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RESEARCH ARTICLE

THE EFFICACY OF COGNITIVE BEHAVIOR THERAPY ON OPPOSITIONAL DEFIANT DISORDER AMONG CHILDREN IN SELECTED PRIMARY SCHOOLS IN NAIROBI COUNTY, KENYA

^{1,*} Susan Chang'orok, ²Philemon Yugi, ¹Winnie Waiyaki, and ¹Alice Munene

¹Department of Psychology and Counseling, Daystar University, Nairobi, Kenya

²Department of Development Studies, Daystar University Nairobi, Kenya

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ABSTRACT

The rise in defiance cases among children in schools in Kenya calls for the need for proper diagnosis and effective intervention. This is because of the effect it has on the child's social functioning and academic performance as well as the economic impact it has on their families. The main purpose for this study was to evaluate the efficacy of cognitive behavior therapy (CBT) among children with oppositional defiant disorder (ODD) in selected primary Schools in Nairobi County, Kenya. Two primary schools were purposely selected in Nairobi, Kenya. 315 participants between 9-14 years provided assent and their parents provided the consent. The teachers and the parents completed the CADBI tool. Out of 249 participants who met the criteria for ODD, systematic sampling was applied to acquire the required sample size of 180. The experimental group received CBT intervention for three months, while the control group did not receive any intervention. Data collected was analyzed using SPSS version, Descriptive statistics was done, Statistical analysis was conducted using IBM SPSS version 23. Microsoft Excel was used in processing statistical output as well as construction of data tables and graphs. Spearman's correlation analysis, chi-square analysis for association between ODD and ADHD with risk factors was done. T test was done to compare the responses between baseline, midline and endline of the study and show the difference in deference (DID). The key findings of the study were that overall ODD prevalence was 79%, with males having a higher prevalence than female towards the adults and peers 78.2% and 88.5% female 74.6% and 85.3% respectively. The comorbid condition associated with ODD was ADHD 78.3% and 47.8% teachers and parents respectively. Risk factors associated with ODD were; low social-economic status, conflicts with parents, punishment, suspension from school, not going for counseling, friends and religion. Cronbach alpha of the CADBI tool showed reliability at ($\alpha = .918$ to .890) for both teachers and parents. DID showed significance difference between baseline and midline and between baseline and end line respectively ($p < 0.001$). Since CBT was effective in the reduction of ODD symptoms in children psychologist should use this intervention in primary school and also in the hospital setting so as to prevent the children from developing other serious problems in adulthood such as antisocial personality disorder depression and anxiety. Medication should also be used in the treatment of ADHD since it presents as a comorbid condition.

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INTRODUCTION

This main purpose of this study was to evaluate the efficacy of cognitive behavior therapy (CBT) among children with oppositional defiant disorder (ODD) in selected primary Schools in Nairobi County, Kenya. According to Vanden Bos (2007), ODD is a childhood behavior disorder characterized by recurrent disobedient, negativistic, or hostile behavior toward authority figures than usually seen in children of similar age. It manifests as temper tantrums, active defiance of rules, dawdling, argumentativeness, stubbornness, or being easily annoyed.

*Corresponding author: Susan Chang'orok,

Department of Psychology and Counseling, Daystar University, Nairobi, Kenya

In a study by Major (2013), children with ODD are the consistently causing trouble. Their opposition to authority is often more than what would be considered normal for children of their age. For example, children with ODD would throw temper tantrums more often and with less provocation than children without ODD (Major, 2013). In Kenya, children and youths constitute a large percentage of the population. However, their mental health care has received scanty attention in the provision of mental health services; research and training (Khasakhala, 2012). Any child may display disruptive behavior to some degree at specific times or in certain settings as part of its normal development. However, when such behaviors exceed the range of normal variation for the child's

age group in terms of frequency, pervasiveness, severity and interference with the child's ability to function adaptively, it becomes a clinically significant or a social problem (Frauenglass and Routh, 1999). A child with ODD has trouble following rules and meeting expectations of authority figures hence home and school can become battle grounds (Lehmann, 2009). According to the researcher, such children are likely to be labeled as naughty and would be the most punished both in school and home. From the researcher's perspective, misunderstandings will arise in some families because a lot of time, money, and energy will be spent to take care of the child and family members are likely to blame each other. As a result of this, the family might feel desperate since many of its members might not understand what ODD is all about hence early interventions may not be sought. Accordingly, Lehmann (2009) reported that children with ODD have problems regarding socially making and keeping friends because they often argue and get easily irritated. Therefore those children need caring adults to help them and their families deal with their challenges so that they can have success in their academic, social, and emotional situations in middle school. There seem to be two pathways with which ODD develops, first there is the early onset pathway in which as reported by Fraser and Wray (2008), the behaviors develop before preschool and may continue into adolescence. These children may display a greater range of oppositional behaviors across a range of settings. Without intervention the outlook for many of these children is not good and they may develop conduct problems in adolescence or an antisocial personality disorder in adulthood

Secondly, Fraser and Wray (2008) reported that there is the late starter pathway in which there appears little oppositional behavior during early childhood but the behaviors become more observable during adolescence. This stage of onset is often associated with family stresses such as unemployment or divorce, which may cause disruption in the family management practices and monitoring of the child's activities. The young person may develop these behaviors through increased and unsupervised involvement with an inappropriate peer group. The prognosis for this group is generally more positive as usually they have developed a higher level of social skills and better relationships with their peers and parents in earlier childhood. Early behavioral problems had been cited as one of the strongest predictors of later problems, including psychological difficulties, involvement in crime and antisocial behavior. Children who exhibit particularly high levels of externalizing behavior problems early in their lives are at high risk for intensifying to lying, bullying and fighting in middle childhood, and more serious behaviors such as cruelty to animals, vandalism and aggressive criminal behaviors in adolescence (Hann, Borek, 2001). (Ralph, Sanders, 2003) therefore emphasized a focus on the early primary school years to prevent the development of persistent disruptive behavior. Mordre, Groholt, Kjelsberg, Sandstad and Myhre (2011) maintained that the immediacy of ODD is further emphasized by the recent increases in rates of ODD and CD. This increase can be best seen in the rising rates of juvenile crime which closely correlates with CD and sometimes become precursor of ODD (Mordre *et al.*, 2011). Similarly, another study carried out in a community sample in Norway by Munkvold, Lundervold, and Manger (2011) concluded that ODD cannot be diagnosed in the presence of CD. Because of this classification rule, ODD and CD are often combined in empirical studies, or ODD is excluded altogether.

Consequently, ODD has rarely been studied as an independent disorder. This is also supported by a study carried out by Ercan, Kandulu, Uslu, Ardic, Yazici, Basay,...Rohde, (2013) which contended that little data is available on the prevalence of ODD. One of the reasons for this is the fact that numerous studies implemented the evaluation of ODD together with CD under a category known as conduct problems (CP). This situation has its roots in a usual tendency to view ODD under the umbrella of CD (Ercan *et al.*, (2013). Serra-Pinheiro, Schmitz, Mattos and Souza, (2004) seemed to share the same view with the above cited Ercan *et al.*, (2013) by observing that this grouping might be leading to an overrepresentation of etiological factors, prognostic implications, and therapeutic effects for ADHD and CD in the understanding of ODD. The researcher agrees with the above authors since most of the literature reviewed so far has looked at ODD with CD together.

Greene, Biederman, Zerwas, Monuteaux, Goring, Stephen, Faraone (2002) reported that despite its clinical relevance, surprisingly little is known about oppositional defiant disorder. This may be due, in part, to a tendency to view oppositional defiant disorder simply as a variant of conduct disorder. Indeed, most studies on disruptive behavior disorders have combined children with oppositional defiant disorder and conduct disorder into a single generic category, often called "conduct problems". It has been argued that this practice has contributed to obscured findings and conclusions that are difficult to interpret. According to the researcher therefore there is need to study ODD as an independent diagnosis in order to give appropriate treatment. It was also mentioned that children with severe aggression and conduct problems which do not improve during the preschool period are at increased risk for developing violent behaviors, other mental health problems, schooldropout, chemical dependency during adolescence and occupational difficulties, marital and family problems and criminal offending as adults (Bloomquist and Schnell, 2002). Thus, such problems in childhood should be considered as a potential public health problem indicating a need for increased knowledge about how they should be managed and effective interventions should be carried out. Muthoni and Karume further stated that the developmental course of ODD may take many forms and may deteriorate into conflicts and hostility as the individual grows older and that it may also progress into conduct disorder which in turn may develop into antisocial personality disorder in adulthood. Matthys and Lochman (2014) agreed that if this disorder is not treated, its symptoms will last until adulthood and turn into the symptoms of CD; Individuals with this disorder are prone to drug abuse and to committing crimes during their adolescence and adulthood, hence imposing a heavy cost on the society. Therefore, early identification of these children and the provision of appropriate intervening programs to prevent individual and social damages would be very effective. The child's condition may affect the families general functioning. Lehmann recommended that further research should be carried out to document what may be most helpful in removing barriers to success and hence help children with ODD to have more success. Kelsberg and Leilani (2006) pointed out that children with ODD can also go on to develop conduct disorders (CDs). This, according to the researcher's understanding has serious symptoms since the children have problems with keeping the law. Epidemiological studies of psychological disorders in children in Ireland carried out by Carlow, Bradley, and Hayes (2007) showed an estimated

prevalence rate of 18.71% for at least one mental disorder in the preceding year. The study also found out that 17% of two to five year olds, 10% of six to 12 year olds and 26% of 13-18 year olds screened positive for a mental health problem. In the same findings, almost a quarter had ODD and just over a fifth had ADHD. Besides, a recent research also found the prevalence rates of ODD to range from 2% to 16% in community samples, and 28% to 65% in clinical samples (Boylan, Vaillancourt, Boyle, and Szatmari, 2007). Likewise, according to Harpell and Andrews (2006), prevalence studies carried out in the United States, the United Kingdom, and New Zealand estimated that 15% of children demonstrated severely disruptive social behavior. A study based on a large population sample in Great Britain revealed that 2.31% fulfilled the criteria for ODD (Nitkowski, Petermann, Büttner, Krause-Leipoldt, and Petermann, 2009). A study carried out in Kenya; found the prevalence rate of ODD to be 12.1% (Kamau, Kuria, Mathai, Atwoli, and Kangethe, 2012). Muthoni and Karume (2014) reported that, in Kenya ODD is crammed with other mental disorders and is treated by utilizing antipsychotic medication. Due to inadequate facilities and shortage of trained professionals, ODD is often left out. Muthoni and Karume further indicated that, families experience difficulties when one of their members has a mental disorder. In this case, the dilemma for parents, the school, and the society becomes what to do with the child who has ODD. Many opt to deal with more life threatening disorders hence ignore it.

The cost-estimates of the long-term public health burden following childhood ODD are very high (Romeo, Knapp, and Scott, (2006). Providing easily accessible treatment at an early developmental stage aimed at reducing ODD symptoms should therefore be of high priority to public health planners, as even a small reduction of the long-term consequences of these problems would be beneficial to the individual, the family and the society as a whole. Battagliese *et al.* (2015) carried out a study in the United States whose aim was to evaluate the effectiveness of CBT to reduce externalizing symptoms in two disorders ADHD and ODD. Results of the study conveyed that the biggest improvement, after CBT, was in ODD symptoms (-0.879). Overall, CBT was found to be an effective treatment option for externalizing disorders. However the long term efficacy and side effects of these medications in the management of ODD has not been assessed. The complexity of comorbidities and the need for thorough assessment generally require multidisciplinary management and there is no indication for pharmacological intervention on its own. This means that medication would not reduce the symptoms of ODD without co-existing with ADHD. In agreement, Serra-Pinheiro *et al.* (2004) reported that methylphenidate was able to diminish 63% the fulfillment of ODD criteria in participants with ODD comorbid with ADHD. Additionally, Hood, Elrod, and DeWine, (2015) reported that the treatment of ODD should be focused on non-pharmacologic approaches as psychopharmacology is relatively ineffective for the core symptoms of ODD. Pharmacologic management should be viewed as adjunctive for the treatment of comorbid ADHD. Most treatment effects of oppositional symptoms are highly correlated with those of ADHD core symptoms, making it difficult to independently assess the effectiveness of medications for ODD. However in this study the researcher CBT as the ideal treatment for the participants with ODD as opposed to medication. Hofmann, Asnaani, Vonk, Sawyer, and Fang (2012) explained that CBT refers to a class of interventions that share the basic premise that mental disorders

and psychological distress are maintained by cognitive factors and that the core premise of the treatment is that maladaptive cognitions contribute to the maintenance of emotional distress and behavioral problems. These maladaptive cognitions include general beliefs, or schemas, about the world, the self, and the future, giving rise to specific and automatic thoughts in particular situations, these therapeutic strategies aim to change maladaptive cognitions exhibited by the children leading to changes in emotional distress and problematic behaviors. Research conducted by Hamid, Naghinasab, and Mehrbizadeh (2013) determined that cognitive-behavioral interventions are known to be effective in reducing symptoms of ODD in children. This is because the cognitive-behavioral interventions have been widely investigated for their impact of problem solving and anger management (advanced relaxation techniques, cognitive restructuring, coping skills to control anger, and other social skills) on children with the disorder. Additionally, Cognitive behavioral therapy (CBT) was intended to modify the child's behavior through alteration of the parent's way of dealing with the child, has proved effective for ODD. Studies define the amount of responders around 40-50%, even in populations as culturally distinct as North-Americans and Chinese. Cognitive therapies have recently come more into evidence, with response rates as high as 74%. Have demonstrated that CBT can even improve family functioning and marital satisfaction (Serra-Pinheiro *et al.*, 2004). According to Davison (2005), cognitive problem-solving skill training is done to reduce the incidence of oppositional behaviors in children through positive ways of response to stressful situations. Children with the disorder often only consider the negative ways of coping and responding to real life situations. The cognitive problem solving teaches them how to interpret a situation and respond to it.

Moreover, given that children with ODD are easily outraged; lack cognitive and emotional skills necessary to meet all the demands of adult life; and lose rational capacity to express their emotions; it can be said that teaching social problem-solving skills and changing negative thoughts helps the children to strengthen their rational capacity and maintain a balance over emotional expressiveness. Problem-solving skills seek to reduce cognitive deficiencies (such as impulse control), and cognitive distortions (such irrational beliefs). Certain steps that have been using in this method which include; stand up, keep calm and think before acting, say the problem and say what you feel, consider a positive purpose, forward thinking to achieve results, and going ahead to trying to choose the best option. Clark and Jerrott (2012) carried out a study in in Canada, to investigate the long-term clinical outcomes (2½ to 4 years post-discharge) in a sample of children aged 12 and under with a primary diagnosis of DBD, following completion of a day treatment program using evidence-based treatment strategies. Clark and Jerrott's study sample comprised 21 boys (75%) and 7 girls (25%). The mean age of the sample was 10.43 years (SD=1.76 years), with a range of 6 to 13 years. All children had a primary diagnosis of a DBD, most commonly ADHD and co-morbid ODD. The study established that, cognitive behavioral strategies are effective components of all treatment programs for DBD, including day treatment. Pappadopulos, Wooston, Chait, Perkins, Connor, and Jensen, (2006). in line with Clark and Jerrott's findings mentioned that CBT and behavioral strategies (e.g. anger coping, problem-solving skills training) were all probably efficacious in terms of the CBT programs for children. Specifics of these

treatments include; thinking of the consequences of one's behavior and brainstorming ideas for solving a problem. According to Jerrott, Clark, and Fearon (2010), the parent group also follows a Cognitive-Behavioral model with skills for reinforcing positive behaviors, giving good instructions, and applying appropriate consequences for negative behaviors. Overall, these studies suggested that short-term, cognitive-behavioral day treatment is of long-term benefit to children with DBDs and their families. In the same breath, Cook (2005) recommended that counselors can work with children with ODD on social skills training such; as anger management, relaxation techniques, assertiveness training, and problem-solving techniques. Counselors may wish to consider offering groups with these themes for students who struggle to respect adult authority figures. Davies (2006), in line with Cook (2005) was of the view that counselors should work independently and with small groups on social relationship skills such as anger management and problem-solving. Lochman, Powell, Boxmeyer, Jimenez-Camargo (2011) reported that it is important to intervene with children with externalizing disorders as early as possible, before their maladaptive behaviors become increasingly stable and impairing. The ways in which children typically present conduct problems can vary from relatively minor oppositional behaviors, such as yelling or temper tantrums, to more serious antisocial behaviors such as aggression, physical destructiveness, and stealing. CBT techniques have been shown to be efficacious in reducing externalizing behavior problems. As demonstrated by meta-analytic results, treatment outcome studies indicate that CBT can produce significant reductions in children's and adolescents' externalizing behavior problems. An important objective of each parent session is to inform parents about what their children are learning in the child group and to discuss ways that the parents can reinforce their children's use of these skills at home. Lochman *et al.* (2011) presents the following strategies for children with ODD and their parents.

A study done at Moi Teaching and Referral Hospital in Kenya by Adams (2009), revealed that children with behavioral problems, aggression, and ODD were treated mainly using antipsychotic medication and that a number of treatment programs were not suited to the specific needs of the children, hence may not be very effective. The same study established that there was a concern that the psychologists working in some programs were not well equipped to handle such disorders as ODD due to inadequate facilities and shortage of trained personnel. In agreement, a study carried out by Muthoni and Karume revealed that Kenya has the challenges of lack of proper diagnosis for ODD, lack of awareness in the general population and the inability of the parents to afford screening and treatment for the children. The current state in the country is that ODD is crammed together with other mental disorders and is treated utilizing antipsychotic medication. Namukoa, (2013) proposed that the integration of CBT into the Kenyan school curriculum could foster the development of the children's resiliencies and cultivate sustainable positive thinking that would promote learning and performance. This showed that there is need for an intervention that would cater for the need of the children. Due to the existing gap in the diagnosis and treatment of ODD among children in Kenya the study therefore sought to evaluate the efficacy of CBT in treating respondents with ODD in the selected primary schools in Nairobi County, Kenya. The study utilized the following

CBT skills, emotion awareness, social problem solving skills, perspective taking and anger management.

METHODOLOGY

This research was conducted in two purposely selected public primary schools in Nairobi County because of the large population of children. The school catchment area is the slum which is occupied by people who depend on casual labor due to lack of employment opportunities. The two schools had similar characteristics. 315 respondents provided assent and consent from their parents and were in the eligible age range 9-14 years, with 249 met the criteria for ODD but systematic sampling was used to get the required sample size of 180. The majority of the respondents were 12 years 58 (32.2%). The head teachers made an announcement during the assembly and informed the students of the research that will be carried out in the school. They asked the researchers to introduce themselves to the respondents. On a different day the head teachers allocated rooms where the researchers would meet with the respondents and explained the purpose of the study and how long the study would take. The researchers gave the respondents an opportunity to ask questions concerning the research. The participants were issued with assent forms to sign, their parents were also invited to come to school and sign the consent forms for their children since they were below 18 year.

Procedure and Methods

The assessment was conducted in groups of 10-20 since they were 90 respondents in both experimental and control group. The socio-demographic questionnaires with codes were distributed in each group by the trained research assistants; they then read each of the questions for the participants as they answered until the last question. The respondents also had time to ask question which the researcher clarified during and after filling the SDQ. The parents whose children were recruited in the study were invited to complete the CADBI tool parent's version. Similarly, the teachers completed the CADBI tool (teacher's version) for the said respondents this helped in the assessment and diagnosis.

Socio-demographic Information

The socio-demographic questionnaires collected information asked for; class, gender, age, language, religion, academic performance, economic status ,who they live with, relationship with parents, whether their parents take alcohol, friends at home and school, modes of punishment used by teachers and parents.

Child and adolescents Disruptive Behavior Inventory (CADBI)

Parents whose children had been recruited in the study and the teachers completed the Child and adolescents Disruptive Behavior Inventory which assessed the ODD symptoms. CADBI is a well-established instrument for the assessment of ODD symptoms and has a construct for ADHD symptoms for both children and adolescents. Parents and teachers had to rate whether the participants experienced each of the symptoms in the three constructs part one behavior towards adults at school and home environment, behavior towards peers at school and home environment and part three activity level at school and home environment which measured the comorbid condition

with ODD25 symptoms 0(never in the past month) to 7 (10 or more times per day) this shows the frequency of the occurrence of the behavior. The CADBI had never been used in Kenya before. The reliability of CADBI in the present study was Cronbach's $\alpha = .918$ to .890 in the teachers and parents version respectively. This shows that the constructs were reliable in measuring the subject as required.

Data Analysis

Descriptive findings of the data collected are presented in tables to capture the various responses by the study participants. Tests for reliability were done using the cronbalch values. Spearman's correlation analysis for association between ODD's and ADHD was performed. Chi-square analysis for association between ODD and ADHD with risk factors was done. T test was done to compare the responses between baseline, midline and endline of the study and the difference in deference (DID) was determined. Significance was reported at $p < 0.05$.

RESULTS

The socio-demographic distribution characteristics of the participants are shown in Table 1. The sample was 180 participants. The respondents were mainly distributed between classes 4 to class 7. Most of the respondents were in standard 7 (40.7%) with their numbers decreasing from standard 6 (27.7%), standard 5 (27.7%) and standard 4 (3.9%) respectively (Table 1).

In relation to gender, distribution was 77(43.3%) and 99 (56.7%) for males and females respectively (Table 2). The participants were aged between 9 and 14 years. The respondents were categorized as those below 10 years, and those between 10-14 years of age. Most of the respondents were 12 years (32.2%), 13 (23.9%) and 11 (22.8%). The other ages were 10 (11.1%), 14 (7.2%) and 9 (2.8%) years respectively in a decreasing order. The numbers were similar in midline but declined at endline following the withdrawal of four (4) respondents from the study during the endline of the study

Socio-demographic characteristics of participants at baseline

Table 4 showed that most of the participants speak Kiswahili as their main language of communication (151, 83.9%), followed by English (29, 16.1%). Moreover, many of the participants are Kenyan (176, 97.8%) with few students from Uganda and Tanzania. The participant's religious backgrounds varied with the most of them being Christian (92.2%) and Muslims (7.8%). Protestants were the highest in their distributions (80, 44.4%), followed by Roman Catholics (45, 25%), Seventh Day Adventists (27, 15%), and finally Anglican (14, 7.8%). It is also a common practice among them that they attend religious groupings once in a week (165, 91.7%). A few students attend religious services one a month (3.3%) and once

Table 1. Class distribution of the respondents

Timeline	Class	4		5		6		7		Total
		N	%	N	%	N	%	N	%	
Baseline										
	Control	7	7.8%	16	15.5%	18	20%	51	56.7%	90
	Experimental	0	0.0%	32	37.9%	32	35.5%	24	26.7%	90
	Total	7	3.9%	48	24.4%	50	27.8%	75	41.6%	180
Midline										
	Control	7	7.8%	16	15.5%	18	20%	51	56.7%	90
	Experimental	0	0.0%	32	37.9%	32	35.5%	24	26.7%	90
	Total	7	3.9%	48	24.4%	50	27.8%	75	41.6%	180
Endline										
	Control	7	7.8%	14	15.6%	18	20.0%	50	56.7%	89
	Experimental	0	0.0%	33	37.9%	31	35.5%	23	26.7%	87
	Total	7	3.9%	47	26.7%	49	25.6%	73	41.6%	176

Table 2. Distribution by Gender

Timeline		Males		Females		Total
		N	%	n	%	
Baseline						
	Control	35	38.9%	55	61.1%	90
	Experimental	44	48.9%	46	51.1%	90
	Total	79	43.9%	101	24.4%	180
Midline						
	Control	35	38.9%	55	61.1%	90
	Experimental	44	48.9%	46	51.1%	90
	Total	79	43.9%	101	24.4%	180
Endline						
	Control	34	38.2%	55	61.8%	89
	Experimental	43	49.4%	44	50.8%	87
	Total	77	43.8%	99	56.7%	176

Table 3. Distribution by age of the respondents

Age	Baseline	Midline	Endline
9	5 (2.8%)	5 (2.8%)	4 (2.3%)
10	20 (11.1%)	20 (11.1%)	18 (10.2%)
11	41 (22.8%)	41 (22.8%)	40 (22.8%)
12	58 (32.2%)	58 (32.2%)	58 (33.0%)
13	43 (23.9%)	43 (23.9%)	42 (23.9%)
14	13 (7.2%)	13 (7.2%)	14 (8.0%)

Table 4. Social demographic details of the respondents

Variables	Total (n=180)		Control (n = 90)		Experimental (n = 90)		χ^2	Phi	df	p value
	N	%	N	%	N	%				
Languages										
Kiswahili	151	83.9%	81	90%	70	77.8%	4.974	0.166	1	0.026***
English	29	16.1%	9	10%	20	22.2%				
Nationality										
Kenyan	176	97.8%	89	98.9%	87	96.7%	4.023	0.149	2	0.134
Tanzania	3	1.7%	0.0	0.0%	3	3.3%				
Uganda	1	0.6%	1	1.1%	0	0.0%				
Religions										
Roman Catholic	46	25.6%	27	30%	19	21.1%	18.643	0.322	5	0.002***
Protestant	79	43.9%	48	53.3%	31	34.4%				
SDA	26	14.4%	6	6.7%	20	22.2%				
Muslim	14	7.8%	6	6.7%	8	8.9%				
Anglican	14	7.2%	3	3.3%	10	11.1%				
None	2	2.2%	0.0	1.1%	2	2.2%				
Number of times attending religious groups										
Once a week	165	91.7%	88	97.8%	77	85.6%	9.4	0.229	3	0.024***
Once a month	6	3.3%	1	1.1%	5	5.6%				
Once a year	4	(2.2%)	1	1.1%	3	3.3%				
Not at all	5	(2.8%)	0.00	0.0%	5	0.00				
Guidance and counseling teacher										
No	30	(16.7%)	13	14.4%	17	18.9%	0.640	-0.060	1	0.424
Yes	150	(83.3%)	77	85.6%	73	81.1%				
School performance										
Below average	10	(5.6%)	7	7.8%	3	3.3%	43.058	0.489	3	0.000***
Average	69	(38.3%)	54	60%	15	16.7%				
Above average	50	(27.8%)	17	18.9%	33	36.7%				
Excellent	51	(27.3%)	12	13.3%	39	43.3%				
Place of permanent residence										
Urban	157	(87.2%)	75	83.3%	82	91.1%	2.443	-0.016	1	0.090
Rural	23	(12.8%)	15	16.7%	8	8.9%				
Current place of residence										
Home	177	(98.9%)	90	100%	87	97.8%	2.045	0.107	1	0.153
Children's home	2	(1.1%)	0	0.0%	2	2.2%				

(***) represents significant variations following chi square analysis at $p < 0.05$

a year (2.2%) while only 2.8% of the respondents never attend religious groupings completely. Moreover, most of the participants have a guidance and counseling teacher (150, 83.3%). In terms of the performance of the students, the students were ranked as excellent (53, (29.4%), above average (47, 26.1%), average (70, 38.9%), and below average (10, 5.6%). The place of residence for many of the respondents was in an urban setting (157, 87.2%) while 23 (12.8%) live in their rural setting. More so, many of them are living at their homes with their parents (177, 98.9%) while only 2 (1.1%) are residing at the children homes. Significant variations between the control and experimental groups were observed in language ($p = 0.026$), religion ($p = 0.002$), Christian programs they attended in school ($p = 0.001$), and school performance ($p = 0.000$) respectively. All other socio - demographic factors remained the same for both the control and experimental groups ($p > 0.05$). Table 5 shows the respondents socio-demographic factors that were statistically significant included; friends at school ($p = 0.004$), whether the participants parents used drugs ($p = 0.013$), suspended from school before ($p = 0.000$), number of times suspended from school ($p = 0.002$), reasons for suspension of participants ($p = 0.001$) and finally, the type of punishment used at school ($p = 0.019$). They frequencies of the responses to these factors differed significantly between the control and experimental groups respectively. Other factors such as; the friends at home, types of drugs used, number of times they missed school and punishment used at home were not significantly distributed among control and experimental groups of participants ($p > 0.05$). Table 5 revealed that the participants in this study had various family settings. Most of the students are living with both of their biological parents together (118, 65.6%).

An equal number of respondents live with parents that have separated and others with step parents (17, 9.4%) and (18, 10%) respectively. Some respondents have their parents divorced (3, 1.7%) and 20 (11.1%) of the respondents live with a single parent. Their distribution to both the control and experimental groups was not statistically significant ($p > 0.05$). Furthermore, many of the children come from poor economic background (127, 70.6%) while 48 (26.7%) are considered middle class and only 5 (2.8%) come from rich families in the entire study. There was significant variations among the poor, middle class and the rich distributed between the control and experimental study groups ($p = 0.000$). The respondents came from families with different numbers of family members; many of them are from families with between 5-7 family members (115, 64.2%), followed by between 2-4, 8-10, 11-13 and 14-17 family members with (38, 21.2%), (22, 12.2%), (3, 1.8%), (1, 0.6%) respectively as categorized from the entire distribution. The variation between the control and experimental groups were not statistically significant $p > 0.05$). The relationship between the respondents and their parents was close for 76 (42.2%), conflicted for 88 (48.9%) and distant for 16 (8.9%) respectively. The differences in the distribution in the control verses the experimental group was statistically significant ($p = 0.000$). There was an even distribution of the parents in this study who do not use alcohol (157, 87.2%) to those that use alcohol for 23 (12.8%) when distributed between the control and experimental groups respectively ($p > 0.05$). As for those that take drugs, a similar trend was observed for those that used drugs; others take alcohol together with other drugs such as cigarettes (1, 0.6%), mirraa and cigarettes (1, 0.6%) and only 9 (5.1%) of the student's parents used cigarettes alone.

Table 5. Respondents socio-demographic characteristics

Variables	Total (n = 180)		Control (n = 90)		Experimental n = 90		X ²	Phi	df	p value
	N	%	N	%	N	%				
Friends at school										
1-10	137	76.1%	65	72.2%	72	80.0%	17.267	0.310	5	0.004***
11-20	22	12.2%	15	16.7%	7	7.8%				
21-30	4	2.2%	2	2.2%	2	2.2%				
31-40	4	2.2%	3	3.3%	1	1.1%				
41-50	5	2.8%	5	5.7%	0	0.0%				
Many	8	4.4%	0	0.0%	8	8.9%				
Friends at home										
None	4	2.2%	4	4.4%	0	0.0%	9.867	0.234	5	0.079
0-10	149	82.8%	73	81.1%	76	84.4%				
11-20	19	10.6%	11	12.2%	8	8.9%				
21-30	3	1.7%	2	2.2%	1	1.1%				
31-40	1	0.6%	0	0.0%	1	1.1%				
Many	4	2.2%	0	0.0%	4	4.4%				
Parents use drugs										
No	174	96.7%	90	100%	84	93.3%	6.207	0.186	1	0.013***
Yes	6	3.3%	0	0.0%	6	6.7%				
Drugs used										
None	173	97.2%	90	100%	85	94.4%	5.143	0.169	5	0.399
Alcohol	2	(1.1%)	0	0.0%	2	2.2%				
Khat	1	(0.6%)	0	0.0%	1	1.1%				
Tobacco	2	(1.1%)	1	1.1%	1	1.1%				
Weed	1	(0.6%)	0	0.0%	1	1.1%				
Times missed school										
Never	127	70.6%	62	68.9%	65	72.2%	3.703	0.143	6	0.717
1	31	17.2%	16	17.8%	15	16.7%				
2	10	5.6%	6	6.7%	4	4.4%				
3	5	2.8%	3	3.3%	2	2.2%				
4	2	1.1%	0	0.0%	2	2.2%				
5	4	2.2%	2	2.2%	2	2.2%				
7	1	0.6%	1	1.1%	0	0.0%				
Suspended from school										
No	151	83.9%	63	70%	88	97.8%	29.282	0.403	2	0.000**
Yes	29	16.1%	27	30%	2	2.2%				
How many times have been suspended										
No answer	155	86.1%	66	73.3%	89	98.9%	24.777	0.371	8	0.002**
Never	1	0.6%	1	1.1%	0	0.0%				
1	11	6.1%	10	11.1%	1	1.1%				
2	3	1.7%	3	3.3%	0	0.0%				
3	5	2.8%	0	0.0%	5	5.6%				
4	2	1.1%	2	2.2%	0	0.0%				
5	1	0.6%	1	1.1%	0	0.0%				
6	1	0.6%	0	0.0%	1	1.1%				
1 week	1	0.6%	1	1.1%	0	0.0%				
Reasons for suspension from school										
No answer	158	87.8%	69	76.7%	89	98.9%	22.000	1.000	5	0.001***
School fees	14	7.8%	14	15.4%	0	0.0%				
Broken window	1	0.6%	1	1.1%	0	0.0%				
Lateness	2	1.1%	1	1.1%	1	1.1%				
Fighting	1	0.6%	1	1.1%	0	0.0%				
Lost a book	2	1.1%	1	1.1%	1	1.1%				
Needed parents to come	2	1.1%	2	2.2%	0	0.0%				
Punishment at home										
Beating	149	82.8%	75	83.3%	74	82.2%	5.825	0.180	4	0.213
Sit and talk	16	8.9%	10	11.1%	6	6.7%				
Deny food	1	0.6%	1	1.1%	0	0.0%				
Doing work	11	6.1%	4	4.4%	7	7.8%				
None	3	1.7%	0	0.0%	3	3.3%				
Punishment at school										
Beating	149	82.8%	80	88.9%	69	76.7%	9.994	0.236	3	0.019***
Sit and talk	3	1.7%	0	0.0%	3	3.3%				
Do some other work	22	12.2%	10	11.1%	12	13.3%				
None	6	3.3%	0	0.0%	6	6.7%				

(***) represents significant variations following chi square analysis at p<0.05

The prevalence of ODD among the respondents

The prevalence of ODD was determined on the basis of the gender of the students in this study in the baseline survey. The age of the students was between the ages of 9 and 14 years respectively. Before the study was done, a total of 315 students were identified for the study. Out of this number, only 249 students met the criteria for inclusion into the study with basic symptoms of mental disorder.

Therefore, a general prevalence of 79% was recorded. In the baseline teacher's survey, the male students were adversely affected with symptoms of ODD towards adults and their peers with a prevalence of 78.2% and 88.5% respectively compared to their female counter parts with prevalence's of 74.6% and 85.3% respectively. However, both gender's combined, ODD towards peers was more dominant (86.7%) compared to ODD towards the adults (74.6%). The parent's baseline survey also showed the contrast of the teacher's findings.

Table 6. ODD in relation to Risk factors

Factors	Total (n = 180)		Control (n = 90)		Experimental n = 90		ODD	X ²	phi	p value
	N	%	N	%	n	%				
Family setting										
Both biological parents	118	(65.6%)	52	57.8%	66	73.3%	Adults	3.244	0.134	0.975
Living with a step parent	17	(9.4%)	8	8.9%	9	9.4%	Peers	14.191	0.281	0.164
Parents separated	18	(9.4%)	10	11.1%	8	8.9%				
Parents divorced	3	(1.7%)	3	3.3%	0	0.0%				
Single parent	20	(11.7%)	15	16.7%	5	5.6%				
Living with guardian	4	2.2%	2	2.2%	2	2.2%				
Family economic status										
Poor	128	(71.1%)	83	92.2%	45	50%	Adults	12.926	0.268	0.012***
Middle class	48	(26.7%)	7	7.8%	41	45.6%	Peers	6.344	0.188	0.175
Rich	4	(2.2%)	0	0.0%	4	4.4%				
Number of family members										
2-4	39	(21.7%)	20	22.2%	19	21.1%	Adults	3.099	0.131	0.796
5-7	115	(64.2%)	60	66.7%	55	61.1%	Peers	0.947	0.073	0.988
8-10	24	(13.4%)	10	11.1%	14	15.5%				
14-17	2	(1.1%)	0	0.0%	2	2.2%				
Relations with parents										
Close	76	(42.2%)	23	25.6%	53	58.9%	Adults	4.133	0.152	0.388
Conflicted	88	(48.9%)	54	60%	34	37.8%	Peers	10.940	0.247	0.027***
Distant	16	(8.9%)	13	14.4%	3	3.3%				
Do parents take alcohol										
No	159	(88.3%)	79	87.8%	80	88.9%	Adults	0.224	0.035	0.894
Yes	21	(11.7%)	11	12.2%	10	11.1%	Peers	0.443	0.050	0.801
Drugs used by parents										
No answer	164	(91.1%)	83	92.2%	81	91.1%	Adults	2.806	0.125	0.946
Alcohol or wine	4	(2.2%)	3	3.3%	1	1.1%	Peers	1.410	0.089	0.994
Alcohol, miraa, Cigarettes	1	(0.6%)	0	0.0%	1	1.1%				
Cigarettes	10	(5.6%)	3	3.3%	7	7.8%				
Cigarettes, alcohol	1	(0.6%)	1	1.1%	0	0.0%				

(***) represents significant variations following chi square analysis at p<0.05

Table 7. Prevalence of ODD in Baseline Survey

Group	Gender	N	ODD (adults)	ODD (Peers)
Teachers	Males	78	61 (78.2%)	69 (88.5%)
	Females	102	76 (74.6%)	87 (85.3%)
	Males + Females	180	137 (76.1%)	156 (86.7%)
Parents	Males	78	44 (56.4%)	51 (65.4%)
	Females	102	68 (66.7%)	71 (69.6%)
	Males + Females	180	112 (62.2%)	122 (67.8%)

Table 8. Reliability test per constructs

Constructs	Baseline		Midline		Endline	
	Teachers (N=180)	Parents (N=129)	Teachers (N=180)	Parents (N=129)	Teachers (N=180)	Parents (N=129)
ODD Adults	0.891	0.819	0.970	0.976	0.969	0.937
ODD peers	0.862	0.760	0.970	0.975	0.980	0.953
ADHD	0.889	0.876	0.946	0.925	0.968	0.924
All Items	0.918	0.890	0.982	0.978	0.986	0.972

Table 9. Correlation analysis for Baseline

Correlations							
Constructs		Teachers			Parents		
		ODD Adults	ODD peers	ADHD	ODD Adults	ODD peers	ADHD
ODD ADULTS	R	1.000	.341**	.220**	1.000	.441**	.241**
	Sig	.	.000	.003	.	.000	.006
	N	180	180	180	129	129	129
ODD PEERS	R		1.000	.272**		1.000	.354**
	Sig		.	.000		.	.000
	N		180	180		129	129
ADHD	R			1.000			1.000
	Sig			.			.
	N			180			129

** Correlation is significant at the 0.01 level (2-tailed).

Table 10a. DID for ODD towards Adults teachers survey

Time point	Control			Experimental			P value
	N	mean	SD	n	mean	SD	
Baseline	90	1.86	.412	90	1.53	.706	.000
Midline	90	1.97	.644	90	.34	.564	.000
P value: Baseline Vs Midline							
Endline	89	1.81	.474	87	.20	.427	.000
p value: Baseline vs Endline							
Difference in Difference (DID)							
Baseline-Midline	178	0.11	0.081	178	1.19	0.0953	<0.001
Baseline – Endline	177	0.05	0.066	177	1.33	0.0873	<0.001

Table 10b. DID for ODD towards peers teachers survey

Time point	Control			Experimental			P value
	N	Mean	SD	n	mean	SD	
Baseline	90	1.97	.181	90	1.74	.464	.000
Midline	90	1.97	.235	90	.60	.716	.000
P value: Baseline Vs Midline							
Endline	87	.26	.469	89	1.85	.386	<.001
p value: Baseline vs Endline							
Difference in Difference (DID)							
Baseline-Midline	177	0.00	0.0312	178	1.14	0.090	<0.001
Baseline – Endline	175	1.944	0.0531	172	0.11	0.064	0.017

Table 10c. DID for ADHD teachers survey

Time point	Control			Experimental			P value
	N	mean	SD	n	mean	SD	
Baseline	90	1.84	.394	90	1.63	.626	.007
Midline	90	1.92	.308	90	1.22	.632	.000
P value: Baseline Vs Midline							
Endline	89	1.85	.386	86	.71	.571	0.00
p value: Baseline vs Endline							
Difference in Difference (DID)							
Baseline-Midline	178	0.08	0.0527	178	0.41	0.0938	<0.001
Baseline – Endline	177	0.01	0.0583	174	0.92	0.0904	<0.001

Table 10d. DID for ODD towards adults parents survey

Time point	Control			Experimental			P value
	N	Mean	SD	n	mean	SD	
Baseline	79	1.82	.474	50	1.78	.507	.628
Midline	67	1.93	.401	77	.56	.698	.000
P value: Baseline Vs Midline							
Endline	65	1.66	.619	63	.90	.756	.000
p value: Baseline vs Endline							
Difference in Difference (DID)							
Baseline-Midline	144	0.11	0.0734	125	1.22	0.114	<0.001
Baseline – Endline	142	0.16	0.0911	111	0.88	0.125	<0.001

Table 10e. DID for ODD towards Peers for parents survey

Time point	Control			Experimental			p value
	N	Mean	SD	n	mean	SD	
Baseline	79	1.82	.474	50	1.78	.507	.000
Midline	67	1.99	.122	77	.66	.700	.000
P value: Baseline Vs Midline							
Endline	65	1.72	.573	63	.97	.695	.000
p value: Baseline vs Endline							
Difference in Difference (DID)							
Baseline-Midline	144	0.04	0.0595	125	1.12	0.1173	<0.001
Baseline – Endline	142	0.1	0.0872	111	0.81	0.1173	<0.001

Table 10f. DID for ADHD for parents survey

Time point	Control			Experimental			p value
	N	mean	SD	N	mean	SD	
Baseline	79	1.82	.474	50	1.78	.507	.000
Midline	67	1.96	.272	77	1.39	.632	.000
P value: Baseline Vs Midline							
Endline	65	1.49	.590	63	1.08	.703	.000
p value: Baseline vs Endline							
Difference in Difference (DID)							
Baseline-Midline	144	-0.14	0.061	125	0.39	0.1065	<0.001
Baseline – Endline	142	0.33	0.089	111	0.7	0.118	<0.001

The females were more dominantly affected by ODD based on the CADBI tool with ODD towards adults (66.7%) and ODD towards the peers (69.6%). Their male's counterparts had lower prevalence values of 56.4% for ODD towards Adults and marginally lowered prevalence of 65.4% for ODD towards their peers compared to the females. Just like in the teachers survey when both genders were combined, the prevalence of ODD towards the peers was higher than ODD towards the adults (67.8% Vs 62.2%) respectively.

Reliability of Measures - Cronbach's Alpha

The CADBI tool has never been used in Kenya or any African country hence it was important to find out whether the tool is reliable to be used in the respondents. Reliability test was conducted on each item measuring the different constructs (ODD Adults, ODD peers and ADHD) for this study. Cronbach's alpha value is an important measure of correlation between the items belonging to a factor (Iacobucci & Churchill, 2010). Cronbach's values per constructs were as presented in table 8. Cronbach's value of between 0.7 and 0.8 is good, while 0.8 to 0.9 is great and above 0.9 is superb. This shows that the constructs were reliable in measuring the respondents as required since it improved from great to superb at endline.

Baseline survey correlation analysis

Spearman's correlation analysis was performed for this study as a measure of association between the studied constructs. In the baseline survey, a correlation analysis of this items in the three constructs showed that there was significant positive correlation between ODD towards Adults and ODD towards peers ($r=0.331$, $p=0.000$), and ODD towards adults and ADHD ($r=0.220$; $p = 0.003$). Furthermore, ODD towards peers was also positively correlated to ADHD in the selected students ($r=0.272$; $p=0.000$) using data collected from the teachers. Based on the data collected from the parents, a positive correlation between ODD towards adults weakly correlated to the ODD towards the peers ($r=0.441$; $p=0.001$). There was also a significant positive correlation between ODD towards the adults and ADHD in the participants selected for this study ($r=0.241$; $p=0.006$). Similarly, a significant correlation was observed between ODD towards peers and ADHD in the selected participants ($r=0.354$; $p=0.000$). The positive correlation shows that there is positive association between items identified for measuring ODD towards adults, ODD towards peers and ADHD in the study population used for this study in the baseline survey both by the teachers and parents. This also shows that ODD coexists with ADHD as the study established

Efficacy of Cognitive Behavior Therapy

Difference in difference analysis at the timelines. In the teachers survey, analysis of the DID between the baseline and midline and baseline and endline showed significant differences between the control groups and experimental groups ($p < 0.001$) for ODD towards adults, ODD towards peers and ADHD respectively as shown in Table 10 a, b and c). In the parents survey, a similar trend in DID between the baseline Vs Midline and Baseline Vs Endline showed significant difference between the control and experimental groups respectively ($p < 0.001$) as shown in table 10d,e and f).

DISCUSSION

The general prevalence of ODD was 79% this was high compared to the global prevalence which ranges between 2% to 16% and 28% to 65% in clinical samples (Boylan, Vaillancourt, Boyle, and Szatmari, 2007). The prevalence in this study could not be compared with other studies because of the slum setting with which the researcher was conducted and the small sample size. The prevalence of ODD towards the peers was higher than ODD towards the adults (67.8% Vs 62.2%) respectively. This shows that the respondent's behaviors were not evident in all the setting because they behaved differently towards the adults and towards their peers. This is consistent with the APA, (2013) which shows that behaviors can be confined only in one setting e.g. school, home, peers or at work. The respondent's restricted behavior towards their peers means that they fear the adults since they are likely to be punished for their opposition unlike when they are with their peers. From the findings there were some factors that put the respondents at a risk of the development ODD. There was a statistically significant association between religion and ODD towards adults ($p = 0.015$), Protestants were the highest in their distributions (80, 44.4%). There was a significant relationship between friends and ODD ($p = 0.004$). Religion and friends could be associated with ODD either as a protective or a precipitating factor. This means that religion and friends could help the respondents to have positive moral values hence behave appropriately or it can trigger negative behaviors. The same applies to friends; children associate with peers and spend most of their time interacting with them. This means that if the peers are defiant there likelihood of them conforming to their defiant behavior but there is also a likelihood of them getting social support from their friends and have healthy relationships. Majority of the respondents were 12 years and in class seven this shows that ODD progresses with age. There was a significant relationship between the participants relationship and their parents conflicted for 88 (48.9%, $P=0.027$). Poor parent-child relationship appeared to be a robust risk factor of children's behavioral adjustment negative parent-child relationships were significantly associated with child externalizing disorders such as ODD (Burt, McGue, Krueger, and Iacono (2005). Those respondents who had not going for counseling showed a significant relationship with ODD towards adults ($p = 0.021$). The reason for this could be that most parents had not sought counseling. Another reason could be because this study was done in a slum setting hence the parents could not afford to take their children to the mental health clinic. Suspension from school was also associated with ODD ($p = 0.000$). Majority of the respondents reported that they have never been suspended this could be because the teachers apply other modes of punishment other than suspension. The economic status had a significant relationship with ODD ($p=0.000$). Majority of the respondents came from poor background since the study was carried out in a slum setting. McKinney and Renk (2007) reported that low social economic status has also been identified as a demographic risk factor for behavioral problems. Similarly, Mcleod and Shanahan (1996) found that poverty seemed to be a predictor of problem behaviors and psychiatric disorders. It was evident also from the study that harsh punishment was a risk factor to the development of ODD but only in the school environment. This is inconsistent with Hood, Elrod, and DeWine, (2015) who reported that psychosocial dysfunction has been implicated in the development of ODD. It is associated with harsh, inconsistent,

or neglectful parenting practices. Punishment in school was also significantly associated with ADHD ($p = 0.040$) in the teachers survey. This means that punishment in school is a risk to the development of both ODD and ADHD. This study also established that the coexisting condition with ODD is ADHD. According to the APA, (2013), the most common co-occurring condition with ODD is ADHD. In relation to this, McKinney and Renk (2007) were of the view that in a community sample, children with ODD are four times more likely to be diagnosed with ADHD. Based on finding from a study carried out in the United States, Cook (2005) stated that up to 80% of children had ODD in co-morbid with ADHD. The spearman correlation analysis revealed that the positive correlation shows that there is positive association between items identified for measuring ODD towards adults, ODD towards peers and ADHD both by the teachers and parents.

The result for this study was consistent with other studies on the reviewed literature which revealed the efficacy of CBT in the reduction of ODD symptoms CBT was more effective in the management of ODD in the experimental group than seen in the control group. This is in agreement with research conducted by Hamid, Naghinasab, and Mehrbizadeh (2013) which determined that cognitive-behavioral interventions are known to be effective in reducing symptoms of ODD in children. Battagliese *et al.* (2015) carried out a study in the United States whose aim was to evaluate the effectiveness of CBT to reduce externalizing symptoms in two disorders: ADHD and ODD. Results of the study conveyed that the biggest improvement, after CBT, was in ODD symptoms (-0.879). Overall, CBT was found to be an effective treatment option for externalizing disorders. The results also revealed that CBT minimally reduced the ADHD symptoms in the experimental group. The reason why the ADHD symptoms did not reduce as observed in ODD symptoms could be because medication is required in the children with ADHD which in this case was not possible because of the financial implication it would have on the parents of the participants in this study. Fraser and Wray (2008) observed that if there is a comorbid diagnosis of ADHD, the use of stimulant medication to treat these symptoms may show some improvement in ODD symptoms. Improvements in overall behavior have also been seen in short term controlled trials of atomoxetine (Strattera) and clonidine (Catapres) in children with ODD and ADHD. However the long term efficacy and side effects of these medications in the management of ODD has not been assessed. The complexity of comorbidities and the need for thorough assessment generally require multidisciplinary management and there is no indication for pharmacological intervention on its own. This means that medication would not reduce the symptoms of ODD without co-existing with ADHD. In agreement, Serra-Pinheiro *et al.*, (2004) reported that methylphenidate was able to diminish 63% the fulfillment of ODD criteria in participants with ODD comorbid with ADHD. Additionally, Hood, Elrod, and DeWine, (2015) reported that the treatment of ODD should be focused on non-pharmacologic approaches as psychopharmacology is relatively ineffective for the core symptoms of ODD. Pharmacologic management should be viewed as adjunctive for the treatment of comorbid ADHD. Most treatment effects of oppositional symptoms are highly correlated with those of ADHD core symptoms, making it difficult to independently assess the effectiveness of medications for ODD. Additionally a study done by Battagliese *et al.* (2015) to show the effectiveness of CBT on ODD and ADHD symptoms,

showed that ADHD had a slight reduction of (-0.343) compared to the ODD symptoms and that CBT was associated with improved attention (-0.378).

Conclusion

From the findings of this study it is evident that children in primary schools have symptoms of oppositional defiant disorder and ADHD as a comorbid condition. The factors that put the children at risk of developing ODD were, low social-economic status, punishment, conflicted relationship with parents, friends, not going for counseling, suspension from school. Replication of this study should be done in charitable children institutions and find out whether ODD exists and to determine whether CBT would be effective in its management. Further research should be done to determine other comorbid conditions with ODD for example; Anxiety and depression since this study only focused on ADHD. Primary schools need to have professional psychologists to deal with many cases of defiance. Lastly, further study should be done to assess the prevalence of mental disorders in parents of children with ODD and therapeutic approaches administered to ensure that the parents have a stable mental state and will be able to offer social support to their children. Since CBT was effective in the reduction of ODD symptoms we therefore reject the null hypothesis that there is no significant relationship between CBT and ODD symptom reduction among children.

Limitations

This study was not able to get all the parents to fill the CADBI tool hence relied only on the teachers report which made it difficult to assess the participants behaviour in the home setting. Not all the parents were available for psycho-education hence the children did not get enough social support to help them improve the ODD symptoms. The respondents with ADHD could not get medication because of the parents social-economic status.

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