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Cognitive restructuring as a panacea for maladaptive behaviors among primary school children

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ABSTRACT

This study investigated the efficacy of cognitive restructuring as a panacea for maladaptive behaviors among primary school children in Calabar Municipal, Cross River State, Nigeria. The study was a quasi-experimental study using a pre-test-post-test experimental design. Data were collected from pupils in primary four. Data was collected over twelve weeks. The mean and standard deviation of the pre-and post-test scores were calculated and analysis of covariance (ANCOVA) was used to determine the differences in the two scores. There were 39 students recruited for the study. The study found that maladaptive behaviors such as aggression and disobedience were pervasive among primary school pupils in Calabar. Notably, the findings indicated that cognitive restructuring had a statistically significant impact on reducing aggressive behavior, though its influence on disobedient behavior was not as pronounced. The paper concluded that cognitive restructuring is an effective intervention strategy for addressing maladaptive behaviors among primary school pupils. The intervention achieved its intended goal of improving children's behavior and provided a framework for more sustainable behavior management strategies.

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1. INTRODUCTION

Primary schools serve as the fundamental educational institutions in Nigeria, overseeing the learning of children aged 6 and 12 [1] and serve as the bedrock for higher education pursuits [2]. Over the years, there has been an increase in maladaptive behaviors exhibited in our primary schools. Society expects children to behave well, grow into leaders, and have high moral standards [3]. Incompatibilities between students' behavioral patterns and the standards and values of the school and society, as unsatisfactory interactions and activities, are therefore considered indicators of maladjustment behavior in the classroom [4]. Maladaptive behaviors in the classroom affect schooling in Nigeria and many other countries as they disrupt instruction and learning and are a precursor to later school dropout and other detrimental social outcomes [5].

Students in primary schools in Nigeria are prone to various maladaptive behaviors [6] such as cheating on exams, rudeness, disobedience, drug abuse, bullying, truancy, damage to school property, poor academic performance, breaking school rules, aggressiveness, absenteeism from school without a valid reason, dropping out of school at will, late resumption at the start of a school term [4]. Aggression and disobedience are two negative classroom behaviors that seem prevalent among schoolchildren in Nigeria [7]. Aggressive behavior includes physically violent behaviors such as kicking, hitting, scratching, spitting, throwing objects, pinching, biting, pulling hair, or strangling [8], [9]. Aggressive behaviors exhibited during

the teaching and learning process disrupt the lesson plan because teachers will have to stop teaching and address the problems that result from the students' aggressive behavior [10]. In addition, violent behavior can cause injuries to classmates, instructors, other school personnel, and family members. These injuries cause high expenses for the family and the school [8]. Childhood aggressive disruptive behaviors are one of the most common reasons for referrals to outpatient mental health services [11].

Disobedience is another act of maladaptive behavior. It is the act of refusing to follow rules, laws, or other authority [12]. When experienced in the classroom, it hinders effective interactions and the attainment of learning objectives for the child. Disobedient children frequently have outbursts of rage or aggression [13]. In addition, other learners can adopt disobedient behaviors through vicarious learning if not handled properly. The common forms of disobedient in primary schools include avoiding tasks, engaging in constant conversation with peers, verbally abusing teachers and peers, showing no interest in studying during class, breaking school property, and arriving late, truancy, stealing, bullying, fighting, and disobeying [14], [15].

Having a class of kids who are recalcitrant and unruly could be a teacher's worst nightmare, as the management and discipline of the classroom are one of the most difficult jobs for educators [9], as classroom teachers have to transform such behaviors to achieve daily learning objectives and goals [16]. Teachers and school administrators in Nigeria often try to deal with aggressive and disobedient behaviors through punishment despite their inefficiency [17]. In addition, there are connections between physical punishment and aggressive conduct now and in the future especially when disobedience and aggressive behaviors are attention-seeking behaviors [17]. Furthermore, aggressive behavior has been linked to birth order [18]. Adler opined that an individual's personality is affected by the birth order of other siblings, whether he is the first child, middle child, or last child [19]. Several studies [20], [21] have suggested an association between birth order and aggression.

Therapeutic methods are more effective at changing the maladaptive behavior of teenagers [8]. One therapeutic approach is cognitive restructuring. Cognitive restructuring is a psychological intervention that seeks to change an individual's behavior, thinking, and feelings by restructuring the individual's thought process, and most effective when used during childhood [20], [22]. It improves social-emotional development [23], [24] by teaching new techniques for perceiving, comprehending, and controlling emotions, thoughts, and behavioral patterns for everyday life [25]. It involves thought-stopping, relaxation therapy, self-reinforcement, urge control, reciprocal inhibition, response deprivation, and acquiring problem-solving skills [11], [26]. It strengthens their coping mechanisms and replaces distorted and non-functional cognitions with more realistic ones [27].

Although there are programs and interventions targeted at reducing aggressive behavior in correction facilities and secondary schools in Nigeria by using cognitive restructuring to curb disruptive and maladaptive behaviors [6], [23], [28]–[32], there is a lack of information in the literature about the effectiveness of its use in primary schools. This study contributed to addressing the identified gap in the literature. It aims to address the manipulative behavior of children in primary school early in the developmental and formative years of the child [15], [23]. The study aimed to assess the interaction effect of cognitive restructuring and birth order on the two maladaptive behaviors among primary school pupils in Nigeria. The study will test these hypotheses: i) Cognitive restructuring significantly reduces aggressive behaviors in primary school children; ii) Cognitive restructuring in combination with birth order has a significant interactive effect on aggressive behaviors in primary school children; iii) Cognitive restructuring significantly reduces disobedient behaviors in primary school children; and iv) Cognitive restructuring and higher birth order significantly decrease disobedient behaviors in primary school children.

2. METHOD

The study was a quasi-experimental that adopted the pre-test-post-test control group experimental design to assess the causal relationship between cognitive restructuring and aggressive and disobedient behavior. The target population was primary four school pupils in Calabar municipal. Those included were pupils with high pre-test scores for aggression and disobedience and those with a low score were excluded. Orpina and Frankoswki created the aggression scale used [33]. The sample consisted of 39 students chosen based on their pre-test results. A pre-test using an 18-item instrument, an adaptation of the aggression scale was administered to the pupils to identify aggressive and disobedient pupils [33]. The aggressive scale was validated for use among adolescents [34]. A total of 10 items were found reliable with a Cronbach's coefficient of .72. An interview of the teachers teaching the classes used for the study was carried out two months post-completion.

The instrument used by Ineme *et al*. [34] was also used in the current study to measure the changes in aggression and disobedient behavior after the 12-week intervention for both the control and experimental groups. Pupils were asked to state how often they engaged in the listed behaviors within two weeks before administering the pre and post-tests. The instrument measures the frequency of self reported aggressive and

disobedient behaviors. The pre-test was administered to primary four pupils before the experimental manipulation. After the intervention, a post-test was administered to determine how the outcome variables had changed (aggressive and disobedient behaviors) to determine the effect of the intervention.

The cognitive restructuring treatment sessions were based on the principles of Cognitive Behavioral Therapy propounded by Beck in the 1970s. The treatment was delivered to the experimental group (16 selected pupils) over 12 weeks with one session per week lasting about 45 minutes to identify and reframe aggressive and disobedient thoughts and behaviors. Sessions one to four focused on building rapport, assessing aggression, identifying the antecedents and consequences of aggressive behaviors, and learning strategies for recognizing and regulating anger expression and processing techniques. Sessions five to eight addressed anger control training, relaxation techniques/grounding exercises, communication skills/friendship facilitation skills, and conflict resolution skills. Sessions nine to twelve focused on problem-solving skills, identifying antecedents and consequences of disobedience, teaching the value of respect and revision, and evaluation done by the researchers. The control group was met thrice during the pre-test and post-test, and a session was held with them on assertiveness and negotiation skills after administering the post-test.

The data was analyzed using the analysis of covariance test statistics (ANCOVA). The pre-test scores were used as the covariates to control for the initial differences in aggression and disobedience levels between the control and experimental groups. An analysis was done on the main effects of the intervention (experimental group) on post-test aggression and disobedience scores while accounting for the pre-test scores. A major limitation of the study is the small sample size nevertheless, it aligns with the guidelines provided by Bujang *et al*. [35] who emphasized that a smaller required sample size is typically sufficient for any experimental studies because these studies are typically very well-planned and will usually guarantee that all potential confounding factors have been appropriately controlled during the design stage.

Ethical approval for the study was obtained from the University of Calabar Research Ethical Review Board, Directorate of Research and Development (UC/DR&D/RERB/56). The school management also approved and gave consent for the study to be conducted. The participants' confidentiality was protected and they were not exposed to any harm.

3. RESULTS

Table 1 indicates that the mean scores obtained by the subjects as regards aggressive behavior in the post-test ranged from 21.25 by subjects who were neither firstborn nor lastborn in the experimental group to 34.00 obtained by firstborn in the experimental group. In contrast, their standard deviations ranged from 4.17, obtained by those who were neither firstborn nor lastborn in the experimental group, to 9.97, obtained by those who were lastborn in the experimental group. On the other hand, for disobedient behavior, the mean scores obtained by the subjects ranged from 9.50, obtained by those who were neither firstborn nor lastborn in the experimental group, to 11.80, obtained by those who were lastborn in the control group. In contrast, their standard deviations ranged from 1.48, obtained by those who were lastborn in the experimental group, to 2.98, obtained by those whose birth order is neither first nor last in the experimental group.

Table 1. General description of research variables based on birth order

Group	Birth order	N	Aggressive behavior		Disobedient behavior	
			Mean	SD	Mean	SD
Experimental group	Firstborn	3	34.00	6.93	11.33	1.53
	Others	8	21.25	4.17	9.50	2.98
	Lastborn	5	28.40	9.97	11.20	1.48
	Total	16	25.88	8.23	10.38	2.42
Control group	Firstborn	5	30.60	5.41	11.60	2.19
	Others	13	32.23	4.32	10.62	1.66
	Lastborn	5	31.60	5.51	11.80	2.78
	Total	23	31.74	4.63	11.09	2.02
Total	Firstborn	8	31.88	5.79	11.50	1.85
	Others	21	28.05	6.87	10.19	2.25
	Lastborn	10	30.00	7.78	11.50	2.12
	Total	39	29.33	6.91	10.79	2.19

3.1. Analysis of the effect of cognitive restructuring on aggressive behavior

Table 2 summarizes the effect of cognitive restructuring on aggressive behaviors among primary school children in Calabar Municipality. The results revealed that after adjustment for the covariate, the $F(_{1,38})$ indicated the main effect of treatment on aggressive behaviors among primary school children was 8.762 with a p-value of .005. The results showed a significant main effect of cognitive restructuring on

aggressive behaviors among primary school children in Calabar Municipality since the p-value was less than .05 levels. This result reveals that cognitive restructuring significantly affected aggressive behaviors among primary school children in Calabar Municipality. Also, the adjusted R squared value is .160. suggests that different treatments and pretests can account for about 16.0% of the variation in the dependent variable (aggressive behaviors).

Table 2. Analysis of covariance results of the effect of cognitive restructuring on aggressive behaviors

Source	Type III sum of squares	Df	Mean square	F-ratio	p-value
Corrected model	370.253[a]	2	185.127	4.620*	.016
Intercept	324.713	1	324.713	8.104*	.007
Pretest	45.771	1	45.771	1.142	.292
Group	351.049	1	351.049	8.762*	.005
Error	1,442.413	36	40.067		
Total	35,370.000	39			
Corrected total	1812.667	38			

R Squared=.204 (adjusted R squared=.160)

3.2. Analysis of the interaction effect of cognitive restructuring and birth order on aggressive behavior

The results in Table 3 summarize the interaction effect of cognitive restructuring and birth order on aggressive behaviors among primary school children in Calabar Municipality. The results revealed that after adjustment for the covariate, the $F_{(2,38)}$ indicated the interaction effect of cognitive restructuring and birth order on aggressive behaviors among primary school children was 6.557 with a p-value of .004. The results showed a significant interaction effect of cognitive restructuring and birth order on aggressive behaviors among primary school children in Calabar Municipality since the p-value was less than .05 levels. Also, the adjusted R-squared value is .383. Different treatments and pretests can account for about 38.3% of the variation in the dependent variable (aggressive behaviors).

Table 3. Analysis of covariance results of the interaction effect of cognitive restructuring and birth order on aggressive behaviors

Source	Type III sum of squares	Df	Mean square	F-ratio	p-value
Corrected model	871.151[a]	6	145.192	4.935*	.001
Intercept	167.428	1	167.428	5.690*	.023
Pretest	135.892	1	135.892	4.619*	.039
Group	115.141	1	115.141	3.913*	.057
Birth order	225.577	2	112.789	3.833*	.032
Group*birth order	385.827	2	192.913	6.557*	.004
Error	941.515	32	29.422		
Total	35370.000	39			
Corrected total	1812.667	38			

R Squared=.481 (adjusted R squared=.383)

3.3. Analysis of the effect of cognitive restructuring on disobedient behavior

Table 4 shows the effect of cognitive restructuring on disobedient behaviors among primary school children in Calabar Municipality. The results revealed that after adjustment for the covariate, the $F_{(1,38)}$ indicated the main effect of treatment on disobedient behaviors among primary school children was .198 with a p-value of .659. The results showed no significant main effect of cognitive restructuring on disobedient behaviors among primary school children since the p-value was greater than .05 levels. Therefore, the study retained the null hypothesis. Also, the adjusted R squared value is .079. Different treatments and pretests can account for about 7.9% of the variation in the dependent variable (disobedient behaviors).

Table 4. Analysis of covariance results for the effect of cognitive restructuring on disobedient behaviors

Source	Type III sum of squares	Df	Mean square	F-ratio	p-value
Corrected model	23.318[a]	2	11.659	2.639	.085
Intercept	88.125	1	88.125	19.948*	.000
Pretest	18.535	1	18.535	4.195*	.048
Group	.876	1	.876	.198	.659
Error	159.041	36	4.418		
Total	4727.000	39			
Corrected total	182.359	38			

R Squared=.128 (adjusted R squared=.079)

3.4. Analysis of the interaction effect of cognitive restructuring and birth order on disobedient behavior

Table 5 summarizes the interaction effect of cognitive restructuring and birth order on disobedient behaviors among primary school children in Calabar Municipality. The results revealed that after adjustment for the covariate, the $F_{(2,38)}$ indicated the interaction effect of cognitive restructuring and birth order on aggressive disobedient among the primary school children was .167 with a p-value of .847. The results showed no significant interaction effect of cognitive restructuring and birth order on disobedient behaviors among primary school children since the p-value was greater than .05 levels. Therefore, the study retained the null hypothesis. Also, the adjusted R squared value is .067. Different treatments and pretests can account for about 6.7% of the variation in the dependent variable (disobedient behaviors).

Table 5. Analysis of covariance results for the interaction effect of cognitive restructuring and birth order on disobedient behaviors

Source	Type III sum of squares	Df	Mean square	F-ratio	p-value
Corrected model	39.048[a]	6	6.508	1.453	.226
Intercept	76.528	1	76.528	17.088*	.000
Pretest	15.232	1	15.232	3.401	.074
Group	.714	1	.714	.159	.692
Birth order	13.529	2	6.765	1.510	.236
Group*birth order	1.497	2	.749	.167	.847
Error	143.311	32	4.478		
Total	4,727.000	39			
Corrected total	182.359	38			

R Squared=.214 (adjusted R squared=.067)

3.5. Teachers post observation report

Reports from interviews conducted with the class teachers of the pupils two months post completion of the study revealed a decline in the aggressive behaviors of some pupils who were particularly very aggressive and usually expressed so much anger. Noise making, class fighting, and lousiness have also declined. Some pupils who participated in the study were now more careful handling the school's property. Improvement in social interaction among the pupils was also reported.

4. DISCUSSION

The study sought to test the effect of cognitive restructuring on aggressive and disobedient behavior and the interaction effect of cognitive restructuring and birth order on aggressive and disobedient behavior among primary school children in Calabar Municipal, Cross River State, Nigeria. Results of the investigation showed that cognitive restructuring significantly affected aggressive behavior. However, the intervention did not have a therapeutic impact on disobedience. This finding was due to the twelve-week intervention program using cognitive restructuring therapy to enable the students to unlearn aggressive behaviors and adopt positive life-enhancing behaviors and positive coping strategies in the face of provocation.

The exposure of the primary school children through the 12-week intervention brought about a change in their aggressive behaviors. This confirms the study [24], which reported that the eight-week exposure to cognitive restructuring and behavioral rehearsal was credited with their success in treating conduct disorder in teenagers. They attributed this to the laid-back, encouraging, and informal environment, which fostered mutual trust and respect between the mentors and the mentees. Other study [27] found that the participants most benefited from cognitive restructuring (understanding that thoughts can alter emotions and behavior) and learning coping strategies (acquiring new behaviors that can be used in place of bullying).

The result consistent with a previous study [28], whose showed that, compared to the control group, those who received cognitive restructuring treatment for bullying behavior benefited more. The cognitive restructuring technique effectively improved positive behavior among students by reducing the bullying behavior of secondary school students. They attributed this to the treatment that changed the students' thought patterns and underlying beliefs. The treatment helped them become more realistic thinkers by helping them recognize and challenge their negative self-perceptions. The findings also confirm previous study [36], which reported that following the cognitive-behavioral therapy intervention; there was a decrease in the physical and verbal aggression scores of 13- to 17-year-old high school boys and girls. Research by Gökkaya and Sütcü [27] observed that the control group, which did not receive any intervention, did not see a statistically significant decline in bullying scores. Put another way, the program for cognitive behavioral therapy intervention reduced bullying behavior as predicted [27]. The study’s results also corroborate the previous findings [32] which reported a decline in conduct disorder among secondary school-aged teenagers,

attributing it to the receptivity of students with conduct disorders to treatment intervention strategies involving learning activities. Omotunde *et al*. [32] adopted a design and treatment similar to the current study; similar results were therefore expected.

Unlike previous studies in Nigeria [9], [24], [28], [31], which focused solely on cognitive restructuring as a behavior modification, this research incorporates birth order and cognitive restructuring, providing a distinct and all-encompassing viewpoint on behavior modification within the complex framework of family dynamics. Birth order affects personality traits and behaviors and is a crucial factor in family dynamics. It is well accepted that learning and psychological development are significantly and permanently impacted by birth order [37]. The high mean scores on aggressive and disobedient behavior by firstborns and lastborn compared to others disagree with findings by Abdulmalik *et al.* [38] who reported a very high tendency of delinquency by the first two children. The study's results also revealed an interaction effect of cognitive restructuring and birth order on aggressive behavior. This finding is important as birth order has been recognized as influencing the development of delinquency in children as pointed out in the study by Abdulmalik *et al.* [38]. The result of the study on birth order and aggressiveness is in line with the findings of Rohrer *et al*. [19], who reported a difference in aggression in terms of the birth order of students. They reported differences in early maladaptive schemas in first, second, and last-born children, attributing it to the children's birth order, their role, their perception of their position, and the adult interaction in their lives, which are crucial to the development of psychopathology and other illnesses. A similar study [20] also found that birth order influences aggression in adolescents with lastborn being more aggressive than firstborns.

Results also showed that cognitive restructuring did not significantly affect disobedient behavior. This result is consistent with Ukwueze [39] whose study also did not demonstrate evidence of a significant treatment effect on several outcome measures, including the strengths and difficulties questionnaire (SDQ), students' attitude toward aggression (ATAQ), and the social cognition and attribution scale (SCAS). Hypothesis four also revealed that there was no interaction effect of birth order and cognitive restructuring on disobedient behaviors. It should be noted that most of the studies reviewed in this work focused on secondary school students and not primary school pupils; this might be the reason for the difference in results. Several students were significantly older than the other experimental group members but were in the same class and could not be exempted from partaking in the pre-test. These students were eventually selected for the study based on their pre-test scores. This outlier's presence might have also modified the study's results. The post completion findings, which revealed a decline in aggression among the pupils in the experimental group were also consistent with Gökkaya and Sütcü [27] who reported that according to monitoring data, the experimental group's reduction in bullying-related cognitions was maintained after four months of the study.

A study has yet to be done in Cross River State using cognitive restructuring as a panacea for maladaptive behaviors among primary school children. This study becomes significant since early childhood experiences can affect children in their later lives. As noted by Oparaduru and Ukwueze [1], nearly all of a child's experiences occur at this age, combined with developmental and attention-seeking challenges that must be effectively addressed, thereby emphasizing the need for this study's focus on primary school children. In advocating the use of cognitive restructuring, previous research [39] opined that to change a client's behavior, the cognitive strategy of counseling works on the client's conscience and irrational behaviors. Convincing students through didactic teaching to replace illogical concepts and see reasons for adopting new ways of responding to acceptable behaviors includes refocusing present forces to favor change.

5. CONCLUSION

The findings of the study suggest that cognitive restructuring is an effective intervention strategy for addressing maladaptive behaviors among primary school pupils. The intervention achieved its intended goal of improving children's behavior and provided a framework for more sustainable behavior management strategies. It is recommended that cognitive restructuring should be incorporated into the school curriculum to curb maladaptive behaviors such as aggression. This technique should include teaching relevant skills that will reduce aggression, such as conflict resolution, negotiation, assertiveness, and constructive coping strategies for dealing with provocation.

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