


Managing job stress in teachers of children with autism

A rational emotive occupational health coaching control trial

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Abstract

Background/Objective: Teaching has been found to be 1 of the most stressful occupations worldwide. Stress associated with teaching is more critical among teachers teaching children with special needs in general and those with autism specifically, partly due to the heterogeneous nature of the disorders. The purpose of this study was to investigate the effectiveness of Rational Emotive Occupational Health Coaching (REOHC) in minimizing job stress in teachers of children with autism (CWA).

Methods: A group-randomized waitlist control-trial design was adopted. A sample of 87 teachers of CWA who participated in the study was randomized into the immediate intervention group (IIG) and waitlist group (WLG). Participants were evaluated on 3 occasions: pretest, post-test and follow-up. Three instruments (Occupational Stress Index, Perceived Occupational Stress Scale and Stress Symptom Scale) were used to measure dimensions of job stress. After the pretest exercise, the IIG participated in a 2-hour REOHC programme weekly for a period of 12 weeks. Post- and follow-up evaluations were conducted respectively at 2 weeks and 3 months after the REOHC programme. Those in WLG were exposed to the REOHC after the follow-up assessment. Data collected were analysed using *t*-test statistics, repeated measures analysis of variance and bar charts.

Results: Results revealed that the perceived stress and stress symptoms of the REOHC group reduced significantly over WLG at post-test, and follow-up assessments. Changes in the occupational stress index scores across pre-, post- and follow-up measurements were minimal and could not account for a significant difference between the IIG and WLG.

Conclusion: It was concluded that REOHC is effective in reducing subjective feelings and physiological symptoms of job stress, even when the objective stressors remain constant among teachers of CWA and other employees who work in stressful occupational environments.

Abbreviations: ABCDE = activating event, beliefs, consequences, disputation and effective world view, CI = confidence interval, df = Degree of Freedom, IIG = immediate Intervention Group, η^2 = partial eta squared (effect size), OSI = occupational stress index, POSS = perceived occupational stress scale, REBT = Rational Emotive Behavioural Therapy, REOHC = Rational Emotive Occupational Health Coaching, SISQ = single-item stress questionnaire, SSS = Stress Symptom Scale, WLG = waitlist group.

Keywords: children with autism, job stress, rational emotive occupational health coaching, teachers

1. Introduction

Globally, there are increasing shreds of evidence of heightened occupational health challenges,^[1–3] escalating job-related stress across the workforce.^[4] Employees who handle human behaviours, such as teachers tend to show a high level of occupational

stress.^[5,6] About 88% of teachers around the world experience work stress.^[7–10] Teaching learners with psychiatric or behavioural conditions, such as children with autism (CWA) tend to aggravate occupational stress among teachers.^[1,11] This could be due to the heterogeneous nature of autism disorders, which

Editor: Massimo Tusconi.

The authors have no funding and conflicts of interest to disclose.

All data generated or analyzed during this study are included in this published article [and its supplementary information files].

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How to cite this article: Ogba FN, Onyishi CN, Victor-Aigbodion V, Abada IM, Eze UN, Obiweluozo PE, Ugodulunwa CN, Igu NC, Okorie CO, Onu JC, Eze A, Ezeani EO, Ebizie EN, Onwu AO. Managing job stress in teachers of children with autism: A rational emotive occupational health coaching control trial. *Medicine* 2020;99:36 (e21651).

Received: 13 September 2019 / Received in final form: 19 June 2020 / Accepted: 3 July 2020

<http://dx.doi.org/10.1097/MD.00000000000021651>

requires adaptations both in mainstream and in special education settings,^[12] as well as teachers' lack of training^[11] and perceived lack of job success.^[13] Teaching CWA demands that the teachers employ adapted pedagogic materials, curriculum, environment and most of the time plan for, or offer additional services and interventions beyond the usual curriculum.^[14]

Furthermore, CWA tend to present difficulties in social interactions and behaviour^[8] that threaten teachers' sense of efficacy,^[11] leading to psychological stress. Pieces of evidence suggest that irrespective of settings, teachers experience higher levels of psychological distress when children with autistic spectrum disorder (ASD) are included in their classes^[8,13,15,16] compared to those teaching typically developing children. Teachers of children with autism are more vulnerable to stress symptoms due to localized stressors associated with ASD conditions. For instance, the pathological dysregulation typical of autism conditions^[17] may present overarching challenges to teachers. Additionally, the inability of the teachers to understand the children^[18] tends to heighten teachers' emotional reactions. On the other hand, most of the children with ASD in Nigeria place an elevated burden on their teachers because of the lack of early intervention.^[18] Consequently, teachers teaching ASD children bear a constellation of social, educational and emotional burdens that threaten their mental and physical health and trigger dysfunctional reactions such as job stress based on the evaluation of the situation.

Stress occurs when there is activation in the body due to a mismatch between the environmental demands/events and the ability to cope with events or activities.^[4] Stress can be perceived in 3 major dimensions: the stimulus-based perspective, the cognitive transactional process perspective and response-based perspective.^[4] These dimensions arise from

- (1) the objective activating events, called stressors;
- (2) subjective individual factors/moderators, which include the interpretation/cognition perspective towards the stressor; and
- (3) consequences of stress, which include the subjective feelings of emotional, behavioral and physical symptoms.^[4,19]

Thus, the objective dimension of stress is a normal phenomenon in daily life but becomes negative when 1 becomes chronically activated due to prolonged presence of stressors and dysfunctional perception towards the stressful situation, causing significant, cognitive physical and/or emotional impacts on health and well-being symptoms.^[20] Job stress is a negative experience in a situation where occupational demands exceed a worker's perceived personal and social capabilities to deal effectively with the work demands.^[21]

Studies show that occupational stress hampers employees' productivity and threatens their health and overall well-being.^[18,5,6,20,21,1,17,20] Stress could also lead to increased psychological problems such as posttraumatic stress disorders, sleep disorders, depression, and anxiety,^[18] as well as fatigue/burnout.^[8,13,15] It could also lead to behavioural problems, including alcohol/drug abuse, work turnover^[21] and suicidal attempts.^[22] Physiological symptoms such as headache, impaired immune function, musculoskeletal pains, and cardiovascular diseases,^[23] and/or organizational problems such as absenteeism and inefficiency^[4] could also be implicated. Thus, extant literature shows that job stress tends to undermine teachers' job performance,^[12] hamper the overall development of the child being taught by the teacher, and mitigate school outcomes.^[1,23,5,24] Hence, a high level of teachers' stress is of high emotional, public health and economic cost for the teachers, the school and the society.

In Nigeria, a high level of occupational stress has been recorded across teachers at all levels of education, irrespective of school type,^[6,21,24-30] and has been 1 of the factors accounting for poor outcomes in schools.^[30] Nevertheless, the level of felt job stress may not be direct products of their job stressors only, but may be a product of dysfunctional perception of their experiences.^[31-33] This could be that dysfunctional and maladaptive stress reaction could arise from an individual's perception of a situation instead of the situation itself.^[34,35] Given this theoretical background, rational emotive occupational health coaching (REOHC) could reduce stress associated with the negative perceptions of the teachers. REOHC theory holds that negative cognitive appraisals of a job may bring negative emotions and reactions, which limit job functioning,^[2,36] exposing the employee to stress symptoms.

REOHC uses the activating event, beliefs, consequences, disputation and effective world view (ABCDE) model to confront dysfunctional beliefs and negative emotions, as well as physical reactions associated with individuals' work-related experiences. REOHC intends to help employees adopt practical cognitive and behavioural skills for coping with job-related stress and consequential health symptoms. This therapeutic modality emerged from the premise of the Rational Emotive Behavioural Therapy (REBT) theory^[36,37] administered either as group therapy or using smartphones, the WhatsApp chat application, and email.^[2] It uses strategies, including disputation, homework tasks, discussion, and role play together with cognitive, behavioural and emotional techniques to help participants to change negative perceptions, navigate unhelpful emotions, reduce stress and improve work ability.^[37,38] which are embedded in REBT theory. Using the model, REOHC could help workers appreciate how they get distressed during work experiences.^[37]

The REOHC framework capitalizes on the ABCDE model to counter stress-provoking philosophies and help workers understand the trajectory of their distress and feelings of stress,^[33,37] thereby increasing subjective well-being and work ability.^[37,38] For instance, the objective stressor could be the events associated with working conditions (A-Activating events). This elicits some beliefs, cognition, perceptions and world views, which are sometimes dysfunctional (B), and trigger negative psychological/physical reactions (C). Then, disputing challenging irrational, dysfunctional and self-limiting thoughts (D) and replacing them with more effective ones (E) is the complete trajectory to living a healthy life and developing stress-free personalities (See Fig. 1).

According to this framework, it is not the occupational experience in the form of emotional, social and academic relationships with the autistic children (stressors) that cause teachers' stress, but their beliefs and world-view evaluations of their experience (B). The B may cause stress (C) when it is especially irrational/dysfunctional and self-defeating. Intervention through REOHC (D) is intended to dispute those unhelpful world views that trigger maladaptive reaction in the form of stress.^[38-41] "E" is the emerging result of the intervention, which in the case of the present study is changed perception towards work demands and experience, as well as reduced stress symptoms. Increasing evidence-based studies show the effectiveness of REBT-based interventions in reducing stress symptoms,^[2,39-41] subjective well-being and work ability.^[37]

In a randomized control trial, Ugwoke et al^[42] a rational emotive stress management intervention was efficacious in reducing job burnout and dysfunctional distress among special education teachers. Ogbuanya et al^[2] found rational emotive behaviour coaching to be effective in reducing occupational stress

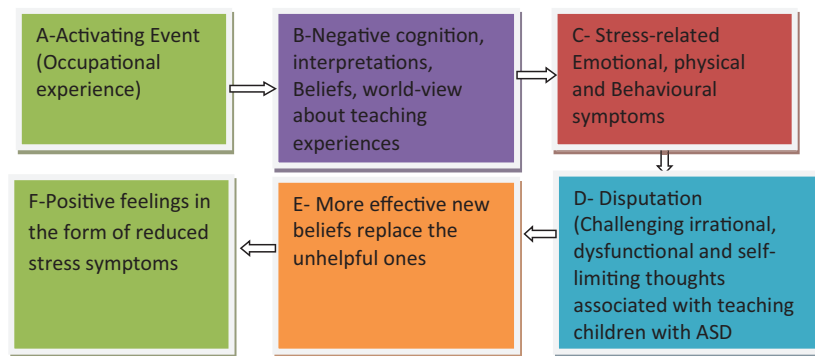


Figure 1. A conceptual Model of REOHC and Job-Stress. 'A' the activating event is the negative occupational experiences, such as children's problem behavior triggers 'B' which represents the irrational/negative beliefs and worldviews about teaching children with autism leading to 'C' the emotional physical and behavioural consequences such as stress symptoms; 'D' disputation using REOHC leads the clients to adopt more helpful beliefs 'E' which ultimately lead to positive feelings in the form of reduced stress symptoms 'F'.

and increasing work ability among electronics workshop instructors in Nigeria. In another study, Onuigbo et al^[41] used a twelve-week rational emotive behaviour therapy in managing stress and reducing irrational beliefs among special education teachers in Nigerian elementary schools. More recently, using repeated measure analysis, Onyishi et al^[37] sought to find out the efficacy of REOHC in management of police subjective well-being and work ability, which also proved the intervention efficacious. These positive results suggest that the REBT models are cost-effective and efficacious in managing job-related maladaptive reactions such as job stress.

However, no work, to the best of our knowledge, has utilized REBT in the form of occupational health coaching (REOHC) in stress management among teachers of children with ASD. Additionally, none of the studies using REBT frameworks for stress has measured stress in multidimensional perspectives of stress indices, perceptions and symptoms using different scales. Most of the previous works measured stress only in the form of perceptive outcomes.^[37-44] We utilized the REOHC model in managing stress as objective work demands, as subjective feelings in the form of perceived stress, and as somatic/physiological symptoms among teachers of children with ASD in Nigeria. The present study will extend research in this area by establishing the efficacy of REOHC on job stress, and by tracing which of the 3 dimensions of stress is amenable to REOHC intervention. It is therefore, hypothesized that by the end of the interventions, all dimensions of the occupational stress of teachers in the REOHC group will decrease significantly over those in the waitlist group, and the reduced stress would be sustained at the 3-month follow-up assessment. The current study necessitates the increasing full development of children with ASD in mainstream and special education schools, and the need for the stability of teachers for positive outcomes in the children. We used a group for REOHC intervention in helping teachers of children with ASD to manage job-related stress.

2. Material and methods

2.1. Design of the study

The current study adopted a group-randomized waitlist control trial design with pretest, post-test and follow-up assessments.^[45] This design guided the researchers to assess the effectiveness of an

intervention when introduced to real-life conditions. Subjects were randomized into immediate intervention and waitlist groups. The flow chart demonstrating the research methodology is shown in Figure 2.

2.2. Ethical consideration

Ethical approval to conduct this study was obtained from the Faculty of Education research committee, University of Nigeria, Nsukka, Nigeria (REC/ED/18/00021). The participants signed informed written consent forms prior to the commencement of the research. This study also complied with the research ethical standard as specified by the American Psychological Association^[46] and World Medical Association.^[47] Informed written consent was also obtained from the study participants. The study was registered with the American Economic Association registry for randomized Control Trial (AEAR-RCT) with ID number EARCTR-004672.

2.3. Measures

2.3.1. Demographic questionnaire. The demographic questionnaire was meant to obtain information about the demographic variables including gender, age, school type, and years of experience of the participants. The participants were instructed to tick the appropriate option applicable to him or her.

2.3.2. The single-item stress questionnaire (SISQ). This single-item measure of stress symptoms was used as 1 of the inclusion/exclusion criteria for the study. The instrument has consistently been found valid and reliable in stress research,^[48,49] showing Cronbach reliability indices ranging from 0,80 to 0,86. The instrument reads: "stress means a situation when a person feels tense, restless, nervous, anxious or unable to sleep at night because his or her mind is troubled all the time. Do you feel that kind of stress these days?" The SISQ uses a 5-point scale ranging from 1-"not at all" to 5-"very much". In this study, scores ranging from 1 to 2 indicate low stress; 3 indicate moderate stress; while 4 to 5 indicate a high stress level. The researchers found a Cronbach Alpha reliability index of 0,79 among 20 adult workers in Nigeria for SISQ.

2.3.3. Occupational stress index (OSI). The OSI developed by Srwastara and Singh^[50] is a 46-item scale that measures occupational stress. The scale has 12 subscales that measure

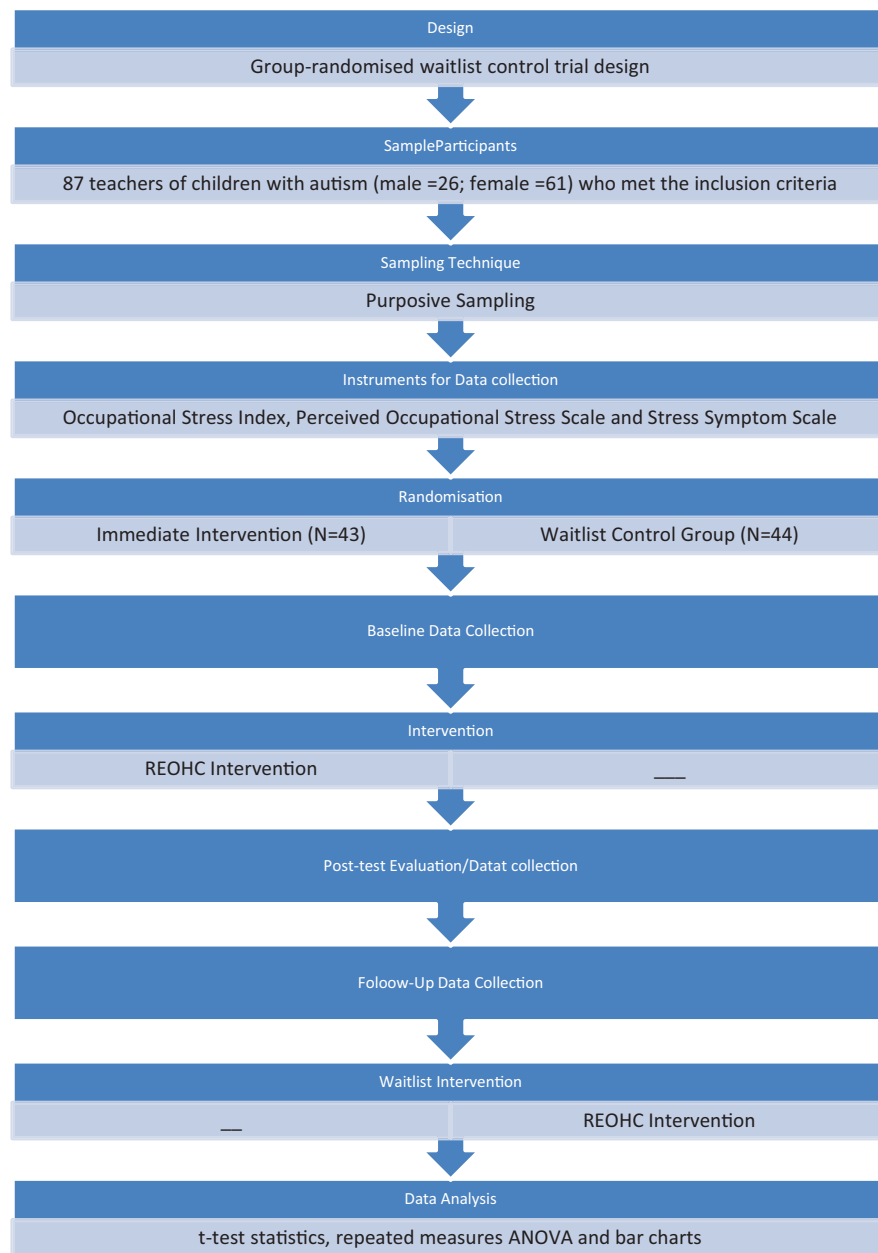


Figure 2. Flowchart showing Research Methodology. Design=Group-randomized waitlist control trial design; Participants=87 teachers of children with autism (male=26; female=61) who met the inclusion criteria. Sampling techniques=Purposive Sampling; Instrument for data collection=Occupational Stress Index, Perceived Occupational Stress Scale and Stress Symptom Scale; Randomizations=Immediate Intervention (N=43) and Waitlist Control Group (N=44); Baseline data collection=pretest; Intervention=REOHC Intervention; Post-test, follow-up; waitlist intervention=REOHC Intervention; Data analysis=t-test statistics, repeated measures ANOVA and bar charts. ANOVA = analysis of variance.

role overload (6 items), Role ambiguity (4 items), role conflict (5 items), unreasonable group and political pressure (4 items), responsibility for persons (3 items), under-participation (4 items), powerlessness (3 items), poor peer relations (4 items), intrinsic impoverishment (4 items), low status (3 items), strenuous working condition (4 items) and unprofitability (2 items). Suleman, Hussain, Shehzad, Syed, and Raja^[51] found a reliability coefficient of 0.937 and 0.90 for OSI, using a split-half (odd-even) strategy and Cronbach Alpha respectively. Furthermore, for the purpose of this, we found a reliability index of 0,91 for the scale in Nigeria using Cronbach Alpha. The scale is a 5-point Likert

scale: absolutely true (4), almost true (3), partially true (2), almost false (1) and absolutely false (0). The negatively worded items are asterisked and are scored inversely.

2.3.4. Perceived occupational stress scale (POSS). The POSS is a 14-item measure of life stress perceptions and associated subjective feelings, weighed on a 5-point rating scale scored as follows: 0=Never; 1=Almost never; 2=Sometimes; 3=Fairly often; 4=Very often; this excludes items 4, 5, 7 and 8 whose scores were reversed. The researchers adapted the items of POSS from a standardized Perceived Stress Scale (PSS) originally

developed by Cohen, Kamarck and Mermelstein.^[52] The researchers adapted the instrument by linking each item to occupational experiences. For example, item 1 which reads in the original PSS “How often have you been upset because of something that happened unexpectedly?” was adapted in the present POSS to “How often have you been upset because of something that happened unexpectedly in the course of doing your job?” Item number 2 was adapted from “How often have you felt that you were unable to control important things in life?” to read “How often have you felt that you were unable to control important things in your job?” Number 3 in the PSS reads “How often have you felt nervous and ”stressed“?” and in the POSS, it reads “How often have you felt nervous and ”stressed,“ because of issues arising from your job?” The highest score obtainable from the scale is 56 while the least score is 0. Cronbach Alpha gave a reliability estimate of 0,82.

2.3.5. Stress symptom scale (SSS). The SSS, developed by the researchers, is a 17-item scale meant to measure the experiences of stress symptoms. It measures the frequency of physical, emotional and behavioural stress symptoms including headache, tense muscles, neck and back pains, fatigue, anxiety, phobia, worry, irritability, insomnia, bouts of anger/hostility, boredom, depression, eating disorders, aggression, diarrhoea/constipation, and restlessness. The SSS is weighed on a 7-point scale ranging from Never (1) to Almost every day (7). In scoring the items, 1 = Never; 2 = Once a month; 3 = Once a week; 4 = Two to 3 times a week; 5 = Every night or day; 6 = Twice daily and 7 = Almost every day, for all the items. A total score of 119 is obtainable from the instrument showing the frequency with which the participants experience each of the symptoms. The scale was shown to be reliable (0,85) and valid using Cronbach Alpha. The more often each of the symptoms is experienced (that is the higher the score from SSS), the more likely stress is having a negative impact on the life of the participant.

2.4. Participants and procedure

A total sample of 87 teachers of children with autism male (n=26) and female (n=61) in South-East, Nigeria participated in the study. The power of the sample size was ascertained using *GPower* software, version 3.1. For more demographic information of the participants see Figure 2. Eligible participants were included based on inclusion criteria: i) the participant must score up to 3 to 5 in the Single-Item Measure of Stress Symptoms, showing moderate to a high stress level; ii) the teacher must have been employed in an autism school for not less than 2 years; iii) participant must possess personal smartphone with a functional email address and connected to WhatsApp; iv) participant is willing to submit personal contacts and phone numbers; v) teacher submitted a written consent that he/she will be available for a period of 2 hours a day in a week without disruption for the intensive intervention meetings.

In the first stage of the sampling (May 2018 - June 2018), the researchers visited all the public and private inclusive and Special Education schools in Enugu state, Nigeria to notify them of the intervention programme. The researchers explained REBT and the implied REOHC programme and how it can be beneficial to them in their work and well-being. During the initial visits, the researchers collected phone numbers of the prospective participants, which were used to remind them of the venue, date and time of the recruitment meeting. Based on this, a total of 96

teachers of CWA indicated interest and responded to the programme invitation.

The volunteers were screened for eligibility based on the eligibility criteria stated earlier. On that note, 7 volunteers were excluded based on not meeting the inclusion criteria; 2 declined participation.

Secondly, the 87 teachers who met all the inclusion criteria were randomly assigned to an intervention group (43 participants) and a waitlist control group (44 participants) (see Fig. 2) using sequence allocation software (participants were asked to pick 1 envelope containing pressure-sensitive paper labelled with either II-Immediate Intervention or waitlist group (WLG) from a container. Information about randomization was concealed from the participants until the intervention was assigned. The 87 participants were added to 2 WhatsApp chat groups (1 for II and the other for WLG) to ensure good communication about the stages of the intervention. All these were done by the researchers and the research assistants.

Thirdly, the researchers, with the help of 2 research assistants, administered a pretest, using the OSI, POSS, and SSS from both the immediate intervention group (IIG) and the WLG to ascertain the baseline (Time 1) data. Then, the waitlisted participants were told that they would start their own intervention programme 6 months later (after the follow-up test). The researchers and the participants in the IIG scheduled the commencement of the intervention.

In the fourth stage, participants in the IIG received REOHC intervention for a period of 12 weeks (3 months), that is, July to September 2018. During the 12 weeks, the intervention was held for 1 to 2-hour session every week, giving a total of 12 sessions. In order to ensure compliance from the participants, the researchers reinforced participants with a sum of 2 000 naira daily after each intervention exercise to cover their transport fees. Meals were distributed to the participants during break times. At the end of each session, a practice exercise was given to the participants. During the last session, the participants shared experiences and contacts.

In the fifth stage, post-test (Time 2) data were collected from both IIG and WLG using OSI, POSS and SSS. This took place 2 weeks after the last intervention session. Further, a follow-up meeting was scheduled for interaction and the collection of follow-up data (Time 3). The same instruments: OSI, POSS and SSS were used to collect follow-up (Time 3) data at 3 months after the post-test (Time 2) (December 2018) (see Fig. 2). All the data collection and intervention sessions were held in a school hall (University of Nigeria Education Lecture theatre).

Finally, immediately after the follow-up evaluation, the intervention programme commenced for the waitlisted group. This followed the same procedure used for the II group. The REOHC intervention was delivered and facilitated by the first author, together with 2 research assistants (1 expert in REOHC and 1 occupational therapist) who were both remunerated by the researchers. The researchers sent reminder messages via the WhatsApp platform to the participants a day before each scheduled time, and in the early morning hours on each meeting day to ensure participants’ active participation in the intervention sessions. Participants were expected to complete and submit questionnaires on the spot at each measurement (baseline, post-test, follow-up). Data collected from the II group at each evaluation were compared to that from the WLC group.

Figure 3 shows the demographic information of the participants in the IIG and WLG. A total of 10 (11,49%) male and 33

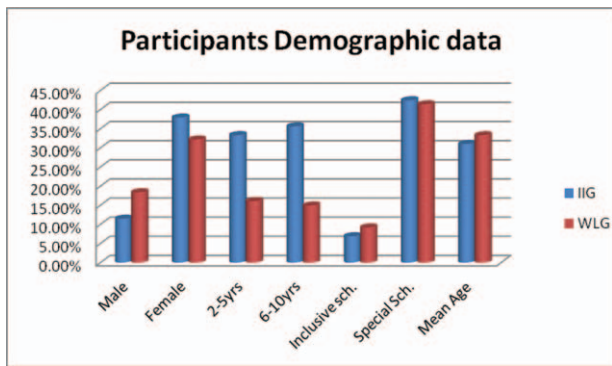


Figure 3. Description of the demographic distribution of the participants. IIG = Immediate Intervention group, WLG = waitlist-control group, sch = school.

(37,93) female participants were in the IIG while 16 (18,39%) males and 28 (32,18) females were in the control group. Altogether 29 (33,33%) and 14 (16,09%) of the participants in IIG and WLG respectively had 2 to 5 years' experience, while 31 (35,63%) and 13 (14,94%) are in IIG and WLG also had above 5 years of experience in teaching CWA. A total of 37 (42,45%) in IIG and 36 (41,39%) in WLG are teaching in special schools, while 6 (6,89%) in IIG and 8 (9,19%) in WLG are teaching in inclusive schools. The mean age of the participants was 31,02 years and 33,31 years respectively for IIG and WLG.

2.5. Intervention

The REOHC intervention programme in this study is a counselling intervention meant to counter teachers' irrational beliefs arising from their experiences of teaching CWA.^[2,53,54] The intervention manual was developed by the researchers using information from earlier studies.^[2,41-44] The manual contained the therapeutic strategies for assisting teachers to become their own coaches. Techniques involved are cognitive, affective, and emotive techniques, relaxation training, and cognitive skills training, which were helpful to the occupational health coaching intervention for reducing stress in teachers.

The ABCDE model (Activating event, Beliefs, Consequences, Disputing, and Effective new philosophy) was also followed to change dysfunctional and irrational beliefs associated with work experiences. The major aim of REOHC is to use REBT in "disputing" – challenging and questioning employees' work-related irrational and dysfunctional beliefs and replacing them with more sensible and functional beliefs.^[2,42-44]

We adopted the ABCDE model in explaining the relationships existing between activating (A) events associated with teaching children with ASD, dysfunctional thoughts, beliefs or cognitions arising from those events (B); the emotional and behavioural consequences of the beliefs (C).^[51,52] Based on the foregoing, an activating event (A) in the context of the present study could be a challenging situation associated with either teaching and handling behavioural problems of CWA, teachers' personal experiences, or work experiences; the belief (B) is the interpretation and cognitive imagery formed due to "A". Such cognition about the event (B) elicits a consequence/effect (C) for the teacher, which may be adaptive or maladaptive. Then, disputation techniques (D) are used to eliminate the maladaptive, dysfunctional and self-limiting beliefs and cognitions.^[51,52] Disputation

may involve challenging and comparing the maladaptive thoughts with more adaptive ones. According to Ellis^[34,36] the best way to counter irrational beliefs is by considering realistic and logical ones. Hence, as participants notice and counter their maladaptive beliefs, they come up with more effective world views (E) (See Fig. 1). This ABCDE model formed the basis of activities throughout the intervention (See Table 1).

2.6. Attrition and adherence

Out of the 96 potential participants who indicated interest to participate in the study, 7 (7,29%) did not meet the inclusion criteria while 2 (2,08%) declined to participate for reasons not disclosed. Therefore, 87 (90,63%) of all the potential participants were included in the study. All (100%) of the subjects who took part in the pretest complied through to the post-test evaluation. However, 1 (2,32%) of the IIG and 3 (6,81%) of the WLG were lost to follow-up assessment. As a result, their responses during pretest and post-test were identified through their pet names and dropped accordingly from analysis. Hence on the whole, there was a total of 13,54% (13 out of 96 potential participants) attrition and 86,45% (83 out of 96 potential participants) adherence to the study.

2.7. Data analysis

Independent sample *t*-test statistics were used to analyse the baseline data. A 2-way analysis of variance with repeated measures was used to establish the effects of REOHC intervention on baseline data, post-intervention, and follow-up data. Partial Eta square was used to report the effect size of the intervention on the dependent measures (OSI – OSI; POSS – POSS; and SSS).

Paired sample *t*-test was used to determine changes in participants' ratings between Time 1 and 2; and between Time 2 and 3 for each stress dimension. This was to evaluate the changes in study variables between consecutive testing times. A bar chart was used to show the difference in scores across time of measurement. The Statistical Package for Social Sciences version 18.0 was used for analyses and Microsoft Excel was used for bar chart diagrams. Results are presented in tables and charts.

3. Results

Table 2 revealed no significant difference in the mean OSI scores of the IIG and WLG at Time 1, ($t = -1,17$, $P = .14$), showing that participants in both IIG and WLG had equally high sources of job demands (IIG = 159.54 ± 10.05 ; WLG = 161.34 ± 11.55). No significant difference in the mean POSS ratings of IIG and WLG at baseline data ($t = -.75$, $P = .50$). Participants in both IIG and WLG did not vary significantly in their work stress perception. Both IIG (43.68 ± 9.05) and WLG (43.76 ± 8.65) perceived their job as highly stressful as measured by POSS. Furthermore, a non-significant difference in the mean stress symptom scores between IIG (87.65 ± 12.01) and WLG (87.76 ± 10.73) at baseline data ($t = -.91$, $P = .79$), indicated that both had a high level of stress symptoms.

Table 3 shows the repeated measures analysis of variance of the effect of the REOHC on participant post-test and follow-up ratings in occupational stress indices, perceived occupational stress and stress symptoms. The results revealed non-significant main effects of REOHC on occupational stress indices (OSI), at

Table 1

Summary of the rational-emotive occupational health therapy intervention program.

Duration	Phase/Session	Activities	Psychological mechanisms
Week1–2	Initial phase Pre-test; Introduction.	Familiarising with the participants. Setting confidentiality rules. Collection of baseline data on the stress of the participants. These enabled the researchers to establish a working atmosphere with the participants. Setting coaching goals by the coach and the participants; discussing the expectations of the intervention; discussion of the coach and coachees' responsibilities during coaching and basic rules of the rational-emotive occupational health coaching.	Assessments; problem formulation/ identification; goal setting
Week 3–4	Intermediate phase A-events; B-beliefs; C-consequences associated with teaching in autistic schools	Creating a problem list with regards to occupational health challenges that are inherent in teaching CWA, which increases stress. Identify unhelpful, self-defeating beliefs. The coach and the group members approached each the problems by explaining them using ABCDE model. The focus was on developing adaptive mechanisms to stressful personal experiences with teaching CWA. This was done by listing and encouraging rational beliefs and thoughts following negative experiences in teaching CWA. Coaching was also geared towards minimizing stress symptoms in the participants. Techniques described in the intervention program were strictly adhered to. Participants were given homework assignments after each session.	Disputation; homework tasks, discussion, Problem-solving. Rational coping statements; Unconditional self-acceptance
5–6	Treatment phase 2 (Disputation)	Weakening negative perception of stress associated with the occupation health of the participants'. Checking and discussing the completed homework assignment. The coach and the participants shared weekly experiences at the onset of each session. Further disputation of self-defeating assumptions associated with job-experiences and replacing them with helpful ones using the coaching modalities and techniques. Emphases were laid on developing rational self and others' beliefs; rational occupational health thoughts and practices in teaching, linking occupational stress with associated irrational beliefs. Leading the participant to find out how belief systems influence stress level and stress symptoms.	Consequence analysis; Disputation; homework tasks, discussion, cognitive-restructuring
7–8	Treatment Phase 3 (Disputation)	Homework assignments were given to the participants after each session. Further application of rational emotive occupational health coaching modalities and techniques to develop in the participants the skills to become their own self-coach in occupational stress affecting their well-being. Positive affect as regards their occupation was also explored. Discussing healthy practices and positive mindset approaches in and outside the classroom.	Guided imagery; rationalizing techniques; reframing; Relaxation- technique; hypnosis
9-10	Treatment phase 5 (Disputation, adopting effective beliefs and thoughts)	Coaching on other extra-curricular activities that could keep the participants healthy and effective in the workplace. Assignments were given at the end of each session Further helping the participant develop the skills for self-coaching and coaching others in the maintenance of psychological fitness for job demands and stress reduction. Towards developing problem-solving, rational thinking and occupational risk-management skills necessary for maintaining a healthy relationship with workplace.	Homework assignments; Unconditional self-acceptance; relaxation, decision making
11-12	Final Phase Building effective beliefs and thoughts	Encouraging the participant to highlight what they have gained from the coaching program and how they are going to apply them in the future. Discussing other related personal issues and experiences associated with managing stress and keeping healthy in the workplace and the gain associated. Evaluation of individual commitments during the program based on contribution to group discussions and completion of assignments. Conduction post-test measurement. Conducting the follow-up after 3 mo of post-test	Meditation; humor and irony; decision-making; conflict resolution
14th wk 3 mo	Post-test evaluation Follow-up assessment		Testing Testing

ABCDE = activating event, beliefs, consequences, disputation and effective world view.

Table 2
t-test analysis of the baseline data on participants' occupational stress indicators, perceived occupational stress and stress symptoms.

Group	Measure	N	$\bar{X} \pm SD$	Df	T	P	95%CI
Immediate intervention	OSI	43	159.54 ± 10.05	81	-1.17	.14	-1.67, 1.03
Waitlist group		44	161.34 ± 11.55				
Immediate intervention	POSS	43	43.68 ± 9.05	81	-.75	.50	-1.01, 0.97
Waitlist group		44	43.66 ± 8.65				
Immediate intervention	SSS	43	87.65 ± 12.01	81	-.91	.79	-1.33, 1.71
Waitlist control		44	87.76 ± 10.73				

\bar{X} = mean, CI = confidence interval, df = degree of freedom, OSI = occupational stress index, p = probability value, POSS = perceived occupational stress scale, SD = standard deviation, SSS = stress symptoms scale, t = t-test statistic.

Time 2 (post-treatment) evaluation. Compared to WLG (153,01 ± 12,15), the IIG (149,39 ± 10,43) had a lower mean score at Time 2, which was not significantly different, $F(1, 80) = 8,67$, $p = ,037$, partial eta squared ($\eta^2 = ,14$) as measured by OSI. There is a significant difference, $F(1, 80) = 42,83$, $p = ,000$, $\eta^2 = ,77$ in the mean rating of participants in IIG (21,11 ± 5,29) and WLG (42,97 ± 9,95) as measured by POSS. A significant difference, $F(1, 80) = 32,01$, $p = ,000$, $\eta^2 = ,72$ was also shown in the mean rating of participants in IIG (33,76 ± 8,87) and WLG (86,16 ± 15,61) as measured by SSS at post-test (Time 2). Thus, while participants' OSI rating scores (sources of stress) did not vary significantly across groups, the perception (POSS) and symptoms (SSS) ratings of the IIG reduced significantly, compared to WLG. This implies that when job demands are held constant, REOHC could reduce the negative perception of occupational stress and stress symptoms of the participants. Also, the minimal reduction in the OSI of the IIG over the WLG could be that the IIG gained some problem-solving skills necessary for managing some controllable contingencies in their work environments.

At follow-up (Time 3) OSI mean rating of the IIG (149,61 ± 11,14) was lower compared to the WLG (153,01 ± 12,15), however, the difference was not significant ($F(1, 80) = 9,01$, $p = ,021$, $\eta^2 = ,19$). A significant difference ($F(1, 80) = 42,83$, $p = ,000$, $\eta^2 = ,81$) in POSS ratings of the IIG (19,61 ± 6,87) and WLG (43,13 ± 10,87) was recorded. Also, a significant difference ($F(1, 80) = 31,26$, $p = ,000$, $\eta^2 = ,81$) was recorded in the mean SSS ratings of the IIG (29,65 ± 9,02) and WLG (88,05 ± 12,54).

Paired sample t-test was conducted to explore changes in the measures across pretest- post-test and post-test-follow-up scores. IIG recorded a significant decrease in POSS scores between

pretest (Time 1) and post-test (Time 2) ($t = 42,51$, $p = ,000$, confidence interval [CI] = 31,16, 57,31) and Time 2 and 3 (Follow-up) ($t = 27,66$, $p = ,003$, CI = 21,77, 32,61). The significant difference between Time 1 and Time 2 suggested that the perceived occupational stress in the participants reduced significantly after REOHC intervention. The significant decrease in the POSS Time 2 and Time 3 indicates that the effect of the REOHC was not only sustained but also continued to decrease with time, showing increasing mastery and use of strategies (See Fig. 4).

Considering the data from the SSS, there was also significant reduction across Time 1 and 2 ($t = 28,63$, $p = ,000$, CI = 17,18, 29,31), and Time 2 and 3 ($t = 18,44$, $P = ,003$, CI = 23,16, 42,33). In other words, participants' rating of their stress symptoms decreased significantly after the REOHC programme. This is indicative of the fact that REOHC was efficacious in reducing job stress. Further, the reduction in SSS across Time 2 and Time 3 showed that REOHC leads to a sustained minimizing effect on somatic symptoms of stress. Participants in REOHC continued to use REBT strategies after the intervention, which kept increasing their expertise in stress management (also see Fig. 4).

There was no significant change in OSI across Time 1 and 2 ($t = -13,21$, $P = ,071$, CI = -11,36, 30,76), and Time 2 and 3 ($t = 1,05$, $P = ,061$, CI = 21,01, 36,12). These showed that OSI did not respond significantly to REOHC treatment. This could be a result of the fact that some subscales of the OSI measure stress aspects that are not a very dynamic feature but remain the same across time in a given context. It is important to note that some of the subscales of OSI can change following intervention, but some

Table 3
Repeated Measure ANOVA of the Effectiveness of REOHC on Post-test and Follow-up Scores of Participants' OSI, POSS, and SSS.

Time	Measures	Intervention Group (n=42) \bar{X} , SD	Waitlist control Group (n=41) \bar{X} , SD	Df	F	P	95%CI	η^2
Time 2	OSI	149.39 ± 10.43	153.01 ± 12.15	1, 80	8.67	.037	5.05, 6.65	.14
Time 3		149.61 ± 11.14	157.87 ± 10.69	1, 80	9.01	.021	1.28, 2.09	.18
Time 2	POSS	21.11 ± 5.29	42.97 ± 9.95	1, 80	42.83	.001	43.01, 59.76	.77
Time 3		19.61 ± 6.87	43.13 ± 10.87	1, 80	61.27	.001	51.66, 73.55	.81
Time 2	SSS	33.76 ± 8.87	86.16 ± 15.61	1, 80	32.01	.001	30.11, 43.56	.72
Time 3		29.65 ± 9.02	88.05 ± 12.54	1, 80	31.26	.001	19.41, 40.11	.81

\bar{X} = mean, ANOVA = analysis of variance, CI = confidence interval, df = degree of freedom, F = analysis of variance test statistic, η^2 = partial Eta square (effect size), OSI = occupational stress index, p = probability value, POSS = perceived occupational stress scale, SD = standard deviation, SSS = stress symptoms scale.

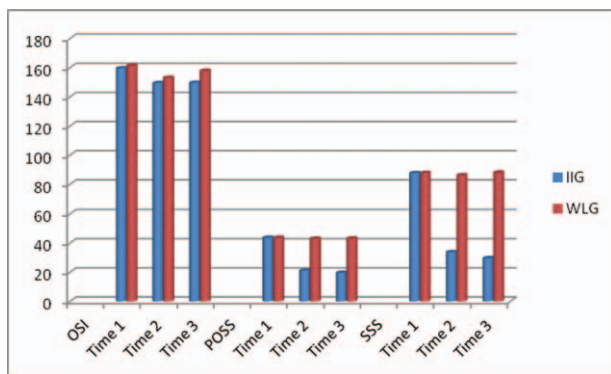


Figure 4. Bar chart showing OSI, POSS and SSS scores across Time 1, 2 and 3. IIG=immediate intervention group, OSI=occupational stress index, POSS =perceived occupational stress, SSS=stress symptom scale, WLG=waitlist control group. Data show that OSI did not vary significantly between the IIG and WLG in each measurement Time. POSS did not vary between the groups at Time 1, but varied significantly during Time 2 and 3. SSS did not vary significantly between IIG and WLG during the Time 1, but varied significantly during Time 2 and 3 evaluations.

cannot. This could have accounted for the minimal reduction in the OSI.

4. Discussion

The aim of the current study was to investigate the effectiveness of REOHC in reducing occupational stress among teachers of children with autism. Results showed that though IIG and WLG did not vary significantly in their OSI, POSS and SSS scores at baseline evaluation. REOHC led to a significant reduction in POSS and SSS of IIG at Time 2 (post-test), and Time 3 (follow-up) compared to the WCG. The OSI of IIG also reduced over the WCG, but the reduction did not cause a significant difference. This result could be due to the fact that some dimensions of the OSI are rather objective, not subjective, since they are conditions presented by work demands. They are mainly the “events” in REOHC theory, which are often constant. Further, REOHC alters the coaches’ self-defeating cognitions associated with the work experiences.

Findings of the present study are in line with those of an earlier empirical-based study by Ugwoke et al^[42] who found that rational emotive stress management intervention was effective in reducing job burnout and dysfunctional distress among special education teachers. The findings also support that of David et al^[54] who found that evidence-based training in cognitive behavioural coaching led to less distress and better performance. Onuigbo et al^[41] showed that rational emotive behavior therapy is valuable in helping to minimize stress and irrational beliefs of special education teachers in Nigerian elementary schools. This is indicative of the fact that applying REOHC is valuable in stress and distresses associated with teaching both children with ASD and those with and without disabilities.

Furthermore, our study indicated that reduction in perceived occupational stress and stress symptoms among the teacher-participants was strictly due to REOHC intervention, and not as a result of a change in the working environment. This finding agrees with previous studies that found that it is not the event on its own that causes emotional distress or stress symptoms, but the individual’s views, thoughts, and interpretations of the event that

generate the emotional and physiological effects associated with such event.^[52,55–59] Prior studies have shown that coaching interventions, which include REOHC, are effective in managing occupational stress.^[2,25]

Results of the current study further showed that REOHC led to non-significant reductions in OSI after intervention. Though the OSI score decreased after REOHC intervention (Time 2), the reduction did not account for a significant palpable decrease. This could be due to the fact that most of the OSI subscales measure contextualized factors that are uncontrollable to the participants. For instance, role overload, role ambiguity, role conflict, unreasonable group, and political pressure, responsibility for persons, under-participation, powerlessness, poor peer relations, intrinsic impoverishment, low status, strenuous working condition, and unprofitability may not be completely amenable to the participants. They constitute the “event” that are objective and stable.

Teachers who teach children with disabilities cannot work in pre-planned forms like those working with typically developing ones.^[15] Work ambiguity is more for those who teach children with autism, given the heterogeneity and dynamic nature of the disorder.^[12,13] On the other hand, being responsible for learners with autism could be highly distressing and could result in a stressful condition.^[12,13,15,16] However, such teachers can be coached to manage how they perceive those situations and the associated physical and psychological symptoms.

Consequently, even though working conditions (stressors) as measured by OSI may not change significantly, a teacher may change his/her perceptions about stressful experiences associated with handling children with autism, leading to reduced stress symptoms. This explains why POSS and SSS scores reduced significantly due to REOHC intervention, compared to OSI. Since coaches were equipped with personal resources for emotion regulation and stress management, they are now able to adopt healthier thoughts and emotions towards the stress-provoking events – OSI. REOHC helped the participants to develop self-evaluation strategies, necessary for understanding one’s own thoughts and dealing with them more positively. So, as the participants continue to apply REOHC skills, they tend to continue to acquire more expertise in stress management and how stressful they view their jobs.^[37,59,60] Thus, REOHC is successful in improving occupational stress management among school administrators.

The results of the study further indicated a significant reduction in stress symptoms’ (SSS) score of the IIG over the WLG at Time 2 and Time 3 assessments. This indicated that REOHC intervention accounted for a significant reduction in the stress symptoms of the IIG during Times 2 and 3 measurements, and not the Effect of Time. Hence, even when the job demands (OSI) did not change significantly, a positive change in the perception of stress (POSS) can lead to a reduction in physiological and psychological symptoms of job stress.^[46] This is well established in the REOHC philosophy, which works through countering negative thoughts, feelings, emotions associated with stressful/negative events (occupational environments) and replacing them with more functional and helpful ones.

Studies^[59] have shown that reducing workplace stress reduces both physiological and psychological stress symptoms such as headache, anxiety and musculoskeletal problems.^[2,39] As such, teachers’ effectiveness increases as stress reduces,^[5,6,26] leading to positive outcomes for both the teachers and the children with autism kept under their care.^[49,59–62] Furthermore, negative

thoughts and emotional stress reactions tend to reduce productivity and increase health challenges.^[21,59,61,-64] REOHC is a cost-effective venture towards school effectiveness since it is dependent on employees' well-being.^[39-42]

Though the present study found that REOHC reduces stress, the sample size of the study was small and could limit the generalizability of the study outcome. Further study may use a larger sample to validate the effectiveness of the package. The results of the present study suggest that REOHC could be used when perceived stress and stress symptoms are high. The package (REOHC) may also be tried in other populations of employees with chronic stress.

5. Conclusion

In summary, REOHC can be used to help teachers of children with ASD to cope with pathological job stress. REOHC significantly reduced the levels of perceived occupational stress and occupational stress symptoms in participants exposed to the treatment intervention over those who were waitlisted. In addition, the positive effect of REOHC persisted at follow-up periods, indicating sustained effect. Therefore, therapists, school psychologists and counsellors are encouraged to continue to validate the beneficial effects of REOHC on dimensions of occupational stress of teachers of autistic children in and outside Nigerian contexts. Given that REOHC is effective in stress management among teachers of children with autism, coaching practitioners (therapists and coaches) should consider stress management intervention needed for teachers of children with autism. Experts in school occupational health and behavioural coaching should adopt REOHC in handling teachers of special needs learners who have moderate and/or severe stress associated with their work.

Acknowledgments

All the researchers were involved in the inquiry and writing of this article. The first author coordinated the whole process of this research and also interpreted the data for this study. The researchers wish to thank the 2 specialists/research assistants, who assisted the authors in facilitating the intervention programme and data collection. Thanks to the participants who patiently and diligently worked with the researchers and their team until completion of the study. The researchers also express their profound gratitude to the statistician, who analysed the data gathered for this study.

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