

The Prevalence of Oppositional Defiant Disorder among Children in Selected primary schools in Nairobi County, Kenya

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Abstract

There is an increase in the cases of defiance among children in primary schools in Kenya. This has an impact on the child and the families since a lot of time and money is needed to take care of such a child. The purpose of this study was to find out the prevalence of oppositional defiant disorder among children in selected primary schools in Nairobi County, Kenya. The study involved respondents aged between 9 to 14 years. Quasi experimental research design was used in the study with a sample size of 180 respondents. Two schools were selected using purposive sampling. The experimental group received CBT intervention for three months, while the control group did not. Data collected was analyzed using SPSS version 23 and descriptive statistics were generated. Reliability tests of the CADBI scores showed reliability at 0.8 to 0.9. The overall ODD prevalence was 79%, with males having a higher prevalence than females. ODD increased with respondent's educational level. It is recommended that primary schools need to have psychologists to provide mental health services to children with ODD and offer timely intervention.

Key words: oppositional defiant disorder, socio-demographic characteristics, prevalence, child and adolescent disruptive behavior inventory.

Introduction and Background

According to American Psychological Association (2013), oppositional defiant disorder (ODD) is a pattern of angry, irritable mood, argumentative/ deviant behavior, or vindictiveness lasting at least 6 months as evidenced by at least four symptoms exhibited during interactions with at least one individual who is not a sibling. The following are the symptoms; often loses temper, is often touchy or easily annoyed, is often angry/resentful, often argues with authority figures, or children and adolescents, with adults, often actively defies or refuses to comply with requests from authority figures or with rules, often deliberately annoys others, often blames others for his or

her behavior, has been spiteful or vindictive at least twice within the past 6 months for individuals older than 5 years and the behavior showed occur at least once a week.

A study by Fossum (2008) reported that disruptive behavioral disorders such as ODD are frequently seen by the mental health community services in the US and are the regular reasons for referring children to mental health service in Norway. Children with ODD are at risk of developing a variety of problems including peer rejection, school failure, substance abuse, and criminality for which the prognosis is poor.

In a longitudinal perspective, a substantial number of children displaying early symptoms of ODD go on to adolescence and young adulthood experiencing significant mental health problems, physical health problems, academic problems, economic problems, and engaging in serious violence (Burke, Hipwell & Loeber, 2010). One study by Munkvold, Lundervold and Manger (2011) found that the impact of symptoms and the prevalence of ODD were higher in boys than in girls. Fraser and Wray (2008) also found out that girls were more likely to demonstrate symptoms after the onset of puberty, during the adolescent years, whereas boys more frequently showed symptoms in early childhood. The manifestation of ODD in boys also differed from the manifestation of ODD in girls in that boys were more likely to demonstrate physical aggression or threaten others (overt aggression), whereas girls were more likely to harm or disrupt relationships with others, better known today as relational aggression. Individuals diagnosed with early-onset of ODD were more likely to have been abused by their parents, dropped out of school, engaged in serious crimes, and had greater long-term involvement with the mental health system.

Additionally, Egger and Angold (2006) established that the rate of ODD in various US populations was 4% to 16.8%. A Spanish study reported prevalence figures of between 4.7% and 5.6% (Ezpeleta, de la Osa, Granero, Domènech & Reich, 2011). According to Ogden and Halliday-Boykins (2004), behavior difficulties among children are of great concern in Norway, as in other countries. The same study showed that behavior hitches occurred in about 10% of children with the prevalence of serious problems in the range of 1%–2%. Surveys conducted in Iran showed that the prevalence of childhood disorders range from 6% to 19% (Kaplan and Sadouk, 2009). According to a study by Safari et al. (2012), the prevalence of the disorder among children has increased the concern about children's mental health. Ghanizadeh (2011)

determined that ODD is a common psychiatric disorder in children. Its rate in clinical samples in Iranian children has been reported as between 30% to 60%. In another study by Bagherizadeh, Nasab and Goudarzvand (2015), the prevalence rate of ODD was estimated at 3 to 8 %, with its prevalence reported to be higher in boys than in girls. Another study on ODD among boys aged 5 to 10 in Tehran in Iran estimated the prevalence at 3.6% among elementary school students (Kaplan and Sadouk, 2009).

Similarly, ODD's prevalence in community samples of children in Brazil Rio de Janeiro was 6% and the estimated prevalence of ODD in clinical ADHD samples was 50%, much higher than in the general population (Serra-Pinheiro et al., 2004). In addition, Burns and Walsh (2002) demonstrated that hyperactivity/impulsivity symptoms were a significant predictor of later development of ODD. Other studies by Wichstrom et al. (2012) and Heiervang et al. (2007) indicated considerable lower rates in Norway (1.8% and 2.5%). In line with these studies, DSM-5 (2013) reported that the prevalence of ODD ranges from 1% to 11% with an average prevalence estimate of around 3.3%.

Mishra et al. (2014) carried out a cross-sectional study in India among school aged children selected from four different schools in Indore District. A sample of 900 hundred children aged between 6 and 11 years was used. In this study, the prevalence of ODD was found to be 7.73% and equal among male and female. Further, from a 4-year longitudinal study in Turkey carried out by Ercan et al. (2013), the prevalence rate was found to be 3.77%, 0.96%, 5.41% and 5.35% in the first, second, third and fourth waves, respectively. The mean prevalence in this study was found to be 3.87%. In the same vein, a nationwide twin study by Kerekes et al. (2014) found out that the prevalence estimates for these behavioral disorders vary widely. The study findings revealed that though reports tend to be consistent in findings on an increased prevalence of these disorders in boys, the prevalence of both ODD problems was higher in boys than in girls by 3.5%. On the other hand, Loeber, Burk and Pardini (2009) reported that even though boys and girls have been found to show equivalent levels of externalizing behaviors and verbal aggression, boys showed greater levels of hitting and destruction.

Loeber et al. (2009) articulated that most research examine only boys with ODD and exclude girls. They further expressed that the current research may not sufficiently address the

development of ODD in girls, as many research studies do not investigate data on girls separately or do not examine girls at all. Further, research that has examined gender differences has suggested that boys are influenced more by temperamental factors whereas girls are influenced more by familial factors, although the same diagnostic criteria is used to diagnose both boys and girls (Loeber et al., 2009). Similarly, Parritz and Troy (2014) mentioned in their study that ODD is higher in boys than in girls.

In a study carried out in Kenya, the prevalence rate of ODD was found to be 12.1% (Kamau, Kuria, Mathai, Atwoli and Kangethe, 2012). Muthoni and Karume (2014) further stated that there was a great need for psychologists to work with this population in Kenya because children with ODD may be mistaken for being naughty and difficult to handle. Children are often punished at home and in the school, they may also be ignored, shunned by their prosocial peers and in the process, join up with others like them and form gangs of antisocial persons. Muthoni and Karume further concluded that in Kenya, ODD has not been much researched and that therapists in the country are unable to deal with children with ODD and other disorders such as ADHD, anxiety and autism spectrum. This study was conducted in Kenya based on existing gap in the diagnosis of ODD among children and the global prevalence.

Methodology

Quasi-experimental research design was used in this study among children in the selected primary schools in Nairobi County. The SDQ was completed by 315 children; the CADBI was filled by the parents and teachers. A total of 249 respondents met the criteria for ODD out of which 180 were systematically sampled. Data from the study was collected from children ages 9–14 years after Assent/consent was obtained. In this study, Fisher's formula was used as cited by Fisher, Laing, Stoeckel, and Townsend (1991) to calculate the minimum required sample size, using mean and standard deviation estimates. Allowing for 10% attrition rate, the total sample size was adjusted upwards to 180.

During the study period, a total of 4 respondents dropped out bringing the total number of respondents to 176. The Participants socio-demographic questionnaire included the following variables: age, gender, class, religion, socio-economic status, academic performance, living with mother/father, step-parent, and grandparents) among other variables. The CADBI tool (both

parents and teacher versions) were completed to help in the assessment of children with ODD. CADBI has proved to have good reliability and validity for assessing for ODD symptoms.

Statistical analysis was done using IBM SPSS version 23. Microsoft Excel was used in processing statistical output as well as constructing data tables and graphs. Descriptive statistics for frequencies was performed to determine the responses for the different categories. Prevalence of ODD was determined using the formula:

$$Prevalence (\%) = \frac{\text{number of students with ODD}}{\text{Total number of participants selected for study}} \times 100$$

Chi Square analysis for association was also performed to establish the association between the socio-demographic characteristics of the respondents in relation to the parents and teachers' responses collected using the CADBI tool. The strength of association was also estimated using the Phi value from the chi Square analysis. Significant association was reported at $p < 0.05$.

Results

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 1 presents the socio-demographic distribution characteristics of the respondents. The sample was 180 respondents who were mainly distributed between classes 4 to class 7. Most of the respondents were in standard 7 (41.76%) with their numbers decreasing from class 6 (27.8%), standard 5 (24.4%) and standard 4 (3.9%) with only 7 participants in the control and no participants in the experimental group, respectively.

Table 2: Distribution by Gender

Timeline	Class	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	56.1%	180
Midline						
	Control	35	38.9%	55	61.1%	90
	Experimental	44	48.9%	46	51.1%	90
	Total	79	43.9%	101	56.1%	180
Endline						
	Control	34	38.2%	55	61.8%	89
	Experimental	43	49.4%	44	50.8%	87
	Total	77	43.75%	99	56.25%	176

Table 2 presents the distribution by gender. On the basis of gender, there were 79 (43.9%) males and 101 (56.1%) females respectively both at baseline and midline of the study. However, at end line of the study, there were 77(43.8%) males and 99 (56.25 %) females respectively.

Table 3: Distribution by age of the participants

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 3 presents the distribution by age. The participants were aged between 9 and 14 years. The participants 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.

3.2 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 most of them being Christian (92.2%) and Muslims (7.8%). Protestants were the largest in number (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 gatherings once in a week (165, 91.7%). A few students attend religious services once a month (3.3%) and once a year (2.2%) while only 2.8% of the participants never attend religious gatherings completely. Moreover, most of the participants have a guidance and counseling teacher (150, 83.3%).

In terms of performance, the respondents 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 majority of the participants was in an urban setting (157, 87.2%) while the rest (23, 12.8%) live in their rural setting. More so, many of them are living with their parents (177, 98.9%) with only 2 (1.1%) 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 ($p = 0.000$). The numbers of respondents for these factors were distributed significantly between the control and experimental groups respectively. All other socio-demographic factors responses were distributed equally and therefore remained statistically significant for both the control and experimental groups ($p > 0.05$).

Table 4: Social demographic details of the respondents

Variables	Total (n=180)		Control (n = 90)		Experimental (n = 90)		X 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	-	1	0.424
Yes	150	(83.3%)	77	85.6%	73	81.1		0.060		
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	-	1	0.090
Rural	23	(12.8%)	15	16.7%	8	8.9%		0.016		
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 $p < 0.05$

Table 5 revealed that the respondents in this study had various family settings. Most of the students are living with both of their biological parents (118, 65.6%). An equal number of participants live with parents that have separated (17, 9.4%) and others with step parents and (18, 10%). Some of the participants' parents are divorced (3, 1.7%) and 20 (11.1%) of the children live with single parents. The distribution of these family settings for 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 ($p = 0.000$ indicating that the subjects economic status varied significantly in the study.

The respondents came from families with diverse sizes of family members. Many of them are from family sizes between 5-7 family members (115, 64.2%), followed by between 2-4(38, 21.2%), 8-10(22, 12.2%), 11-13 (3, 1.8%), and 14-17 (1, 0.6%) family members. The variation between the control and experimental groups were not statistically significant $p > 0.05$). The relationship between the respondents and their parents was reported as close for 76 (42.2%), conflicted for 88 (48.9%) and distant for 16 (8.9%). The differences in the distribution in the control verses the experimental group was statistically significantly ($p = 0.000$). The parents who do not use alcohol were majority (157, 87.2%) compared to those that use alcohol 23 (12.8%) when distributed between the control and experimental groups. As for those that take drugs, a similar trend was observed for those that used drugs, others used alcohol together with other drugs such as cigarettes (1, 0.6%), miraa and cigarettes (1, 0.6%) and only 9 (5.1%) of the student' parents reported to be using cigarettes alone.

Table 5: Respondents socio-demographic characteristics

Factors	Total (n = 180)		Control (n = 90)		Experimental n = 90		X ²	phi	Df	p value
	N	%	N	%	N	%				
Family setting										
Both biological parents	118	(65.6%)	52	57.8%	66	73.3%	9.942	0.235	5	0.077
Living with a step parent	17	(9.4%)	8	8.9%	9	9.4%				
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%	39.365	0.468	2	0.000***
Middle class	48	(26.7%)	7	7.8%	41	45.6%				
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%	2.910	0.127	3	0.406
5-7	115	(64.2%)	60	66.7%	55	61.1%				
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%	22.638	0.355	2	0.000***
Conflicted	88	(48.9%)	54	60%	34	37.8%				
Distant	16	(8.9%)	13	14.4%	3	3.3%				
Do parents take alcohol										
No	159	(88.3%)	79	87.8%	80	88.9%	0.054	-0.017	1	0.816
Yes	21	(11.7%)	11	12.2%	10	11.1%				
Drugs used by parents										
No answer	164	(91.1%)	83	92.2%	81	91.1%	4.624	0.160	4	0.328
Alcohol or wine	4	(2.2%)	3	3.3%	1	1.1%				
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 6 shows the respondents socio-demographic factors that were statistically significant. This included friends at school ($p = 0.004$), whether the respondents 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 ($p = 0.001$) 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. 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 the respondents ($p > 0.05$).

Table 6: 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 by parents										
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 $p < 0.05$

Reliability of Measures - Cronbach’s Alpha

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 correlations between the items belonging to a factor (Iacobucci & Churchill, 2010). Table 10 Cronbach’s values per constructs were as presented below. 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 required variables since it improved from great to superb at endline as shown in table 7.

Table 7: 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

Prevalence of ODD

The prevalence of ODD was determined on the basis of the gender of the participants in this study in the baseline survey. The age of the students was between the ages of 9 and 14 years. At the beginning of the study, a total of 315 participants were identified. 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 respondents were adversely affected with symptoms of ODD among the 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, when both gender were combined, ODD towards peers was more dominant (86.7%) compared to ODD towards the adults (74.6%) (see Table 8)

The parent’s baseline survey also showed a contrast with the teacher’s findings. 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 counterparts had lower prevalence values of 56.4% for ODD towards adults and marginally lower prevalence of 65.4% for ODD towards their peers compared to the female. Just as it was 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% and 62.2%) (see Table 8).

Table 8: Prevalence of ODD in Baseline Survey

Group	Gender	N	ODD (adults)	ODD (Peers)
Teachers (CADBI)	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 (CADBI)	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%)

Discussion

This study sought to determine the prevalence of oppositional defiant disorder among children in selected primary schools. On the basis of gender, the female respondents were more than the male counterparts 77(43.8%) and 99 (56.7%), respectively. The difference in gender could be because of the fact that in recent times, there has been a concerted effort to empower the girl child as observed by Gitonga, Muriungi, Ongaro and Omondi, (2017). This could be the reason there were more female than male students. The number of students using Kiswahili (83.9%) and English (16.1%) as a language was significantly different between the control and experimental groups respectively ($p < 0.026$). This suggests that the main language of communication was Kiswahili.

In addition, there was a statistically significant difference in the distribution of respondents in the various religious groups ($p = 0.002$). Protestants were the highest in their distributions (43.9%) followed by Catholics (25.6%), Anglicans (7.2%) and Muslims (7.2%). Kenya Religions Statistics (2006) cited in Gitonga et al, (2017). It was reported that Protestant were 45%, Roman Catholic (33%), indigenous beliefs at 10%, Muslims at 10% and others were at 2%. This statistics did not vary greatly from our socio demographics for religious groups in this study. This is because the Protestants are the majority and the Muslims are a minority religious group in

Kenya. Furthermore, majority of the respondents are living with both of their biological parents together (118, 65.6%).

Friends at school was also significantly distributed between the control and experimental groups ($p = 0.004$). This implies that friends could be contributing to the participants' behavioral problems as a protective factor to the respondents with ODD. Majority of the respondents in the control group reported that their parents never use drugs 174 (96.7% while the respondents in the control group (84, 93.3%) also reported that they too do not use drugs. The study also revealed that the majority of the respondents had never been suspended from school. There was a significant differences in the number of respondents that were suspended from school and how they were distributed between the control and experimental groups ($p = 0.000$). The implication of this is that it is possible that despite the respondents' defiant behavior, the teachers prefer other modes of punishment other than sending the children home on suspension as demonstrated by 83.9% compared to the 16.1% that were sent home for suspension for various reasons. The suspension may be as a result of the oppositional behaviors and defiance towards authority, whether it is in interactions with one person or with a group such as society as reported by Windell (1996). Equally, Bernstein (1996) has also alluded to the fact that teachers as adults may often be too controlling and their interaction with children and adolescents with ODD may cause the adolescents to act out further. This may explain the case of the few numbers of the respondents that were sent home for suspension.

At baseline, there was a relationship between the participants who had ODD symptoms and gender. The male prevalence was 78.2% and 88.5% while female was 74.6% and 85.3%, respectively. In the same vein, a nationwide twin study by Kerekes et al. (2014) found out that though reports tend to be consistent in findings on an increased prevalence of these disorders in boys, the prevalence of both ODD problems was higher in boys than in girls by 3.5%. There was a significant relationship between the perception of the economic status of the respondents and ODD. Most of the respondents perceived as coming from poor economic background (127, 70.6%) while 48 (26.7%) were considered middle class and only 5 (2.8%) come from rich families in the entire study. Their distribution was statistically significantly different between the control and experimental study groups ($p < 0.000$). Majority of the participants came from poor economic background. According to Xiaoli et al., (2014) individual, family and socio economic status (SES) characteristics may play a significant role in the onset of psychopathology in this

developmental age. A few studies have shown higher prevalence rates of psychiatric disorders in children and adolescents who live in developing countries when compared to their peers from developed countries, probably due to their poor socioeconomic conditions and the higher environmental difficulties faced by the children and adolescents who live in less developed countries.

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 distribution between the responses in the control and experimental groups were significantly different ($p=0.027$). According to the reviewed literature reported by Ralph and Sanders, (2003) conflict with parents has been found to be strongly associated with conduct with antisocial peers and substance use. High levels of positive family relations, parental monitoring, rule setting, and positive reinforcement for appropriate behavior are associated with less contact with disruptive peers, less engagement in antisocial behavior and less substance use. Probably, the high numbers of distant and conflicted relationship when compared to the close associations among the parents of the study may explain the high levels of prevalence of ODD in this study.

Moreover literature reviewed showed that 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, & Iacono (2005). Family cohesion, as one aspect of family function, was negatively correlated with child internalizing and externalizing problems (Lucia & Breslau, 2006). Children in such families were less likely to develop behavioral problems. In cohesive and well-adapted families, members were prone to interact with each other in a harmonious manner, which further promoted parental and children's emotion regulation abilities.

The type of punishment used at school for example beating was significantly different between the control and experimental groups ($p = 0.019$) with most of the respondents (82, 8%) indicating they received beating compared to other forms of punishments. Although most of the literature shows that harsh punishment from parents is a risk factor to ODD, it was strongly associated with teachers and weakly associated with parents. 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.

Above all, the study measures of reliability using cronbach alpha values showed that the values lay between great and superb values indicating that the tool was an appropriate for the study as shown in table 7. Cronbach's alpha value is a reliable method for measuring the suitability of the CADBI tool in evaluating for ODD for the selected respondents for the study. Harada., Saitoh., Iida., Sakuma., Iwasaka., Imai., ... and Ohta. (2004) studies have also explored the use of Cronbach's alpha value as a measure of reliability and validity of the tool in measuring ODD among the selected study population. Several studies provide support for the reliability and validity of the CADBI as a measure of disruptive behavior (Burns, & Walsh, 2002). Teacher ratings on the oppositional defiant behaviour, inattention and hyperactivity/impulsivity dimensions predicted observer ratings of the same dimension in a classroom, demonstrating the predictive validity of the CADBI (correlation coefficient $r = .64-.69$). The same researchers also found test-retest values for the subscales at 3-month interval; (correlation coefficient $r = .86-.94$) (Burns, & Walsh, 2002). The scale has demonstrated high levels of internal consistency (Cronbach's $\alpha = .91-.97$), and structural validity (Burns, & Walsh, 2002).

A total of 315 respondents were identified for the study. Out of this number, only 249 students met the criteria for inclusion into the study with symptoms of ODD. Therefore, a general prevalence of 79% was recorded. This prevalence rate is much higher compared to the global prevalence because of the small population used in this study, and the slum setting within which the study was carried and the age of the respondents. According to the DSM-5, (2013) the rate of ODD may vary depending on the age and gender of the child. As reported in 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, & Szatmari, 2007).

In the baseline from the CADBI teacher's version, the male participants were adversely affected by the symptoms of ODD towards adults and their peers with a prevalence of 78.2% and 88.5%, compared to their female counter parts with prevalence's of 74.6% and 85.3%. The CADBI parent's version at baseline showed a contrasting finding to the teachers' findings. 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 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.

This discrepancy might be because it is possible for some respondents to show different behaviors in different settings and the fact that teachers and parents might interpret respondents' behaviors differently. Another reason might be because the participants might fear the consequences of opposition towards adults than towards peers hence, their behaviors might only be restricted to the setting where they are with their peers which they spend a lot of the time with.

This is consistent with a study done by Fraser and Wray (2008) who reported that oppositional behaviors may not be evident in other settings or during the medical examination, thus making the practitioner reliant on reports from family members. As the child develops and becomes involved in other environmental settings such as school, adverse experiences with peers, teachers or academic challenges can result in the child's oppositional behaviors becoming evident in those settings. This is the reason the research involved both parents and teachers so as not to rely on information of only one setting.

Although the results cannot be compared to the findings of this study, the researcher discovered that it is not possible for the parents and teachers to report the same behaviors since these are two different settings. This is consistent with a study on the prevalence of ODD in HIV-infected South African children by Zeegers, Edson, Rabie, Cotton, and Toorn (2009), which reported 12% based on parent questionnaire and 9.5% prevalence based on teachers' questionnaire. This has the same difference found in this study in regard to parents and teachers report.

This study also shows a big contrast in the prevalence of ODD compared to a study carried out in Kenya, which showed a prevalence of ODD to be 12.1% (Kamau, Kuria, Mathai, Atwoli, & Kangethe, 2012). This shows that the percentage of respondents has increased since then. Additionally, from the literature reviewed that was closely compared to this study by Ghanizadeh (2011) who reported that ODD is a common psychiatric disorder in children and its rate in clinical samples in Iranian children has been reported from 30% to 60%. Another study showed a

high prevalence of 28% to 65% in clinical samples (Boylan, Vaillancourt, Boyle, & Szatmari, 2007).

Furthermore, this study revealed that the symptoms of ODD were not constant because they reduced as is evident in the three timelines. This means that the symptoms of ODD reduced as observed from baseline to endline. The symptoms were the same towards the adults and peers (35.6% and 35.6%) in both male and female. This shows that there was a reduction of ODD symptoms in an evaluation at midline study (55.6% and 47.8%), (36.1% and 33.9%) at the end of the study, which reduced the symptoms to 35.6 %.

Limitations of the Study

The following limitations were highlighted:

This study used a smaller sample since the teachers could not fill many CADBI forms due to the large population of students in the school hence the prevalence cannot be generalized to other settings. It focused only on the prevalence of ODD among children from low socio-economic status in the selected primary schools in Nairobi County. The results from children in middle and rich may yield different results. The study only relied on parents' and teachers' information on the children. If a tool was filled by the children was used, the results would have been comparable to the results from the teachers and parents. Additionally, this study was not able to get all the parents to fill the CADBI (parent's version) forms on their children hence, relied only on reports from the teachers. This made it difficult to find out the behaviours of the same children in the home setting. Moreover, this study was carried out only with children aged 9-14 years. Most of the children younger than 9 years and older than 14 years were omitted.

Further study could be carried out with a larger sample in order for the results to be generalized to other settings. Another study could be done to determine other comorbid conditions with ODD such as Anxiety and depression. Replication of this study could be done in charitable children institutions to find out the prevalence of ODD. Further research could be carried out among children from middle and rich economic status in order to establish whether it will yield different outcome from this study since this study was carried out in slum setting or low socio-economic setting.

Conclusion

From the findings of this study; the researcher concludes that primary school children have oppositional defiant disorder, which can be directed towards adults and towards their peers both at home and school environment. Most of the respondents 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 respondents coming from Uganda and Tanzania. The respondents' 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%). Religion was associated with ODD in this study as a protective factor. The total prevalence of oppositional defiant disorder was high at 79%, against the global prevalence of 2 to 16% and the Kenyan prevalence of 12%. This could be because the sample size was small and the slum setting within which the study was carried. From the study, the high prevalence rate of ODD was associated with social-economic status, conflicted relationship between the respondents and their parents and, harsh punishment in school.

Mental health professional needs to create awareness of behavioral disorders in Kenya and offer therapeutic services to children and their parents. This will reduce the mental health burden in both the children, parents and teachers in school. This will also stop the progression of oppositional defiant disorder into conduct disorder in adolescents, antisocial behavior, impulse-control problems, substance abuse, anxiety and depression which creates problems in adjustment as adults.

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