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EFFICACY OF ACCEPTANCE-COMMITMENT THERAPY AND SOCIAL SKILLS TRAINING IN MITIGATING DEPRESSIVE SYMPTOMS AMONG UNIVERSITY STUDENTS IN OGUN STATE, NIGERIA

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Abstract

Depression among university students has emerged as a growing mental health concern, significantly affecting academic performance, social functioning, and overall well-being. This study investigated the efficacy of Acceptance Commitment Therapy (ACT) and Social Skills Training (SST) in mitigating Depressive Symptoms Among Undergraduate Students in Ogun State, Nigeria. The study was anchored on two theories: Cognitive Behavioural Therapy and Learned Helplessness Theory of Depression. Five research questions and hypotheses guided the study and quasi-experimental pre-test post-test research design was adopted. Also, the multi-stage sampling process was used to select a total of 292 respondents from three Universities within Ogun State. Furthermore, three research instruments namely: Goldberg Depression Inventory (GDI), Beck Anxiety Inventory (BAI) and Coopersmith Self-Esteem Inventory-Adult Form (CSEI-AD) were utilized to collect pre-test and post-test data. Additionally, the selected respondents were divided into three treatment groups namely: ACT group, SST group and the control group. Thereafter, the pre-test post-test data collected was analysed using Descriptive Statistics, Analysis of Co-variance (ANCOVA), Fisher's t-tests and Multivariate Analysis of Variance (MANOVA). The findings revealed that there is a significant difference in the pre-test post-test mean scores of University students with depression symptoms, anxiety and low self-esteem exposed to ACT, SST and the control group. Conversely, there is no significant gender difference in their pre-test post-test mean scores. Also, there is no significant difference in the pre-test post-test mean scores based on the type of university. These results underscore the value of integrating evidence-based interventions like ACT and SST into university counselling programs to enhance students' mental well-being. It is therefore recommended that Universities should intensify effort in tackling depression among students by integrating ACT and SST programes into student counseling services as evidence-based interventions to promote mental well-being on campuses. Also, given the emerging trends of manifestations of depression among students, regular training on how to effectively manage incidences of depression using treatment techniques like ACT and SST should be held for Counsellors, Social Workers and Psychologists. This will help to mitigate depressive symptoms among University undergraduate students.

Keywords: acceptance-commitment therapy, social skills training, depression, self-esteem, anxiety.

Introduction

Depression is a common but serious mental health disorder that can happen to anyone. It affects how an individual feels, thinks, and behaves. Characterized by persistent sadness, loss of interest or pleasure, fatigue, and difficulty concentrating, depression can interfere with daily functioning and relationships and its causes ranges from genetic and biological factors to environmental stress and negative life experiences. Depression affects individuals of different ages and positions in life and university students are not exempted (Durga, Rajan & Sharma, 2021). In simpler terms, depression is more than just feeling sad for a short time; it is a prolonged emotional disturbance that affects thoughts, motivation, relationships, and productivity.

Studies by Adewuya and Oladipo (2019) have reported that between 25% and 40% of Nigerian undergraduates experience mild to moderate depression at some point during their studies. Studies in Nigeria have reported increasing rates of psychological distress among undergraduates, particularly due to academic stress, economic hardship, and poor social interaction (Adeoye & Olatunji, 2020; Eyo et al., 2024).

In recent times, the observable symptoms of depression among university undergraduate students have raised serious concerns in the society. This is so because this category of students form a vital part of the society. During their undergraduate stage, they are at a vital developmental crossroad between adolescence and adulthood. At this stage, they are faced with challenges of regional shifts, separation from family members, academic stress and financial difficulties which compel them to develop new coping strategies (Awan, 2019).

Some common triggers for depression among undergraduate students are categorized into socio-demographic factors (gender, family background, financial difficulties, age), academic factors (academic pressure, academic performance and exam stress), social factors (social isolation, peer relationship, relationship difficulties), life style factors (substance abuse, sleep disturbances etc),

psychological factors (low self-esteem, frustration and stressful life events). Other major factors contributing to the increased risk of depression among university students include lack of sleep, negative self-comparison to peers, loss of loved ones and a history of mental health issues within the family (Ahmed, Negash, Kerebih, Alemu and & Tesfaye, 2020). Depression has influences on individuals and the country as a whole owing to disrupted daily life, particularly among university students. Students describe their depressive symptoms as loneliness, loss of appetite, and most of the time they display intense anger. One of the most common feelings expressed by most students is a strong desire to commit suicide while depressed (Sagar and Selvakumar, 2021).

Interpersonal factors are among the strongest predictors of the onset and persistence of depression. Folayan, Oginni, Arowolo, Amadi, Ogundare and Salako (2020) maintained that children easily tend to feel acceptance and recognition when they have a good interpersonal relationship with others, which reduces the likelihood of experiencing anxiety and depression. Conversely, interpersonal relationships that lack stability and support may reduce a child's ability to achieve satisfactory levels of well-being, which can lead to mental health problems.

Another factor responsible for depression among university students is anxiety. According to the American Psychiatric Association (2013), anxiety disorders are classified based on the specific objects or situations that trigger the anxiety, and each type can have a different age of onset. Brook and Willoughby (2025) posit that one type of anxiety is social anxiety and it is marked by fear or anxiety of social situations in which individuals feel that he/she will be scrutinized by others. Also, Obadeji and Kumolalo (2022) highlighted that social anxiety is both highly prevalent and strongly linked with increased risk of depressive symptoms among Nigerian undergraduates. The relationship is further influenced by personality traits (especially neuroticism) and self-esteem levels, with poor self-image and insecurity feeding into both anxiety and mood disturbance.

Having identified the aforementioned symptoms of depression and its effects, it has become expedient to exert more effort in the treatment of depression among undergraduate students. For the purpose of this study, Acceptance-Commitment Therapy and Social Skills Training will be employed. The two techniques have been proved to be effective for managing depressive symptoms among university students. They provide students with tools to identify and change negative thoughts, develop coping mechanisms to manage stress related to academics and social life and gain a better understanding of their emotions, all within a supportive environment that address the unique challenges they face while in the university. Some of the determinants of depression that were examined in the study are self-esteem, gender, anxiety, interpersonal relationship and family background.

Acceptance and Commitment Therapy (ACT), originally developed by Steven C. Hayes in the early 1980s, is a modern extension of cognitive-behavioral therapy that emphasizes the acceptance of personal experiences rather than attempts to modify their form. The main goal of ACT is to reduce the rigidity of cognitive integration and empirical avoidance to increase the psychological flexibility of patients about their thoughts, feelings and behavior through six therapeutic processes including acceptance, cognitive diffusion, self as context, mindfulness, values and committed action (Fang, and Ding, 2020). Psychological flexibility refers to the capacity of accepting one's own complex personal feelings and thoughts, while simultaneously trying to live a meaningful life following personal values (Davoudi, Taheri and Ahmadi (2020).

ACT emphasizes components of mindfulness, personal values, and committed action as key components of the psychotherapy. It helps individuals increase awareness of their thoughts without judging or struggling with the content of the thoughts and without trying to change them (Hunot, Moore, Caldwell, Furukawa, Davies, Honyashiki, Chen, Lewis & Churchill, 2013). This is done through techniques such as mindfulness and cognitive diffusion (i.e., non-judgmentally noticing

thoughts rather than attaching to them and reacting to them). In ACT, patients identify valued life domains and "committed actions" that allow them to live in alignment with their values. By doing so, they overcome their experiential avoidance and increase positive affect, despite the presence of distress.

On the other hand, Social Skills Training (SST) is a type of psychological treatment that helps people to improve their social skills so that they can become socially competent. Social skill training is the ability that allows one to initiate and maintain positive social relationships with others. It includes communications skills, problem solving, decision making, self-management and peer relation. According to El Malky, Atia & Alam (2016), social skills raining is a set of systematic techniques and strategies useful for teaching interpersonal skills that are based on social learning theory. It is a widely used treatment of a range of psychological distress. Social Skills Training (SST) involves structured instruction and practice in interpersonal skills such as communication, assertiveness, and empathy.

Social Skills Training (SST) is a behavioral intervention designed to help individuals improve their interpersonal skills, communication, and ability to build and maintain relationships. It is frequently used as part of treatment for depression, particularly because depression is often associated with social withdrawal, low self-esteem, poor interpersonal functioning, and feelings of isolation. Adeyinka, Makinde and Olusakin (2020) conducted a student on the effects of Acceptance-Commitment Therapy and Social Skills Training on Depression of Adolescent Students from Father-Absent Families in Lagos State. The quasi-experimental study involving 157 senior secondary students in Lagos found that a combined intervention of Acceptance-Commitment Therapy (ACT) and Social Skills Training (SST) significantly reduced depressive symptoms.

Statement of the problem

The prevalence of depression among undergraduate students has risen globally, with significant implications for academic performance and overall well-being. In spite of the several efforts put in place by stakeholders to tackle the incidences of depression, the response of university undergraduates to the symptoms of depression remains thought-provoking and unsatisfactory. Recently, there have been reports of students who because of depression dropped out of school, became withdrawn from social groups and at the extreme committed suicide and this has been a source of worry to the society. The beginning of undergraduate years typically falls during a crucial transition period from adolescence to early adulthood and academic demands, lifestyle changes, living away from home, accommodation problems, emotional and physical challenges, social adjustment problems and financial difficulties are some of the stressors students battle with at this stage. Also, they experience stress due to examination anxiety and fear of failure. Students' academic performance and well-being can be hampered by depression that impact their strength, focus, dependability, mental capacity and optimism. In addition to this, depression has also impacted students' interpersonal relationships, institutions, communities and society as a whole.

In Ogun State, Nigeria, there is a lack of effective evidence-based interventions to address depression among university students. Research has shown that over 60% of undergraduates in this state exhibit symptoms of depression. Despite this, mental health resources are limited and existing support are often inadequate. If unaddressed, depression can lead to severe academic setbacks, frustration, suicide attempts, increased dropout rates and long-term mental health issues. Conversely, effective interventions could enhance student well-being and academic successes. It is against this background that this study evaluated the efficacy of Acceptance-Commitment Therapy and Social Skills Training in mitigation depressive symptoms among university students in Ogun State, Nigeria. Specifically, it examined the reduction in depressive symptoms following

Acceptance-Commitment Therapy and Social Skills Training interventions and the comparative effectiveness of ACT and SST in managing depression.

Objectives of the study

The study sought to:

1. Determine the effect of ACT and SST on depressive symptoms among university students.
2. Examine the effect of ACT and SST on self-esteem among university students.
3. Investigate the effect of ACT and SST on anxiety among university students.

Research questions

1. Is there any difference in the pre-test post-test mean scores of university students with depression symptoms exposed to Acceptance-Commitment Therapy (ACT), Social Skills Training (SST) and the control group?
2. Is there any difference in the pre-test post-test mean scores of university students with low self-esteem exposed to Acceptance-Commitment Therapy (ACT), Social Skills Training (SST) and the control group?
3. Is there any difference in the pre-test post-test mean scores of university students with anxiety exposed to Acceptance-Commitment Therapy (ACT), Social Skills Training (SST) and the control group?

Hypotheses

Ho1: There is no significant difference in the pre-test post-test mean scores of university students with depressive symptoms exposed to Acceptance-Commitment Therapy (ACT), Social Skills Training (SST), and the control group.

Ho2: There is no significant difference in the pre-test post-test mean scores of university students with low self-esteem exposed to Acceptance-Commitment Therapy (ACT), Social Skills Training (SST), and the control group

Ho3: There is no significant difference in the pre-test post-test mean scores of university students with anxiety exposed to Acceptance-Commitment Therapy (ACT), Social Skills Training (SST), and the control group.

Methods

The research design for this study is the quasi-experimental pre-test post-test control group design. The design is appropriate because it involves human experiment where rigorous controls and randomization are not feasible. There were three experimental groups; (comprising one treatment and one control group) for the study. The treatment group was exposed to Acceptance-Commitment Therapy (ACT) and Social Skills Training (SST), while the control group was not exposed to any treatment.

The study was carried out in Ogun State, Nigeria. Ogun State was created on the 3rd day of February, 1996 and is known as the Gateway State. Geographically, Ogun State is located in the south western part of Nigeria between on latitude 6.20N and 7.80N and longitude 3.00 and 5.00E east of the Greenwich Meridian. The state is bounded on the west by the Republic of Benin and on the east by Ondo State. To the north is Oyo State while Lagos State and the Atlantic Ocean are to the south (Ogun State, Central Department of Statistics, 2008 and Ogun State, Ministry of Land and Housing, 2017). Ogun State, one of the 36 states of Nigeria is one of the fastest developing states in Country. With Abeokuta as its capital, the state is made up of 57 Local Council Development Areas out of

20 Local Government Areas. There are nineteen (19) universities in the state and this makes it a robust location for the study.

The population for the study comprised all male and female 100 level undergraduate students from the 20 Universities in Ogun State. 100 level students were chosen because they are faced with major adjustment problems in school. Some of them are leaving home for the first time and are faced with the challenge of solving their problems by themselves, higher level of academic work and the challenge of choosing their friends and associates. Many successfully adjust and fit into the new role expectations while some fail and become depressed. Those with depressive symptoms were identified through administering of questionnaire and their level of depression was determined.

There are twenty (20) Universities in the state and they are in three (3) categories; one (1) is a Federal University, three (3) are State Universities and sixteen (16) are Private Universities. The multistage sampling procedure was adopted.

- **Stage 1: Stratified Random Sampling**

The overall population (universities) was split into different subgroups (strata) based on shared characteristics (ownership/funding) and they include Federal, State and Private.

- **Stage 2: Simple Random Sampling for Selection of Universities**

Thereafter, one university was randomly drawn from each stratum using a lottery method without replacement random. This method involved selection of one (1) university each from the three (3) categories of universities in the state.

- **Stage 3: Purposive Sampling for selection of participants**

This technique also known as expert sampling is to ensure individuals that are most suitable for the study are selected. Hence, participants were identified for the study through the following means Counsellor Nomination, peer nomination, and invitation to a seminar titled **''Depression Symptoms and the way out''** Resultantly, a total of 519 students participated in this seminar from the three schools.

- **Stage 4: Screening of participants with depressive symptoms through administration of research instruments**

At this stage, the Goldberg Depression Inventory (GDI), Beck Anxiety Inventory (BAI) and Coopersmith Self-Esteem Inventory (CSEI - Adult Version) were administered to the 519

students that participated in the seminar to establish their level of depression, anxiety and low self-esteem respectively. Consequently, only students with symptoms of depression were selected for the study, totalling 292.

- **Stage 5: Assigning groups to treatment**

Simple random technique was used to assign the identified depressed participants to 3 groups. Group 1 was assigned to Acceptance-Commitment Therapy, group 2 was assigned to Social Skills Training and group 3 was the control group. The control group was not subjected to any treatment until after the completion of study.

The research instruments adopted and used to obtain relevant data for the study are:

1. Goldberg Depression Inventory (GDI) by Ivan Goldberg, 1993.
2. Beck Anxiety Inventory (BAI) by Beck, Epstein, Brown, & Steer, 1988.
3. The Coopersmith Self-Esteem Inventory- Adult Form (CSEI-AD) by Coopersmith, 1967.

The Goldberg Depression Inventory (GDI) was developed by Ivan Goldgerg. It is a survey method which is commonly used to evaluate anxiety and depression. It has 18 questions, each of which are answered on a 5 point Likert scale. Consequently, participants that score 0 (no depression), 1-18 (mild depression) 19-36 (moderate depression), and 37-90 (severe depression). Its internal consistency range from 0.70 to 0.81 for the depression scale, indicating strong reliability and therefore adopted for baseline assessment of undergraduate students in the selected universities to ascertain that they are depressed.

The Beck Anxiety Inventory (BAI) is a self-report questionnaire measuring 21 common somatic and cognitive symptoms of anxiety developed by Beck, Epstein, Brown and Steer (1988). It is an instrument for assessing the severity of anxiety symptoms. It consists of 21 items with a Likert scale ranging from 0 to 3 and raw scores ranging from 0 to 63.: minimal anxiety levels (0–7), mild anxiety (8–15), moderate anxiety (16–25), and severe anxiety (26– 63). This Inventory's internal consistency Cronbach's alpha reliability coefficient is 0.92. The test-retest reliability is 0.75.

The Coopersmith Self-Esteem Inventory -Adult Form (CSEI-AD) by Coopersmith (1967)is a self-report questionnaire designed for individuals aged 16 and above. It measures attitudes toward the self in a variety of areas (family, peers, school, and general social activities) for adolescents and adults. The CSEI-AD consists of 58 items and yields an overall score and four separate scores representing specific aspects of self-esteem, namely, general self, social self-peers, home parents, and school academic. The internal consistency coefficient of the instrument is 0.80.

Copies of all the questionnaires were given to the researcher's supervisors, who are experts in Guidance and Counselling for face and content validity. The instruments were vetted and adjudged suitable for the study. Thereafter, a pilot study was carried out by the researcher in a university outside the study area using a sample of 20 students (10 male and 10 female participants) who were randomly selected to participate in the study to determine the reliability of the instruments. The instruments were administered to the participants and after three weeks it was re- administered to the same set of participants (Test-re-test Reliability). The results of the two tests were analyzed using Pearson Product Moment Correlation statistics to determine the test- retest reliability coefficient.

The data collected was analysed using statistical methods, including descriptive statistics, analysis of covariance (ANCOVA) and multivariate analysis of covariance (MANCOVA) to determine the efficacy of ACT and SST in mitigating depression symptoms. All hypotheses were tested using 0.05 level of significance.

Presentation of Results

RQ1:

Ho1: There is no significant difference in the pre-test post-test mean scores of University students with depression symptoms exposed to Acceptance-Commitment Therapy (ACT), Social Skills Training (SST) and the control group. The result of the analysis is presented in Tables 1, 2 and 3.

Table 1 - Pre-test and Post-test Mean Scores on Depression Among the three Experimental Groups

Experimental Groups	Pre-test			Post-test			Mean Different
	N	Mean	Std. Dev.	N	Mean	Std. Dev.	
Social Skill Training (SST)	98	39.22	13.845	98	30.77	10.764	-8.45
Acceptance-Commitment Therapy (ACT)	99	33.76	13.297	99	16.47	6.847	-17.32
Control Group	95	45.19	16.983	95	44.84	16.985	-0.35
Total	292	39.31	15.440	292	30.50	16.784	-8.81

Descriptive analysis from Table 1 reveals that the mean score of students at pre-test for Social Skills Training (SST), Acceptance-Commitment Therapy (ACT), and the control group were 39.22, 33.76,

and 45.19 respectively. During the post-test, the mean scores decreased to 30.77, 16.47 and 44.84 respectively. Specifically, the ACT had the greatest reduction based on the mean difference with 17.32, accompanied by SST (8.45) and (0.35) for the control group. Consequently, the Analysis of Covariance (ANCOVA) was conducted to ascertain if the differences were statistically significant in table 2.

Table 2 - One-Way ANCOVA Result on Post-test Depression due to Experimental Conditions

Source	Sum of Squares	Df	Mean Square	F	p value
Corrected Model	72435.947[a]	3	24145.316	728.988	.000
Covariate (pre-depression)	33413.867	1	33413.867	1008.821	.000
Group	17715.723	2	8857.862	267.434	.000
Error	9539.053	288	33.122		
Corrected Total	81975.000	291			

*** Significant, p value < 0.05**

The result of ANCOVA presented in Table 2 shows that an F-calculated value of 267.434 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 288 degrees of freedom at 0.05 level of significance. Consequently, the null hypothesis was rejected and conclusion states there exists a significant difference in the post-test mean scores of participants with depression symptoms exposed to SST, ACT and the control group. 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 on difference in participants' depression symptoms

Groups	Social Skills Training (SST) (98)	Acceptance-Commitment Therapy (ACT) (99)	Control (95)
Social Skills Training	30.77	10.310	-9.73*
Acceptance-Com. Therapy	14.3	16.47	-20.04*
Control	-14.07	-28.37	44.84

*Significant at 0.05; a = group means are in diagonal; difference in interventions group means are below the diagonal while the protected t-values are above the diagonal. Table 3 reveals that participants exposed to the SST group significantly exhibited a decrease in depression symptoms than those in the control group (t = -9.73; df = 191; critical t = 1.98; P < 0.05). Participants exposed to ACT significantly exhibited a decreased level in depression symptoms than the control group (t = -20.04; df = 192; critical t = 1.98; P < 0.05). Respondents exposed to ACT significantly differ on depression symptoms level those exposed to the SST (t = 10.31; df = 195; critical t = 1.98, P >

0.05). It was observed that the SST and ACT were both effective in reducing depression symptoms among respondents, but the Acceptance-Commitment Therapy (ACT) was more effective.

RQ2:

Ho2: There is no significant difference in the pre-test post-test mean scores of University students with low self-esteem exposed to Acceptance-Commitment Therapy (ACT), Social Skills Training (SST) and the control group. The result of the analysis is presented in Tables 4, 5 and 6.

Table 4 - Pre-test and Post-test Mean Scores on Low Self-esteem Among the three Experimental Groups

Experimental Groups	Pre-test			Post-test			Mean Different
	N	Mean	Std. Dev.	N	Mean	Std. Dev.	
Social Skill Training (SST)	98	15.89	3.093	98	20.30	4.620	4.41
Acceptance-Commitment Therapy (ACT)	99	16.87	3.346	99	28.41	6.955	11.54
Control Group	95	18.63	4.778	95	18.85	4.640	0.22
Total	292	17.11	3.951	292	22.58	6.945	5.47

Descriptive analysis from Table 4 reveals that the mean score of students at pre-test for Social Skills Training (SST), Acceptance-Commitment Therapy (ACT), and the control group were 15.89, 16.87, and 18.63 respectively. During the post-test, the mean scores increased to 20.30, 28.41 and 18.85 respectively. Specifically, the ACT had the greatest increase based on the mean difference with 11.54, accompanied by SST (4.41) and (0.22) for the control group. Consequently, the Analysis of Covariance (ANCOVA) was conducted to ascertain if the differences were statistically significant in table 5.

Table 5 - One-Way ANCOVA Result on Post-test Low Self-esteem due to Experimental Conditions

Source	Sum of Squares	Df	Mean Square	F	p value
Corrected Model	9350.639[a]	3	3116.880	191.622	.000
Covariate (pre-self-esteem)	4149.826	1	4149.826	255.126	.000
Group	6245.653	2	3122.827	191.987	.000
Error	4684.549	288	16.266		

Corrected Total	14035.188	291

*** Significant, p value < 0.05**

The result of ANCOVA presented in Table 5 shows that an F-calculated value of 191.987 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 288 degrees of freedom at 0.05 level of significance. Consequently, the null hypothesis was rejected and conclusion states there exists a significant difference in the post-test mean scores of participants with low self-esteem exposed to SST, ACT and the control group. In order to locate the pair that is significant, a multiple comparison was conducted and presented in table 6.

Table 6: Fisher's protected t-test on difference in participants' self-esteem

Groups	Social Skills Training (SST) (98)	Acceptance-Commitment Therapy (ACT) (99)	Control (95)
Social Skills Training	20.30	-7.14	-4.18*
Acceptance-Com. Therapy	-8.11	28.41	-11.32*
Control	-1.45	9.56	18.85

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

Table 6 reveals that participants exposed to the SST group significantly exhibited a boost in their self-esteem than those in the control group ($t = -4.18$; $df = 191$; critical $t = 1.98$; $P < 0.05$). Participants exposed to ACT significantly exhibited a boost in self-esteem than the control group ($t = -11.32$; $df = 192$; critical $t = 1.98$; $P < 0.05$). Respondents exposed to ACT significantly differ in their self-esteem level from those exposed to the SST ($t = -7.14$; $df = 195$; critical $t = 1.98$, $P > 0.05$). It was observed that the SST and ACT were both effective in boosting low self-esteem among respondents, but the Acceptance-Commitment Therapy (ACT) was more effective.

RQ3:

Ho3: There is no significant difference in the pre-test post-test mean scores of University students with anxiety exposed to Acceptance-Commitment Therapy (ACT), Social Skills Training (SST) and the control group. The result of the analysis is presented in Tables 7, 8 and 9.

Table 7 - Pre-test and Post-test Mean Scores on Anxiety Among the three Experimental Groups

Experimental Groups	Pre-test			Post-test			Mean Different
	N	Mean	Std. Dev.	N	Mean	Std. Dev.	
Social Skill Training (SST)	98	31.86	11.304	98	24.07	9.935	-7.79
Acceptance-Commitment Therapy (ACT)	99	31.08	9.457	99	16.71	4.728	-14.37
Control Group	95	35.02	12.447	95	34.36	12.458	-0.66
Total	292	32.62	11.209	292	24.92	11.951	-7.7

Descriptive analysis from Table 7 reveals that the mean score of students at pre-test for Social Skills Training (SST), Acceptance-Commitment Therapy (ACT), and the control group were 31.86, 31.08, and 35.02 respectively. During the post-test, the mean scores reduced to 24.07, 16.71 and 34.36 respectively. Specifically, the ACT had the greatest reduction based on the mean difference with -14.37, accompanied by SST (-7.79) and (-0.66) for the control group. Consequently, the Analysis of Covariance (ANCOVA) was conducted to ascertain if the differences were statistically significant in table 8.

Table 8 - One-Way ANCOVA Result on Post-test Anxiety due to Experimental Conditions

Source	Sum of Squares	Df	Mean Square	F	p value
Corrected Model	35363.473[a]	3	11787.824	547.412	.000
Covariate (pre-anxiety)	20153.122	1	20153.122	935.886	.000
Group	10254.463	2	5127.232	238.102	.000
Error	6201.715	288	21.534		
Corrected Total	41565.188	291			

*** Significant, p value < 0.05**

The result of ANCOVA presented in Table 8 shows that an F-calculated value of 238.102 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 288 degrees of freedom at 0.05 level of significance. Consequently, the null hypothesis was rejected and conclusion states there exists a significant difference in the post-test mean scores of participants with anxiety exposed to SST, ACT and the control group. In order to locate the pair that is significant, a multiple comparison was conducted and presented in table 9.

Table 9: Fisher's protected t-test on difference in participants' anxiety

Groups	Social Skills Training (SST) (98)	Acceptance-Commitment Therapy (ACT) (99)	Control (95)
Social Skills Training	24.07	6.78	-7.91*
Acceptance-Com. Therapy	7.36	16.71	-14.69*
Control	-10.29	-17.65	34.36

*Significant at 0.05; a = group means are in diagonal; difference in interventions group means are below the diagonal while the protected t-values are above the diagonal. Table 9 reveals that participants exposed to the SST group significantly exhibited a reduction in their anxiety level than those in the control group (t = -7.91; df = 191; critical t = 1.98; P < 0.05). Participants exposed to ACT significantly exhibited a reduction in anxiety level than the control group (t = -14.69; df = 192; critical t = 1.98; P < 0.05). Respondents exposed to ACT significantly differ in their anxiety level from those exposed to the SST (t = 6.78; df = 195; critical t = 1.98, P > 0.05). It was observed that the SST and ACT were both effective in reducing anxiety among respondents, but the Acceptance-Commitment Therapy (ACT) was more effective.

Discussion of Findings

Hypothesis one stated that there will be no significant difference in the pre-test post-test mean scores of University students with depression symptoms exposed to Acceptance-Commitment Therapy (ACT), Social Skills Training (SST) and the control group. The hypothesis was rejected because the F-calculated value of 267.434 ($p < 0.05$) was observed to be greater than the critical value of 3.07 given 2 and 288 degree of freedom at 0.05 level of significance. The result revealed that there exists a significant difference in the post-test mean scores of the experimental condition. The result of the analysis was in line with the findings of Makinde, Adeyinka and Olusakin (2021) which asserts that both ACT and SST significantly reduced depressive symptoms among university undergraduate students.

Hypothesis two specified that there will be no significant difference in the pre-test post-test mean scores of University students with low self-esteem exposed to Acceptance-Commitment Therapy (ACT), Social Skills Training (SST) and the control group. The hypothesis was rejected because the F-calculated value of 191.987 ($p<0.05$) was observed to be greater than the critical value of 3.07 given 2 and 288 degree of freedom at 0.05 level of significance. The result maintained that there exists a significant difference in the post-test mean scores of participants with low-self-esteem exposed to SST, ACT and the control group. The result of the analysis is in line with the findings

of Ekeanya, Adeniyi and Longe (2023) which concluded that ACT significantly improved self-esteem compared to control; REBT showed even greater effect.

Hypothesis three indicated that there will be no significant difference in the pre-test post-test mean scores of University students with anxiety exposed to Acceptance-Commitment Therapy (ACT), Social Skills Training (SST) and the control group. The hypothesis was rejected because the F-calculated value of 238.102 ($p<0.05$) was observed to be greater than the critical value of 3.07, given degrees of 2 and 288 at 0.05 level of significance. This revealed that there exists a significant difference in the post-test mean scores of participants with anxiety exposed to ACT, SST and the control group. The result of the analysis corresponds with the study conducted by Adeyinka, Makinde & Olusakin (2020) in Lagos State High Schools which concluded that both ACT and SST produced significantly lower anxiety post-test compared to the control group.

Conclusion

Both Acceptance-Commitment Therapy and Social Skills Training are effective in improving students' emotional health. Counsellors and educational psychologists should integrate these therapies into university counselling services to support students facing emotional and academic challenges.

Recommendations

1. University counselling centres should adopt ACT and SST modules for group therapy.
2. Counsellor education programmes should include ACT and SST as part of practicum training.
3. Further studies should explore their long-term effects using longitudinal designs.

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