Clinical Trial/Experimental Study

Medicine

OPEN

Raising the self-esteem and reducing irrational beliefs of schoolchildren

The moderating and main effect study

Moses Onyemaechi Ede, PhD[a,*], Chinedu Ifedi Okeke, PhD[a], Joy Obiageli Oneli, BEd[b]

Abstract

Background: Several systematic reviews and meta-analyses studies have called for moderators of treatment outcomes and their main effect with regard to disadvantaged populations. In view of that, this study investigated the impacts and moderators of rational emotive behavior therapy (REBT) on the self-esteem and irrational beliefs of Schoolchildren in Ebonyi State Nigeria.

Methods: A group randomized controlled design was utilized to assign 55 schoolchildren to the treatment group and 55 schoolchildren to waitlisted control group. Two self-report measures (Self-Esteem Scale and Children Adolescent Scale of Irrationality) were used to assess the participants. There were pretest, posttest, and follow-up tests given at different intervals to ascertain the baseline, main effect, and long-term effects of the treatment. The data collected were analyzed using a 2-way analysis of covariance statistic.

Results: The results of the 2-way analysis of covariance demonstrated a difference between participants in the waitlisted control group at the pretest, posttest, and follow-up test and a positive improvement in schoolchildren with illogical beliefs as a result of exposure to REBT intervention. It was discovered that the REBT intervention changed schoolchildren's self-esteem and irrational views into rational ones. A later test result supported the intervention's consistent and significant effects in lowering illogical beliefs and raising students' self-esteem. The results also showed that there is no connection between gender and group membership.

Conclusion: This study suggests that REBT is a significant treatment strategy that reduces irrational beliefs and improves the self-esteem of primary school children. Based on these outcomes, further studies should replicate the study in other cultures with such a disadvantaged group.

Abbreviation: REBT = rational emotive behavior therapy.

Keywords: irrational beliefs, moderators, REBT, schoolchildren, self-esteem

1. Introduction

Low self-esteem is the negative values an individual assigns to self, and these could be negative judgments of self.[1] Rosenberg[2] remarked that people with low global self-esteem are characterized by dissatisfaction and contempt for the self. Also, numerous psychological and behavioral consequences are found to be common among children with low self-esteem like an increased risk of experiencing bullying among their peers,[3] feelings of loneliness.[2] A similar study equally reported a more frequent lack of confidence, uncertainty, and experience of negative feelings and maladjustment than people with higher self-esteem.[1] An evidence-based study reported that above 34% of individuals with some behavioral characteristic experience social discrimination and 61.5% consider themselves inferior.[4] This indicates that children with low self-esteem suffer whole sorts of problems like poor communication, social isolation, frustration, withdrawal, loss of academic interest, being emotionally less expressive, and poor concentration. In line with that, Murad[5] remarked that these psycho-emotional and negative behaviors have led to many children with low self-esteem. According to American Psychological Association,[6] they argue that low self-esteem contributes to why students have doubts about what they can do successfully, influencing them to have challenge face or engage in school-related risks. Evidence from past studies indicates that how individual students react to certain issues related to social gathering often indicate that they have higher levels of poor self-esteem.[7–9] This suggests that people with poor self-esteem may blame others for situations that are not their fault.

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

The datasets generated during and/or analyzed during the current study are available from the corresponding author on reasonable request.

[a] Department of Education Foundations, Faculty of Education, University of the Free State, Bloemfontein, South Africa, [b] Teleo Network International School of Theology, Pastoral Ministry Grace Training International Bible Institute, Duluth, Gambia.

**Correspondence: Moses Onyemaechi Ede, Department of Education Foundations, Faculty of Education (e-mail: Edeh.mo@ufs.ac.za or onyemaechi.moses@gmail.com).*

How to cite this article: Onyemaechi Ede M, Okeke CI, Oneli JO. Raising the self-esteem and reducing irrational beliefs of schoolchildren: The moderating and main effect study. Medicine 2023;102:27(e34168).

Received: 29 May 2023 / Received in final form: 8 June 2023 / Accepted: 12 June 2023

http://dx.doi.org/10.1097/MD.0000000000034168

The prevalence of low self-esteem has been confirmed in past studies. For instance, in 2012, Johnson[10] reported 64% low self-esteem. A total of 24.6%, were reported among Australian school children.[11] A Nigerian report showed that low self-esteem was prevalent among the Nigerian young population.[12] A more recent data report indicated a 53% of the same population experience low self-esteem.[13] Given the prevalence, and how the schoolchildren perceive themselves, the possible psychological intervention that will be children-focused to treat those emotional and behavior-related disturbances are yet to be investigated in the Nigerian context. To date, there exists a paucity of empirical-based treatment that focused on addressing the low self-esteem among school children in Enugu state Nigeria.

Thus, the researchers argued that a children-focused psychological method, perhaps rooted in rational emotive behavior could be beneficial in addressing low esteem. Because low self-esteem issues can manifest as emotional issues like anxiety, depression, and humiliation. Rationale emotive behavioral therapy is an evidence-based therapy for extricating such automatic irrational thought and self-criticism, patterns of behavior that leads to low self-esteem. The psychologist posits that individual thought and behavior often result from an individual pattern of thinking. Every positive action of an individual is determined through a rational pattern.[14] Hence, rational emotive behavior therapy (REBT) aims at creating a new mindset, a different line of thought concerning the way an individual thinks and acts. In order words, being rational in thinking rather than being irrational. The findings of the previous studies indicated that a relationship exists between the 2 irrational beliefs and low self-esteem.[15,16] By indications, past evidence has remarked that irrational beliefs contribute to the rise of emotional-psychological disturbances in an individual's population.[14,17] This in essence indicates that individuals with irrational thoughts could be vulnerable to mental distortion that is, being irrational in thinking. Irrational belief could manifest in different forms like depression and anger,[18,19] anxiety,[16] and stress.[20–22] Beck provided rational techniques that could assist individual therapists to identify and encounter irrational beliefs that could predispose individuals to negative beliefs.[14,23] Meanwhile, results of previous studies have shown that irrational beliefs concerning a particular situation, thing, event, self, and future lead to unhealthy negative emotions hence, anger, depression, and low self-esteem are experienced.[9,19,24–26]

1.1. Relating Ellis' theory to low self-esteem beliefs

In view of the Ellis theory, low self-esteem is experienced once an individual negatively perceives a situation or event.[27] Also, the negative belief about low self-esteem could possibly occur in different forms like demandingness, awfulizing, catastrophizing, low frustration intolerance, self-downing, life-downing, and other-downing.[14,28] When poor self-esteem is a major factor in children's academic tasks, demandingness, and self-deprecating ideas are frequently manifested as harmful or unreasonable beliefs. They will be making unrealistic and rigid demands such as "I have to," "It should be like that," etc. Once this unhealthy perception of self develops, they begin to describe themselves as "because I disappointed someone, I am evil or "I'm not worthy to be human because people's judgement about is not positive. In terms of awfulizing, they tend to think that it is dangerous situation that he failed an academic task." "Therefore I cannot tolerate or withstand failure as a student (low self-tolerance)."

REBT theory believes that unconditional self-acceptance is synonymous with low self-esteem. When children have full "preferences," they are unconditionally accepting of themselves. They use it to demonstrate how they perceive themselves, others, and the world. Such perception could be erroneous or healthy. Those that harbor irrational beliefs, especially about self, will be vulnerable to negative social-emotional disturbances or healthy negative emotions. Past studies found a positive association between irrational beliefs and unconditional self-acceptance.[25]

The irrationality of low frustration partially mediated the inverse connection of how some think about self.[29] Equally, the same study showed that irrational beliefs were associated with unconditional self-acceptance even when self-esteem was controlled.[29] This is in line with the fundamental principles of REBT, according to which unfounded beliefs cause unhealthy emotions, dysfunctional behaviors, and psychological disturbances while unfounded beliefs can be challenged in order to foster more realistic and rational ways of thinking that lead to greater self-acceptance.[30] Low self-esteem is a result of erroneous beliefs.[31]

Like other REBT scholars, we employed rational emotional and behavioral procedures in disputing such irrational beliefs like self-pity, self-blame, and other pity that are responsible for psychological downing and hopelessness among the individual population with low self-esteem. Ellis[27] maintains that for the individual who experiences negative behavioral and emotional consequences more positive consequences will emerge once irrational thoughts and beliefs are desensitized and replaced with new thinking and beliefs in relation to psychological dismay among children.

1.2. Problems

Issues related to the deficiency in speech among young children, especially those in the early years of their education call for more commitment from researchers in the field of childhood development. This is seriously emphasized in a meta-analysis study by Zhang, Xu, and Joshi.[32] Randomized controlled studies are needed to examine the impact of psychological intervention over time.[32] Future studies should further explore underlying variables that moderate the impact of therapies.[32] Therefore, approaches and techniques involved in child-focused interventions become imperative. It is demeaning that despite the importance of childhood development, meta-analysis studies reported the worrisome limited studies on children's speech and self-esteem.[33] Additionally, the available randomized clinical studies did not report consistent results and because of the lack of randomized control and clinical studies, it becomes difficult to draw conclusions about the effect of the intervention.[34] A larger number of studies were conducted in developed countries. Different countries have different school systems, cultures, and social and financial support systems.[34] Some children with disabilities attend residential schools for the blind, others are enrolled in regular classrooms.[34] Meanwhile, the environment that a child grew up in and the variations influence the child's physical, and social self-esteem.[35] To the best of my knowledge and reviewed literature, no randomized controlled study is focused on the impacts and moderators of rational emotive behavior therapy (REBT) on the self-esteem of Schoolchildren in Ebonyi State Nigeria. Given the existing gaps, it is hypothesized that using rational behavioral and emotional techniques will increase the self-esteem of schoolchildren. The present researchers estimated that the improvement in self-esteem of participants in the treatment group will be significantly sustained at the follow-up stage of assessment compared to those in the control group. Additionally, it is hypothesized that the age and gender of the children and their socioeconomic status will significantly moderate the treatment outcomes. There will be a significant interaction effect of the group and gender.

2. Methods and materials

2.1. Ethical compliance and recruitment of participants

The Faculty of Education at the University of Nigeria, Nsukka's ethical committee gave approval to carry out this research

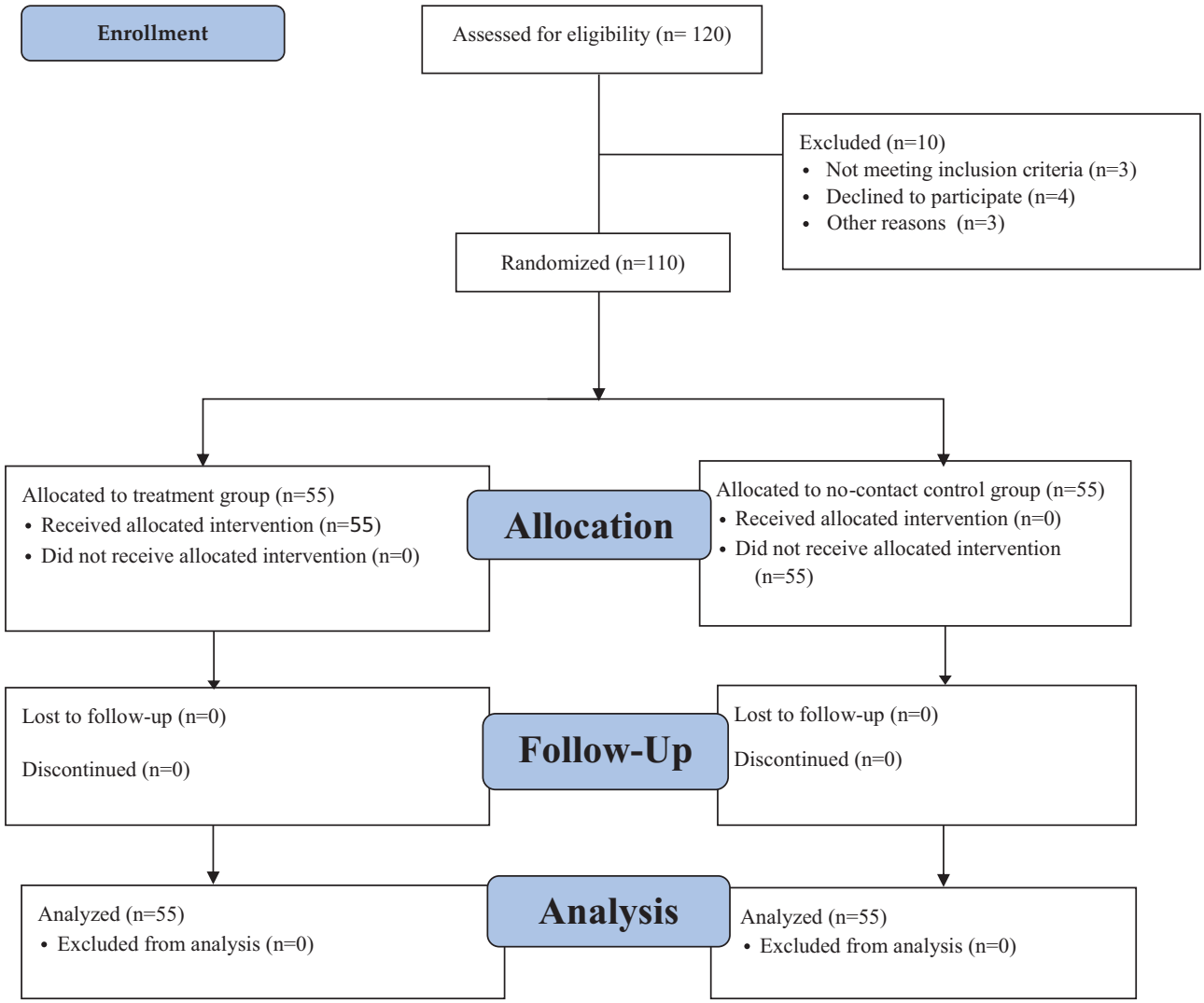

Figure 1. Self-esteem and irrational belief.

project. To comply with American Psychological Association[36] established ethical principles and standards, followed by the collection of informed consent from parents and school heads who gave their permission.

The participants consist of 110 schoolchildren with low self-esteem. During the selection process, there was a baseline assessment using measures of self-esteem and irrational beliefs as a criterion for admission into the study. Other inclusion criteria include: must be readily available for the study and must be schoolchildren in age range as stated in our demographic chart. Children who were taking an external exam or who were undergoing any sort of psychological treatment from a clinic were not allowed to participate in the study. When prospective participants did not make the study criteria, they were excluded from the study.

By keeping the assignment and/or allocation sequence hidden from the study participants and research assistants, sufficient care was taken to ensure that selection bias was eliminated throughout participant recruitment and randomization. With the help of research assistants, the researchers equally reduced the risk of potential bias by applying the blinded method of recruitment. This was facilitated by concealing the information about the cutout cards used to separate those that would be in the treatment and control groups. A simple random allocation sequence using random allocation software was utilized.[37]

Of all 55 schoolchildren in treatment, 25 (45.5%) were males 30 (54.5%) were females. Of the 55 schoolchildren in the control group, 30 (54.5%) were males and 25 (45.5%) were females. Regarding the age of the schoolchildren in the treatment group, 28 (50.9%) people were below 10 years, and 27 (49.1%) people were 10 years and above. On the other hand, that is the control group, 47 (85.5%) people were below 10 years, and 8 (14.5%) people were 10 years and above. In terms of the participant's parental income, 17 (30.9%) schoolchildren were from low-income families, 20 (36.4%) were from moderate-income families, and 18 (32.7%) were from high-income families in the treatment group. However, 23 (41.8%) schoolchildren were from low-income families, 18 (32.7%) were from moderate-income families, and 14 (25.5%) were from high-income families in the treatment group. See Figure 1 for additional details. The power of the sample size was determined using GPower 3.1 software[38] which indicated that participants were roughly adequate.

2.2. Design

The study adopted a pretest-posttest randomized control group design.

2.3. Area of the study

The study site was Ebonyi State Nigeria. Ebonyi State is located in the country's Eastern region in the south. The majority of the

inhabitants are Igbo. Abakaliki is the country's largest and capital city. One of the 6 states established by the Abacha administration in 1996. Ebonyi was formed from portions of both Abia and Enugu States.

2.4. Intervention

A rational emotive behavioral therapeutic manual[39] was redesigned for this study to help schoolchildren with low self-esteem acquire rational emotive behavioral skills and techniques to address and manage their mental health, emotions, and behavior-related problems. Low self-esteem REBT manual is a psychoeducational program remarked to be effective in dealing with various levels of individual psychological and behavioral-related problems commonly found among children. The copies of the manual were modified by therapists and psychotherapists. The manual was designed to cover 12 weeks of 12 session program that lasted for 1hrs of each therapeutic session. Precisely, each therapeutic session was conducted with different thematic activities as follows: behavioral exercises, work for a longer time, and relaxation techniques.

2.5. Therapist

The professionals that implemented the intervention were 3 therapists (two females and 1 male therapist), with an average age of 42 to 57 years, with sound knowledge of counseling psychology. The experts are PhD holders with sound training in REBT.

2.6. The integrity of the intervention

The researchers employed the services of 2 external observers. The aim of employing them is to ensure that the objective of the treatment manual is optimally achieved. The following duties were placed upon them: make sure the study team's treatment goals are achieved; safeguard the integrity of the process by carefully observing the therapists' commitment and, where necessary, challenge the techniques they use. This is done in order to preserve complete compliance with all provisions of the manual and to prevent errors and overlaps. The treatment integrity report sheet and the treatment monitoring report sheet were the 2 distinct sheets provided to the observers for recording their observations. The purpose of the treatment integrity report sheet is to document the activities of the trainees, whereas the treatment monitoring report was created to evaluate the therapists' implementation processes. Due to the record sheet's inclusion of the estimated number of sessions, each participant will attend as well as a timetable for each session, the observers were able to accurately note the degree of engagement of both the therapists and participants.

2.7. Measures

Self-Esteem Scale: The self-esteem scale is a 10-item instrument developed by Rosenberg.[2] The items were prepared to measure global self-worth by measuring both positive and negative feelings about the self. The responses to each item are given on a 4-point Likert scale, with the options being strongly agreed to strongly disagree. Items 2, 5, 6, and 8 are scored in reverse. Give "Strongly Disagree" 1 point, "Disagree" 2, "Agree" 3, and "Strongly Agree" 4. Total the results for all 10 things. Maintain a continuous scale for scores. Higher scores correspond to greater self-esteem. In this study, the internal consistency for this measure was 0.84 Alpha. The reliability of the instrument[2] has been justified across cultures. For instance, according to past studies, the internal consistency was high in the UK,[40] 0.77 to 0.88 was reported in New York, Cronbach a = .80.[3]

Children Adolescent Scale of Irrationality is a 28-item instrument developed by Bernard.[41] The instrument aim at validating Albert Ellis theory of REBT as applied to childhood irrational thought. The instrument is subscaled into 4 namely, self-downing (8 items), intolerance of frustrating rules (7 items), intolerance of work frustration (8 items), and demands fairness (5 items). The items are rated on a 5 points Likert scale of strongly disagree to strongly agree. In this study, the items were reversed and rearranged with the score as follows; Strongly Agree (5 points), Agree (4 points), Not Sure (3 points), Disagree (2 points), and Strongly Disagree (1 point). In this study, the higher scores indicate higher self-esteem. Thus, the internal consistency of the instrument in this study was 0.84 Alpha. The reliability of Children Adolescent Scale of Irrationality has been validated across studies[42] and Romanian.[43]

3. Study procedure

Before the commencement of this study, the researchers employed research assistants who surveyed 5 special schools in Ebonyi State, Nigeria where the study was carried out. They were mandated to officially inform and secured the permission and cooperation of the school principals and also to identify the eligible participants. They equally made the core objectives of the study and what the children would benefit from if they fully participate and the ripple effect on schoolchildren, both in social and academic life and the school system in general known to them. The school principals visited and requested that form teachers should give the researchers all the necessary assistance that could be helpful to us to achieve the maximum objective of the study. A total of 121 schoolchildren orally declared interest in the study. Thus, a pretest was conducted on the participants to acquire the baseline data before the REBT program was given. Thus, 119 schoolchildren were identified with low self-esteem and high irrational beliefs. Out of 121, 9 participants were excluded. Because 3 children did not meet inclusion criteria, 4 children declined to participate, and 3 were based on other reasons. The eligible participants were randomized to the treatment and control groups. Fifty-five participants were assigned to the treatment group and fifty-five participants to the control group respectively.

After the treatment program, a posttest was administered to all the participants in the REBT and control groups. Equally, the research assistants conducted a follow-up test after 3 months which led to the third assessment. During each assessment, the questionnaires were distributed and retrieved on the spot from the participants to avoid missing them. Also, accurate time consciousness and management, disputation and restructuring, cognitive alliance, reframing, problem-solving skills, and reinforcement among others were the techniques adopted during the program. There were practice exercises for the participants at the end of each session beginning from session 2 which we often reviewed before the commencement of the next session. Below is the breakdown of the sessions and topics addressed during the implementation of the REBT program:

Session 1 = Introductions, the establishment of rules and regulations, the objective of the program, and motivation of the participant for activities and discussions.

Session 2 = Meaning, concept, and issues related to self-esteem.

Session 3 = Fact versus opinion; How people can incur negative self-worth themselves and negatively interpret their failure.

Sessions 4 & 5 = Development of irrational thought, emotional and behavioral consequences of irrational thought regarding low self-worth.

Sessions 6 and 7 = Teach students how to adapt to reality (accepting setbacks and limitations, striking a balance between the needs of the unconscious and those of reality), as well as how to develop a new worldview.

Sessions 8, 9, and 10 = Engaging in active discussion and practices on how to dispute irrational thoughts, and irrational beliefs, and also replace the irrational thought and beliefs with rational thoughts and beliefs (REBT lessons and practice).

Session 11 = Teaching sustainable positive self-worth skills and reinforcing rational thought-based behaviors.

Session 12 = Termination.

During the implementation of the intervention, these rational emotive techniques were applied, thus, relapse prevention, disputation techniques, reinforcement, motivational enhancement, cognitive alliance, cognitive restructuring, etc.

4. Data analysis

Using IBM SPSS, version 28, research data from 3 assessment levels were collected. A 2-way analysis of covariance was specifically used as a data analysis method. The intervention's effect size was reported using partial eta squared.

5. Results

Table 1 reveals the positive change in schoolchildren with irrational beliefs due to exposition to REBT intervention and the difference in those in the waitlisted control group at the pretest, posttest, and later test. An assessment after the intervention shows that the REBT intervention changed the irrational beliefs to rational ones in schoolchildren, $F(1, 109) = 582.526$, $P < .001$, $\eta_p^2 = 0.846$, $\Delta R^2 = 0.842$. To ascertain if the significant change was sustained, a later test result shows a consistent and significant impact of REBT intervention in reducing irrational beliefs in schoolchildren, $F(1, 109) = 918.005$, $P < .001$, $\eta_p^2 = 0.896$, $\Delta R^2 = 0.894$.

The outcome demonstrates that, at posttest, there is no interaction between groups and gender (F (1109) = 0.239, $P = .626$, $\eta_p^2 = 0.002$). In the second assessment for irrational and rational beliefs, the impact size of the REBT treatment was 0.001. This value suggests that REBT therapy had an impact on how irrational and rational schoolchildren could think about self-esteem.

Table 2 reveals an improvement in schoolchildren's self-esteem accounted to REBT intervention and unlike those in the comparison group at the posttest and later tests. An assessment conducted after the intervention shows that the REBT intervention improved the self-esteem of schoolchildren, $F(1, 109) = 436.323$, $P < .001$, $\eta_p^2 = 0.805$, $\Delta R^2 = 0.799$. Two months after the posttest, a later test was conducted and the result shows a consistent and significant impact of REBT intervention in improving the self-esteem of schoolchildren, $F(1, 109) = 600.072$, $P < .001$, $\eta_p^2 = 0.850$, $\Delta R^2 = 0.846$.

In terms of moderating factors, the results show that gender is a significant moderator on the impact of the treatment as measured at posttest, $F(1109) = 5.193$, $P = .025$, $\eta_p^2 = 0.057$. However, the age of the schoolchildren and socioeconomic status do not have a significant moderation on the impacts of the treatment as measured at posttest, $F(1109) = .331$, $P = .566$, $\eta_p^2 = 0.003$, and $F(1109) = 1.233$, $P = .296$, $\eta_p^2 = 0.025$.

The outcome demonstrates that, at posttest, there is no interaction between groups and gender, $F(1109) = 0.006$, $P = .936$, $\eta_p^2 = 0.001$. In the second assessment for self-esteem, the effect size of the REBT treatment was 0.001. This value suggests that REBT therapy had an impact on how rational schoolchildren managed their self-esteem.

6. Discussion

The core objective of this study is to investigate the impact of rational emotive behavioral therapy in improving the self-esteem of schoolchildren in Enugu State, Nigeria. The results of this study showed a positive change in schoolchildren with irrational beliefs due to exposition to REBT intervention and the difference in those in the waitlisted control group at the pretest, posttest, and later test. It was found that the REBT intervention changed the self-esteem and irrational beliefs to rational ones in schoolchildren. A later test result confirmed a consistent and significant impact of REBT intervention in reducing irrational

Table 1

Analysis of covariance (multivariate) for the effect of REBT on CASI.

Measures	Time	Group	Gender	Mean (SD)	*F*	*P*	η_p^2	ΔR^2
CAS								
	Pretest	Treatment		122.82 (4.89)	.139	.710	.001	.006
		Control		122.38 (4.10)				
	Posttest	Treatment		102.07 (4.96)	582.526	<.001	.846	.842
		Control		122.463.89)				
	Later test	Treatment		97.76 (4.66)	918.005	<.001	.896	.894
		Control		122.29 (3.84)				
	Pretest	Treatment			2.395	.125	.022	
		Control						
Gender	Posttest	Treatment			2.673	.105	.025	
		Control						
	Later test	Treatment			2.322	.131	.021	
		Control						
	Pretest	Treatment	Male	121.63 (5.44)	.975	.326	.009	
			Female	123.81 (4.23)				
		Control	Male	122.16 (3.51)				
			Female	122.64 (4.79)				
Groups gender	Posttest	Treatment	Male	101.09 (4.72)	.239	.626	.002	
			Female	102.89 (5.09)				
		Control	Male	122.02 (3.41)				
			Female	123.01 (4.41)				
	Later test	Treatment	Male	96.69 (4.81)	.810	.370	.008	
			Female	98.65 (4.42)				
		Control	Male	122.06 (2.92)				
			Female	122.57 (4.76)				

CASI = Children Adolescent Scale of Irrationality, SD = standard deviation, REBT = rational emotive behavior therapy.

Table 2

Analysis of covariance (multivariate) for the effect of REBT on self-esteem.

Measures	Time	Group	Gender	Mean (SD)	*F*	*P*	η_p^2	ΔR^2
CAS								
	Pretest	Treatment		32.00 (1.42)	31.119	<.001	.227	.214
		Control		33.40 (1.26)				
	Posttest	Treatment		27.22 (1.87)	436.323	<.001	.805	.799
		Control		33.65 (1.39)				
	Later test	Treatment		26.13 (1.95)	600.072	<.001	.850	.846
		Control		33.81 (1.33)				
	Pretest	Treatment			2.272	.135	.021	
		Control						
Gender	Posttest	Treatment			5.193	.025	.047	
		Control						
	Later test	Treatment			2.271	.135	.021	
		Control						
	Pretest	Treatment			.037	.848	.000	
		Control						
Age	Posttest	Treatment			.331	.566	.003	
		Control						
	Later test	Treatment			.668	.416	.007	
		Control						
	Pretest	Treatment			.290	.749	.006	
		Control						
SES	Posttest	Treatment			1.233	.296	.025	
		Control						
	Later test	Treatment			.053	.948	.001	
		Control						
	Pretest	Treatment	Male	31.89 (1.58)	.481	.490	.005	
			Female	32.10 (1.29)				
		Control	Male	33.14 (1.09)				
			Female	33.70 (1.41)				
Groups gender	Posttest	Treatment	Male	26.82 (1.63)	.006	.936	.000	
			Female	27.55 (2.02)				
		Control	Male	33.34 (1.30)				
			Female	34.02 (1.42)				
	Later test	Treatment	Male	26.14 (1.99)	2.459	.120	.023	
			Female	26.12 (1.96)				
		Control	Male	33.37 (1.12)				
			Female	34.34 (1.38)				

SD = standard deviation, REBT = rational emotive behavior therapy, SES = Self-Esteem Scale.

beliefs to improve the self-esteem of schoolchildren. The outcome also demonstrated that there is no interaction between groups and gender.

The results of this study are consistent with other research on the effectiveness of REBT. For instance, Ugwuanyi et al[14] found a positive treatment outcome in individuals with depressive symptoms. Hence, the effectiveness of therapeutic relevance in increasing higher levels of adaptation, and adjustment and increasing school children and early adolescent mental healthiness like ours is recognized.

The findings of this study equally align with past studies like Ede, Okeke, and Chukwu,[44] Tracy and Robins,[45] and Murad,[5] which reported that individuals with low self-esteem could likely consider themselves inferior, blame others for their failures rather than taking responsibility for their own actions and suffer poor communication, social isolation, frustration, withdrawal, loss of academic interest, emotionally less expressive, poor concentration and lack of enthusiasm to make positive and well meaningful contributions. Similarly, the result of our findings showed that REBT significantly decreased the cause-effect of low self-esteem among the populations subjected to therapy, and a higher level of adaptation, adjustment, and increased mental healthiness was achieved as compared to those in the control group.

The effectiveness is not surprising as rational emotive behavioral techniques are targeted to alter irrational beliefs. It is the same irrational beliefs that account for negative self-esteem.[46–48] Empirical evidence-based studies have demonstrated that poor self-esteem affecting people could be managed using psychoeducational techniques.[49–52] The overwhelming progress recorded in increasing the mental health of the population with low self-esteem was attributed to psychological treatment due to cognitive errors that were reduced.[14,50] The finding of this present study was consistent with the past studies,[14,51] that the presence of irrational beliefs could lead to the development of poor mental health. Hence, low self-esteemed life induced by core beliefs among adolescents could also lead to unhealthy thinking and self-defeating behaviors that result in decreased mental health and symptomatology. These unhealthy thoughts began especially when people feel that they are not good enough, bringing about increased negative self-talk and self-esteem among children.[52] Improvements in respondents' self-esteem within each therapy were consistently correlated with changes in the previously linked beliefs, but only occasionally with changes in the unrelated beliefs.[53] Given the findings of this study, we suggest the need to explore the efficacy of REBT among other population that is experiencing psychological trauma. The techniques adopted were modifications and identification of maladaptive social skills like modeling, bibliotherapy, behavioral rehearsal, relapse prevention, positive self-statement, behavioral contingencies, etc.

In terms of moderating factors, the results show that gender is a significant moderator on the impact of the treatment. However, the age of the schoolchildren and the socioeconomic status of their parents do not have a significant moderation on the impacts of the treatment. A systematic review and meta-analysis study by Finegan et al[54] found that of all the studies, twelve

of these studies reported a close association between socioeconomic status and mental health outcomes. This is obviously contrary to the finding of the current study. The reason for the variations could be the cultural context of the studies. Possibly, the age of the participants varies, and this factor could influence the attitudes of the participants. This study tested the socioeconomic status of the parent of the schoolchildren and those twelve studies used adults who were making income directly. However, the current finding agreed with other systematic reviews and meta-analyses, and empirical studies that socioeconomic status does not significantly moderate treatment outcomes.[54–56] The likelihood of a positive treatment response was 30% for those in the lower-income group and increased to 70% for those in the higher-income group.[51] implying that the effectiveness of CBT may vary with age, with older patients benefiting more from treatment. However, it is important to note that there is no indication that CBT has any tangible disadvantages, regardless of age.[51]

For age, a study revealed age had some statistical evidence for effect modification.[57] This shows that one can sufficiently conclude that REBT has a moderation effect for age as the past study and present one are not in baseline severity was not robust and was in the opposite direction. Cognitive-behavioral therapy had a positive effect on increasing the career attitude maturity and self-esteem of nursing students in Korea.[58] The results showed that REBT principles increased the self-esteem and resilience of students.[59] The conclusion of this study is that there is a significant influence of providing cognitive therapy self-esteem in patients with low self-esteem.[60] The results showed that REBT counseling was able to increase self-esteem.[61]

7. Conclusion

This study investigated the effects of REBT in improving the self-esteem of school children, we concluded that the hypothesis posed for this study was achieved. Hence, REBT as a non-clinical therapy is of benefit to different groups of people like mental health providers, school counselors, and therapists. To this, we remarked that REBT is effective in challenging unhealthy emotions capable of inducing low self-esteem and increases the mental health of individuals especially school children with low self-esteem.

8. Implications for practice

As earlier remarked, school children experience difficulties in their social relationships, especially with their peers, like bullying, withdrawal, and low self-esteem. The situation has not only subjected them to psychological ordeal but also led them to experience social dilemmas like low levels of adaptation and pitiable adjustment to life. Thus, an action-based moderating rational emotive behavioral therapy was implemented by the researchers for the purpose of altering an erroneous and irrational belief affecting both the psychological and social well-being of school children with low self-esteem. Therefore, REBT could be useful to practitioners like school counselors, psychotherapists, etc. with the alliance of the aforementioned teams, they could serve as referrals and consultants in addressing the fundamental issues related to erroneous beliefs and behaviors like withdrawal, social anxiety, and low self-esteem as well as other mental-related problems affecting students' well-being. The study recommends action-based therapy as the most valuable instrument in decreasing the cause effects of mental unhealthiness like low self-esteem among schoolchildren. In view of this, it is suggested that future researchers on REBT could further reexamine the consequences of low self-esteem of schoolchildren in southeastern Nigeria.

9. Limitations of the study

Despite the fact that the hypotheses of the current study were validated among the population with low self-esteem, some limitations were observed and recorded like excluding some participants from receiving the REBT treatment package, the study recorded more number of female than male, the study adopted quantitative measures for evaluation, neglecting qualitative assessments. Hence, other measures were suggested like observation, interviews, and focus group discussions are used to provide qualitative data that would help to strengthen the quantitative measures. Finally, insecurity challenges and the high cost of transportation could as well be counted as a weakness of this study uncounted. Hence, we recommend that future researchers should ensure that issues related to security and transportation fairs be properly arranged and planned for.

Author contributions

Conceptualization: Moses Onyemaechi Ede, Chinedu Ifedi Okeke.
Data curation: Moses Onyemaechi Ede, Chinedu Ifedi Okeke.
Formal analysis: Moses Onyemaechi Ede.
Funding acquisition: Moses Onyemaechi Ede, Chinedu Ifedi Okeke, Joy Obiageli Oneli.
Investigation: Moses Onyemaechi Ede, Chinedu Ifedi Okeke.
Methodology: Moses Onyemaechi Ede, Chinedu Ifedi Okeke.
Project administration: Moses Onyemaechi Ede, Chinedu Ifedi Okeke.
Resources: Moses Onyemaechi Ede, Chinedu Ifedi Okeke, Joy Obiageli Oneli.
Software: Moses Onyemaechi Ede, Chinedu Ifedi Okeke, Joy Obiageli Oneli.
Supervision: Moses Onyemaechi Ede, Chinedu Ifedi Okeke, Joy Obiageli Oneli.
Validation: Moses Onyemaechi Ede, Chinedu Ifedi Okeke, Joy Obiageli Oneli.
Visualization: Moses Onyemaechi Ede, Chinedu Ifedi Okeke, Joy Obiageli Oneli.
Writing – original draft: Moses Onyemaechi Ede, Chinedu Ifedi Okeke.
Writing – review & editing: Moses Onyemaechi Ede, Chinedu Ifedi Okeke, Joy Obiageli Oneli.

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