



## STRESS MANAGEMENT INTERVENTION FOR SECONDARY SCHOOL PHYSICS TEACHERS

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### Keywords/Kata kunci

physics, teachers, secondary school, stress, rational-emotive behavior therapy

fisika, guru, sekolah menengah, stres, terapi perilaku rasional-emosif

### ABSTRACT/ABSTRAK:

Several studies have reported the prevalence of stressors and work-related conditions among educators in Nigerian school environments, but there are limited reports on the coping mechanisms of physics teachers. Therefore, this study aims to investigate the effect of rational-emotive behavior therapy (REBT) on stress management among secondary school physics teachers. A randomized controlled group trial design was used, and the sample population comprised 64 physics teachers who served as participants. Pretest, posttest, and follow-up data were collected using the Job Stress Questionnaire ( $\alpha=.73$ ). The results showed that participants undergoing REBT experienced a significantly greater reduction in work-related stress compared to those in the control group. The findings of this study were expected to contribute to the knowledge base in measurement, counseling, and physics education. In addition, the incorporation of REBT programs was recommended to assist physics teachers in effectively managing their work-related stress.

Di lingkungan sekolah di Nigeria, sebagian besar guru rentan terhadap stresor dan kondisi yang berhubungan dengan stres. Literatur tidak membahas bagaimana guru fisika mengelola kondisi stres tersebut. Penelitian ini melihat dampak terapi perilaku rasional-emosif (REBT) terhadap manajemen stres guru fisika sekolah menengah. Populasi penelitian terdiri dari 64 orang guru. Kuesioner stres kerja digunakan untuk mendapatkan data prates, pascates dan *follow-up* ( $\alpha=0.73$ ). Hasil analisis menunjukkan bahwa guru fisika yang diberikan REBT mengalami penurunan stres terkait pekerjaan yang jauh lebih besar dibandingkan guru dalam kelompok kontrol. Penelitian ini telah memberikan kontribusi terhadap pengetahuan yang ada dalam pengukuran, konseling dan pendidikan fisika dalam arti bahwa efikasi REBT dalam pengelolaan stres guru fisika telah diinvestasikan secara empiris. Peneliti merekomendasikan agar program REBT digunakan dalam membantu guru fisika mengelola stres terkait pekerjaan guru.

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Mental health problems are conditions with high prevalence among Nigerian school teachers due to the unfavorable working environment (Ugwuanyi, 2023). In addition, this high prevalence can be attributed to their daily interaction with students, which poses a significant impact on mental well-being (Aluh et al., 2018). According to several studies, teaching is one of the most popular careers in the world, but is highly susceptible to various mental and physical health issues, such as stress (Asa & Lasebikan, 2016). Various educational levels, including universities, have reported moderate to high-stress levels among educators (Silva et al., 2021). Asa and Lasebikan (2016) also stated this condition affected 72.2% of teachers, while depression was found among 29.3%.

Despite an estimated 20% prevalence of mental issues in Nigeria, there is a significant lack of mental health literacy among teachers (Aluh et al., 2018). In Poland, this demographic also faces a wide spectrum of challenges, with prevalence rates ranging from 18.1% to 52.7% for depression, anxiety, and stress. Meanwhile, Malaysian educators have been reported to experience significant levels of stress, musculoskeletal issues, and voice dysfunction (Tai et al., 2019). In China, university professors often experience increased stress levels attributed to factors, such as the absence of regular breaks, intense competition for promotions, and a lack of physical activity (Li & Kou, 2018). To address this concern, Biernat et al. (2022) advocated for mental health interventions and enrichment programs for school administrators and the higher education system. This is consistent with their proposal for a study examining the impact of rational-emotive behavior therapy (REBT)

on the ability of secondary school physics teachers to handle work-related stress.

The primary objective of the REBT program is to assist clients in developing fewer dysfunctional beliefs, thereby promoting more rational thought. According to a previous report, a central focus of the program is the exploration of the effect of rational and irrational thoughts on the feelings and behavior of individuals (Jones & Turner, 2023). Furthermore, a rational perspective, characterized by empathy, flexibility, non-extremism, and congruence with reality, is inconsistent with an irrational perspective (Jones & Turner, 2023). REBT also places a significant emphasis on the present moment, elucidating the effect of negative thoughts and ideas on emotional pain, and how negative actions and behaviors can lead to detrimental life outcomes (Junaedi et al., 2022). Negative ideas and behaviors that have been recognized and acknowledged can be modified into more constructive and successful behavior, enabling individuals to develop more meaningful relationships both personally and professionally (Junaedi et al., 2022). Therefore, REBT comprises recognizing self-defeating thought patterns, facing irrationality, and substituting more optimistic, logical beliefs (Junaedi et al., 2022). Previous studies have also shown that the fundamental tenet of the intervention is the prompt resolution of any unpleasant circumstance or state (Sari et al., 2022). Several studies have investigated the efficacy of REBT in addressing mental health conditions, such as stress, depression, and burnout in both teachers and students.

Igwe et al. (2022) tested the effectiveness of REBT and reported its ability to reduce occupational stress levels among university lecturers. Furthermore, science educators' work-related stress significantly decreased after exposure to a

REOHC program (Ugwuanyi, Okeke, & Ekwueme, 2021). Ugwoke et al. (2017) stated that rational health education intervention also had similar effects among educators, and this was consistent with another report (Onuigbo et al., 2018). REBT significantly reduced stress, symptoms, and overall stress scores (Obiweluzo et al., 2021).

In a previous study, the mean burnout of artisans in the treatment group significantly decreased following a 10-week REBT program (Okereke et al., 2022). Furthermore, adult learners who participated in the school-based REBT program became far less burned out compared to others (Iremeka et al., 2021). Another report stated that stress symptoms in a group of teachers significantly decreased after receiving rational-emotive occupational health coaching (Okeke et al., 2021). A comparable study found that adult learners who received rational-emotive cognitive behavior coaching intervention also experienced a significant reduction (Koledoye et al., 2022). REOHC had been reported to have a major impact on lecturers' work-related stress (Ene et al., 2021). After being exposed to REOHC, parents of children with autistic spectrum disorders showed a considerable improvement in their ability to manage parenting stress (Ede et al., 2020). This is consistent with a study, showing that rational-emotive health education significantly reduced stress in teachers (Obiagu et al., 2021). Ogba et al. (2020) reported that REOHC significantly decreased the subjective perceptions of participants about the condition and its external manifestations.

Despite the availability of various studies on the effects of REBT and REOHC, none of them focused on secondary school physics teachers. Therefore, this study investigates the impact of REBT on stress management for secondary school physics teachers.

## **STUDY METHOD**

### **Ethical statement**

This study was approved by the ethics study committee of the Faculty of Education. Furthermore, the participants were required to fill out documents requesting their informed consent before the treatment started.

### **Design of the Study**

A true experimental design with a randomized controlled trial was used in this study. The intervention's causal interpretation was established by randomly assigning individuals to one of two groups through a simple randomization process using balloting. Furthermore, confounding variables that were present during randomization were minimized, with the investigator being kept in the dark during the process. This study design had also been used by various reports, including Abiogu et al. (2020), Ede et al. (2020), Nwokeoma et al. (2019), Okeke et al. (2021), Okide et al. (2020), Ugwu et al. (2022), Ugwuanyi (2023), Ugwuanyi et al. (2020), Ugwuanyi, Okeke, and Agboeze (2021).

### **Participants**

The sample population comprised 64 physics teachers from secondary schools in South-South states of Nigeria, who were randomly selected. Furthermore, the participants were required to express interest in taking part in the study intervention program. The inclusion criteria were individuals who (1) worked as a secondary school teacher in one of Nigeria's southeast states. (2) possessed stress indicators after the OSI baseline assessment. The respondents were then randomized and divided into 2 groups namely, the control and REBT groups, each consisting of 32 individuals.

## Measures

Data were collected using the Occupational Stress Index (OSI) developed by Srivastava and Singh (1984). The OSI was a 46-item measure used to evaluate an employee's daily stress level. Furthermore, the index had 5 possible results, including 5, 4, 3, 2, virtually false, and 1, which denoted a categorically false proposition. The investigator summed up the ratings for each of the statements to determine the stress levels of employees at work. For the treatment sessions, only individuals with OSI scores between 116 and 161 were chosen. *Examples of such items included "feeling uncoordinated most time at workplace; I normally feel dizzy and tired"*. The Cronbach alpha technique was then used to assess the items' internal consistency dependability, and a score of 0.84 was obtained.

## Procedure

A newspaper requested participation declarations for an advert promoting the program before the start of the intervention. During this period, a total of 165 secondary school teachers expressed their interest in taking part in the program. Subsequently, the OSI was given to eligible participants who consented to participate in the screening procedure, and those with scores of 116 or above were selected. After the screening procedure, a total of 86 individuals met the requirements for inclusion or eligibility. The individuals were then divided into intervention and control groups using a straightforward randomization method. Both groups received a detailed explanation of the study's goals and the approach to be used. The objectives of the first meeting were to become acquainted and create a favorable environment, where the intervention could be carried out. Data bundles were made

available to participants to encourage and guarantee their active participation. After 12 weeks, the meeting was scheduled at 4-5 p.m. on Tuesdays and Thursdays. While individuals in the control group received standard therapy during this period, those in the experimental group underwent the REBT intervention program. In this study, the participants could personalize their care by using routine care. The participants in the control group received individual counseling sessions for 12 weeks, while the REBT group received group treatment.

The instrument was given to the respondents as a post-treatment test after the completion of the treatment. A follow-up measurement using the OSI was carried out after 8 weeks to determine the retention level of the participants' impact.

## Treatment Program

The relationship between thoughts, behaviors, and feelings was the cornerstone of cognitive-behavior therapy. Since both depression and stress, were mental health problems, this intervention program manual was modified specifically for stress. Therefore, pressure could be reduced by using strain reduction techniques, which had been showed to be effective in treating depression. This method emphasized the importance of recognizing the attitudes and actions that shape an adolescent's work experience. This was because it incorporated the emotional self-control skills that could be used to manage stress-related emotions. The therapy was divided into 3 modules by the guidebook, each consisting of four sessions.

**Sessions 1-4:** This module comprised information on the influence of thoughts on the participants' perceptions of their job. This module's initial session set the tone for the goals and format of others. Furthermore, there was clear communication about the day, time, restrictions, and degree of secrecy for the

therapy. Participants in this module were educated about boundaries and confidentiality application as these factors could influence the nature and caliber of therapeutic interactions. The first session began with a discussion on occupational stress, including its definition and common causes. During this session, the therapist covered the first module's goal, which was to help participants understand the effect of their beliefs on work perception. The next 3 sessions focused on different kinds of cognitive mistakes and disordered thinking associated with work-related stress. The participants were also educated on the methods that could be used to challenge and alter these dysfunctional beliefs and cognitive errors. Some activities were used in between sessions to discover cognitive problems. The respondents were also exposed to strategies for increasing positive ideas and decreasing negative, damaging, or dysfunctional thinking in an effort to reduce the symptoms of work-related stress.

**Sessions 5-8:** All five sessions of the workshop allowed participants to make a connection between indicators of work stress and enjoyment. The intervention also focused on the negative effect of occupation in partaking in pleasurable pastimes, thereby exacerbating sensations of stress. These meetings covered observation of participation barriers as well as enjoyable

activity discussions. Furthermore, the participants' experiences aided the selection of specific objectives for reducing stress. The skills acquired during workshops were used to set realistic goals. Giving participants more control over their lives and teaching on how to identify options that could provide more freedom and opportunity were the key objectives of sessions 5-8. The respondents also received advice from the therapist on setting realistic goals and following up on activities that could assist in improving work experience.

**Sessions 9-12:** This program explained the concept of social support and how it helped people overcome barriers, introducing the participants to the impact of their relationships on job experiences. The attendees were able to find and expand their social support networks by attending these workshops. The therapist also explained how their thoughts influenced behavior, connections, and interactions. In the last session, the participants reviewed the therapy process to identify their strengths and accomplishments.

**Data Analysis**

Statistical analysis in this study was carried out using SPSS version 25, which used the repeated measures analysis of variance

**RESULT AND DISCUSSION**

**Result**

**Table 1.** Work stress mean scores of physics teachers

Treatment	n	Pretest		Posttest		Follow-up	
		Mean	SD	Mean	SD	Mean	SD
Experimental	32	112.65	12.76	45.56	5.64	42.89	3.24
Control	32	113.43	11.34	111.13	13.34	118.64	18.86

As shown in Table 1, physics teachers in the intervention ( $M = 112.65, SD = 12.76$ ) and control groups ( $M = 113.43, SD$

$= 11.43$ ) reported similarly high levels of work stress at pretest. Compared to participants in the control ( $M = 111.64, SD =$

13.34;  $M = 118.64$ ,  $SD = 18.86$ ), those in the experimental group showed lower mean levels at the post-test and follow-up

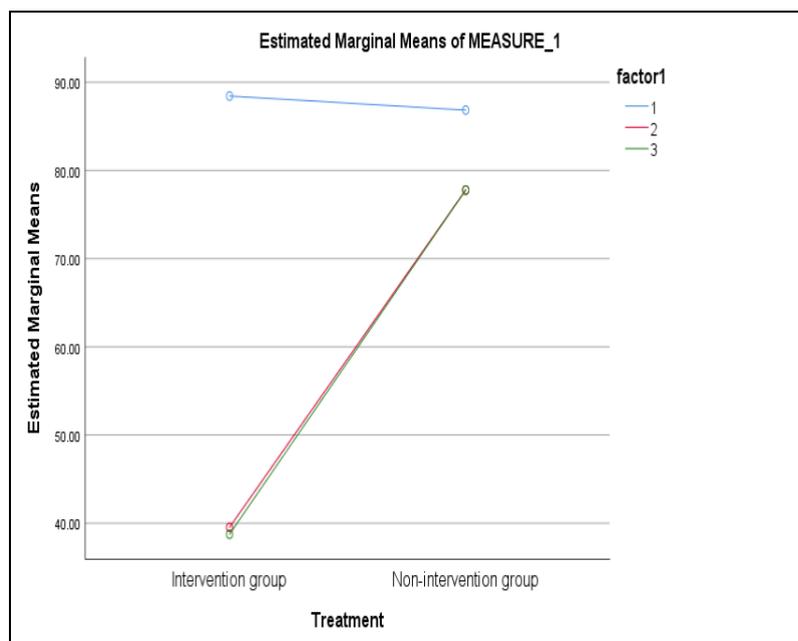
assessments ( $M = 45.56$ ,  $SD = 5.64$ ;  $M = 42.89$ ,  $SD = 3.24$ ).

**Table 2.** *rm-ANOVA output for the effect of the treatment*

Source		Type III Sum of Squares	df	Mean Square	F	Sig.
<b>Tests of Within-subjects effect</b>						
Time	Sphericity Assumed	36333.594	2	18166.797	607.803	.000
Time * Treatment	Sphericity Assumed	17272.135	2	8636.068	288.935	.000
Error (Time)	Sphericity Assumed	3706.271	124	29.889		
<b>Tests of Between-subjects effect</b>						
Intercept		892710.750	1	892710.750	9617.840	.000
Treatment		30552.521	1	30552.521	329.165	.000
Error		5754.729	62	92.818		

A significant within-subjects effect,  $F(2, 124) = 607.803$ ,  $p = .000$ , and a significant between-subjects effect,  $F(1, 29) = 329.165$ ,  $p = .000$  were presented in Table 2. The results of the pairwise comparison test for the measurement of time effect were shown in Table 3. The results showed that there was

a significant interaction between time and therapy ( $F(2, 124) = 288.935$ ,  $p = .000$ ), as shown in Figure 1. Based on these findings, REBT intervention greatly decreased the work-related stress experienced by physics teachers in the Nigerian south-south setting.



*Figure 1. Interaction plot for treatment and time of measure*

**Table 3.** Pairwise comparison test for the significant effect of time

(I) Time	(J) Time	Mean Difference (I-J)	Std. Error	Sig. <sup>b</sup>	95% Confidence Interval for Difference <sup>b</sup>	
					Lower Bound	Upper Bound
1	2	28.984*	1.172	.000	26.101	31.868
	3	29.375*	1.174	.000	26.485	32.265
2	1	-28.984*	1.172	.000	-31.868	-26.101
	3	.391	.223	.255	-.158	.940
3	1	-29.375*	1.174	.000	-32.265	-26.485
	2	-.391	.223	.255	-.940	.158

### Discussion

This study examined the use of REBT by secondary school physics teachers as the intervention technique to decrease their stress levels at work. The results showed that the levels of work-related stress among the participants significantly decreased after being exposed to the intervention. Furthermore, this finding validated the hypothesis that REBT significantly reduced the stress experienced by secondary school physics teachers. These results were also consistent with Albert Ellis' theory, stating that there were fewer illogical ideas and beliefs and more rational ideas and actions with REBT. As a therapeutic intervention, REBT can be used to treat a variety of conditions, including obsessive-compulsive disorder, depression, and anxiety. Several studies had also reported its use for the treatment of various mental health difficulties. In its purest form, REBT helped people by challenging harmful thought patterns, encouraging a logical approach to problem-solving, and replacing outmoded, life-depleting concepts with more useful, contemporary variants.

These findings were consistent with previous reports, which showed a notable decrease in work-related stress among science educators after engaging in a REOHC program (Ugwuanyi et al., 2021). Ugwoke et al. (2017) also found a significant reduction among teachers through a rational health

education intervention. Furthermore, stress was markedly diminished following REBT training (Onuigbo et al., 2018). A previous study also reported a significant decrease in client stress through the use of REBT (Obiweluzo et al., 2021). An occupational health coaching program comprising rational-emotive elements was shown to significantly cause a reduction among lecturers (Ene et al., 2021). According to Ede et al, a component of REBT significantly improved parents' ability to control their stress when raising children with autism spectrum disorders. Furthermore, teachers' stress levels decreased significantly with rational-emotive health education, as reported in a previous report (Obiagu et al., 2021). Ogba et al. (2020) reported that REOHC substantially decreased the subjective perceptions of stress at work as well as its external manifestations among the participants.

Following a 10-week REBT program, the mean burnout of artisans in the treatment group significantly decreased (Okereke et al., 2022). Furthermore, adult learners who participated in the school-based REBT program became far less burned out compared to others (Iremeka et al., 2021). In another study, instructors' stress symptoms considerably decreased after receiving REOC (Okeke et al., 2021). Several studies reported a significant reduction in depression symptoms among students who

received bibliotherapy interventions (Natsir et al., 2023). A similar report at "X" Hospital, Bandung City showed a reduction in burnout among nurses through mindfulness-based stress reduction (MBSR) (Azzahra et al., 2023). A comparable study found that adult learners who received rational-emotive cognitive behavior coaching experienced a significant decrease in stress levels (Koledoye et al., 2022).

### **Contribution to knowledge**

The results of this study are expected to provide great contribution to the field of teacher mental health. Based on the findings, REBT intervention could effectively help teachers cope with work-related stress. The productivity of instructors was greatly enhanced due to the ability to effectively handle the stress associated with their jobs. Furthermore, this study provided theoretical support for the REBT hypothesis, stating that unhealthy ideas must be recognized, refuted as illogical, and replaced with more constructive, rational beliefs. The results also had implications for policy because it recommended that secondary school physics teachers' work stress must be managed through the implementation of a REBT intervention.

### **Limitations of the study**

The study had several limitations, including the small sample size caused by the rigor of the intervention. The absence of examination of potential moderating factors, including religion, school location, and ethnicity could also limit the generalizability of the results. Furthermore, there was a possibility of bias stemming from controlling extraneous variables. Based on the previously identified constraints, future reports were advised to conduct a replication of this study.

### **CONCLUSION**

In conclusion, REBT showed positive results in helping secondary school physics teachers manage their professional stress. These findings were consistent with previous studies, which used distinct participants who had mental health problems. Based on the results, physics teachers in secondary schools could benefit from the use of REBT intervention in coping with work-related stress. This premise led to the recommendation that the post-primary school management board must devise a policy framework for the use of REBT among teachers.

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