has satisfactory internal consistency.

**Reliability Test for Psychological Factor (N=20)**

| Label Section C | Items | Mean | Std. Deviation | Cronbach's Alpha |
|---|---|---|---|---|
| Psy1 | I worry so much before a test that I am worn out to do my best on the test. | 3.64 | 1.151 | .736 |
| Psy2 | During important test, I think that I am awful or that I may fail. | 3.31 | 1.184 | .746 |
| Psy3 | After a test I worry about whether I do well enough. | 3.51 | 1.456 | .717 |
| Psy4 | Even if I am well prepare for a test, I feel very nervous about it. | 3.62 | 1.512 | .719 |
| Psy5 | I feel my heart beating very fast during important test. | 3.44 | 1.470 | .765 |
| Reliability Index | Over all = .782 | | | |

The reliability for over all items under psychological dimension are satisfactory and adequate at .782 however the individual internal consistency stood at .717 to .767 respectively indicating that the instrument has satisfactory internal consistency.

**Reliability Test for Cognitive Factor (N=20)**

| Label Section D | Items | Mean | Std. Deviation | | Cronbach's Alpha |
|---|---|---|---|---|---|
| Cog1 | I wish test did not bother me so much | 3.44 | 1.358 | | .843 |
| Cog2 | I worry a great deal before taking an important test | 3.47 | 1.140 | | .861 |
| Cog3 | The closer I am to a test the harder is it for me to concentrate on the materials. | 3.11 | 1.511 | | .830 |
| Cog4 | I seem to defeat myself while on important test | 3.76 | 1.209 | | .839 |
| Cog5 | During tests I get so nervous that I forget facts that I really know. | 3.18 | 1.419 | | .837 |
| Cog6 | After the test is over I try to stop worrying about it. | 3.36 | 1.464 | | .844 |
| Cog7 | I lost focus on important test and I cannot remember materials, that I knew before the test | 3.38 | 1.512 | | .850 |
| Cog8 | I finally remember the answer to test questions after the test is already over. | 3.56 | 1.423 | | .853 |
| Reliability Index | Over all = .862 | | | | |

In the same vein, the reliability test for cognitive dimension items are satisfactory and adequate at .862. However the individual internal consistency stood at .830 to .861 respectively indicating that the cognitive subscale of the instrument has satisfactory internal consistency.

**APPENDIX VI**

**BAYERO UNIVERSITY KANO**

**FACULTY OF EDUCATION**

**DEPARTMENT OF EDUCATION**

## STUDENTS TEST ANXIETY INVENTORY (STAI)

**Dear respondents,**

The purpose of this questionnaire is to find out the effects of cognitive restructuring and self-management counselling techniques on test anxiety among staff secondary school students in tertiary institutions of Kano state. Your candid and objective responses will be appreciated since the information gathered will be solely for research purpose. The information you supply would be treated with utmost confidentiality.

Thank you.

**SECTION A: BIODATA**

1. **Name** of Student _____
2. **Gender:** male ( ) female ( )
3. **Class:** _____

**SECTION B: Students Test Anxiety Inventory (STAI)**

**Instruction: Below are** twenty adopted items from Driscoll (2004), the items are scored on five Likert scale. Rate how true each of the following is of you from the extremely or always true to not at all or never true. Use the 5 point scale to respond. Tick your choice of response against each column as: (√)

Section B1: Physical Indicators on Text Anxiety

| S/N | ITEM | Extremely or always true (5) | Highly or usually true (4) | Moderately sometimes true (3) | Slightly or seldom true (2) | Not at all or never true (1) |
|---|---|---|---|---|---|---|
| 1 | I struggle with written tests or avoid doing them because whatever I do will not be good enough. I want to be perfect. | | | | | |
| 2 | I freeze up on important test. | | | | | |
| 3 | During test I feel very tense. | | | | | |
| 4 | I feel confident and relaxed while taking tests | | | | | |
| 5 | I feel out sorts or not really myself when I take important test. | | | | | |
| 6 | I start feeling very uneasy just before getting a test paper. | | | | | |

| | | | | | | |
|---|---|---|---|---|---|---|
| 7 | The harder I worked at taking a test, the more confused I get. | | | | | |

B 2: Psychological Indicators on Text Anxiety

| | | | | | | |
|---|---|---|---|---|---|---|
| 8 | I worry so much before a test that I am worn out to do my best on the test | | | | | |
| 9 | During important test, I think that I awful or that I may fail | | | | | |
| 10 | After a test I worry about whether I do well enough | | | | | |
| 11 | Even if I am well prepare for a test, I feel very nervous about it | | | | | |
| 12 | I feel my heart beating very fast during important test. | | | | | |

B3: Cognitive Indicators

| | | | | | | |
|---|---|---|---|---|---|---|
| 13 | I wish test did not bother me so much | | | | | |
| 14 | I worry a great deal before taking an important test | | | | | |
| 15 | The closer I am to a test the harder is it for me to concentrate on the materials | | | | | |
| 16 | I seem to defeat myself while on important test. | | | | | |
| 17 | During tests I get so nervous that I forget facts I really know. | | | | | |
| 18 | After the test is over I try to stop worrying about it | | | | | |
| 19 | I lost focus on important test and I cannot remember materials that I knew | | | | | |

| | | | | | | |
|---|---|---|---|---|---|---|
| | before the test. | | | | | |
| 20 | I finally remember the answer to test question after the test is already over. | | | | | |

**Source**: Driscole (2004)

## APPENDIX VII

**BAYERO UNIVERSITY, KANO.**

**FACULTY OF EDUCATION**

**DEPARTMENT OF EDUCATION**

### 1) COGNITIVE RESTRUCTURING TREATMENT PACKAGE

**Session One .Familiarization and administration of pretest**

**Objectives:** i) Introduction of selves by both the researcher and the respondents;

ii) Explaining to the respondents the mission of the researcher;

iii) Establishing a counselling relationship with the respondents.

Step I The researcher introduced self to the respondents;

Step II The researcher introduced to the respondents what relationship she is about to enter.

Step III The researcher explained to the respondents her own responsibilities, the counselling sessions and the period it started and completed.

Step IV The researcher then emphasized the importance of developing a collaborative relationship for the success of the counselling process.

Step V The researcher then asked the respondents to respond to the above mentioned points by accepting the time for the commencement of the process or otherwise.

Step VI The researcher then requested the respondents to ask any question(s) on what has been discussed in the session.

Step VII The researcher then informed the respondents of coming to the end of the session, reminder on the date and time for the next session.

**Session Two: Definition of the concepts importance; Test Anxiety, Techniques and Cognitive Restructuring.**

Objectives: i) To understand what test anxiety is;

ii) Introduced to the clients what counselling technique can do to reduce test anxiety symptoms.

iii) Introduced to the client, the concept of cognitive restructuring as a counselling technique.

Step I The researcher welcomed the clients to the second session of the counselling process.

Step II Introduction of the main objectives of the session.

Step III The researcher then explained to the clients what cognitive

restructuring is and how it can be used to reduce the symptoms on test anxiety types.

Step IV The goals of the whole counselling relationship were then set

Collectively between the researcher and the clients.

Step V The researcher gave the clients homework which form part of the next session. Clients are asked to list ten items in her/his thought about tests which made her/him anxious about the test.

**Session Three: Identification and Monitoring of Negative Automatic Thoughts**

Objectives: i) To identify the negative automatic thoughts of the clients;

ii) To monitor the negative automatic thoughts of the clients.

Step I The researcher welcomed the clients to the session;

Step II The researcher gave the clients a very warm reception to feel at

home and be relaxed for the collaborative session to commence.

Step III The researcher then reminded the clients about the homework given, in

the previous session. She is then asked them to mention the negative thoughts.

Step IV The researcher then picked the thoughts one by one and requested the

Client to explain, what she/he means and how she/he feels.

Step V The researcher listened and expressed her emphatic feelings while the client

explained her/his feelings about the thoughts.

Step VI While expressing her emphatic feeling, the researcher then explained what

the counselling technique could do to help provide an environment for collaborative efforts between her and the client to change the unwanted behaviour.

Step VII The researcher then closed the session by giving the clients some homework on attaching these negative thoughts with the behaviours that was exhibited as the outcome of the negative thought.

**Session Four: Process of Automatic Thoughts and Unwanted Behaviour**

Objectives: i) To understand how automatic thoughts can trigger unwanted behaviour;

ii) Explain the process of attaching behaviour to automatic thoughts.

Step I Welcomed the clients to another session of the counseling process

Step II Explained the process of automatic thought formation to the clients.

Step III Discussed a few of the clients' automatic thoughts and how they started.

Step IV Discussed how the automatic thoughts affect their behaviour towards tests taking.

Step V Discussed with examples how automatic thoughts can cause unwanted behaviour.

Step VI Asked for any question(s) from the clients on what has been discussed in the session.

Step VII Asked the clients to list the behaviours that each of the automatic thoughts they listed caused them to exhibit. This was given as another homework on specific dimensions(types) of test anxiety.

**Session Five: Assessments of Negative Thought Pointers Verses Unwanted Behaviour and Finding out the Test Anxiety**

Objective: i) Identify evidences against the negative thoughts mentioned in the previous session.

ii) Examine the evidences against the negative thoughts mentioned and classify them under different dimensions (types) of test anxiety to discuss the symptoms.

iii) Identify the unwanted behaviours exhibited by the respondents, which were mainly caused by the negative thoughts that triggered specific dimensional symptoms(or type)of test anxiety.

Step I The researcher warmly welcomed the clients into another session, expressing unconditional regards for them. Some complimentary comments were made by the researcher as an appreciation strategy that made the clients felt happy felt at home.

Step II The researcher read out the negative thoughts about tests as forwarded by the clients. This was done to refresh the minds of both the researcher and clients.

Step III Each of the negative thoughts was reviewed in its own merit, looking at its negative effects on the clients and the behaviour that the thoughts precipitated.

Step IV The clients were guided to identify how these thoughts affect their academic performance and personality.

Step V The researcher then informed the clients of coming to the end of the session, but asked, if any of the clients has anything to enquire or bring forward.

Step VI Homework was given to the clients that requested them to come up with at least ten difficulties they thoughts test anxiety causes them.

**Session Six: Challenging identified Distorted Thoughts, the Adverse Effects and Better Alternatives.**

Objectives: i) Challenged the distorted thoughts identified in the previous sessions.

ii) Guide the clients to positively think of better alternatives to the challenged distorted thoughts.

iii) To present to the clients other possible automatic thoughts which they did not present.

iv) To present to the clients possible faulty behaviour that the automatic thoughts may cause.

v) To challenge the automatic thoughts and explain how they can negatively affect the clients.

Step I — As usual, the researcher welcomed the clients into another session of the counselling treatment.

Step II — The researcher led the clients in recapitulating on the previous sessions and the success so far achieved.

Step III — Having discussed the negative thoughts in previous sessions, the researcher then defined what a normal and positive thinking is, as against a distorted thought.

Step IV — The researcher, with the cooperation of the clients, then began to challenge the distorted thoughts presented by the clients by picking each thought and exposing its faults.

Step V — List some other faulty thinking or automatic thoughts which were presented by other clients.

Step VI — Critically looked at the faults in some thoughts by letting the clients themselves to analyze and criticize them before the researcher.

Step VII — Discussed possible behaviour that the automatic thoughts could cause and their unhelpful nature.

Step VIII — Challenged both the automatic thoughts and possible unhelpful behaviour they cause.

Step IX — The researcher then guided the clients in selecting substitute or alternative positive thoughts. In this session, four out of the fifteen negative thoughts were exposed and substituted with more realistic thoughts by the clients.

Step X — The researcher then clearly offered her support to the clients and appreciated the kind of collaborative sessions they had.

Step XI — The clients were then asked if any of them has any observation(s) to make on the progress so far made.

Step XII — The session then comes to an end.

**Termination and Administration of posttest**

Objectives: i) To round off the counselling relationship.

ii) To ascertain the effects of the counselling process carried out in the last six sessions.

iii) To discuss other relevant issues not discussed in the previous sessions.

iv) To administer the posttest on the respondents (clients).

Step I The researcher warmly welcomed the clients into the final session of the counselling treatment.

Step II The counselor appreciated the collaborative efforts they had throughout the weeks of the counseling process.

Step III The clients were requested to express what resulted from the substitution of their distorted thoughts with more realistic thoughts.

Step IV Discussed some general aspects of test anxiety and the counseling process which was concluded.

Step V The respondents were told to get ready for another test (post-test) which was the concluding part of the counseling process. The posttest was administered, clients completed their responses, and the Researcher collected it for analysis.

**Source:** Mohammed (2014)

## APPENDIX VIII

## BAYERO UNIVERSITY, KANO

## FACULTY OF EDUCATION

## DEPARTMENT OF EDUCATION

## 2) SELF MANAGEMENT TREATMENT PACKAGE

**Session One:**

**Familiarization and Administration of Pretest**

Objectives: i) Establishment of rapport between the researcher and respondents

ii) Formal introduction of selves by the researcher and the respondents.

iii) Explanation of the researcher's mission to the respondents.

iv) Establishing a counselling relationship with the respondents

v) Agreement on expected behavior during counselling

vi) Administration of pretest

Step 1: The researcher welcomed the respondents and introduced self to them (name, address) and the respondents introduced themselves individually.

Step 2: The researcher explained her mission

Step 3: The researcher introduced to the respondents what relationships she was about to enter with them, which were researcher (counsellor), client (counsellee) relationship,

Step 4: She explained, the researcher's roles and responsibilities in collaboration with the respondents (clients), and emphasized on positive relationship for the success of the counselling process.

Step 5: The researcher discussed with the respondents, on timeframe, for commencement and closure of the counselling session, until a unanimous agreement was reached.

Step 6: The researcher assured the respondents; the confidentiality of the process (the information, identity and problems secret), then requested them to ask any question(s) on what has been discussed.

Step 7: The researcher and the respondents (Counselees) jointly collaborated on agreed set up of rules and regulations that guided the conduct of the counselling sessions.

Step 8: The researcher administered the pretest and collected when completed

Step 9: The researcher then informed the respondents of the coming to the end of the session and time for the next meeting.

**Session Two: Concept of test anxiety causes and effects**

Objectives:

i) Proper understanding of what test anxiety is:

ii) Introducing to the clients what counselling techniques can do to change behavior with particular reference to the concept of self-management.

Step 1: The researcher welcomed the clients to the second session of the counselling process

Step 2; Introduction of the main objectives of the session

Step 3: The researcher then explained to the clients what test anxiety is and asked some of the clients to narrate or cite some negative experience they had in times of thought, feeling or unwanted behavior.

Step 4: The researcher then explained to the clients what self-management is and how it can be used to reduce ones test anxiety behaviour

Step 5: The goal of the whole counselling was set collectively between the researcher and the clients.

Step 6; The researcher gave the clients homework which was part of the next session topic that was to least five items which made them developed anxiety before, during or after the test

**Session 3: Discussion on test anxiety and how it affects human functioning: (ie, TA, performance and its outcome)**

Session Three; Identification, Understanding of Negative Thoughts and Monitoring

Objectives:

i) Proper understanding of negative thoughts, feeling, and unwanted behavior

ii) Identification of negative thought of the participants

iii) How to monitor the negative or automatic thought

Step 1: The researcher welcomed the clients to the session and commended them for their dedication

Step 2: The researcher gave the clients a warm reception to make them felt at home and relaxed for the collaborative session to commence.

Step 3: The clients were asked to narrate their stated experiences on unique negative thought before the commencement of a test and unwanted behavior that occurred during the test, the researcher picked the thought to clarify the issue on when the automatic thought occur.

Step 4: the researcher listened and expressed her emphatic feelings, explain and clarify the thought and feelings

Step 5: The researcher explained what the self-management could do to help the clients on how to observe negative thought before the test and the subsequent negative or unwanted - behavior, the researcher and the clients collaborated through discussion on how to observe and monitor the negative thought and feeling before test, during test and after it

Step 6: The researcher asked the clients to identify five causes of negative thought before the test and five resultant negative behaviour during test.

**Session Four: Conceptualization of the concepts (TA) and types (physical, psychological and cognitive dimensions)**

Objectives:

i) Identification of causes of test anxiety

ii) Explanation on the process of attaching negative thought, to unwanted feeling before the test that trigger unwanted behavior and Explanation on test anxiety types

iii) Explanation on the causes of unwanted behavior during the test and after it.

Step 1: The researcher welcomed the clients to another counselling sessions and recommended them for their dedication

Step 2: The clients presented their home work individually, thereafter for collective discussion

Step 3: Researcher explained major causes of test anxiety before test and gave some examples from selected clients' stated automatic thoughts and how it started.

Step 4: Researcher explained causes of test anxiety during test that included inadequate preparedness and forecast on possibilities of sickness just before test.

Step 5: Researcher explained automatic thought that trigger unwanted exhibition of fear of unknown that resulted in unwanted behavior such as shivering, panicking, sweating blogging and blackness

Step 6: Researcher and Clients work as a team through collaboration and discussed individuals' thought and feelings to make them identify individuals' areas of negative thought and how to replace it with alternative strategy.

Step 7: Researcher used guided questions that enabled the clients to have insight over their distorted negative thinking. Realized their unique negative thoughts that trigger their unwanted behavior during test.

Step 8; the clients were taught how to monitor their unwanted behavior through the use of time management for preparedness and change of negative thought.

Step 9; Identify the time when the alternative thought was more effective and how to stick to the more effective alternative way. Researcher gave assignment on causes of test anxiety after test.

**Session Five: T A after Test Taking, Discussion on wellbeing, (test anxiety free) and how it can be enhanced**

**Objectives:**

i) To continue to monitor alternative behavior identified

ii) Explanation on how unwanted behavior can negatively affect the student academic performance

iii) Explanation on test anxiety after test taking

iv) Importance of test anxiety free behavior and how to enhance it

Step 1: Researcher welcomed clients for attending the session and commended them for their dedication

Step 2: The clients presented their assignment thereby group discussions and collaborative followed while the researcher monitored the discussions and directed the clients to appropriate control strategy based on individual's unique strategic method.

Step 3: The researcher guided the clients on how to evaluate their control strategy ask students for any question on what has been discussed.

Step 4: The researcher gave homework. That was, list three ways on how to evaluate the control strategies

**Session Six: Self Evaluation Techniques**

Objectives;

I) Explanation on self-evaluation techniques

II) Process of evaluation of oneself

III) Process of adapting self-assertiveness to overcome self-anxiety

Step 1: Researcher welcomed the clients for their usual cooperation and contribution during counselling sessions

Step 2: Presentation of assignment followed by discussion and collaboration among the clients while the researcher redirected the mood of the discussion to appropriate method of evaluating control strategy.

Step 3: The researcher guided the clients on how to use self-assertiveness in maintaining the self-control measure

Step 4: The researcher explained other measures for self-evaluation to enhance test anxiety free or reduce occurrence of test anxiety symptoms

Step 5: The researcher asked some Clients questions on the effectiveness of their test anxiety measures.

Step 6: Series of Mock tests was conducted to test the reduction of test anxiety behavior.

Step 7: Collaborative discussion was made on self-acceptance and self-evaluative measures, during and after test.

**Termination of Counselling Sessions**

Objectives:

Review of previous sessions

Adopting self-design measures

Step 1: Researcher welcomed all the clients distributed in the three groups (treatments and control groups) and commended them for un tired cooperation

and contribution made towards successful completion of the counselling process.

Step 2: The clients presented their self-management techniques and acknowledged their self-acceptance and assertiveness in the use of the control or reduction measures.

Step 3: The researcher asked some of the clients to explain the accepted self-management techniques that could enhance the reduction of test anxiety behavior.

Step 4: clients expressed their satisfaction/happiness for the counselling help sessions.

Step 5: The researcher informed the clients of the end of the counselling sessions.

**Administration of posttest**:

The posttest to all the clients in the two experimental groups and the control group was administered. However, the items on the instrument were reshuffled but each statement was the same before using it as posttest. After the completion of the posttest, that means the clients completed their responses then the researcher collected it for analysis.

## APPENDIX IX

## BAYERO UNIVERSITY, KANO

## FACULTY OF EDUCATION

## DEPARTMENT OF EDUCATION

## SUMMARY OF RESULTS (OUTPUTS)

| S/N | Gender | Group | Treatment | PrePhyScore | PrePsyScore | PreCogScore | PostPhyScore | PostPsycScore | PostCogScore |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | |
| 1 | 1 | 1 | 1 | 16 | 20 | 25 | 11 | 17 | 18 |
| 2 | 1 | 1 | 1 | 18 | 15 | 24 | 14 | 15 | 19 |
| 3 | 1 | 1 | 1 | 30 | 23 | 34 | 7 | 6 | 24 |
| 4 | 1 | 1 | 1 | 31 | 21 | 33 | 14 | 10 | 24 |
| 5 | 1 | 1 | 1 | 31 | 18 | 37 | 10 | 9 | 20 |
| 6 | 1 | 1 | 1 | 31 | 23 | 35 | 12 | 8 | 25 |
| 7 | 1 | 1 | 1 | 32 | 24 | 35 | 10 | 9 | 25 |
| 8 | 2 | 1 | 1 | 33 | 15 | 20 | 16 | 11 | 20 |
| 9 | 2 | 1 | 1 | 16 | 23 | 35 | 20 | 16 | 15 |
| 10 | 2 | 1 | 1 | 31 | 22 | 23 | 16 | 16 | 20 |
| 11 | 2 | 1 | 1 | 31 | 23 | 28 | 14 | 21 | 24 |
| 12 | 2 | 1 | 1 | 31 | 19 | 35 | 20 | 23 | 25 |
| 13 | 2 | 1 | 1 | 31 | 19 | 28 | 16 | 11 | 28 |
| 14 | 2 | 1 | 1 | 31 | 23 | 35 | 13 | 14 | 28 |
| 15 | 2 | 1 | 1 | 29 | 22 | 28 | 10 | 10 | 25 |
| 16 | 1 | 2 | 2 | 23 | 23 | 35 | 15 | 7 | 14 |
| 17 | 1 | 2 | 2 | 30 | 19 | 38 | 19 | 6 | 10 |
| 18 | 1 | 2 | 2 | 20 | 19 | 36 | 10 | 10 | 20 |
| 19 | 1 | 2 | 2 | 24 | 23 | 29 | 14 | 8 | 10 |
| 20 | 1 | 2 | 2 | 20 | 22 | 31 | 16 | 8 | 15 |
| 21 | 1 | 2 | 2 | 29 | 29 | 34 | 19 | 9 | 19 |
| 22 | 1 | 2 | 2 | 31 | 33 | 37 | 16 | 7 | 17 |
| 23 | 2 | 2 | 2 | 20 | 19 | 32 | 12 | 8 | 14 |
| 24 | 2 | 2 | 2 | 19 | 33 | 33 | 12 | 10 | 17 |
| 25 | 2 | 2 | 2 | 18 | 24 | 33 | 10 | 7 | 14 |
| 26 | 2 | 2 | 2 | 15 | 22 | 34 | 10 | 5 | 11 |
| 27 | 2 | 2 | 2 | 24 | 26 | 35 | 14 | 6 | 14 |
| 28 | 2 | 2 | 2 | 24 | 24 | 36 | 12 | 13 | 20 |
| 29 | 2 | 2 | 2 | 20 | 24 | 30 | 12 | 12 | 30 |
| 30 | 2 | 2 | 2 | 21 | 21 | 34 | 16 | 6 | 12 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 31 | 1 | 3 | 3 | 31 | 18 | 38 | 30 | 15 | 14 |
| 32 | 1 | 3 | 3 | 33 | 20 | 30 | 29 | 22 | 33 |
| 33 | 1 | 3 | 3 | 32 | 23 | 19 | 28 | 20 | 27 |
| 34 | 1 | 3 | 3 | 29 | 22 | 31 | 29 | 24 | 30 |
| 35 | 1 | 3 | 3 | 24 | 20 | 34 | 32 | 24 | 34 |
| 36 | 1 | 3 | 3 | 28 | 21 | 32 | 29 | 23 | 30 |
| 37 | 1 | 3 | 3 | 32 | 22 | 29 | 32 | 22 | 34 |
| 38 | 2 | 3 | 3 | 32 | 23 | 30 | 16 | 20 | 21 |
| 39 | 2 | 3 | 3 | 32 | 23 | 18 | 30 | 22 | 34 |
| 40 | 2 | 3 | 3 | 30 | 22 | 29 | 29 | 23 | 27 |
| 41 | 2 | 3 | 3 | 31 | 23 | 30 | 30 | 24 | 34 |
| 42 | 2 | 3 | 3 | 31 | 19 | 35 | 32 | 22 | 33 |
| 43 | 2 | 3 | 3 | 28 | 19 | 32 | 32 | 22 | 31 |
| 44 | 2 | 3 | 3 | 29 | 20 | 35 | 32 | 23 | 32 |
| 45 | 2 | 3 | 3 | 29 | 22 | 31 | 29 | 20 | 21 |

## APPENDIX X

## BAYERO UNIVERSITY, KANO

## FACULTY OF EDUCATION

## DEPARTMENT OF EDUCATION

## GENDER DIFFERENCE (CRCT)

| S/N | Gender | PrePhyScore | PrePsyScore | PreCogScore | PostPhyScore | PostPsycScore | PostCogScore |
|---|---|---|---|---|---|---|---|
| 1 | | | | | | | |
| 2 | 1 | 16 | 20 | 25 | 11 | 17 | 18 |
| 3 | 1 | 18 | 15 | 24 | 14 | 15 | 19 |
| 4 | 1 | 30 | 23 | 34 | 7 | 6 | 24 |
| 5 | 1 | 31 | 21 | 33 | 14 | 10 | 24 |
| 6 | 1 | 31 | 18 | 37 | 10 | 9 | 20 |
| 7 | 1 | 31 | 23 | 35 | 12 | 8 | 25 |
| 8 | 1 | 32 | 24 | 35 | 10 | 9 | 25 |
| 9 | 2 | 33 | 15 | 20 | 16 | 11 | 20 |
| 10 | 2 | 16 | 23 | 35 | 20 | 16 | 15 |
| 11 | 2 | 31 | 22 | 23 | 16 | 16 | 20 |
| 12 | 2 | 31 | 23 | 28 | 14 | 21 | 24 |
| 13 | 2 | 31 | 19 | 35 | 20 | 23 | 25 |
| 14 | 2 | 31 | 19 | 28 | 16 | 11 | 28 |
| 15 | 2 | 31 | 23 | 35 | 13 | 14 | 28 |
| 16 | 2 | 29 | 22 | 28 | 10 | 10 | 25 |

## APPENDIX XI

## BAYERO UNIVERSITY, KANO

## FACULTY OF EDUCATION

## DEPARTMENT OF EDUCATION

## GENDER DIFFERENCE (SMCT)

| S/N | Gender | PrePhyScore | PrePsyScore | PreCogScore | PostPhyScore | PostPsycScore | PostCogScore |
|---|---|---|---|---|---|---|---|
| 1 | 1 | 23 | 23 | 35 | 15 | 7 | 14 |
| 2 | 1 | 30 | 19 | 38 | 19 | 6 | 10 |
| 3 | 1 | 20 | 19 | 36 | 10 | 10 | 20 |
| 4 | 1 | 24 | 23 | 29 | 14 | 8 | 10 |
| 5 | 1 | 20 | 22 | 31 | 16 | 8 | 15 |
| 6 | 1 | 29 | 29 | 34 | 19 | 9 | 19 |
| 7 | 1 | 31 | 33 | 37 | 16 | 7 | 17 |
| 8 | 2 | 20 | 19 | 32 | 12 | 8 | 14 |
| 9 | 2 | 19 | 33 | 33 | 12 | 10 | 17 |
| 10 | 2 | 18 | 24 | 33 | 10 | 7 | 14 |
| 11 | 2 | 15 | 22 | 34 | 10 | 5 | 11 |
| 12 | 2 | 24 | 26 | 35 | 14 | 6 | 14 |
| 13 | 2 | 24 | 24 | 36 | 12 | 13 | 20 |
| 14 | 2 | 20 | 24 | 30 | 12 | 12 | 30 |
| 15 | 2 | 21 | 21 | 34 | 16 | 6 | 12 |

## APPENDIX XII

## BAYERO UNIVERSITY, KANO

## FACULTY OF EDUCATION

## DEPARTMENT OF EDUCATION

## SUMMARY OF RESULT (OUTPUT)

```
t-TEST GROUPS=Treatment(1 3)
  /MISSING=ANALYSIS
  /VARIABLES=PostPhysScore
  /CRITERIA=CI(.95).
```

# t-Test

**Group Statistics**

| | Treatment | N | Mean | Std. Deviation | Std. Error Mean |
|---|---|---|---|---|---|
| PostPhysScore | Cognitive Restructuring Technique | 15 | 13.5333 | 3.70071 | .95552 |
| | Control Group | 15 | 29.2667 | 3.93640 | 1.01637 |

**Independent Samples Test**

| | | Levene's Test for Equality of Variances | | t-test for Equality of Means | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | F | Sig. | t | Df | Sig. (2-tailed) | Mean Difference | Std. Error Difference | 95% Confidence Interval of the Difference | |
| | | | | | | | | | Lower | Upper |
| PostPhysScore | Equal variances assumed | .596 | .447 | -11.278 | 28 | .000 | -15.73333 | 1.39500 | -18.59087 | -12.87580 |
| | Equal variances not assumed | | | -11.278 | 27.894 | .000 | -15.73333 | 1.39500 | -18.59136 | -12.87531 |

```
T-TEST GROUPS=Treatment(1 3)
  /MISSING=ANALYSIS
  /VARIABLES=PostPsycScore
  /CRITERIA=CI(.95).
```

## t-Test

**Group Statistics**

| | Treatment | N | Mean | Std. Deviation | Std. Error Mean |
|---|---|---|---|---|---|
| PostPsycScore | Cognitive Restructuring Technique | 15 | 13.0667 | 4.89120 | 1.26290 |
| | Control Group | 15 | 21.7333 | 2.31352 | .59735 |

**Independent Samples Test**

| | | Levene's Test for Equality of Variances | | t-test for Equality of Means | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | F | Sig. | t | df | Sig. (2-tailed) | Mean Difference | Std. Error Difference | 95% Confidence Interval of the Difference | |
| | | | | | | | | | Lower | Upper |
| PostPsycScore | Equal variances assumed | 10.477 | .003 | -6.204 | 28 | .000 | -8.66667 | 1.39705 | -11.52839 | -5.80494 |
| | Equal variances not assumed | | | -6.204 | 19.966 | .000 | -8.66667 | 1.39705 | -11.58118 | -5.75215 |

```
t-TEST GROUPS=Treatment(1 3)
  /MISSING=ANALYSIS
  /VARIABLES=PostCogScore
  /CRITERIA=CI(.95).
```

## t-Test

```
[DataSet0]
```

**Group Statistics**

| | Treatment | N | Mean | Std. Deviation | Std. Error Mean |
|---|---|---|---|---|---|
| PostCogScore | Cognitive Restructuring Technique | 15 | 22.6667 | 3.77334 | .97427 |
| | Control Group | 15 | 29.0000 | 6.02376 | 1.55533 |

**Independent Samples Test**

| | | Levene's Test for Equality of Variances | | t-test for Equality of Means | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | F | Sig. | t | df | Sig. (2-tailed) | Mean Difference | Std. Error Difference | 95% Confidence Interval of the Difference | |
| | | | | | | | | | Lower | Upper |
| PostCogScore | Equal variances assumed | 1.989 | .169 | -3.451 | 28 | .002 | -6.33333 | 1.83528 | -10.09273 | -2.57393 |
| | Equal variances not assumed | | | -3.451 | 23.521 | .002 | -6.33333 | 1.83528 | -10.12525 | -2.54141 |

```
t-TEST GROUPS=Treatment(2 3)
  /MISSING=ANALYSIS
  /VARIABLES=PostPhysScore
  /CRITERIA=CI(.95).
```

## t-Test

```
[DataSet0]
```

**Group Statistics**

| | Treatment | N | Mean | Std. Deviation | Std. Error Mean |
|---|---|---|---|---|---|
| PostPhysScore | Self-Management technique | 15 | 13.8000 | 3.00476 | .77583 |
| | Control Group | 15 | 29.2667 | 3.93640 | 1.01637 |

**Independent Samples Test**

| | | Levene's Test for Equality of Variances | | t-test for Equality of Means | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | F | Sig. | t | df | Sig. (2-tailed) | Mean Difference | Std. Error Difference | 95% Confidence Interval of the Difference | |
| | | | | | | | | | Lower | Upper |
| PostPhysScore | Equal variances assumed | .152 | .700 | -12.096 | 28 | .000 | -15.46667 | 1.27864 | -18.08584 | -12.84749 |
| | Equal variances not assumed | | | -12.096 | 26.180 | .000 | -15.46667 | 1.27864 | -18.09407 | -12.83926 |

```
t-TEST GROUPS=Treatment(2 3)
  /MISSING=ANALYSIS
  /VARIABLES=PostPsycScore
  /CRITERIA=CI(.95).
```

## t-Test

```
[DataSet0]
```

**Group Statistics**

| | Treatment | N | Mean | Std. Deviation | Std. Error Mean |
|---|---|---|---|---|---|
| PostPsycScore | Self-Management technique | 15 | 8.1333 | 2.29492 | .59255 |
| | Control Group | 15 | 21.7333 | 2.31352 | .59735 |

**Independent Samples Test**

| | | Levene's Test for Equality of Variances | | t-test for Equality of Means | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | F | Sig. | t | Df | Sig. (2-tailed) | Mean Difference | Std. Error Difference | 95% Confidence Interval of the Difference | |
| | | | | | | | | | Lower | Upper |
| PostPsycScore | Equal variances assumed | .116 | .736 | -16.164 | 28 | .000 | -13.60000 | .84139 | -15.32351 | -11.87649 |
| | Equal variances not assumed | | | -16.164 | 27.998 | .000 | -13.60000 | .84139 | -15.32351 | -11.87649 |

```
t-TEST GROUPS=Treatment(2 3)
  /MISSING=ANALYSIS
  /VARIABLES=PostCogScore
  /CRITERIA=CI(.95).
```

## t-Test

```
[DataSet0]
```

**Group Statistics**

| | Treatment | N | Mean | Std. Deviation | Std. Error Mean |
|---|---|---|---|---|---|
| PostCogScore | Self-Management technique | 15 | 15.8000 | 5.12975 | 1.32449 |
| | Control Group | 15 | 29.0000 | 6.02376 | 1.55533 |

**Independent Samples Test**

| | | Levene's Test for Equality of Variances | | t-test for Equality of Means | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | F | Sig. | t | df | Sig. (2-tailed) | Mean Difference | Std. Error Difference | 95% Confidence Interval of the Difference | |
| | | | | | | | | | Lower | Upper |
| PostCogScore | Equal variances assumed | .511 | .481 | -6.461 | 28 | .000 | -13.20000 | 2.04287 | -17.38464 | -9.01536 |
| | Equal variances not assumed | | | -6.461 | 27.307 | .000 | -13.20000 | 2.04287 | -17.38943 | -9.01057 |

```
t-TEST GROUPS=Gender(1 2)
  /MISSING=ANALYSIS
  /VARIABLES=PostPhysScore
  /CRITERIA=CI(.95).
```

## t-Test

```
[DataSet1]
```

**Group Statistics**

| | Gender | N | Mean | Std. Deviation | Std. Error Mean |
|---|---|---|---|---|---|
| PostPhysScore | Male | 7 | 11.1429 | 2.47848 | .93678 |
| | Female | 8 | 15.6250 | 3.37797 | 1.19429 |

**Independent Samples Test**

| | | Levene's Test for Equality of Variances | | t-test for Equality of Means | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | F | Sig. | t | Df | Sig. (2-tailed) | Mean Difference | Std. Error Difference | 95% Confidence Interval of the Difference | |
| | | | | | | | | | Lower | Upper |
| PostPhysScore | Equal variances assumed | .392 | .542 | -2.890 | 13 | .013 | -4.48214 | 1.55087 | -7.83259 | -1.13169 |
| | Equal variances not assumed | | | -2.953 | 12.669 | .011 | -4.48214 | 1.51786 | -7.77002 | -1.19427 |

```
t-TEST GROUPS=Gender(1 2)
  /MISSING=ANALYSIS
  /VARIABLES=PostPsycScore
  /CRITERIA=CI(.95).
```

## t-Test

```
[DataSet1]
```

**Group Statistics**

| | Gender | N | Mean | Std. Deviation | Std. Error Mean |
|---|---|---|---|---|---|
| PostPsycScore | Male | 7 | 10.5714 | 3.95209 | 1.49375 |
| | Female | 8 | 15.2500 | 4.77344 | 1.68767 |

**Independent Samples Test**

| | | Levene's Test for Equality of Variances | | t-test for Equality of Means | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | F | Sig. | t | df | Sig. (2-tailed) | Mean Difference | Std. Error Difference | 95% Confidence Interval of the Difference | |
| | | | | | | | | | Lower | Upper |
| PostPsycScore | Equal variances assumed | .278 | .607 | -2.048 | 13 | .061 | -4.67857 | 2.28415 | -9.61317 | .25603 |
| | Equal variances not assumed | | | -2.076 | 12.974 | .058 | -4.67857 | 2.25378 | -9.54855 | .19140 |

```
t-TEST GROUPS=Gender(1 2)
  /MISSING=ANALYSIS
  /VARIABLES=PostCogScore
  /CRITERIA=CI(.95).
```

## t-Test

```
[DataSet1]
```

**Group Statistics**

| | Gender | N | Mean | Std. Deviation | Std. Error Mean |
|---|---|---|---|---|---|
| PostCogScore | Male | 7 | 22.1429 | 3.02372 | 1.14286 |
| | Female | 8 | 23.1250 | 4.48609 | 1.58607 |

**Independent Samples Test**

| | | Levene's Test for Equality of Variances | | t-test for Equality of Means | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | F | Sig. | t | df | Sig. (2-tailed) | Mean Difference | Std. Error Difference | 95% Confidence Interval of the Difference | |
| | | | | | | | | | Lower | Upper |
| PostCogScore | Equal variances assumed | .944 | .349 | -.489 | 13 | .633 | -.98214 | 2.00822 | -5.32064 | 3.35635 |
| | Equal variances not assumed | | | -.502 | 12.290 | .624 | -.98214 | 1.95493 | -5.23043 | 3.26614 |

```
NEW FILE.
DATASET NAME DataSet2 WINDOW=FRONT.
t-TEST GROUPS=Gender(1 2)
  /MISSING=ANALYSIS
  /VARIABLES=PostPhysScore
  /CRITERIA=CI(.95).
```

## t-Test

[DataSet2]

**Group Statistics**

| | Gender | N | Mean | Std. Deviation | Std. Error Mean |
|---|---|---|---|---|---|
| PostPhysScore | Male | 7 | 15.5714 | 3.10146 | 1.17224 |
| | Female | 8 | 12.2500 | 1.98206 | .70076 |

**Independent Samples Test**

| | | Levene's Test for Equality of Variances | | t-test for Equality of Means | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | F | Sig. | t | df | Sig. (2-tailed) | Mean Difference | Std. Error Difference | 95% Confidence Interval of the Difference | |
| | | | | | | | | | Lower | Upper |
| PostPhysScore | Equal variances assumed | .925 | .354 | 2.507 | 13 | .026 | 3.32143 | 1.32506 | .45881 | 6.18405 |
| | Equal variances not assumed | | | 2.432 | 9.964 | .035 | 3.32143 | 1.36573 | .27690 | 6.36596 |

```
t-TEST GROUPS=Gender(1 2)
  /MISSING=ANALYSIS
  /VARIABLES=PostPsycScore
  /CRITERIA=CI(.95).
```

## t-Test

```
[DataSet2]
```

**Group Statistics**

| | Gender | N | Mean | Std. Deviation | Std. Error Mean |
|---|---|---|---|---|---|
| PostPsycScore | Male | 7 | 7.8571 | 1.34519 | .50843 |
| | Female | 8 | 8.3750 | 2.97309 | 1.05115 |

**Independent Samples Test**

| | | Levene's Test for Equality of Variances | | t-test for Equality of Means | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | F | Sig. | t | df | Sig. (2-tailed) | Mean Difference | Std. Error Difference | 95% Confidence Interval of the Difference | |
| | | | | | | | | | Lower | Upper |
| PostPsycScore | Equal variances assumed | 6.102 | .028 | -.423 | 13 | .679 | -.51786 | 1.22417 | -3.16252 | 2.12681 |
| | Equal variances not assumed | | | -.444 | 10.019 | .667 | -.51786 | 1.16765 | -3.11889 | 2.08318 |

```
t-TEST GROUPS=Gender(1 2)
  /MISSING=ANALYSIS
  /VARIABLES=PostCogScore
  /CRITERIA=CI(.95).
```

## t-Test

```
[DataSet2]
```

**Group Statistics**

| | Gender | N | Mean | Std. Deviation | Std. Error Mean |
|---|---|---|---|---|---|
| PostCogScore | Male | 7 | 15.0000 | 4.00000 | 1.51186 |
| | Female | 8 | 16.5000 | 6.14120 | 2.17124 |

**Independent Samples Test**

| | | Levene's Test for Equality of Variances | | t-test for Equality of Means | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | F | Sig. | t | df | Sig. (2-tailed) | Mean Difference | Std. Error Difference | 95% Confidence Interval of the Difference | |
| | | | | | | | | | Lower | Upper |
| PostCogScore | Equal variances assumed | .535 | .478 | -.551 | 13 | .591 | -1.50000 | 2.72352 | -7.38382 | 4.38382 |
| | Equal variances not assumed | | | -.567 | 12.112 | .581 | -1.50000 | 2.64575 | -7.25871 | 4.25871 |

**t-Test**

| | Treatment | Mean | Std. Deviation | t-cal | df | P-value |
|---|---|---|---|---|---|---|
| PhyDim | CRCT | 20.8333 | 8.89821 | 1.228 | 58 | 0.224 |
| | SMCT | 18.4000 | 6.21788 | | | |
| PsyDim | CRCT | 16.8667 | 5.53193 | 0.403 | 58 | 0.689 |
| | SMCT | 16.1000 | 8.83313 | | | |
| CogDim | CRCT | 26.5000 | 6.04438 | 0.798 | 58 | 0.428 |
| | SMCT | 24.8000 | 9.98067 | | | |