



Efficacy of Cognitive Behavioral Therapy on Academic Stress Among Rural Community Secondary School Economics Students: A Randomized Controlled Evaluation

Njideka D. Eneogu¹ · Chiamaka K. Ugwuanyi¹ · Christian S. Ugwuanyi²

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Abstract

This study evaluated the effect of cognitive behavioral therapy (CBT) on the academic stress of rural community secondary school economic students. The study adopted the pre-test, post-test randomized control trial experimental design. The economics academic stress questionnaire (EASQ) was used for data collection using 168 secondary school economics students sampled from rural community schools in Southeast Nigeria. The instrument was validated by three experts in the area of the study and the internal consistency reliability index of the items was estimated as 0.83 using the Cronbach Alpha method. A pre-treatment assessment (pre-test) was conducted using the EASQ to collect baseline data. After that, the experimental group was exposed to 60 min of the CBT program once a week for 8 weeks. The data collected were analysed using mixed-design repeated analysis of variance. The findings of the study revealed that CBT had a significant effect on the management of academic stress among rural community secondary schools economics students. Based on the findings of the study, it can be concluded that the use of CBT intervention will be helpful in the management of academic stress among rural community secondary school economics students. The implication of that is that CBT intervention is effective in the reduction of psychological problems and discomfort among students in order to improve their academic achievement.

Keywords Academic stress · Cognitive behavioral therapy (CBT) · Economics · Rural community school

✉ Christian S. Ugwuanyi
UgwuanyiCS@ufs.ac.za

¹ Department of Social Science Education, University of Nigeria, Nsukka, Nigeria

² Department of Education Foundations, University of the Free State, Bloemfontein, South Africa

Introduction

Stress is a psychological condition that can cause serious issues in students, particularly university students, such as dropouts, suicide attempts, and mental diseases (Agah et al., 2021). Stress is the unfitness to cope with mental, emotional, economic and spiritual challenges that may come one's way (Baste & Gadkari, 2014). Stress is viewed as a negative emotional, cognitive, behavioral, and physiological process that occurs as a person tries to adjust to or deal with stressors (Laney et al., 2008). When studying for examinations and trying to understand the material in a short amount of time, university students are under a lot of stress (Mishra, 2018). The frequency of examination-related stress among students was also documented in other investigations carried out worldwide (Sasikumar & Bapitha, 2019). Students typically report high levels of stress and there is a need for further research on academically produced stress and related difficulties (Sasikumar & Bapitha, 2019). Poor planning, bad study habits, and a lack of information necessary for pupils to succeed in their studies are some causes of academic stress among students (Sasikumar & Bapitha, 2019). Additionally, the poor condition of the educational system in the Nigerian context may even make academic stress worse (Agah et al., 2021). The Nigerian educational system, according to Chinedum et al. (2014), continues to face difficulties such as inadequate facilities, an overwhelming workload, crowded lecture halls, low motivation, clustered examinations, among others. Many students experience academic stress as a result of this, which results in poor academic performance. Consequently, these stressors have been found to be very high among Nigerian students resulting in the enormous pressure they encounter before examinations. Research evidence support the fact that too much stress during the periods of examinations can lead to an amplified rate of psychological issues such as depressive symptoms and anxiety, etc. which may eventually have unfavourable impact on the academic outcomes in terms of students' achievement (Waghachavare et al., 2013).

However, Aihie and Ohanaka (2019) noted that when a student's level of stress is low or moderate, it translates to higher inspiration and better academic performance than when the stress is severe. According to Aihie and Ohanaka (2019), such a situation as severe stress condition can have negative effects, like tension, depression, and social dysfunctions. Moreover, according to Uchil (2017), a low-stress level may not always translate into successful outcomes. This is because students may perform better when faced with tasks like exams that are not challenging or dangerous. Students in the bid to balance other distractions (activities) with their academic activities are thrown into stress which in this context is referred to as academic stress. Academic stress is the stress that has to do with education. These stresses can come in form of forgetfulness, lack of self-esteem or confidence, fear of failure, lack of interest, etc. Stress among students of different levels of education evolves from various sources both academic and non-academic factors ranging from religious, environmental, social, economic and even psychological make-up of students (Brand & Schoonheim-Klein, 2009). Academic stress according to Prabu (2015) is the anxiety and stress that comes from schooling and education. Stress occurs when students are unable to balance his/her capacity with academic demands. Ningtias, Wibowo and Purwanto (2019) explain that academic stress is an experience that is mostly experi-

enced by students. Students face the pressure of maintaining a balance between their social lives, academic obligations, personal expectations and family expectations and all of these trigger stress (Baste & Gadkari, 2014; Kumari & Jain, 2014).

Regularly, students pass through one difficult situation or another in terms of stress trying to balance their social, academic life and parents'/teachers' expectations with regard to their academic performances, fear of failure, and lack of proper planning on the part of the student on time management. Academic factors were found to be the major factors that cause stress to students as a result of schooling, the other factors like religious, economic, emotional and social are minor (Bedewy & Gabriel, 2015). Academic stress that the students encounter is highly associated with assessment (Ningias et al., 2019). This is in line with the work of Alam (2016) which categorically states that academic stress is gotten from schooling compulsory obligations and assessments which normally outweigh the students' capacity and ability. In the bid to assess the students, they undergo inevitable stress which is widely known as academic stress. As opined in the work of Clark and Beck (2011), Psychological construct such as academic stress is made up of cognitive, affective, and behavioral domains. Clark and Beck (2011) further explained that the cognitive domains include wrong beliefs, anxiety, fear, etc which can harm the students by bringing about forgetfulness and lack of coordination in a test situation. The affective domain is concerned mainly with a lack of confidence in oneself in a test or examination situation. Then lastly the behavioral domain consists of poor study habits and negative attitudes toward learning. It is obvious from the above explanations that psychological problems affect every aspect of a student's life and therefore should be taken care of seriously. This may affect the totality of the outcome of the assessment which can lead to poor academic achievement (Baste & Gadkari, 2014; Sohail, 2013; Talib & Zia-ur-Rehman, 2012). The above assertion is in line with Bronfenbrenner's (1974a, b) Ecological System Theory which analyses how an individual's encounter, society and environment affect the individual's behavior, understanding and even reactions to a particular event or events negatively. Therefore, the theory helps to provide necessary solutions to avoid these negativities that manifest in form of psychological problems such as academic stress.

Academic achievement in a general sense is the current level of students' learning. It represents the performance outcome of students' and explains the extent they have accomplished specific goals. According to Steinmayr et al. (2014), academic achievement represents performance outcomes that indicate the extent to which a person has accomplished specific goals that were the focus of activities in instructional environments, specifically in school, college, and university. The academic achievement of students in economics is discouraging. These discouraging academic achievements are seen through Economic students' performance in WASSCE. As opined in the works of Ugwu and Ugwu (2015) and Bergmann et al. (2019), there is poor academic achievement of rural community secondary school economics students and this might be attributed to academic stress, teacher factors and how it affects the students, the students' unpreparedness, excess academic workload, peer influence, fear among others. Students who endure academic stress, whether it is physical or psychological, often exhibit conflicted emotions both before and after the academic activity. Sloboda (2015) conducted a study on academic stress among

university students, and the findings showed that academic stress had a big impact on student's academic performance. Academic performance has been linked to students' levels of interpersonal, personal, and environmental stress, according to research by Oduwaiye et al. (2017). The authors conclude from their research that university students' academic performance is significantly predicted by their level of stress. The association between test stress and academic achievement of high school pupils in English Language in India was examined by Sasikumar and Bapitha (2019). The study's findings showed a strong correlation between students' academic success and exam-related stress. Similar findings were made by Bashir et al. (2019), who discovered a strong association between high school students' academic achievement and the amount of stress they experienced during exams. Researchers have conducted several studies (Holman et al., 2018; Lacerda et al., 2018; Uchil, 2017; Umar 2019) to address the issue of examination-induced stress, which leads to poor academic achievement of university students by utilizing various intervention programs and stress coping mechanisms. These studies have been conducted globally, but specifically in Nigeria.

Despite the efforts made by researchers and stakeholders to stop the problem of students' poor performance due to examination-related pressures, it appears that the problem is constantly escalating. According to a systematic review of the literature (Pascoe et al., 2019), stress connected to academics was a problem for secondary school and tertiary students, negatively affecting their ability to study, academic performance, physical and mental health, and usage of drugs, among other things. As a result, it was stressed that enhancing students' ability to control their stress in the classroom is a continual and essential component of subsequent studies (Agah et al., 2021). This is consistent with the recommendation made by academics like Pascoe et al. (2019) that schools should offer programs that help students manage their stress and cope with academic-related stress. Thus, an intervention such as cognitive behavioral therapy is needed to help students who encounter academic stress problem to overcome it.

Cognitive behavioral therapy, just like the name, implies the treatment of cognitive and behavior problems in form of counselling. Cognitive behavioral therapy (CBT) is a therapy that specializes in the treatment of stress, depression, and anxiety of any kind (Dryden, 2009; Butler et al., 2006). CBT theory states that irrational thoughts could bring about dysfunctional or irrational emotions and behavior that may hinder the best achievement of a particular situation or event, (Ezegbe et al., 2018). Generally, CBT can be based on the principles of ABCDE model, that it is not the event (**A**) that causes a problem for an individual but their belief (**B**) about the event (**A**) which may be positive or negative. If it is a positive belief, there is no problem but our interest lies on the negative aspect of the belief which results in consequences of negative reactions as a result of the negative belief that takes the place of (**C**). With this, CBT comes into play by disputing (**D**) the irrational belief (**B**) to bring about change in an individual which is the worldview (**E**). The above illustrations are in line with the ABCDE model of psychotherapy which addresses irrational beliefs, negative thoughts, and or physical behavior concerning one's experiences either in school or the workplace (Ogba et al., 2020). Studies have proved cognitive behavior therapy as the best among other intervention therapies in the treatment of academic

stress and other psychological challenges among students and workers (Vander et al., 2001; Richardson & Rothstein, 2008; Bhui et al., 2012). During therapy sections, the students are completely involved and they understand themselves and figure out what and how to correct their problems.

CBT comes in various forms which include individual, group, brief, guided self-help, self-help, and online forms ((Ugwuanyi et al., 2020a, b, c). Research has also shown that group-based CBT is preferred in the treatment of psychological problems such as academic stress, sleep complaint, and cognitive failures because it aids interrelationship among members and this relationship established indirectly reduces symptoms and promotes the effectiveness of CBT (Netterstrøm et al., 2013; Trimmer et al., 2016). Studies in the past have demonstrated the effectiveness of CBT on psychological problems. Ugwuanyi, Gana et al. (2020) found the superiority of CBT over other conventional counselling approaches in the reduction of maladaptive behaviors among students of higher learning. Rooksby et al. (2015) found that Internet-assisted delivery of cognitive behavioral therapy (CBT) for childhood anxiety was very effective as the posttest results showed a great improvement based on the reduction of childhood anxiety.

The present study sought to build upon the findings of the above studies by applying CBT in the management of academic stress of rural community secondary school economics students which lack literature, especially in Enugu state and or in Nigeria as a whole, where the study was carried out. Thus, the study was based on the hypothesis that there would be a significant effect of CBT on the management of academic stress of rural community secondary school Economics students. Thus, the following hypotheses were tested at 5% probability levels:

Ho₁ There is a significant reduction in the academic stress of the students exposed to cognitive behavior therapy intervention than those of the waitlisted control group from pretest to posttest.

Ho₂ The posttest academic stress score of the students exposed to cognitive behavior therapy intervention did not differ significantly from the follow-up score.

Method

Design of the Study

The study adopted the pre-test, post-test randomized control trial experimental design. Subjects were randomized into experimental and control groups. This study design was used by Nwokeoma et al. (2019), Onyishi et al. (2020), Okide et al. (2020), Ede et al. (2020), Abiogu et al. (2020), Ugwuanyi (2023) in carrying out similar studies.

Participants

A total sample of 168 senior secondary students who offered economics participated in this research. This sample comprised both male students (72) and female students (96) randomly drawn from two public rural community secondary schools in Nsukka L.G.A in Enugu State of Nigeria who after proper screening met the necessary criteria. A total number of 107 students in their four intact classes volunteered to participate in the study but some of the students who could not meet the inclusion criteria set by the researchers were screened out. The inclusion criteria are: (1) the student must be offering Economics as a student. (2) The students must show an element of Academic stress by having a score of 70 or above on EASQ. At the end of the screening exercises, 168 participants were eligible for the study.

Measures

Economics academic stress questionnaire (EASQ) was adapted for the research. This questionnaire comprises two sections. Section A is made up of demographic questions about the participant's age and gender. Each of the participants was instructed to tick the appropriate demographic information that may be applicable to him or her. Then section B which is the EASQ is made up of 30 items with four response options (Strongly Agree=4, Agree=3, Disagree=2 and strongly disagree=1). The

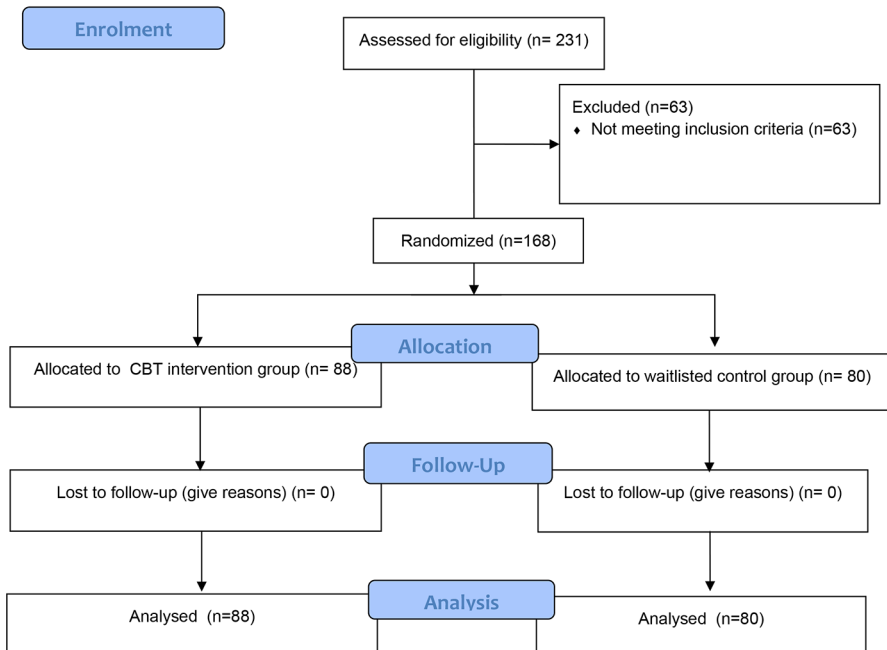


Fig. 1 Flow Diagram of the Sampled Participants

EASQ had the lowest score of 25 and the highest score of 100. Scores within the range of 25 and 30 showed that a particular student does not show signs of academic stress. Scores between 31 and 39 showed that there is a presence of academic stress in a participant but the level of stress does not necessarily affect the wellbeing of the participant. Finally, scores between 40 and 69 suggested moderate academic stress while any score within 70 and above was considered high and suggests an unhealthy level of academic stress that may pose a problem to an individual. In other words, students who had scores of 70 and above on EASQ was considered as experiencing high academic stress. See Appendix A for the EASQ items.

The instrument was face validated by experts in test development and psychology. For this study, the internal consistency reliability of the instrument was 0.83 using the Cronbach alpha reliability method. It is worth noting that in the course of this research, the items that represented the general stress index were adapted for the works of Lin and Chen, Balaji and Yumba to generate the items of the EASQ. The specific subject was mentioned simply because the participants were taught some concepts in economics before the measures were taken. Thus, the instrument used was not specific for the subject but can be used as a general measure of stress.

Procedure

The researchers visited the schools and met with the administrators of the schools and got permission and guidance on the time the research was carried out in order not to disrupt the school timetable and activities. The researchers at that stage also used the opportunity to get the baseline data which informed that actually, the students were experiencing academic stress and also the number of students that manifested academic stress. Such students who scored 70 and above on EASQ constituted the sample size. Through this process, the students who manifested the signs of academic stress were known through their names as the instrument included the names of respondents by the researchers and they formed the study sample. It is worth noting that all the students including the ones without academic stress remained in their intact classes while the experiment was carried out to avoid disorganizing the class and tempering the self-esteem of those students with academic stress. This is for the fact that their separation from the other students may lead to stigmatisation).

After the above stage, the experiment commenced properly with eight-week cognitive behavioral therapy sessions. Two intact classes were exposed to cognitive behavioral therapy (CBT) while the remaining two intact classes were waitlisted but had interest only in those labeled to have manifested academic stress. The sessions were held twice a week particularly on Wednesdays and Fridays after normal school activities. In the CBT, each of the 8 sessions, lasted for 30 min. Some of the CBT sessions were presented simultaneously. For example, sessions 1–4 were grouped, sessions 5–6 were grouped and sessions 7–8 were grouped. Because of such groupings, the first contact (sessions 1–4) lasted for 120 min each day, the second contact (sessions 5–6) lasted for 60 min each day and sessions 7–8 lasted for 60 min each day for the eight weeks. Thereafter, the instrument was re-administered at the termination of the treatment as a post-test measure. After two months of the intervention program,

a regular follow-up assessment measure was conducted to find out if the effect of the intervention was sustained over time.

An integrity check was properly conducted by the researchers to ensure that the outcome of the research was devoid of any form of bias. Research integrity is the practice of conducting research in a way that upholds the highest moral and professional standards, resulting in reliable findings. It addresses how researchers behave throughout the entire research life cycle, including stating potential conflicts of interest, data management and gathering.

Therapist

In essence, a therapist assists people in overcoming problems (mental or interpersonal) in their lives by assisting them in understanding why they experience such high levels of stress or in learning how to handle such connected concerns. In this study, the intervention program was carried out by a male psychotherapist. The psychotherapist holds a psychology bachelor's degree and a psychotherapy master's degree. In order to provide a CBT program, the psychotherapist used in this study is a licensed therapist with relevant clinical expertise who is accredited in psychotherapy. A CBT therapist helps a client who frequently loses it at work identify the cognitive patterns that are driving that behavior and works with the client to change those thought patterns. He possessed traits that are beneficial for a therapeutic session, including analytical abilities, communication skills, compassion, flexibility, interpersonal abilities, leadership abilities, listening skills, observation skills, organization, patience, resourcefulness, speaking abilities, and writing abilities.

For this research, only one expert in CBT was used for the intervention program. The kind of thought the therapist targeted in the course of the intervention was irrational or dysfunctional thought in form of academic stress. The therapist is an expert in CBT and thus was not further trained by the researchers. The therapist was only provided with the treatment manual with respect to the scope of the research to implement the intervention program.

CBT Intervention Procedure

The CBT intervention program manual used for this study to treat people with irrational thoughts about academic stress was adapted from the works of Sze and Wood (2007) and Cully and Teten (2008). Sessions of rational-emotive behavior therapy were held as part of this CBT intervention to teach the students how to control their academic stress. Cognitive behavioral therapy typically centers on how thoughts, actions, and feelings are connected. This paradigm emphasizes the significance of pinpointing the ideas and behaviors that affect mood in order to treat depressive symptoms and help the client learn to manage their emotions. The therapy sessions in this guidebook were broken down into three modules, each of which had four sessions.

Sessions 1–4 The impact of participants' thoughts on their state of mind.

The content in these sessions explains how participants' thoughts affect their mood. The framework and goal of the remaining sessions are established at the first session. Furthermore adequately defined in the first session were the time, day, guidelines for the therapy, and degree of confidentiality. Since this can influence the nature and caliber of the therapeutic interaction, the participants in these sessions were made aware of the boundaries and scope of secrecy. A discussion about academic stress—what it is and how individuals feel it—took place at the beginning of the first session. The therapist explained the goal of the first module during this session as well, which is to help participants understand how their ideas affect their mood. The subject of the following three sessions was the relationship between various forms of thinking mistakes and dysfunctional thoughts and academic stress. The participants were also taught how to discuss and change these stressful-related cognitive biases and dysfunctional ideas in order to elevate their mood. Several exercises between sessions were designed to spot thinking mistakes. The individuals were also exposed to techniques in the sessions for raising positive ideas and lowering harmful or dysfunctional negative thoughts, which reduced academic stress symptoms.

Sessions 5 and 6 The impact of participants' actions on their mood.

The participants were given the opportunity to link engaging in pleasurable activities with depression symptoms during sessions 5 and 6. There was a discussion about how academic stress might make it difficult to engage in enjoyable activities, which exacerbates academic symptoms. Pleasant activities were described throughout these sessions, and barriers to participating in them were noted. The participants were also exposed to circumstances that would allow them to set specific goals that could lessen academic stress. Participants were coached during sessions on how to set achievable goals, and those actions were practiced during sessions. The main goal of sessions 5–6 was to give participants greater control over their life and teach them how to recognize options that will provide them more freedom and options. The therapist assisted the participants in creating attainable goals and engaging in activities that enhanced their moods.

Sessions 7–8 How participants' relationships impact their emotions.

Through a clear discussion of social support and how it aids in overcoming challenges, this session introduced the participants to how their relationships affect their moods. The participants were able to learn how to recognize and develop their social support networks thanks to these workshops. Sessions from the previous sessions were integrated in the final sessions. The therapist looked at how the individuals' activities, relationships, and social support are impacted by their thoughts. Activities were employed to educate the participants' assertive communication techniques that aided in the development of satisfying, healthy relationships. The primary aims of each session were revisited and integrated at the end of the REBT intervention session. A review of the therapy experience was conducted with the participants during the last session in order to identify strengths and accomplishments.

Ethical Statement

The approval for the conduct of this research was granted by the research committee on ethics of the researchers' Faculty of Education. Besides, informed consent forms were administered to the participants to fill and sign before the intervention started.

Data Analysis

The statistical analysis was completed using SPSS version 25. Before beginning the real data analysis, data were filtered and cleaned by keeping an eye out for errors, standardizing the procedures, validating the accuracy, and checking for duplicates. Statistically, the within-group and between-group effects were determined using a mixed design repeated measures analysis of variance (ANOVA). Sphericity, or the condition where the variances of the differences between all feasible pairs of within-subjects conditions are identical, is a crucial presumption of repeated-measures ANOVA. The sphericity assumption was not ensured (Mauchly $W=0.786$, $p=.329$).

Results

The results of the analysis in Table 1 revealed that there was no significant difference in the mean pretest scores of the CBT and waitlisted groups ($M=88.43$, $SD=5.84$) and ($M=86.97$, $SD=6.15$) (see Table 2 below), $F(1, 166)=1.089$, $p=.675$. This is also evident in Table 2 which showed that the pretest score of the CBT group differed significantly from their posttest ($M=88.43$, $SD=5.84$) and ($M=39.88$, $SD=4.51$) (see Table 2 below), $t(87)=13.789$, $p=.000$, unlike their waitlisted group that did not differ ($M=86.97$, $SD=6.15$) and ($M=82.70$, $SD=9.61$) (see Table 2 below), $t(79)=1.547$, $p=.063$. Besides, it was found that there was no significant difference in the posttest and follow-up mean stress scores of the CBT group ($M_{posttest}=39.88$, $SD_{posttest}=4.51$; $M_{follow-up}=38.68$, $SD_{follow-up}=4.50$) (see Table 2 below), t

Table 1 Mixed design repeated analysis of variance for the tests of within-subjects effect and between-subjects effects

Source		Type III Sum of Squares	df	Mean Square	F	Sig.	η^2
Within-subjects effect							
Time	Sphericity Assumed	95383.710	2	47691.855	1833.415	0.000	0.917
Time * Treatment	Sphericity Assumed	44444.821	2	22222.411	854.295	0.000	0.837
Error(Time)	Sphericity Assumed	8636.179	332	26.013			
Between-subjects effect							
Intercept		2340910.218	1	2340910.218	25130.517	0.000	0.993
		79359.107	1	79359.107	851.949	0.000	0.837
Error		15462.917	166	93.150			

$\eta^2 = \text{Effect size}$

Table 2 t-test analysis of the academic stress ratings of the students exposed to CBT and those not so exposed

Treatment	n	Pretest (1)		Posttest (2)		Follow-up (3)		t_{p2-p1}	p	t_{p3-p2}	p
		Mean	SD	Mean	SD	Mean	SD				
Experimental	88	88.43	5.84	39.88	4.51	38.68	4.50	13.789	0.000	0.875	0.893
Control	80	86.97	6.15	82.70	9.61	82.89	9.61	1.547	0.063	0.910	0.902

Note: t_{p2-p1} =paired sample t-test for posttest and pretest, t_{p3-p2} = paired sample t-test for follow-up and posttest

(87)=0.875, $p=.893$. Additionally, there was a significant time-treatment interaction, $F(2, 332)=854.295$, $p=0.050$, $\eta^2=0.837$. Summarily it was found that the management of academic stress among economics students was shown in Table 1 to differ significantly across the three-time measures, $F(2, 332)=1833.415$, $p=.050$, $\eta^2=0.917$, and between groups, $F(1, 166)=851.948$, $p=.050$, $\eta^2=0.837$.

As a result, this interaction showed that there was no appreciable difference between the baseline and the control group in terms of how they handled academic stress over time. The mean academic stress ratings of the intervention group did, however, go down over time, suggesting that CBT was effective in lowering academic stress among students.

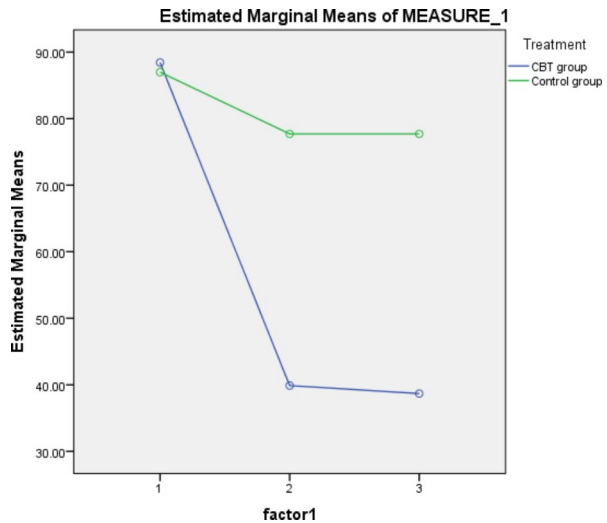
Figure 2 showed the nature of the interaction effect of time and treatment on the management of academic stress among secondary school economics students.

Discussion

This research sought the efficacy of CBT on the management of academic stress among secondary school students. The findings of the study showed that rural community school students who received eight weeks of half-hour CBT sessions showed lesser signs of academic stress in the posttest than in the pretest. The difference between the academic stress mean scores of the students exposed to CBT intervention and those of the waitlisted control group was statistically significant. This led to the rejection of the null hypothesis meaning that there is a statistically significant difference in the posttest academic stress mean scores of students exposed to CBT and those not exposed. The result of this study is in line with the findings of Asghari et al. (2016) Butler et al. (2006), Dryden (2009), Hamdan-Mansour et al. (2009), Pruba (2015), on the effectiveness of cognitive behavioral therapy (CBT) in providing conditions necessary for the improvement of students learning skills to suppress some academic stress. Based on the available evidence, this also has been revealed in this study to be the same among rural community school Economics students that CBT is effective in managing academic stress. CBT exposes students to the profits of having rational and positive beliefs about studies (Economics). The implication of this finding is that academic achievement of students increases as a result of their psychological stability. This is because when students are psychologically and mentally stable, there is a greater chance of higher academic achievement. Employee stress was found to be greatly reduced by stress management strategies such as mindfulness training, cognitive behavioral therapy, and relaxation techniques (Holman et al., 2018; Ugwuanyi et al., 2021a, b; Igwe et al., 2022). Weerasekara and Smedberg (2019) discovered that occupational stress management interventions enhanced by information and communication technology are highly beneficial in reducing stress-related problems. According to Barrett and Stewart (2020), from the beginning to the end of the CBT intervention, stress, burnout, and mental health among healthcare professionals significantly decreased.

Furthermore, the result of this study gives credence to the work of Toker and Avci (2015), that Cognitive Behavioral Therapy provides conditions necessary for the improvement of students' learning skills to suppress some psychological problems

Fig. 2 Interaction effect of time and treatment



and thus, can be applied by teachers in the teaching and learning processes. Similarly, Agboeze et al. (2020) found that music-based CBT intervention significantly reduced test-taking behavior among primary school pupils after their exposure to the intervention than those who were not so exposed. Recent studies such as Ugwuanyi et al. (2020a, b, c), Ene et al. (2021); Ugwu et al. (2021); Ugwuanyi, Okeke et al. (2020) have empirically explored the effectiveness of CBT or REBT on the management of irrational thoughts and found that such intervention had significant effects on the reduction of mental health problems.

These findings of this study are in line with the tenets of Bronfenbrenner's Ecological System Theory by Bronfenbrenner (1974a, b) which analyses how an individual's encounter, society and environment affect the individual's behavior, understanding and even reactions to a particular event or events negatively. Therefore, the theory helps to provide necessary solutions to avoid these negativities that manifest in form of psychological problems such as academic stress.

Limitations of the Study

One of the major limitations of this research is the use of one therapist for the therapeutic intervention. This was the case as the researchers could not get more than one qualified therapist to handle the therapeutic intervention. Also, the researchers were unable to examine potential variables, such as participant education levels, medication use, gender, tribe, age, and religion, on the effectiveness of CBT for academic stress. As a result, the researchers recommended that future researchers duplicate the study using taking into account any potential modifiers' moderating influence on the impact of CBT on the management of academic stress among economics students.

Conclusion and Recommendations

The results of the study have revealed the efficacy of cognitive behavioral therapy in managing academic stress of rural community secondary school Economics students. Therefore, CBT programme should be organised from time to time for Economics students in order to take care of the psychological problems (academic stress) that hinder their academic activities. Thus, the education authorities should through the necessary education bodies by involving CBT experts, psychologists and therapists to organise workshops, seminars, and conferences on CBT prospects, procedures and skills required to apply CBT on economics students in rural communities. Students on the other hand through the help of the school authorities should utilise the opportunity offered by CBT which helps them to overcome their inner struggles and fear both within and outside the classroom (Economics) so as to have fewer distractions and higher academic achievements in Economics.

Supplementary Information The online version contains supplementary material available at <https://doi.org/10.1007/s10942-023-00508-z>.

Authors Contribution The first and second authors conceptualised the research and wrote the introduction and methodology sections of the manuscript while the third author carried out the data analysis and wrote the discussion and conclusion sections.

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Data Availability The data for this research are at the custody of the corresponding author and can be released on special request.

Declarations

Conflict of Interest The authors have no potential conflict of interest to declare.

Ethics Approval and Consent to Participate The ethical approval for the conduct of this research was granted by the research committee on ethics of the researchers? Faculty of Education. Informed consent forms were issued to the participants to fill and sign accordingly.

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