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Effectiveness of Multidimensional Family Therapy in Managing In-School Adolescents with Attention Deficit and Hyperactivity Disorder in Akwa Ibom State, Nigeria

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Abstract
This study investigated the effectiveness of Multidimensional Family Therapy (MDFT) in managing in-school adolescents with attention deficit and hyperactivity disorder in Akwa Ibom State, Nigeria. The quasi-experimental pre-test post-test control group research design was used for the study. A multi-stage sampling process was used to select 197 adolescents (88 males and 109 females) with multiple behaviour problems to participate in the study. There was one treatment group and one control group. The Youth Self-Report Checklist for Ages 11-18 was adapted and used to collect baseline data from about 220 students but only 197 qualified for the study. One research question and one research hypothesis were raised to guide the study. The data collected were analysed using descriptive and inferential statistics (ANCOVA and Fishers' Protected t-test). The study revealed that there was a significant difference in the post-test mean scores on attention deficit disorder of the participants exposed to MDFT and the control group. It was recommended that School counsellors, school administrators, and policy makers should incorporate MDFT in targeted based intervention on adolescents with attention-deficit disorder.

Keywords: adolescents, problematic behaviour**,** attention deficit and hyperactivity disorder, Multidimensional family therapy, Akwa Ibom

Introduction

The developmental stage known as adolescence poses serious concern to parents and to the adolescents themselves. Osarenren (2002) described adolescence as a period of crisis in which the adolescents see themselves no longer as children but as adults, whereas the parents still

consider them as children. The adolescent seeks independence at this stage and maintains close ties with peers than with the parents.

Adolescence has been defined in different ways by different authorities. Adolescence is between the period of 10-18 years (American Psychological Association (APA), 2023). Adolescence is a period of transition from childhood to adulthood and this critical developmental period is marked by several physical, psychological and social changes. It is the period of life between childhood and adulthood and corresponds roughly to the teenage years (thirteen to eighteen years). In essence, the meaning of adolescence and the ages at which it begins and ends, differ from culture to culture, like most sociological phenomena (Ikorok et al., 2015).

Adolescent behavioural problems are diverse in nature. O'Regan et al. (2022) referred to these behaviours as challenging behaviours. According to them, these behaviours are common among adolescents. Adolescence problematic behaviours usually result in poor quality of life such as physical injuries and difficulties in relating with other children. Some of the problematic behaviours exhibited by adolescents include drugs and substance abuse, aggression, negative influence of peers and social withdrawal behaviour (Diwe et al., 2016).

Attention deficit and hyperactivity disorder (ADHD) is the inability of a child to sit down at one place at a considerable time considered normal for a child. This could affect a child's learning and their functioning in daily life. The features of ADHD include: inattention – that is not being able to stay focused; hyperactivity – excess movement that is not appropriate to the setting or excessive fidgeting, tapping or talking; impulsivity – acting hastily without thinking, and in a way that may have high potential for harm (Ayano et al., 2023). Van der Pol et al. (2017) and Danzer (2014) in their research stated that adolescents who experience a range of behavioural challenges including delinquency and dysfunctional families could be helped with family integrated therapies such as multidimensional family therapy.

This study aims to manage adolescents with problematic behaviours such as attention deficit disorder. Adolescents who have been involved with multiple behavioural problems can be assisted to have their normal life back by the use of empirically tested family and behavioural therapies by counselling psychologists. Multidimensional family therapy (MDFT) is an integrative, family-based, multiple systems-oriented treatment, specifically targeted at adolescents who use drugs and exhibit related behavioural problems (Liddle, 2002; Stratton, 2016).

Statement of problem

Adolescents tend to face myriads of behavioural problems which, if nothing is done to help, will mar their total well-being. Attention deficit and hyperactivity disorder is one of the challenging behaviours exhibited by some adolescents which is capable of truncating peaceful co-existence. Researchers have employed so many interventions and the Multidimensional Family Therapy has been effective in managing attention deficit and hyperactivity disorder among adolescents. But this intervention has not been used among in-school adolescents in Akwa Ibom state, Nigeria. Therefore, there is a gap in research in the use of Multidimensional Family Therapy attention deficit and hyperactivity disorder among adolescents in Akwa Ibom state, Nigeria. Therefore, this research examines the effectiveness of Multidimensional Family Therapy in managing in-school adolescents with attention deficit and hyperactivity disorder in Akwa Ibom State, Nigeria.

Purpose of the study

This study specifically seeks to examine the effect of counselling intervention on participants' post-test mean scores on attention deficit disorder.

Research question

One research question was answered in this study**:**

1. To what extent is the difference in the post-test mean scores on attention deficit disorder among participants in the three experimental groups?

Hypothesis

One hypothesis was raised to guide this study:

Ho1: There is no significant difference in the post-test mean scores on attention deficit disorder of the participants exposed to treatments and the control group.

Methodology

The research design for this study was quasi-experimental; it involves pre- test, post- test and control group design. The quasi-experimental research design was used for the study because proper randomization of participants is not feasible (Ilogu, 2005; Nwadinigwe, 2005). Specifically, the study adopted the non-equivalent control group design for this study. This design is described as one of the most widespread experimental designs in educational research. It involves the treatment group and the control group being given a pretest and a posttest. It is particularly appropriate for research in schools (Campbell & Stanley, 1963). There was one treatment group which was exposed to Multidimensional Family Therapy (MDFT). The other group was the control group.

The design is represented as follows:
Treatment Group I: O_1 X_1 O_2 - Multidimensional Family Therapy
Control Group: O_3 C O_4 - Control group
Where
O_1, and O_2 represent pretest and posttest scores
O_3 C O_4 - Control group
X_1 represents treatment 1-Multidimensional Family Therapy
C represents control group
Independent Variable: The independent variables in this study are Multidimensional Family
Dependent Variables: attention deficit disorder.
Moderating variable: Gender

The study population for this research was all Senior Secondary Two (SS2) students in Akwa Ibom State, Nigeria. Akwa Ibom has 54,216 SS 2 across 235 public secondary schools (Nigeria Bureau of Statistics, 2019). This class is the most stable class in the Senior Secondary School. The sample size for this study was determined using power analysis, with a target power of 0.80 and a significant level of 0.05. Based on these assumptions, a sample size of 220 participants was needed to detect a statistically significant difference between the groups. Multi-stage sampling process was used to select Senior Secondary School Two (SS2) students for the study. The first stage of the multi-stage sampling process was the selection of three Local Government Areas in Akwa Ibom State from Ikot Ekpene and Uyo Senatorial Districts in the state using hat and draw method. The choice of the two Senatorial Districts lies in the fact they have the highest concentration of public secondary schools in the state. Akwa Ibom North East (Uyo) Senatorial District has 85 public secondary schools with 19,519 SS2 students, while Akwa Ibom North West (Ikot Ekpene) Senatorial District has 87 public secondary schools with 20,191 SS2 students. Akwa Ibom South (Eket) Senatorial District has 63 public secondary schools with 14,506 SS2 students. Applying Yamane's Formula for the sample size calculation: n = N / (1 + N * e^2) from Uyo and Ikot Ekpene Senatorial districts which have 39,710 SS2 students. A sample size of 396 was obtained. The second stage involved selection of one Senior Secondary School from each of the three Local Government Areas using simple random sampling. The American Psychiatric Association Self-Administered Screening Tools Level 1 was administered to 300 adolescents across the selected schools. Participants who scored 1-2 on any of the domains relevant to the study were selected for the study. A total of 197 adolescents (88 males and 109 females) participated in the study. The third stage involved the administration of the youth self-report inventory for Adolescents ages 11-18. A total of 197 adolescents (88 males and 109 female) participated in the study.

Two instruments were adapted and used to collect data in this study. They were American Psychiatric Association Self-Administered Screening Tools Level 1 and 2 (2015) and Youth Self-Report Checklist for Ages 11-18 (Achenbach et al., 1991). The DSM-5 Level 1 Cross-Cutting Symptom Measure is a self-rated measure that assesses mental health domains that are important across psychiatric diagnoses. It is intended to help therapists identify additional areas of inquiry that may have significant impact on adolescents' treatment and projections. In addition, the measure may be used to track changes in adolescents' symptom presentation over time. This child-rated version of the measure consists of 25 questions that assess 12 psychiatric domains, including depression, anger, irritability, mania, anxiety, somatic symptoms, inattention, suicidal ideation/attempt, psychosis, sleep disturbance, repetitive thoughts and behaviours, and substance use. Each item asks the child, age 11–17, to rate how much (or how often) he or she has been bothered by the specific symptom during the past 2 weeks. The measure was found to be clinically useful and had good test retest reliability in the DSM-5 Field Trials conducted in paediatric clinical samples across the United States.

The Youth Self-Report (YSR) is a widely used child-report measure that assesses problem behaviours along two "broadband scales": Internalizing and Externalizing. It also scores eight empirically based syndromes and DSM-oriented scales, and provides a summary of Total Problems. It consists of 2 Response formats including open-ended questions and 3-point Likert-type scale of 0=Not true, 1= Somewhat or Sometimes true, 2=Very true or Often true. It also contains additional Scales for Mixed Domain including Attention problems/Externalizing; Rule-Breaking Behaviours; and Aggressive Behaviours. One-week test–retest reliability of .93 and inter-rater reliability of .66 for Internalizing and .80 for Externalizing have been shown (Achenbach et al., 1991).

The Youth Self- Report for ages 11-18 originally contained 112 items. It was adapted to 60 items testing variables such as attention deficit, aggression, social withdrawal, peer pressure and substance use disorder. Each of the variables has 12 items.

In the pre-treatment session, the researchers along with the research assistants administered all the research instruments to the participants as pre-test, a week before the treatment session. In the treatment session, there were two treatment groups and one control group. The selected schools were randomly assigned to treatment and control group. The treatment groups were exposed to Multidimensional Family Therapy (MDFT), while Group three, the control group did not receive any intervention. The treatment groups met once a week for six weeks. At the post-treatment session which was the end of the treatment which lasted for six weeks, all the research instruments were administered again as post-test to the same treatment and control groups.

As a description of the treatment procedure, it should be mentioned that Multidimensional Family Therapy (MDFT) improves adolescents' and their families' lives by intervening in four connected areas: the adolescent, the parents, the family, and the community. Just as problems overlap, MDFT uses changes in each of these areas to stimulate changes in all the others. In group one which was the Multidimentional Family Therapy (MDFT) group, the first session was on building a foundation for change. Here, the researchers created an environment in which the adolescents felt respected and understood. The researchers sought to establish confidence with the participants and appealed for their commitments and cooperation. The goals of this session were to develop strong therapeutic relationships, achieve a shared developmental and contextual perspective on problems, enhance motivation for individual reflection and self-examination, and begin the change process. In session 2, the researchers shared the overall goal of the Multidimensional Family Therapy which is to improve the adolescents' and their families' lives by intervening in four connected areas: the adolescent, the parents, the family, and the community with the participants. The participants were counselled to have positive views of themselves and to value the relationship they all share together.

Session 3 focused on facilitating individual and family change. The lessons of the previous sessions were reviewed. The objective of this session, which is short goal setting, were outlined. Goals for youths were set. The participants were taught to develop meaningful short-term and long-term life goals to improve emotional regulation, coping, and problem-solving skills. Session 4 was on facilitating adolescent's communication skills. In this session, the lessons of the previous sessions were reviewed. The objective of this session was outlined. The adolescents were trained to improve communication skills, promote success in school/work through development of proper time tabling.

In session 5, the adolescents were trained in assertiveness skill. This was aimed at helping the adolescent stick to his goal and reduce the influence of negative peer pressure. This was to promote pro-social peer relations and activities, reduce substance use, delinquency, and problem behaviours, and improve and stabilize mental health. The last session was session 6. Here treatment was aimed at strengthening the accomplishments adolescents had achieved. The researchers amplified changes and helped families create concrete plans for responding to future problems such as substance use relapse, family arguments, or disappointments. The Post-test administration of the instruments: Youth Self-Report Checklist for Ages 11-18 (Achenbach et al., 1991) was administered at the end of this session. Group three was the control group. After the administration of the pretest, the participants in group 3 were trained

on goal setting and time management skills. Posttest was also administered at the end of the study duration.

Data collected were analysed using descriptive and inferential statistics. Hypothesis one was tested using the Analysis of Covariance (ANCOVA) and Fisher's protected t-test at 0.05 level of significance

Presentation of results

Ho1: There is no significant difference in the post-test mean scores on attention deficit disorder of the participants exposed to treatment and the control group.

Table 1: Descriptive analysis of attention deficit based on the experimental group

Experimental group		**Pre-Test**		**Post-Test**		
	N	Mean	Std. Deviation	Mean	Std. Deviation	**Mean Difference**
Multidimensional Family Therapy	147	15.45	4.10	8.63	3.44	6.82
Control Group	50	13.92	3.76	13.88	3.87	0.04
Total	197	15.16	3.57	9.53	4.04	5.63

Descriptive analysis from Table 1 reveals that the mean score of students at pre-test for Multidimensional Family Therapy (MDFT) and the control group were 15.45 and 13.92 respectively. During the post-test, the mean scores decreased to 8.63, and 9.53 respectively. Consequently, the Analysis of Covariance (ANCOVA) was conducted to ascertain if the differences were statistically significant.

Table 2: ANCOVA result for attention deficit based on the experimental conditions

Source of Variation	**Sum of Squares**	**Df**	**Mean Squares**	**F-Cal**	**Sig.**
Corrected Model	1817.797	3	605.932	84.790	.000
Covariate	501.464	1	501.464	70.171	.000
Experimental Group	1609.216	2	804.608	112.591	.000
Error	1379.238	193	7.146		
Corrected Total	3197.036	196			

The result of ANCOVA presented in Table 2 shows that an F-calculated value of 112.591 was derived as the difference in the mean scores of the participants in the respective groups. The value was observed to be greater than the critical value 3.07 using 2 and 193 degrees of freedom at 0.05 level of significance. Consequently, the null hypothesis was rejected and conclusion drawn that there exists a significant difference in the post-test mean scores of participants with attention deficit disorder exposed to MDFT. In order to locate the pair that is significant, a multiple comparison was conducted and presented in table 3.

Table 3: Fisher's protected t-test of difference in participants' level of attention deficit

Groups	**Multidimensional Family Therapy (147)**	**Control (50)**
Multidimensional Family Therapy	8.63	-5.96*
Control	-2.25	10.88

*Significant at 0.05; a = group means are in diagonal; difference in intervention group mean scores are below the diagonal while the protected t-values are above the diagonal.

Table 3 reveals that participants exposed to the MDFT group significantly exhibited a decrease in attention deficit level than those in the control group ($t = -5.96$; $df = 123$; critical $t = 1.98$; $P < 0.05$). It was observed that the MDFT was effective in reducing attention deficit levels among respondents.

Summary of the findings

Based on the results of the analyses, the findings are summarized that there is a significant difference in the post-test mean scores on attention deficit disorder of the participants exposed to Multidimensional Family Therapy (MDFT) and the control group. This could be due to MDFT individualized targeted intervention approach which are particularly beneficial in addressing the unique challenges faced by this population.

Discussion of the findings

Findings from hypothesis one revealed that the counselling intervention had significant effect on attention deficit disorder among participants exposed to treatment and the control group. Hypothesis one was, therefore, rejected. MDFT had a significant effect on attention deficit disorder among participants exposed to treatment. These findings agree with the study of Van der Pol et al., (2017) as well as that of Danzer (2014) which showed that MDFT had significant effects on problematic behaviour of adolescents.

Conclusion

This study highlighted the significant effects of Multidimensional Family Therapy in managing adolescents' problematic behaviours such as attention deficit and hyperactivity disorder. This behavioural challenge usually results in poor quality of life of the adolescents. The findings of this study provide clear evidence of the efficacy of Multidimensional Family Therapy in the reduction of adolescents' problematic behaviours. The findings revealed that Multidimensional Family Therapy significantly affected attention deficit and hyperactivity disorder in adolescents. Ultimately, the study on effectiveness of Multidimensional Family Therapy has provided invaluable insights for counsellors and educators in best way to integrate the intervention in managing adolescents' problematic behaviours.

Recommendation

Based on the finding of this study, it is recommended that school counsellors should incorporate multidimensional family therapy in targeted based intervention on adolescents with attention deficit and hyperactivity disorder.

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