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EMOTIONAL AND COGNITIVE BEHAVIOURAL THERAPIES ON ACADEMIC PERFORMANCE OF SECONDARY SCHOOL STUDENTS WITH ATTENTION DEFICIT HYPERACTIVITY DISORDER IN IBADAN, OYO STATE, NIGERIA

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Abstract

The study determined the effectiveness of emotional and cognitive behavioural therapies in enhancing the academic performance of ADHD in Mathematics among senior secondary school students in Ibadan. To ascertain the degree of therapeutic efficacy, a randomized sample of 45 senior secondary school students with 15 participants in each from three different senior special schools in three different local government areas in Ibadan were chosen for the purpose. The quasi-experimental study employed a randomized sample that undertook training in Emotional and Cognitive Behavioural Therapies and with a control group were used. The instrument used for data collection are Mathematics achievement tests prepared by the National Examination Council (NECO) for 2017 & 2018 objective Mathematics papers were used since the instrument was prepared by the Public Examination body there is no need for revalidation of the instrument. A pair of pre-test and post-test data was obtained from each participant who formed the basis of the findings using ANCOVA for data analyses. Three hypotheses were formulated and tested at $\alpha = 0.05$ level of significance. Results showed that there were significant differences in the treatment with Cognitive Behavioural Therapy being more significant in enhancing Mathematics achievement among ADHD senior school students. Also, the results showed that gender and age have to do with the enhancement of academic performance among senior secondary school students with ADHD. It was therefore concluded that Emotional and Cognitive Behavioural Therapies can be used to enhance senior Mathematics academic performance of students with ADHD and recommendations are also offered.

Keywords: Emotional behaviour, Cognitive behaviour, Therapy, Performance, Attention Deficit Hyperactivity Disorder.

INTRODUCTION

Children with attention deficit hyperactivity disorder often present with the poor academic performance which negatively impact almost all areas of their lives. The condition is a prevalent Emotional and Behavioural disorders that can affect the scholastic and social functioning of school-age children and it is characterized by developmentally inappropriate behaviour, such as inattention, impulsiveness, hyperactivity and social skill deficits. It is most often discovered during the early school years when a

child begins to have problems paying attention. The condition can continue into the teen years and on to adulthood and though its exact cause is unknown, research is ongoing to study the brain for clues. Several factors like heredity, chemical imbalance, brain damage, poor nutrition, infections and substance abuse during pregnancy, exposure to toxins such as lead in early childhood, injury to the brain or a brain disorder may contribute to the development of attention deficit hyperactivity disorder (Daalsgard, 20l3). Social rules and relations are created, communicated and exchanged in verbal and nonverbal ways (Kully, 2012). These are generally acquired through incidental learning; watching people, copying the behaviour of others, practising, and getting feedback. Social skills are practised and learned by playing with a grown-up and through other childhood activities. The finer points of learning skills are developed by observation and peer feedback. Children with attention deficit hyperactivity disorder often miss these details. They may pick up bits and pieces of what is appropriate but lack an overall view of social expectations. Unfortunately, as adults, they often realize that something is wrong but they are never quite sure what it is. Social acceptance can be viewed as a spiral going up or down because individuals who exhibit appropriate learning skills are rewarded with more acceptance from those with whom they interact and are encouraged to develop even better social skills. Although social skills deficits are a central feature of attention deficit hyperactivity disorder, very few children with the condition receive adequate social skill training or programme (Hume, Bellini &Pratt, 2005). This is a troubling reality especially considering that the presence of social impairment may lead to the development of more detrimental outcomes, such as poor academic achievement, social failure, dropping out of school, peer rejection, anxiety, depression, and other negative outcomes (Tantam 2000, Welsh, Park, Wildaman, O'NeiI, and Elksnin (1998) reported that a lack of social skills are directly correlated to a nation's unemployment and under employment rates. Irrespective of the sub-type of the condition, individuals with attention deficit hyperactivity disorder often experience social difficulties like social rejection and interpersonal relationship problems as a result of their inattention, impulsivity and hyperactivity. Such negative interpersonal outcome causes psychological difficulties, and they also contribute to the development of comorbid mood and anxiety disorders. For most children with attention deficit hyperactivity disorder, social interactions are problematic and the combination of impulsivity, immaturity and difficulty in reading the social cues of others can lead to difficult peer and adult relationship.

Positive relationships with friends in childhood reduce stress and help to protect against psychological problems. However, children with attention deficit hyperactivity disorder (ADHD) lack these positive interactions and thus are at risk for a number of emotional problems, such as anxiety, depression and low self-esteem. As they grow older, their social problems get worse and their inappropriate behaviour leads to social rejection and exacerbates their inability to relate to others appropriately. In the long term, these children are more likely to have difficulty finding and maintaining successful careers because social aptitude can make or mar careers and relationships in the adult. Furthermore, ADHD is related to poor academic performance aid frequently associated with children exhibiting externalizing disorders such as delinquency and conduct disorder, as well as those with an internalizing disorder like depression and anxiety (Warnes, Sheridan, Geske &Warnes, 2005). Impairment in social skills is related to a broad range of problems including juvenile delinquency, socialization, withdrawal, aggression, antisocial behaviours, mental health problems and dropping out of school (Matson Wilkins, 2009). By contrast children without ADHD represents children who are able to adjust to their environment, succeed in avoiding conflict and maintain good communication with others (Cummings, Kaminski Merrell, 2008). Children who develop adequate social skills tend to exhibit fewer problems with adult and peers and better adjustment in the society (Shahim, 2004).Socially competent children are more effective in recognizing the emotions of others and in themselves, regulating their own emotional experience and sympathizing with the emotions

of their peers. Conversely, children with attention-deficit hyperactivity disorder lack the ability to establish and sustain successful relationships with their peers and teachers (Yukay-Yuksel, 2009).

ADHD may have a particularly serious impact on a certain part of your life, such as job performance. A therapist can help you work on areas that need special attention, giving you strategies that can help in specific situations at work and elsewhere. One widely used approach is Cognitive Behavioural Therapy (CBT). This type of psychotherapy helps people change negative thought patterns into positive, healthier ways of thinking. The idea is that if you change the way you think about a situation, your feelings and behaviours can change, too. For example, CBT may help change "all or nothing" thinking, in which many people with ADHD tend to think that their accomplishments must be either perfect or a failure.

CBT is very focused on giving you tools to help deal with stresses and challenges in life. Working on self-esteem is often a very important aspect of ADHD treatment. Cognitive restructuring therapy is a psychotherapeutic process of learning to identify and dispute irrational or maladaptive thoughts, such as all-or-nothing thinking, magical thinking and emotional reasoning which are commonly associated with many mental health disorders. Due to prevailing situations in Nigeria, many students are bombarded with negative 'thoughts which include: education is not a means to get wealth, graduates who passed out from various higher institutions of learning are jobless, graduates are being employed as drivers at Dangote Company, Most taxi drivers are graduates, 'Okada' riding business is even more lucrative than schooling, reading and passing an examination is psychologically and emotionally/intellectually tasking etc, and replacing all these negative thoughts with beneficial ones. All of the above thoughts and many more are categorised as "school avoidance thought" and if intervention packages are not put in place, students would not only drop out of school, those that are in school will be of sub-standard value for they are there just to please significant beings in their life and the achievement of educational goals and objectives as it is contained in the National Policy of Education (2014) would be a mere dream.

Cognitive restructuring employs many strategies, such as Socratic (questioning method), thought recording and guided imagery and a number of studies have indicated -that it is efficacious. Since the therapy has been effective in the treatment of depression, anxiety disorders (Gould, Safren. Washington & Otto, 2004), bulimia, social phobia. Borderline personality disorder, attention deficit hyperactivity disorder (Brown, Heimberg & Juster 2005). Also, Cognitive restructuring is also found to be efficacious in the reduction of truancy behaviour among senior secondary school students (Modo. Akpabio & Archibong. 2014) hence, it is the belief of the researcher that the therapy too will be of tremendous benefit to the participants of this study i.e. Senior Secondary School Students with ADHD whose attitude and interest in schooling are yet to improve.

Cognitive restructuring skill is a general competence that largely determines the cognitive style of a child. For example, a difference in restructuring ability between field dependent and field independent people is manifested in their intellectual functioning (Goodenough & Karp, 2005; Gough & Olton, 2006). The cognitive preference of an individual is manifested in his mode of attending to the subject matter of tasks, (Health, 2004). It then becomes necessary to restructure individual illogical thoughts capable of diverting students' attention to beneficial ones.

ADHD is not just about paying attention in conversations and in meetings. ADHD can lead to frequent emotional ups and downs, which can hamper relationships and everyday activities. Just waiting in line can make a person with ADHD quite irritable. So can minor setbacks, such as having a project not turn out quite right or having a boss who changes deadlines or who demands more work at the last minute. It may help to find a psychiatrist or another type of therapist and meet regularly to discuss your symptoms and any challenges or successes in your life. It is also common for adults with ADHD to have other mental

health conditions. Having ADHD along with another condition can severely interfere with daily functioning.

The second therapy to be applied is emotional therapy in enhancing senior secondary school Mathematics academic performance. Academic emotions are defined as students' emotional experiences related to the academic processes of teaching and learning, these include, hopelessness, boredom, anxiety, anger, and pride (Pekrun, Goetz, Titz, and Perry, 2002). Before effective learning takes place, students need to be considered because all learning is directed towards their all-round development. Although, learning is a didactic process which means that both teachers are learners are learning yet the result of teaching should be significant in the life of students. The creation of an enabling environment by the teacher is very important. Well ventilated classroom, good sitting arrangement, avoidance of overcrowded classroom, good teachers and students' relationships and provision of classroom motivation would help students to enjoy their learning.

However, several authors have worked on the causative factors associated with poor enhancement of academic performance among Nigerian students which are organismic (Adeyemo, 2005; Salami, 2010). Also, experts in the field of science education and psychology have shown consistently the effects of some factors affecting student's poor academic performance (Akinsola 1994; Akinsola & Animasahun, 2007). Some of these factors examined were gender, interest in schooling, emotional intelligence, Mathematics self-concept, age, depression, self-efficacy among others. Hence, based on their causative effects and potency in previous studies in solving psychological problems, the present study investigated the moderating effects of gender and age on poor academic performance among senior secondary school students with ADHD in Mathematics in Ibadan metropolis.

Gender refers to differences in students in terms of being male or female. Gender is a major factor that influences the subject interest of students. Further explanation in this context shows that Home Economics, Nursing, Secretary-ship and other feminine related careers have been traditionally regarded as aspects of the school curriculum reserved for females (Chan, 2001). Based on this, males choose male stereotyped occupations and females choose female stereotyped occupations. According to Wang and Ye (2015), more difficult tasks are usually reserved for males while less difficult ones are considered feminine in a natural setting. Ekeh (2003) discovered that male students performed better than females in science and Mathematics. These differences in performance can be attributed to gender which encourages male and female students to show interest in subjects relevant and related to the roles expected of them in the society. Studies have shown that gender has a negative impact on the Cognitive performance of students as girls perform better without the boys and vice versa (Akinsola & Animasahun, 2007, Okon, 2003). Gender differences in Mathematics achievement begin to appear at the upper primary school level and an increase in secondary school (Akinsola & Animasahun, 2007, Makau, 2004; Obura, 2001). These differences are caused by an interaction of factors within and outside the school as well as by the students' background (Makau & Coombe, 2004).

Gender influence can be considered as the variation in students learning outcomes that can be associated with being male or female. Students' gender from time has been documented to be unique in terms of learning abilities. Literature has shown that male students are likely to perform better in analytical subjects while their female counterparts perform better in language areas. Gender is considered a moderating variable in this study owing to its possibility of influencing the relationship between the experience students had during their virtual learning and the academic outcome as against those who did not have access to it. Observation has shown that variation has been discovered in male and female students

learning in the traditional model, likewise the technology option which is the virtual mode that could create more variance.

Age has also been identified as another factor that could affect the academic performance of senior secondary school students with ADHD negatively. According to Johnes (2018), the age of a student on entry to the university can have two different and opposite effects: If a student leaves his/her job to continue his/her studies, such maturity and dedication may positively influence the academic performance of the individual. On the contrary, it could be argued that older students might have forgotten their academic life and they may be in a difficult position to adjust. Studies conducted by Jansen (1996), and Vander Hulst and Jansen (2002) showed that younger students have better study or cognitive progress than older students, thus indicating that, higher age is an indicator of lower cognitive ability. Other studies have shown that younger students drop out less often than older students (Mclnnes 2000; Murthaugh, Burns & Schuster, 1999). However, Trueman and Hartley (1996) found older students to perform equally well or sometimes better than younger students due to maturity. According to Trueman and Hartley, this fact could be mediated by time-management skills that, older mature student, were better in time management. Furthermore, according to Mclnnes, James and MacNaught (1995), mature students have clearer career orientation and lower integration needs. Therefore, they would likely achieve better results.

Statement of the Problem

There are diverse ways of solving a problem. If a problem cannot be solved medically it can be solved by applying psychotherapy. On this occasion, the problem of children with ADHD can be solved by using psychotherapy like emotional and cognitive behavioural therapies which are psychotherapy in nature. Solution is sought for this category of people in that parent who give birth to this type of children cannot be told to hide their children at home neither can they be told that their children are useless or that their children are not educable. In order to alleviate the fear or problem of the parents by not making these children over-dependence for life they must have the right to education so that they can be useful to themselves, their parents and the society at large. Therefore, the researcher had studied the emotional and cognitive behaviour therapies critically and through literature, applied the two therapies to a sample of these children in enhancing their academic performance in general and in Mathematics in particular with the notion that once they can improve in Mathematics, they will be able to perform well in other subjects.

Purpose of the Study

The general purpose of this study is to investigate the effectiveness of emotional and cognitive Mathematics among senior secondary school students in Ibadan, Oyo State, Nigeria. The specific purposes of the study are: (i) to examine the main effect of treatment on academic performance of students with ADHD in Mathematics in selected senior secondary school students. (ii) to determine the main effect of moderating variables (gender and age) on academic performance of students with ADHD in Mathematics in selected secondary schools.

Hypotheses

The following null hypotheses were tested at the $\alpha = 0.05$ level of significance.

1. There is no significant main effect of treatment on academic performance of students with ADHD in Mathematics in selected secondary schools.
2. There is no significant main effect of gender on academic performance of students with ADHD in Mathematics in selected secondary schools.
3. There is no significant main effect of age on academic performance of students with ADHD in Mathematics in selected secondary schools.

Design

A 3 x 2 x 2 pre-test, post-test and control group experimental design was used for this study. There were two treatment groups Emotional and Cognitive Behavioural Therapies) and one control group. The two experimental groups and the control group make the three rows i.e. A_1, A_2, and A_3 while the columns contain the moderating variables which are gender varied at two levels (male B_1 and female B_2) and age subsumed under gender and varied at two levels (young C_1 and old C_2). The effect of such on the dependent variable (academic performance of students with ADHD in Mathematics) was also determined.

Population

The population for this study consisted of Senior Secondary School Two Students (SSS II) with ADHD in Ibadan, Oyo State, Nigeria. The students were selected from public Senior Secondary Schools that are meant for the Special students. Three Local Governments were selected in Ibadan Metropolis, they are Ibadan North and the school selected is Cheshire Home for Special students. From Ibadan North East, the school selected is HLA School for the Special Children and the third school was selected from Ibadan North West local government and the school selected is School for Special Need children, Oniyanrin. They have an SSII students' population of 142, 127 and 115 respectively; totalling 384 handicapped students with students suffering from ADHD.

Sample and Sampling Technique

Purposive sampling was used to select the special school while the simple random sampling technique was used to select the participants from the selected schools from each local government area chosen. From each of the selected schools, participants were selected based on cumulative academic performance records on the class Mathematics curriculum. These constituted the first stage of the screening process adopted to determine the academic performance of students with ADHD in Mathematics in SSII students in Oyo State. Those students who had poor cumulative academic performance records in the previous school terms in Mathematics were assumed to be affected by their level of ADHD and these set of students were selected for further screening as a confirmatory test, they were further subjected to Mathematics achievement test prepared by NECO 2017 for the entrance examination into Senior Secondary school. Using this technique, the first 15 students that had the worst scores in each of the 3 schools were finally selected from each school. The total sample size consisted of 45 students with ADHD for the study. The mean age of the students used is 15.45 years with 1.75 standard deviation. Oyo state is the biggest state of South-West geopolitical zone of Nigeria. This study is conceptualised in Oyo states since the researcher lives and sees what is operating in terms of mathematical education in the state and the southwest geopolitical zone.

Inclusion Criteria

The following criteria were considered in the selection of participants for this study;

a. Participants in this study were registered and regular students of the selected schools with ADHD.
b. They were all SSII and either male or female individuals with ADHD symptoms.
c. They were all found to have an average score below 40% which is the pass mark in Mathematics after examining their scores over three academic terms.

Instrumentations

This study utilized two instruments for data collection. **Section A:** Demographic information of the students such as gender and age are required. This section was developed by the researcher:

1. Mathematics Achievement Test (MAT-BECE Prepared by NECO, 2017 and 2018) for screening the participants and measuring the dependent variable
   Mathematics Achievement Test(MAT)was constructed by National Examination Council (NECO) and it is made up of 60items covering the Junior Mathematics curriculum. Each item has four options response format of A, B, C & D out of which only one option is the correct option. The administration of the test lasts for 90minutes. MAT is a standardized test since it was developed by NECCO a public examination body, it is believed that its psychometric properties had been established. The Basic Certificate Examination paper for 2017 was used for screening exercise while that of 2018 was used for real study respectively.

Procedure for Data Collection

Experimental Group 1 (Emotional Therapy)

Session 1: General orientation, familiarisation, establishment of rapport and administration of instrument to obtain pre-test score
Session 2: Concept of emotional behaviour
Session 3: Single out the most important issues on emotions and thus create a structure and identify a goal for the treatment
Session 4: Enhancement and maintenance of good emotions in accordance with the teaching and learning principles
Session 5: Modification of students' identity or personality or to integrate key development missed while students are at early stage of development
Session 6: Understanding that students' emotion can be shaped in relation to the significant others surrounding them.
Session 7: Positive relations with others
Session 8: Rehearsal of the principles learnt from Behavioural modelling Therapy, collection of post-test scores and the formal closing of the session.

Experimental Group II (Cognitive Behaviour Therapy)

Session 1: Introduction, to have a rapport with the participants after screening them, agree on the sessions, the timing and also to motivate them to make themselves available, participate fully and wholeheartedly because of the inherent significance in the therapeutic sessions.
Session 2: Administration of Pre-test objectives: To administer the pre-test on the participants in order to measure their Cognitive error and level of their positive affirmation on self as well as their relationship to academic performance
Session 3: Identify the sources of their 'Cognitive error' illogical thoughts
Session 4: Recognising unhelpful thought objectives: To enable the participants to abstain from overgeneralising illogical thoughts or events capable of promoting lukewarmness to school activities
Session 5: Developing and testing new skills to counter school avoidance thought
Session 6: Benefit of developed positive attitude to and to enhance performance in Mathematics
Session 7: lop courage Dysfunctional assumptions: Participants would be able to develop courage even when all hope is dashed
Session 8: Overall review, Post- Test Administration and Conclusion.

Control Group

Session 1: Administration of pre-test instrument
Session 2: Career Choice

Session 3: Basic Issues that Affect the Career Choice of Secondary School Students.
Session 4: Administration of the post-test instrument at the 8th week.
Copies of MAT were administered to the participants in their various groups before they were exposed to treatment and after the treatment, the copies of the Mathematics Achievement Test questionnaire was also administered for the post-test score. The data collection spread over eight weeks during which 45 questionnaires were administered as a pre-test score and another 45 questionnaires as a post-test score. The data was scored, coded, and subjected to analysis using SPSS.

Data Analysis

Analysis of Covariance (ANCOVA) was the major statistical tool employed in this study. ANCOVA was used to remove initial differences between the participants in the experimental and control groups. Duncan Post-hoc analysis was also used in this study to determine the directions of differences and significance that were identified. Though, the results from Table 1 showed that there are seven possible hypotheses and findings, but since the study is a journal article the researcher limited the discussion of the results to only the main effects of the study and silent about the interaction of the main effects.

RESULTS

Hypothesis One: There is no significant main effect of treatment on academic performance of students with ADHD in Mathematics in selected secondary schools.

Table 1. Summary of 3x2x2 Analysis of Covariance (ANCOVA) Showing the Significant Main and Interaction Effects of Treatment Groups, Gender and Age of Students with ADHD on Academic Performance

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	77775.538[a]	20	3888.777	97.574	.000	.907
Intercept	952.986	1	952.986	23.912	.000	.107
Pre Score	2899.742	1	2899.742	72.758	.000	.268
Treatment	26864.376	2	13432.188	337.030	.000	.772
Age	517.730	2	258.865	6.495	.002	.061
Gender	85.974	2	499.656	2.079	.034	.041
Treatment*Age	831.163	4	1253.107	5.214	.001	.095
Treatment*Gender	1117.873	4	1685.229	7.012	.000	.124
Age* Gender	659.938	3	1326.649	5.520	.001	.077
Treat*Age*Gender	418.231	2	209.116	5.247	.006	.050
Error	7931.057	33	1261.038			
Total	1855667.000	45				
Corrected Total	85706.595	44				

a. R Squared = .907 (Adjusted R Squared = .898), *Significant at $\alpha = 0.05$

The table 1 showed that there was **a** significant main effect of treatment on students with ADHD academic performance ($F_{(2, 33)} = 337.030$, $p < .05$, = .772). This implies that there was a significant impact of the treatment in the groups' test scores on students' academic performance. Therefore, the null hypothesis which stated that there is no significant main effect of treatment on students' academic performance was rejected; Table 1 also shows the contributing effect size of 77.2%. For further clarification on the margin of differences between the treatment groups and the control group, Duncan post-hoc analysis which shows the comparison of the adjusted mean was computed and the result is as shown in Table 2 respectively.

Table 2. Duncan Post-hoc Test Showing the Significant Differences among Various Treatment Groups and the Control Group on Academic Performance of Secondary School Students with ADHD

Experiment/control	N	Subset for alpha = 0.05		
		1	2	3
Control	15	21.47		
Emotional Behaviour Therapy	15		46.31	
Cognitive Behaviour Therapy	15			56.57
Sig.		1.000	1.000	1.000

From the table 2, it was revealed that experimental group II (Cognitive Behaviour Therapy) (= 56.57) had the highest mean while the experimental group I (Emotional Behaviour Therapy) (= 46.31) and control group (= 21.47). By implication, Cognitive Behaviour Therapy was more potent in enhancing the academic performance of the students with ADHD than Emotional Behaviour Therapy. The coefficient of determination (Adjusted R^2 = .898) overall indicates that the differences that exist in the group account for 89.8% in the variation of students' academic performance.

Hypothesis Two: There is no significant main effect of gender on academic performance of students with ADHD in Mathematics in selected secondary schools.

Table 1indicated that there was a significant main effect of gender on academic performance of students with ADHD in Mathematics among secondary school students ($F_{(1, 33)} = 2.079$, $p < .05$, = .041). Hence, the null hypothesis was rejected. This denotes that there was a significant difference in academic performance of students with ADHD in Mathematics among secondary school students. The descriptive statistics further indicate that the mean score of male students (estimated mean = 47.49) and female (estimated mean = 37.06). This implies that male students have higher academic performance than their female counterpart.

Hypothesis Three: There is no significant main effect of age on academic performance of students with ADHD in Mathematics in selected secondary schools.

Table 1 demonstrated that there was a significant main effect of age on the academic performance of students with ADHD in Mathematics among secondary school students ($F_{(1, 33)} = 6.495$, $p < .05$, = .061). Therefore, the null hypothesis was rejected. Descriptive statistics further indicate that the mean score of young ADHD students (estimated mean = 43.04) and Old ADHD students (estimated mean = 40.99). This implies that young ADHD students have higher academic performance than their old ADHD counterparts.

DISCUSSION of the FINDINGS

The first hypothesis states that there is no significant main effect of treatment on academic performance of students with ADHD in Mathematics in selected secondary school students. The result of the findings revealed that there was a significant main effect of treatment on the academic performance of students with ADHD in Mathematics among secondary school students in experimental groups and that of the control group. Therefore, the hypothesis is rejected. This implies that there was a significant impact of the treatment in the groups' test scores on the academic performance of students with ADHD in Mathematics. It was revealed further that Cognitive Behavioural Therapy and Emotional Behaviour Therapy were effective in fostering students' academic performance of students with ADHD in Mathematics among Secondary School Students in Ibadan Metropolis. The result also showed that the two experimental groups were superior to the control group. The Duncan post-hoc analysis further indicates that students in the (Cognitive Behavioural Therapy) group performed better than their counterparts in the (Emotional

Behaviour Therapy) group. This can be explained in terms of the effectiveness of each of the Therapy in fostering students' academic performance of students with ADHD in Mathematics. This could be attributed to the manner of the utilization of diverse techniques such as homework, revision, discussion and questions used in the delivery of each programme.

Based on their uniqueness, these Therapies are expected to produce varying degrees of effectiveness in fostering students' academic performance of students with ADHD in Mathematics. As observed, the result is an indication that therapeutic intervention was effective and therefore attests to the fact that students' academic performance of students with ADHD in Mathematics could be fostered, improved and encouraged with the effective use of Cognitive Behavioural Therapy and Emotional behaviour Therapy. The result further confirmed the findings of Multon, Brown and Lent (2012) meta-analyzed results of studies conducted to examine the effect of Cognitive restructuring Therapy on the academic performance of students in Mathematics. The studies assessed the academic performance of students with ADHD in Mathematics in a variety of ways including basic Cognitive skills, academic course work and standardized tests. They were diverse in terms of sample and experimental design. They reported that an overall effect size of 0.38, indicating that Cognitive Behavioural Therapy accounted for approximately 38% of the variance in students' academic performance of students with ADHD in Mathematics.

In studies of college students who pursue science and engineering courses, high Cognitive Behavioural Therapy has been demonstrated to influence the academic persistence, necessary to maintain the high academic performance of students with ADHD in Mathematics (Brown & Lent, 2012). Zorkina and Nalbone (2003) studied how group assignments affected participants academic self-confidence and academic performance. The direct relationship between academic self-confidence and academic performance was addressed by a bivariate correlation between self-reported academic confidence and academic performance. The correlation was significant, indicating that as academic self confidence increased academic performance of students with ADHD also increases.

Also, Abe, Ilogu and Madueke (2014) investigated the effectiveness of Emotional Therapy among Senior Secondary II students' in Mathematics in Enugu Metropolis, Enugu State, Nigeria. A quasi-experimental pre-test, post-test control group design was adopted for the study. The initial sample was 147 participants (male and female) who were Senior Secondary School II students drawn from two public schools in the Enugu zone of Enugu Metropolis. The final sample for the intervention consisted of 80 participants. The findings showed that academic performance was enhanced among participants exposed to Emotional Therapy compared to those in the control group. More recent research has focused on Emotional Behaviour Therapy, reflecting helplessness versus mastery (Deweck & Leggett, 1988; Dweck, 2015), cooperative versus competitive (Ames, 1992; Pintrich, et. al., 2000), and ego versus task-involved, and approaches to the achievement of goals set (Lau, et. al., 2008). These research traditions have a significantly advanced understanding of how Emotional behaviour Therapy influence the academic performance of students with ADHD in Mathematics.

The second hypothesis states that there is no significant main effect of age on participant's academic performance of students with ADHD in Mathematics. The result of the findings indicated that there was a significant main effect of age on students' academic performance of students with ADHD in Mathematics. Hence, the null hypothesis was rejected. This denotes that there was a significant difference in the academic performance of students with ADHD in Mathematics of young and old students with ADHD. This finding, however, is consistent with the findings of Howe and Covell (2013), who found that young children with ADHD are easy to manipulate than older ADHD children. The capable parents that are able to manage ADHD and nurture moderately competitive kinship relationships, a foundation for

literacy are built with no difficulty. Such people provide children with the support they will need for desirable learning.

However, Aikens and Barbarin (2008), Prior and Gerard (2006), examined the relationship between parents' involvement, Emotional behaviour and academic performance. They found that the relationship between Emotional Behaviour Therapy and parental monitoring with adolescents achievement was stronger for families with a higher level of Emotional behaviour than those with a lower level of Emotional behaviour. Prior and Gerard (2007) found that students whose Emotional behaviour are stable tend to perform well academically. Afolabi (2005) reported from his study that most children in Secondary Schools have already made up their minds that they are not good in Mathematics as a subject as such did not put much interest in the subject. Parents as the first teachers of their children at home can help in laying the foundation of confidence in the children for the better academic performance of students with ADHD in the subjects later as they grow up.

The third hypothesis states that there is no significant main effect of gender on participants' academic performance of students with ADHD in Mathematics. The result demonstrated that there was a significant main effect of gender on students' academic performance of students with ADHD in Mathematics. Therefore, the null hypothesis was rejected. The result further indicates the differences in the mean score of male students (estimated mean = 47.49) and female students (estimated mean = 37.06). This implies that male students have higher academic performance than their female counterparts. This premise is in congruence with that of Weberin (2012), in her research titled "Gender Differences in interest, perceived personal capacity, and participation", today, more women than in the past obtain degrees in science and engineering (Dean & Fleckenstein, 2007; Hiu, Carbett & St. Rose, 2010). However, women still remain under-represented in science, technology, engineering and Mathematics (Hill., 2010). One wonders after so many systemic efforts (Liston, Peterson & Ragan, 2008; Lufkin & Reha, 2009), why women continue to be underrepresented. Valian (2007) suggested that fewer females are found pursuing professional careers in science than males due to low interest.

Valiant concluded that since individuals make their own choices, some individuals, regardless of the encouragement or support they receive, remain uninfluenced and do not explore related career options. The finding suggests that boys need adequate attention, develops positive attitudes towards academic performance most especially when they are in secondary schools (adolescent stage) than to form bad gang which may eventually prompt them to develop poor performance and end up as drop-outs.

Conclusion

The study investigated the effectiveness of Emotional and Cognitive Behavioural Therapies on academic performance of secondary school students with attention deficit hyperactivity disorder in Ibadan metropolis, Oyo State, Nigeria. Gender and age were employed as moderating variables. In line with this, the participants were taken through the training programmes; relevant data collected and analyzed using appropriate statistical tools to bring out the results. The findings showed that Emotional and Cognitive Behavioural Therapies were effective in enhancing academic performance of secondary school students with attention deficit hyperactivity disorder in Ibadan Oyo State, Nigeria as evidenced from the findings; Cognitive Behavioural Therapy was more effective than Emotional Behaviour Therapy in enhancing academic performance among the participants with ADHD. As such, if the Therapies were adequately applied and the gains of the training sustained, the application of these treatment packages will help in improving academic performance among secondary school students. The study also found that academic performance differ along age line which obviously means that age is one of the variables that determine academic performance among secondary school students with ADHD. Also, gender was

established as essential variable that affects academic performance among secondary school students as male students performed better than their female counterparts.

Based on the findings of this study, it was concluded that since the major aim of the school and academia is the attainment of sound academic standard which is not achievable without adequate stable emotion and Cognitive restructuring of students with ADHD, the two interventions used in the study had therefore demonstrated the effectiveness and relevance in enhancing academic performance among Secondary School students with ADHD in Ibadan Oyo State, Nigeria and the need for the full integration of psychological counselling service into the secondary school system.

Recommendations

Based on the findings in this study, the following recommendations were highlighted for consideration;

- Since Emotional and Cognitive Behavioural Therapies were effective in enhancing academic performance among Secondary School students with ADHD, it is therefore recommended that concerted effort should be provided by counselling psychologists, educational counsellors and other related professionals to adopt these two Therapies when handling issues related with academic performance with the attendant challenges, taking into cognizance their performance and encourage students to attend schools regularly.
- The public and private schools should endeavour to provide enabling environment for the students with ADHD. This will help in enhancing their wellbeing and invariably improve students' academic achievement.
- It was recommended that the school should employ the service of at least a practicing counselling/educational psychologist who will be saddled with the responsibility of using the psychological principles and Therapies in attending to several psychological challenges that students might be facing in the school system.
- The home (parents/guardians) and school (school management) should work as a team to collaboratively look for ways by which students' academic performance could be enhanced and improved.
- Experts in the field of Counseling/Educational psychologists should intensify their effort to organize seminars/conferences on the implications of these moderating variables (that is gender and age among others) as they interact with students' academic performance.
- The curriculum planners and policymakers in education should integrate programmes designed to improve the quality of education, emphasis should be placed on student orientation programmes such as Emotional and Cognitive Behavioural Therapies among others, these will help inefficient management of various psychological challenges faced by students.
- The policymakers and general public should be made aware of both the scourge (poor academic performance of students with ADHD) and the interventions (Emotional and Cognitive Behavioural Therapies) and work towards better effective usage of the treatment to improve academic performance.

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