

**EFFECTS OF COGNITIVE RESTRUCTURING THERAPY AND SURVEY,
QUESTION, READ, RECITE, REVIEW STUDY STRATEGY ON TEST ANXIETY
AMONG SECONDARY SCHOOL STUDENTS IN GOMBE STATE, NIGERIA**

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Abstract

This study was carried out to determine the effects of cognitive restructuring therapy (CRT) and survey, question, read, recite, review (SQ3R) study strategy on test anxiety among secondary school students in Gombe State, Nigeria. A pre-test post-test non-equivalent no control group design was adopted for the study. Three objectives guided the study. A population of 24,478 students, and the sample of 134 students drawn using the purposive sampling technique was used for the study. The study made use of three research instruments – a 25-item test anxiety scale (TAS), and two experimental packages. The TAS was validated by five experts. The test of stability of TAS was ensured using test-retest method on twenty students at an interval of two weeks. The Pearson Product Moment Correlation was used to ensure the reliability of the instruments at .05 level of significant. TAS yielded a reliability index of .90. Cronbach Alpha was also used to test the internal consistency of TAS. The coefficient internal consistency was .89. The experimental groups were exposed to pre-test and then post-test after the administration of the various treatments. The data obtained were analyzed using Mean and Standard Deviation for answering research questions and Analysis of Covariance for testing hypotheses at .05 level of significance. Major finding of the study revealed that CRT and SQ3R study strategy had significant effects on test anxiety of secondary school students. It was concluded that test anxiety is effectively managed using CRT and SQ3R study strategy among secondary school students. The study recommended among others that CRT and SQ3R study strategy should be used by school counsellors/psychologists, teachers and other Education stakeholders in managing test anxiety among secondary school students.

Keywords: Cognitive restructuring therapy, SQ3R study strategy, and Test anxiety.

Introduction

Attainment of educational goals by students is fundamental to every education system. Thus, over time the extent of academic achievement by students is tested for necessary adjustment in the system and this evaluation is done through test. Test is an instrument used by educators to evaluate the extent to which students have attained certain prescribed learning experiences and skills at a given time. Amalu (2017) defined test as a standard evaluative and assessment tool for measuring testees' knowledge, aptitude, skills and abilities. Similarly, to Adeniyi (2015), test is an instrument designed to measure the effect of a specific programme of instruction or training, and to provide students with feedback. Test could be in oral or written form, or a demonstration of skills which is meant to be measured and graded for judging students' level of acquisition of knowledge and skills in relation to certain acceptable level of learning. Test could be for placement, scholarship award, screening or promotion to higher levels of education. For the present study, test is an instrument used by educators to evaluate the extent to which students have attained certain prescribed learning experiences and skills at a given time.

In education sector, test scores seem to define students' academic achievement and self-worth. Students therefore strive to achieve good test scores to make them relevant in the contemporary society. Meeting this societal educational demand seems to be very challenging and sometimes unattainable by some students (Salend, 2012). Consequently, some students view test as 'a problem', 'a monster', 'a war', 'a threat', 'a tension', 'an obstacle', and 'an enemy's weapon', which makes them have sleepless nights, nervous, angry, worried, anxious, frustrated, depressed, and sometimes test anxiety results in psychosomatic illness (Garba & Yauta, 2017). For the reason that test is viewed by some testees as a threat, other students even feel it should not be included in the academic programme because of the problems that go along with it. The hate and fear of test among students always make them tensed and nervous whenever it is mentioned, resulting to test anxiety. Whitaker-Sena, Lowe, and Lee (2007) defined test anxiety as student's physiological, cognitive, and behavioural responses that arouse unhelpful feelings about an evaluation. The definition shows that test anxiety is all encompassing, including physiological, cognitive, and behavioural aspects. Thus, test anxiety could trigger physiological, cognitive, and behavioural responses in test-anxious students. These responses are also interlinked. For example, brain blackout could cause students to fidget or hiss during test-taking. This experience could throw the test-anxious students off balance. Similarly, Garba and Yauta (2017) defined test anxiety as being in a state of cognitive, somatic, emotional and behavioural disposition, before, during and after examination. In this study, test anxiety simply refers to a psychological state characterized by excessive and uncontrollable worry when faced with a test. The phenomenon of test anxiety has become a universal experience in our contemporary world, of which Gombe State is inclusive.

Test anxiety among students can be categorized based on preparedness or non-preparedness of students to face a test. To Adimora, Akaneme and Nwokenna (2017) test anxiety among students can be of two types. The first describes students with good study strategies and habits, who do not have problems in encoding and organizing the information but rather have a major problem in retrieval of the information for a test because of excessive fear. The second type involves those with poor study strategies and habits that have problem with all stages of information processing and consequently having excessive fear when faced with tests. Students experiencing test anxiety often underestimate themselves about their ability to cope with stressful academic situations. They believe they do not have the skills necessary to cope with the learning condition, let alone competing with other learners (Garba, 2018). Garba further posited that students who experience test anxiety may also suffer any or some of the following: the association of grades with personal worth, fear of embarrassment by a teacher, fear of disaffection from parents or friends, pressures or feeling of loss of control, sweating, dizziness, headaches, racing heartbeats, nausea, fidgeting and drumming on desk. The above symptoms are as a result of students' negative mindset towards test and possibly lack of content mastery, which could affect the general academic success of these students.

It is worthy of note that students experience anxiety before, during and after test at different levels; some have high, some low, and others moderate levels of test anxiety respectively. High

level of test anxiety is a situation where the student has so much tension which makes the student unable to concentrate and perform what is expected of him in a test (Krispenz, Gort, Schultke & Dickhauser, 2019). Krispenz, et al. further posited that the low level of test anxiety is a situation where the student does not care enough to achieve what is expected of the student in a test. On the other hand, the moderate level of test anxiety refers to the optimal level of anxiety for a student to achieve academic success to maximum potential in a test. While a moderate level of anxiety is likely to help a child learn optimally, high level of anxiety found in some students actually impair their learning, making them have feeling of inadequacy, low self-esteem, and poor self-concept thereby multiplying into several behavioural problems. Low level of anxiety could cause students to be carefree about their academic tasks. This behavioural problem could be detrimental to not just the academic lives of the sufferers, but also to their total life. For example, recent findings by Krispenz, Gort, Schultke, and Dickhauser (2019) revealed that test anxiety have significant effect on students' learning achievement, and described the consequences as including low self-esteem, reduced effort, loss of motivation for school tasks, and poor academic performance, which is the concern of this study because of the symptoms of test anxiety observed among students.

Symptoms of test anxiety have been observed among secondary school students in Gombe State. Some of the symptoms observed include lack of confidence in self before, during and after test, taking of stimulants during examinations, falling sick during examinations periods, negative statements to self after writing examinations, disrespect to invigilators, and violation of examination rules and regulations (Garba & Yauta, 2017). The consequences of the misbehaviour could be used as a reason for poor performance, engagement in examination malpractices, and some students dropping out of school for no good reason. Garba and Yauta (2017) found that these students have high level of test anxiety and have negative impact on their academic achievement. As argued in the cognitive theory by Beck (1976), situations by themselves do not lead to behaviour, but the thoughts, feelings, beliefs and interpretation of the situations that determines behaviour. By implication, dysfunctional cognition leads to maladaptive behaviours. Thus, test on its own does not evoke anxiety, rather, the extent to which the student appraises and interprets the situation as threatening causes anxiety. This means that the students' interpretation of test and achievement to a very large extent, determine their level of test anxiety. Students who have test anxiety have irrational thoughts and this interferes with their interpretation of the rationale for test.

There is need for students to see test in the light of its rationale, and interpret it positively as means of assessing the level of academic achievement of students, to know the areas of strengths and weaknesses of students academically for adjustment for maximum academic achievement. Thus, restructuring of students' cognition could help them view academic tasks as worthwhile, and be positive in any given test. Through cognitive restructuring therapy (CRT) and Survey, Question, Read, Recite and Review (SQ3R) study strategy, students could be conditioned to overcome test anxiety as in the findings of Okoye and Onokpaunu (2020).

Test anxiety is an educational problem that seems to cut across gender. For instance, Balkis and Duru (2017) did not only find out that test anxiety has significant negative effect on students' learning, but further found that gender played a significant role on test anxiety and academic procrastination of students. Gender is a physiological or sociological attribute of being male or female. Balkis and Duru (2017) defined gender as a social concept that is set to differentiate between the two sexes, male and female. As pointed out by Akintunde (2014) gender refers to the various social and cultural constructed features, values, behaviours, and parts which different societies ascribe to males and females. In the present study, gender is considered as a fact of being male or female. Gender is one of the variables that engage the attention of researchers over time to ascertain its influence on students' academic achievement in the various aspects of the educational system (Ogbonna, Nworgu & Oparah, 2017). In the quest to manage test anxiety which cut across gender, researchers have employed different interventions including cognitive restructuring therapy. A study by Eya, Anumudu, Nweze, Dave-Ugwu, Egbo, Chukwunwogor, Okebanama, Omeje, Alkoye, Ngwainmbi, Ibrahima, & Ugwanyi (2024) found cognitive restructuring therapy to be efficacious in the management of test anxiety among students.

The identification, rebuttal, and modification of irrational automatic thoughts of students are necessary if they must function to the fullest of their potentials. This can be done through the cognitive restructuring therapy. Cognitive restructuring therapy as defined by Cuncin (2018) is a technique that involves identifying, disputing, and replacing irrational automatic thoughts. The rationale for using cognitive restructuring therapy (CRT) in this study was because it is one of the few forms of psychotherapies that has been scientifically tested and proven to be effective in over three hundred experimental studies for many different anxiety disorders (Ghamari, Rafeie & Kiani, 2015). The study further argued that CRT is usually more focused and problem-solving oriented than other psychotherapies. In agreement with this, a study by Anyame & Udeagha (2025) found cognitive restructuring therapy to be effective in reducing test anxiety among students. In this study, the efficacy of cognitive restructuring therapy in ameliorating test anxiety was determined. To achieve this, the therapist guided the participants to: Identify some irrational thoughts and negative self-statements and their detrimental consequences during test-taking such as "I frequently feel tensed up during test-taking", and "During tests, I find myself thinking about the consequences of failing the tests"; Challenge the thoughts, thus, "I frequently feel tensed up during test-taking", and "During tests, I find myself thinking about the consequences of failing the tests" were queried to be irrational.

The therapist then guided the students to convert the irrational thoughts, beliefs and self-statements to become rational, thus, "I frequently feel tensed up during test-taking", and "During tests, I find myself thinking about the consequences of failing the tests" were rebutted to "I feel confident during test-taking", and "During tests, I am optimistic to pass the tests" respectively. Thus, the CRT was used to develop rational thinking and use of positive statements, self-confidence, positive self-image, good study strategy, hard work, avoid giving too much excuses, avoid procrastination, not to panic even if a test seems too difficult, and

replacing irrational thoughts with rational ones. This also seemed to instill confidence in students to see themselves as achievers, thus, motivating them to do their academic activities as and when due.

Irrespective of the effectiveness of CRT, SQ3R study strategy also seems to have the propensity of being effective. The SQ3R study strategy is a study strategy named after its five steps, which include Survey, Question, Read, Recite, and Review. This is a technique that can be learnt within short period of time and is so flexible that it can be applied to most, if not all fields of study. SQ3R study strategy help students master the information in such a way that relates to how the students will be asked to retrieve the information in a test. In this study, participants were exposed to the SQ3R study strategy to test its efficacy in managing test anxiety. Coaching the students through the five stages of the study strategy, such as survey, questioning, read, recite, and review of texts could improve on the mastery and confidence level of secondary school students in Gombe State, and could invariably prevent anxiety before, during and after tests.

Just like cognitive restructuring therapy, the SQ3R study strategy could also help in managing the level of test anxiety among students when the five steps are observed. Thus, the strategy could help students in this study adequately digest any given contents and face any test with full confidence, and be motivated to carry out their academic tasks as and when due. On this note, this study intends to make use of CRT and SQ3R study strategy on different experimental groups. The two experimental approaches will be adopted because the researcher believes while CRT could be used to restructure the irrational thoughts of the students to become rational, the SQ3R study strategy could also be used to adequately equip the students with mastery of their content areas. This will reaffirm or refute the claims of Robin (2004) that test anxiety emanates from students' poor study habits, illogical and irrational thinking, and also, as noted by Numan and Hasan (2017), that one of the most effective ways to reduce students' test anxiety, is through cognitive behaviour therapy and study habit.

Students in Gombe State are supposed to face any given test with all confidence in order to be successful in their academic life and beyond. Sadly, the researcher had observed the symptoms of test anxiety among secondary school students in Gombe State such as lack of confidence in self during test, taking of stimulants during examinations, negative statements to self after writing examinations such as "I know I will be back next year to rewrite this exam", deliberate violation of examination rules and regulations, engagement in examination malpractices, and some students drop out of school for no good reason. This behavioural problem could hamper the academic success of the students as they could subsequently constitute nuisance in the society, such as the "yan kalare" (political thugs), which has been a problem in the state, especially, in Gombe, the state capital. These students are supposed to be useful to themselves and the state. Sadly, test anxiety poses a threat to the academic life of the students in question because they seem not to think rationally about test, and also lack content mastery. Thus, not equipped enough to instil in them the confidence and motivation they need to face any given test. The researcher is therefore optimistic that cognitive restructuring therapy and SQ3R study

strategy could be effective in managing test anxiety among students, by guiding them to identify irrational thoughts as regards test, rebut and modify them. Also, to help students through SQ3R master any given contents, so they can reach their maximum potentials and be productive in life. Thus, the main purpose of this study was to investigate the effects of cognitive restructuring therapy and the SQ3R study strategy on test anxiety among secondary school students in Gombe State.

Research Questions

Based on the objectives of the study, the following research questions were raised to guide the study:

1. What are the individual effects of cognitive restructuring therapy and SQ3R study strategy on mean test anxiety ratings of secondary school students in Gombe State?
2. What are the mean test anxiety ratings of male and female secondary school students in Gombe State?
3. What is the interaction effect of treatments and gender on mean test anxiety ratings of secondary school students in Gombe State?

Hypotheses

The following null hypotheses were formulated for the study and were tested at 0.05 level of significance:

- H₀₁:** There is no significant difference in the mean test anxiety ratings of secondary school students exposed to cognitive restructuring therapy and those exposed to SQ3R study strategy in Gombe State.
- H₀₂:** There is no significant difference in the mean test anxiety ratings of male and female secondary school students in Gombe State.
- H₀₃:** There is no significant interaction effect of treatments and gender on mean test anxiety ratings of secondary school students in Gombe State.

Methodology

This study adopted the pre-test post-test non-equivalent quasi experimental design. The design for the study is figuratively represented in figure 1 below.

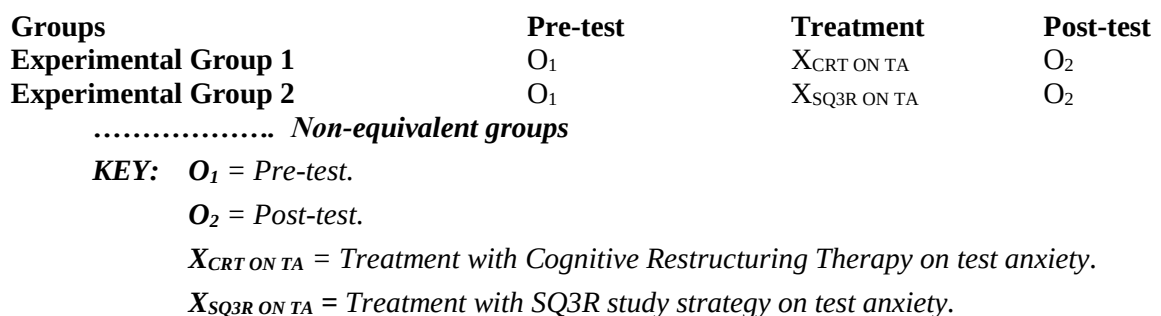


Figure 1: Pre-test post-test non-equivalent quasi experimental design

The population of the study included twenty-four thousand four hundred and seventy-eight (24,478; male, 14,308 and female, 10,170) senior secondary school II (SS II) students from the one hundred and forty-two (142) public co-educational secondary schools in Gombe State. The

sample for this study was one hundred and thirty-four (134; male, 63 & female, 71) public co-educational secondary school II (SS II) students in that were sampled from two (2) education zones, Gombe North and Gombe Central respectively, out of the three education zones in Gombe State. The purposive sampling technique was used to select one local government in each of the education zones, from which the two (2) co-educational public schools, one each from a local government in Gombe North and Gombe Central education zones were sampled respectively.

Three instruments were used for the study – Test anxiety scale (TAS), Cognitive restructuring therapy package (CRTP) on test anxiety, and SQ3R study strategy package (SQ3RP) on test anxiety. The first instrument used was a 25-item Likert rating scale, titled “Test Anxiety Scale” (TAS). The TAS was structured on four-point scales, and graded as: Strongly Agree (SA), 4 points; Agree (A), 3 points; Disagree (D), 2 points; and Strongly Disagree (SD), 1 point. The TAS was initially administered to the students as pre-test, and then later reshuffled and administered as post-test. In order to ascertain the validity of these research instruments, the researcher gave the instruments to five experts for their inputs. The test of stability of TAS was also ensured using test retest method on twenty (20) students at an interval of two weeks. The Pearson Product Moment Correlation (PPMC) was used to ensure the internal consistency of the instruments at .05 level of significant. TAS yielded a reliability index of .90. The Cronbach Alpha was also used to compute the internal consistency of the instruments at .05 level of significant, which also yielded an index of .89. Mean and standard deviation were used to answer the research questions raised, while analysis of covariance (ANCOVA) was used to test the null hypotheses formulated for the study at .05 level of significance.

Results

Research Question One: What are the individual effects of cognitive restructuring therapy and SQ3R study strategy on mean test anxiety ratings of secondary school students in Gombe State?

Table 1: Mean and standard deviation of secondary school students on the effects of CRT and SQ3R on their test anxiety

Treatment	N	Pre-test		Post-test		Mean	Mean	Loss
		Mean	SD	Mean	SD	Loss	Difference	
CRT	65	57.09	5.25	43.03	5.54	14.06	9.98	
SQ3R	69	58.36	4.98	54.28	5.42	4.08		

Results in Table 1 show that at pre-test, secondary school students exposed to CRT had mean test anxiety ratings of 57.09 with standard deviation of 5.25, while those exposed to SQ3R had mean test anxiety ratings of 58.36 with standard deviation of 4.98. However, at post-test, secondary school students exposed to CRT had mean test anxiety ratings of 43.03 with standard deviation of 5.54, while those exposed to SQ3R had mean test anxiety ratings of 54.28 with standard deviation of 5.42. The mean rating difference of 9.98 was recorded for the two treatment groups in favour of CRT. This gives an indication that CRT has a higher effect in reducing test anxiety of secondary school students in Gombe state. The standard deviations of

the two groups at the post-test ranged from 5.42–5.54, which indicate that the respondents were homogenous in their responses.

Research Question Two: What are the mean test anxiety ratings of male and female secondary school students in Gombe State?

Table 2: Mean and standard deviation of male and female secondary school students on their test anxiety

Gender	N	Pre-test		Post-test		Mean Loss	Mean Loss Difference
		Mean	SD	Mean	SD		
Male	63	57.81	4.62	49.51	8.29	8.30	1.18
Female	71	57.69	5.58	48.21	7.44	9.48	

Results in Table 2 show that at the pre-test, male students had mean test anxiety ratings of 57.81 with standard deviation of 4.62 while their female counterparts had mean test anxiety ratings of 57.69 with standard deviation of 5.58. At post-test, male students had mean test anxiety ratings of 49.51 with standard deviation of 8.29 while their female counterpart recorded mean test anxiety ratings of 48.21 with standard deviation of 7.44. The results therefore, show that both male and female students recorded decreased post-test mean test anxiety ratings. However, female students had lower mean test anxiety ratings than their male counterpart. This can be seen from a slight mean loss difference of 1.18 in favour of the female students. The standard deviation of the two groups (male and female) at the post-test ranged from 7.44–8.29; indicating that the respondents were homogenous in their responses.

Research Question Three: What is the interaction effect of treatments and gender on mean test anxiety ratings of secondary school students in Gombe State?

Table 3: Mean and standard deviation of interaction effect of treatments and gender on mean test anxiety ratings of secondary school students in Gombe state

Groups	Gender	N	Mean	SD
CRT	Male	30	43.73	6.21
	Female	35	42.43	4.91
	Male	33	54.76	6.22
SQ3R	Female	36	53.83	4.62

Results of the analysis in Table 3 revealed that male students exposed to CRT had more reduced mean test anxiety ratings of 43.73 and standard deviation of 6.21 compared to their counterpart exposed to SQ3R who had mean test anxiety ratings of 54.76 with standard deviation of 6.22. On the other hand, female students exposed to CRT also had lower mean test anxiety ratings of 42.43 and standard deviation of 4.91 while their female counterparts exposed to SQ3R had mean test anxiety ratings of 53.83 with standard deviation of 4.62. The results do not suggest ordinal interaction effect between treatments and gender on mean test anxiety ratings of secondary school students in Gombe state. This was because at all the levels of gender, the mean test anxiety ratings were lower for students in exposed to CRT. Thus, there

may be no interaction effect of treatments and gender on mean test anxiety ratings of secondary school students. The standard deviation of the two groups (CRT and SQ3R with respect to gender at the post-test ranged from 4.62–6.22; indicating that the respondents were homogenous in their responses.

H₀₁: There is no significant difference in the mean test anxiety ratings of secondary school students exposed to cognitive restructuring therapy and those exposed to SQ3R study strategy in Gombe State.

Table 4: Analysis of covariance of significant difference in the mean test anxiety ratings of secondary school students exposed to cognitive restructuring therapy and those exposed to SQ3R study strategy in Gombe State

Source	Type III Sum of Squares	Df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	4329.038 ^a	4	1082.259	36.088	.000	.528
Intercept	1760.968	1	1760.968	58.719	.000	.313
PrestestAnx	54.835	1	54.835	1.828	.179	.014
Method	4014.076	1	4014.076	133.849	.000	.509
Gender	40.426	1	40.426	1.348	.248	.010
Method * Gender	.882	1	.882	.029	.864	.000
Error	3868.664	129	29.990			
Total	327584.000	134				
Corrected Total	8197.701	133				

Results of the analysis in Table 4 show that treatment is a significant factor on test anxiety of secondary school students; $F(1,129) = 133.849$, $P = .000$, $\eta_p^2 = .509$. Thus, the null hypothesis of no significant difference was rejected. This is because the exact probability value of .000 was less than level of significance set at 0.05. The researcher therefore, concludes that there is a significant difference in the mean test anxiety ratings of secondary school students exposed to cognitive restructuring therapy and those exposed to SQ3R study strategy in Gombe State. However, the Partial Eta Square (effect size) value of .509 shows that CRT had moderate effect on test anxiety of secondary school students.

H₀₂: There is no significant difference in the mean test anxiety ratings of male and female secondary school students in Gombe State.

Result of the analysis in Table 4 was also used to test hypothesis two. The Table shows that gender is not a significant factor on test anxiety of secondary school students; $F(1,129) = 1.348$, $P = .248$. Thus, the null hypothesis of no significant difference was accepted since the exact probability level of .248 was greater than level of significance set at 0.05. The researcher therefore, concludes that there is no significant difference in the mean test anxiety ratings of male and female secondary school students in Gombe State.

H₀₃: There is no significant interaction effect of treatments and gender on mean test anxiety ratings of secondary school students in Gombe State.

The result of the analysis in Table 4 was also used to test hypothesis three. The Table shows that the exact probability value of .864 associated with treatments and gender was greater than 0.05 level of significance; ($F(1, 129) = .029, P = .864$). Thus, the null hypothesis of no significant interaction effect of treatments and gender on mean test anxiety ratings of secondary school students was accepted. The researcher therefore, concludes that the interaction effect of treatments and gender on mean test anxiety ratings of secondary school students was not significant. The result of interaction effect was also interpreted using screen plot as shown in figure 2.

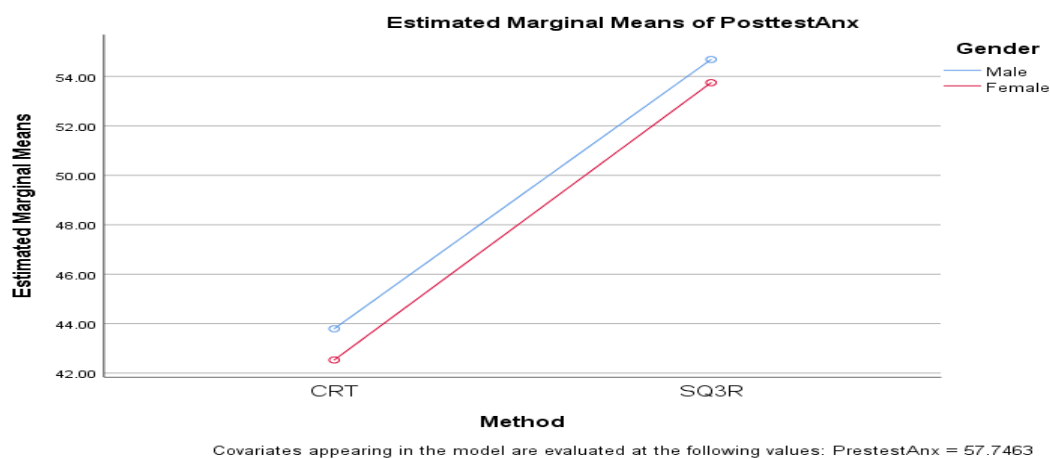


Figure 2: Graph of the interaction effect of treatments and gender on mean test anxiety ratings of secondary school students

The screen plot in figure 2 shows that there is no interaction effect of treatments and gender on mean test anxiety ratings of secondary school students. This is indicated by the separate lines for the male and female students' test anxiety in the respective two treatment groups. That is to say that, the connecting cell mean in the diagram is parallel.

Discussion of Findings

The findings of this study revealed that cognitive restructuring therapy and SQ3R study strategy had significant effects on test anxiety of secondary school students in Gombe State. This finding implies that cognitive restructuring therapy and SQ3R study strategy significantly affect test anxiety level of the students. This finding is in agreement with the finding of Abdul-Kareem (2019) who examined the effectiveness of cognitive behavioural therapy (CBT) and study skills training (SST) in reducing test anxiety and improving academic performance in Yarmouk University, Jordan and found that both treatment groups made significant improvements from pre-test to post-test in test-anxiety compared to the control group. Also, Ghamari, Rafeie, and Kiani (2015) carried out a study to determine the effectiveness of cognitive restructuring therapy and the appropriate methods of study in reducing test anxiety symptoms among third grade high school students in Khalkhal, Iran, and found that cognitive restructuring method and study methods were significant in reducing the symptoms of test

anxiety of students. In like manner, Anyamene and Ogugua (2019) carried out a study on effect of cognitive restructuring on junior secondary school Mathematics test anxiety in Oshimili South L.G.A of Delta State and found that cognitive restructuring therapy (CRT) was effective in averting Mathematics test anxiety of junior secondary school students.

Another finding of this study was that there was no significant difference in the mean test anxiety ratings of male and female secondary school students in Gombe State. This finding implies that gender does not significantly influence the mean test anxiety of the respondents. This finding is in agreement with the finding of Oguzie, Nnachetam, Akukananwa and Onyegirim (2018) who carried out a study to investigate the effect of cognitive restructuring technique on fear tendency among secondary school students in Owerri Municipal Council of Imo State, and found that difference in the reduction of students' fear tendency was not significant based on gender. In disagreement with this finding is the finding of Anyamene and Ogugua (2019) who carried out a study on effect of cognitive restructuring on junior secondary school Mathematics test anxiety in Oshimili South L.G.A of Delta State and found that there was significant difference in the post-test mathematics test anxiety mean scores of male and female students treated with CRT.

Another finding of this study is that there was no significant interaction effect of cognitive restructuring therapy and SQ3R study strategy on mean test anxiety ratings of secondary school students in Gombe State based on gender. This finding implies that gender does not significantly influence the effect of cognitive restructuring therapy and SQ3R study strategy on mean test anxiety ratings of secondary school students in Gombe State. Thus, the mean test anxiety ratings of secondary school students in Gombe State recorded was rather as a result of the effect of the cognitive restructuring therapy and SQ3R study strategy they were exposed to, and not as a result of the influence of gender interacting with the measures used among the students.

Conclusion

Based on the findings of this study, it was concluded that test anxiety is effectively managed using cognitive restructuring therapy and SQ3R study strategy among secondary school students; and that gender is not a factor of significant difference in test anxiety; also, no significant interaction effect of treatments used in the study and gender.

Recommendations

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

1. Cognitive restructuring therapy and SQ3R study strategy should be used by school counsellors/psychologists, teachers and other education stakeholders in managing test anxiety among secondary school students.
2. Cognitive restructuring therapy and SQ3R study strategy should be used among secondary school students irrespective of gender consideration because the effects of the measures used are alike across gender.

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