

Efficacy of Eye Movement Desensitization and Reprocessing Therapy on Post Traumatic Stress Disorder Among Orphaned Children in Institutions in Kiambu County, Kenya.

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Abstract

In Kenya, many traumatic events have been recorded in the recent years whose consequences have been dire. Children exposed to traumatic events may have a higher prevalence of Post-traumatic stress disorder (PTSD) than adults in the general population. One of the most studied and recommended intervention for trauma is the Eye Movement Desensitization and Reprocessing (EMDR) therapy. Despite all the endorsements, the effectiveness of EMDR therapy in Kenya has not been determined. This study sought to determine the extent to which EMDR therapy reduces the levels of PTSD symptoms among children in institutions of care for orphans in Kiambu County, Kenya. The study employed a triangulated design utilizing both quantitative and qualitative approaches of data collection and analysis. The study was carried out in Kiambu County within institutions of care for orphaned and vulnerable children. The target population for this study was 221 children in 50 registered institutions of care within Kiambu County aged between 11 and 17 years. The study used a sample of 157 respondents. To assess PTSD symptoms the Child PTSD Symptom Scale (CPSS) score were utilized. Descriptive statistics and t-tests were used to analyse data with the help of SPSS. Tables were used in the presentation of results. Majority 70.7% (n=111) tested positive for PTSD with 21% (n=33) having moderate PTSD and 19.1% (n=30) having severe PTSD. After the intervention, PTSD scores reduced from 23.0 ± 10.2 to 14.4 ± 9.0 ($p < 0.001$). EMDR therapy was effective in treatment of children with PTSD in orphan institutions of care by significantly reducing PTSD symptoms. Mental health institutions to embrace EMDR therapy as an effective treatment method for not only PTSD but all other psychological and emotional distress as has been the practice in other parts of the world.

Keywords: Trauma, PTSD, EMDR

Introduction

Unprocessed trauma can have long term effects on the quality and length of a person's life; it may interfere with a person's quality and length of life (Cornine, 2013). When children experience trauma, they create an internal map of how the world is as a way of trying to cope. However, if they don't create a new internal map as they grow up, the old ways of interpreting the world may interfere with their ability to function as adult (Andrades, García & Kilmer, 2021). Childhood trauma experienced due to abandonment, may result in one burying anger and fear in the hope that they will not be abandoned again. One is not able to express their opinion and especially where it is different from others (Bridge & Duman, 2020).

Prevalence of mental health problems among children and adolescents have been found to be between 10-20% worldwide (Polanczyk, Salum, Sugaya, Caye, & Rohde, 2015). The mental health needs of children and adolescents are neglected, especially in low and middle-income countries despite their relevance as a leading cause of health-related disability in this age group and their long-lasting effects throughout life (Gore, et al., 2011; Kieling, et al., 2011). Documented evidence shows that trauma and traumatic experiences is a global concern in the world today (Crespo & Fernández-Lansac, 2016; Kraan et al., 2015; Van der Kolk, 2017). Children exposed to traumatic events may have a higher prevalence of Post-traumatic stress disorder (PTSD) than adults in the general population For children in residential care, the prevalence of mental illness rates, including PTSD, have been found to consistently exceed established rates for youth within the community (Gearing, et al., 2015).

One of the most studied and recommended intervention for trauma is the Eye Movement Desensitization and Reprocessing (EMDR) therapy. EMDR therapy was developed in 1987 for the treatment of PTSD (Brown, Stowasser, & Shapiro, 2016; Shapiro & Laliotis, 2015). It includes the stimulation of right and left brain activity which appears to center around the emotional content of disturbing memories or experiences. EMDR is guided by the Adaptive Processing Model (AIP). AIP proposes that PTSD and other disorders that have no physical or chemical basis are as a result of past disturbing experiences (Cotter et al., 2017). EMDR therapy was initially found to be of benefit for the treatment of PTSD, but has also been

validated as an effective treatment modality for many other psychological disturbances which are not linked to psychological trauma. These include depression, nightmares, panic disorders, attention deficit hyperactivity disorder, social anxiety disorder. Other evidence of effectiveness of EMDR Therapy has been documented with types of psychological distress (Natha & Daiches, 2014) sexual trauma (Cornine, 2013), or generalized anxiety disorder (Paylor & Royal, 2016).

EMDR therapy use has grown globally, spearheaded by organizations such as the EMDR Institute, The EMDR International Association (EMDRIA), EMDR Humanitarian Assistance Programs (EMDR-HAP), and individual organizations, such as EMDR Kenya Trust located in Nairobi, Kenya. EMDR Therapy has been endorsed by organizations such as American Psychiatric Association, Israeli National Council for Mental Health, Dutch National Steering Committee Guidelines for Mental Healthcare, International Society for Traumatic Stress Studies, The French National Institute of Health and Medical Research, England's National Institute for Clinical Excellence, and United Kingdom's Department of Health (EMDRIA, 2015).

Despite all the endorsements, the effectiveness of EMDR therapy in Kenya has not been determined. In Kenya, many traumatic events have been recorded in the recent years whose consequences have been dire among children (Murunga, 2011). It is estimated that nine percent of children have lost their fathers, four percent have lost their mother and two percent have lost both parents (Mutiso, et al., 2016). Most of these children seek refuge in institutions of care, commonly referred as "children's homes". Unfortunately, Orphans and Vulnerable Children (OVCs) are often left unprotected after the loss of parents, placement in temporary shelters, or loss of contact with caregivers hence exposing them to further trauma (Mutiso, et al., 2016). This study sought to determine the extent to which EMDR therapy reduces the levels of PTSD symptoms among children in institutions of care for orphans in Kiambu County, Kenya.

Methodology

The study employed a triangulated design utilizing both quantitative and qualitative approaches of data collection and analysis. A triangulated design was suitable for this study

because the quantitative approach enabled the collection of data to offer aggregated patterns of the effects of EMDR therapy for PTSD among orphan children in institutions of care. The study was carried out in Kiambu County within institutions of care for orphaned and vulnerable children. Kiambu is a cosmopolitan county which has similar social cultural setting yet the institutions of child care are run and managed differently.

The target population for this study was all orphaned children in the registered institutions of care within Kiambu County. There were 33 such institutions of child care which are legally registered under the Ministry of Labor, Social and Security Services. Out of the 33 registered institutions, 11 qualified to fit within the criteria of this study; they have children whose age is within the requirement of the study (11-17 years). For any institution to be included in the study it had to meet the following criteria. First, it had to be legally registered as well as have been operational for 10 years and above. Second, management of each of the institutions had provided prior approval as well as informed consent to the study. Third, the institution must have had children within the set age of 11 and 17 years. On the other hand, the inclusion criteria for the respondents included being an adolescent in residential care aged between 11-17 years. The institutional heads and/ or guardians were required to give consent for and on behalf of the respondents while the respondents gave an assent to participate in the study. In addition, the respondents of the study would be those who had experienced trauma for the last one or more months and had PTSD symptoms. Finally, children identified by teachers and caregivers as having mental retardation and other mental disorders to the extent that they could not benefit from normal evaluation were excluded from the study.

For sample size determination, this study used Slovin's formula. Slovin's formula is used to calculate the sample size necessary to achieve a certain confidence interval when sampling a population.

$$n = N / (1 + N e^2) \text{ (Tejada \& Punzalan, 2012).}$$

where "n" represents the sample size, "N" represents the population while e is the margin of error. Therefore in a population of 221 children,

$$n = 221 / (1 + 221 * 0.05^2) = 142$$

The calculated sample was 142. However, in order to accommodate attrition in the study, 10% of the calculated sample was added to the sample. As a result, the study had a sample size of 157. Simple random sampling was used to recruit the respondents.

After the National Commission for Science, Technology and Innovation (NACOSTI) and the United States International University – Africa (USIU-A) Institutional Review Board (IRB) granted permission, the researcher held meetings with various stakeholders in preparation to the data collection. The children's officers meeting was held first followed by a meeting with the caregivers of child care homes. A full day workshop was held for the caregivers and children's officers to sensitize them on trauma issues with this vulnerable group as well as seek their permission through informed consent. These meetings and workshop were held between January and March 2020. First of all the researcher sought permission from the child officer in the county and presented the necessary authorization to conduct the study. After the permission was granted and through the mobilization of the care Institutions by the children's office, the researcher conducted a seminar on trauma in children. The seminar was attended by the children's officers, the police charged with child issues and the care givers. The researcher sought informed consent to the study from the child care institution managers. The researcher then planned visits with the individual care institution managers whose children met the inclusion criteria.

All respondents in the selected institutions within the 11-17 years of age bracket were included in the study for the baseline. Respondents who were resident in a particular institution at recruitment were assigned to that specific institution and were treated as the intervention group. The reason for recruiting all the respondents in a given institution is that all of them (within this age bracket) for that particular institution were treated as the treatment group since sampling within an institution can cause stigma and resentment among the respondents resulting from apparent differential treatment (discrimination) which may further complicate their presumed existing psychopathology. Also, population-based studies are marred by poor response rates and losses during follow-up. As such, it was necessary to recruit as many participants as possible. The baseline pre-test was administered to all of the children under the selected category so as to identify those that had PTSD symptoms. To assess PTSD symptoms the Child PTSD Symptom Scale (CPSS) score were utilized. The

CPSS was designed to assess PTSD diagnostic criteria and symptom severity among children and adolescents aged between 11 and 17 years. The CPSS includes 26 items, which are divided into 2 events, 17 symptom and 7 functional impairment items.

Out of the selected institutions, groups of not more than 10 children were assigned and EMDR therapist for each who administered the EMDR intervention guided by the EMDR-Integrative-Group-Treatment-Protocol for Children (IGTP). To avoid self-stigmatization/discrimination within a group of children of the same age group, the study included all children in the targeted classes within the same institution. The baseline pretest was administered to all the children under the selected category so as to identify those that had PTSD symptoms. Consistent with the quasi-experimental approach adopted for the study, respondents in all selected sites underwent both a pretest (baseline) and a post-test (follow-up). During each test, similar questionnaires was administered to all respondents.

This study combined both quantitative and qualitative data analysis methods. The processing and analysis of quantitative data occurred in stages. During stage1, all completed questionnaires were scrutinized at the field by the researcher to ensure completeness of the data, including the unique identifier of the child for ease of follow up should the data suggest emergency interruption. However, this identity was replaced by a code by the researcher. For data entry, a template was created using the Statistical Packages for Social Sciences SPSS version 23. The template defined the name (field name), the type (character or numeric) as well as the length (the maximum number of characters in the field) for each variable, and for numeric variable, the number of decimal places. After creation of the template data were entered into a password protected database. On completion of data entry, data cleaning and validation were performed using SPSS by comparing the entered data with the raw data forms and running of frequencies, scatterplots to detect unusually entered values. Once any errors were detected they were corrected so that the data can be analyzed without losing their integrity and robustness. A clean dataset was stored in a computer hard disk ready for analysis. All the questionnaires were filed and stored in lockable drawers for confidentiality. The clean data set was saved in SPSS for analysis.

Exploratory data analysis techniques were used to uncover the distribution structure of the study variables as well as identify outliers or unusually entered values. Descriptive statistics were used to examine the general distribution of the hypothesized factors and outcomes by means of means, median standard deviations and interquartile range for continuous variables and proportions for categorical variables. The data were summarized in form of tables, frequency distribution tables and pie charts. Bivariate association between the outcome measures (PTSD, Anxiety, and depression and participant's socio-demographics characteristics were conducted by statistical tests for bivariate analyses using t-tests, Analysis of variance (ANOVA), and Chi-square tests to determine the factors that are associated with outcomes at baseline. Generalized linear mixed models were used to determine independent predictors of the outcomes after adjusting for all the variables that were associated with the outcomes at bivariate level at $P < 0.2$. At stage 2, the same process was followed of data entry and managements after intervention, however the socio-demographic characteristics were not collected. Data set before intervention and after intervention were merged using the unique identifier in order to assess the differences before and after intervention.

Paired sample t-tests and McNemar tests were used to assess the differences before and after intervention on the individual items scores as well as the total scores and the proportions before and after interventions respectively. Linear mixed model was used to assess effectiveness of the intervention where socio-demographic characteristics was treated as fixed effects and time (before and after intervention) as both fixed and random effect. Scores of participants who were lost to follow-ups were imputed using five randomly generated scores based on their baseline PTSD scores, and their socio-demographic characteristics at baseline. The level of statistical threshold was set at $P < 0.05$. All the analyses were conducted using SPSS version 23. Qualitative data were analyzed by Qualitative Solution for Research (QSR) Nvivo 10, whereby all transcripts were uploaded in Nvivo software and nodes were created thematically using a grounded theory approach. Any emerging themes were identified; framework matrixes, queries and cross tabulations were used to analyze and interpret the data.

Results

Participants' Demographic Characteristics

Table 1 presents the demographic characteristics of participants in the study. This includes their age, gender and education level.

Table 1: Participants' Demographic Characteristics

Variable	Category	Frequency (N=157)	Percentage (%)
Age in years	11-13 Years	77	49.4
	14-15 Years	39	25.0
	16-17 Years	40	25.6
	<i>Non-Response</i>	<i>1</i>	
Age in years	Mean±SD; Range	13.8±2.0	[11-17]
Gender	Boy	62	39.5
	Girl	95	60.5
Education Level	Lower Primary (Class 1-4)	29	19.1
	Upper Primary (Class 5-8)	94	61.8
	Secondary	29	19.1
	<i>Non-Response</i>	<i>5</i>	

The majority 60.5% (n=95) of participants in the study were girls as shown in Table 1. Slightly below half 49% (n=73) were aged between 11 and 13 years. Results show that 26% (n=32) were in grade 7, 19.5% (n=24) were in grade 6 while 16.3% (n=20) were in grade 5. Among participants who were in high school, 40% (n=12) were in Form 1 while an equal number 40% (n=12) were in Form 3. These results show that the sample in the study was representative as it included participants of various gender, age and education level.

Prevalence of PTSD Symptoms

PTSD was evaluated using CPSS. Table 2 presents the responses of individual items of bothersome things in the last two weeks.

Table 1: Individual Responses to CPSS items

The Child PTSD Symptom Scale items	Not at all	Once a week	2 to 4 times a week	5 or more times a week	Mean±SD
Having upsetting thoughts or images about the event that came into your head when you didn't want them to	51(32.5%)	42(26.8%)	20(12.7%)	44(28.0%)	1.36±1.20
Having bad dreams or nightmares	51(32.5%)	48(30.6%)	30(19.1%)	28(17.8%)	1.22±1.09
Acting or feeling as if the event was happening again	76(48.4%)	27(17.2%)	20(12.7%)	34(21.7%)	1.08±1.22
Feeling upset when you think about it or hear about the event	38(24.2%)	46(29.3%)	32(20.4%)	41(26.1%)	1.48±1.12
Having feelings in your body when you think about or hear about the event	65(41.4%)	27(17.2%)	38(24.2%)	27(17.2%)	1.17±1.15
Trying not to think about, talk about, or have feelings about the event	44(28.0%)	35(22.3%)	27(17.2%)	51(32.5%)	1.54±1.21
Trying to avoid activities, people, or places that remind you of the traumatic event	51(32.5%)	32(20.4%)	22(14.0%)	52(33.1%)	1.48±1.25
Not being able to remember an important part of the upsetting event	60(38.2%)	33(21.0%)	23(14.6%)	41(26.1%)	1.29±1.23
Having much less interest or doing things you used to do	51(32.5%)	43(27.4%)	24(15.3%)	39(24.8%)	1.32±1.17
Not feeling close to people around you	52(33.1%)	34(21.7%)	31(19.7%)	40(25.5%)	1.38±1.19
Not being able to have strong feelings	51(32.5%)	33(21.0%)	30(19.1%)	43(27.4%)	1.41±1.20
Feeling as if your future plans or hopes will not come true	63(40.1%)	26(16.6%)	26(16.6%)	42(26.8%)	1.30±1.25
Having trouble falling or staying asleep	74(47.1%)	32(20.4%)	26(16.6%)	25(15.9%)	1.01±1.13
Feeling irritable or having fits of anger	47(29.9%)	48(30.6%)	27(17.2%)	35(22.3%)	1.32±1.13
Having trouble concentrating	51(32.5%)	32(20.4%)	33(21.0%)	41(26.1%)	1.41±1.19
Being overly careful	55(35.0%)	32(20.4%)	31(19.7%)	39(24.8%)	1.34±1.20
Being jumpy or easily startled	62(39.5%)	32(20.4%)	28(17.8%)	35(22.3%)	1.23±1.19

The most prevalent things that bothered the respondents was “Trying not to think about, talk about, or have feelings about the event (1.54±1.21)” followed by “Trying to avoid activities, people, or places that remind you of the traumatic event”, (1.48±1.25) “Feeling upset when you think about it or hear about the event (for example, feeling scared, angry, sad, guilty, etc)” (1.48±1.12) and “Not being able to have strong feelings (for example, being unable to cry or unable to feel happy)”. (1.41±1.20) The least prevalent bothersome items included, “Having trouble falling or staying asleep” (1.01±1.13), “Acting or feeling as if the event was happening again” (1.08±1.22) and “Having feelings in your body when you think about or hear about the event” (1.17±1.15). These results show that participants in the study experienced PTSD in various ways. The study also sought to find out how PTSD affected the participants.

Table 2: Interference of the Problems experienced

Have the problems rated gotten in the way with any of the following areas of your life:	Frequency (N=157)	Percentage (%)
Doing your prayers	115	73.2
Chores and duties at home	103	65.6
Relationships with friends	109	69.4
Fun and hobby activities	108	68.8
Schoolwork	113	72.0
Relationships with your family	92	58.6
General happiness	117	74.5

As shown in 3, majority of the respondents 72.0% (n=113) indicated that the traumatic experience interfered with their school work. Results show that 74.5% (n=117) and 69.4% (n=109) indicated that the traumatic experience interfered with their general happiness and getting along with others respectively. In addition, 58.6% (n=92) showed that the traumatic experience had interfered with their family relationship while 68.8% (n=108) indicated that the traumatic event had interfered with hobbies and fun. These results therefore show that PTSD among the study participants impacted them negatively. Table 4 presents the results of the prevalence of PTSD symptoms according CPSS scale.

Table 3: Prevalence of Traumatic Experience and PTSD

The Child PTSD Symptom Scale (CPSS)- Levels	Frequency (N=151)	Percentage (%)	95% C.I.	
			Lower	Upper
Below Threshold	29	18.5	12.7	24.8
Sub-Clinical	17	10.8	5.7	15.3
Mild	13	8.3	4.5	12.7
Moderate	33	21.0	14.6	27.4
Moderately Severe	27	17.2	11.5	23.6
Severe	30	19.1	13.4	25.5
Extremely Severe	8	5.1	1.9	8.9
Negative	46	29.3	22.3	36.3
Positive	111	70.7	63.7	77.7
The Child PTSD Symptom Scale-Scores	Mean	SD	Media n	Rang e
Child PTSD Symptom Scale (CPSS) score	22.4	10.6	24.0	[0- 45]
Re-experiencing Symptoms	6.3	3.7	7.0	[0- 15]
Avoidance Symptoms	9.7	4.9	10.0	[0- 21]
Hyperarousal Symptoms	6.3	3.6	7.0	[0- 15]
CPSS Functioning Score	4.8	2.1	5.0	[0-7]

Based on the recommended cut-off points, 18.5% 95% C. I (12.7%-24.8%) had below threshold of PTSD symptoms; 10.8% 95% C. I (5.7%- 15.3%) were classified as sub-clinical; 8.3% 95% C. I (4.5%- 12.7%) had mild PTSD symptoms; 21.0% 95% C. I (14.6%- 27.4%) had moderate PTSD symptoms; 17.2% 95% C. I (11.5%- 23.6%) had moderately severe PTSD symptoms ;19.1% 95% C. I (13.4%- 25.5%) had severe PTSD symptoms and 5.1% 95% C. I (1.9%- 8.9%) had extremely severe PTSD symptoms. The Prevalence of Probable PTSD symptoms was 70.7% 95% C. I (5.763.7%- 77.7%). The mean Child PTSD Symptom Scale-Scores was 22.4, SD=10.6, Median=24.0 and ranged from 0-45. These results therefore show that the prevalence of PTSD was high. Table 5 below shows the results of socio-demographic factors associated with PTSD scores (CPSS-Scores).

Table 4: Socio-Demographic Factors Associated with PTSD (CPSS-Scores)

Variable	Category	N	Mean	SD	p-value
Age in years	11-13 Years	77	21.77	11.30	0.747
	14-15 Years	39	21.97	9.69	
	16-17 Years	40	23.30	9.78	
Gender	Boy	62	22.03	10.25	0.762
	Girl	95	22.56	10.88	
Education Level	Lower Primary	29	25.17	12.07	0.152
	Upper Primary	94	20.90	9.93	
	Secondary	29	22.28	9.71	
	Yes	15	25.87	9.89	

There was no significant association between demographic characteristics and PTSD scores in the participants.

Effect of the Intervention on PTSD

Paired t-test comparison before and after intervention of the outcome measures are presented in Table 6 below.

Table 5: Effect of the Intervention on PTSD

Measure	Condition	Pre	Post	Mean Difference	t	df	Sig.	Effect Size d[95% C.I.]
		Mean±SD	Mean±SD					
PTSD	Child PTSD Scores	23.0±10.2	14.4±9.0	8.7	8.8	13	<0.001	0.81[0.57-1.04]
	Re-experiencing Symptoms	6.5±3.7	4.2±3.3	2.3	6.0	13	<0.001	0.60[0.36-0.83]
	Avoidance Symptoms	10.0±4.8	6.0±4.3	4.0	8.6	13	<0.001	0.81[0.57-1.04]
	Hyperarousal Symptoms	6.5±3.5	4.2±3.0	2.3	6.8	13	<0.001	0.64[0.41-0.88]
	CPSS Functioning Score	4.8±2.0	1.8±2.1	3.0	12.3	13	<0.001	1.46[1.20-1.72]

The mean score in all the outcome measures was high at baseline (23.0±10.2) as compared to scores at end line (14.4±9.0) for PTSD (p<0.001). The mean difference, effect size and 95% C.I. are summarized in Table 6. The participants enrolled had higher scores values at baseline and lower scores at post. This implies that the intervention is able to accelerate reductions of symptoms scores.

Data for this study was also collected via in-depth interviews with therapists who took part in the study. Five therapists took part through interviews. Three of the therapists had been practicing for less than 10 years while 2 had been practiced for over 18 years. All five participants had a master's degree in psychology. In addition, all five had been trained on level 1 and 2 EMDR therapy. One participant had additionally been trained in EMDR Level 1 on child therapy. Training on EMDR therapy for the participants had taken place within the previous 5 years from the date of the study. Content analysis was used and emerging themes identified.

Low utilization of EMDR therapy

An emerging theme from the interviews is that EMDR therapy was rarely used. The participants met between 1 and 5 clients weekly for EMDR therapy with most of them having just one client.

Good supervision of therapists on EMDR therapy

According to all the participants, there was supervision for EMDR therapy. The participants indicated that supervision was done as required by guidelines. Supervision was conducted monthly according to 3 respondents and as needed according to 1 of the participants. However, there was a shortage of supervisors as only 2 are available in Kenya.

Poor experience of EMDR therapy on children

Participants in the study had a poor experience with using EMDR therapy among children. Most of the participants had experience of EMDR therapy working with adults on domestic violence, trauma and bullying. Two of the participants had no experience whatsoever while the rest used it rarely on children.

" I have used the individual protocol on children on just a few cases"

"On very few sessions"

"Occasionally, I have used the individual protocol for children from ages 13 years and older"

"I worked with some children in a school that had experienced a tragic loss of two other children in a road accident"

EMDR therapy effective among children

Despite the poor experience of participants using EMDR therapy among children, majority of the respondents agreed that EMDR therapy is effective among children. The participants indicated that children appreciated the therapy and when they evaluated the results, they found progress.

"Working with children was amazing with a lot of learning and patience"

"Most of the children were very happy with the butterfly hug as well as the happy/safe place"

"To my observation there was very good positive progress in processing of their issues individually but in a group set-up."

The caregivers responses to the question on whether there was any noticeable change in the children who received EMDR therapy;

"It is quite relieving to notice how most of the children in our home are more happier and peaceful"

"There is this one boy who was always fighting with the others for no reason. This is not happening anymore. It is such a relief"

"Most of them are sleeping better as they have reported to me. The use of the butterfly hug has been very calming for all of them"

"It is like this therapy worked for our children. Most are just so peaceful"

Challenges of using EMDR therapy

The main challenge identified by participants has to do with the difficulty of subjects understanding the therapy. The participants indicated that some of the patients had been sceptical to EMDR process but once they got to understand the instructions, they had high value of the therapy. Other challenges included lack of adequately trained counsellors and lack of contextual guidelines.

"It takes a while to explain what EMDR is about for clients to understand EMDR but once they do it is quite effective. "

"Contextually, people have difficulties understanding EMDR but once they do it is an amazing

approach"

"There is need to contextualize the concepts for easier administration of EMDR and so that clients can easily understand how the process works"

Discussion

The level of PTSD reduced from a mean of 22.82 at baseline to 14.37 at post-test. PTSD score reduction among the participants was significantly associated with the intervention ($p < 0.001$). Participants who were upper primary and secondary had significantly better outcomes as compared to those in lower primary ($p < 0.05$). These results therefore show that EMDR therapy reduces the levels of PTSD symptoms among children in institutions of care for orphans to a large extent. This lends support to Wilson et al. (2018) findings whereby EMDR therapy improved PTSD diagnosis, reduced PTSD symptoms, and reduced other trauma-related symptoms. Similarly, Quevedo et al. (2021) showed a decrease in PTSD symptom severity and did no longer meet DSM-5 PTSD criteria at posttreatment. Beer (2018) also found that EMDR therapy produced significant reductions in PTSD symptoms at posttreatment and also in other trauma-related symptoms, when measured. The findings of this study therefore support the use of EMDR therapy in reduction of PTSD symptoms especially in vulnerable children. This is important because as mentioned above the symptoms reduced at a 34.4% from baseline scores to the post test. The care givers from these institutions of orphans and vulnerable children in Kiambu County reported great change in the children after the first session. At the post test period, the 'mothers' that they could observe calmness in many of the children who went through the EMDR therapy sessions.

Conclusion

The study concludes that EMDR therapy was effective in treatment of children with PTSD in orphan institutions of care by significantly reducing PTSD symptoms. The existing mental health institutions to embrace EMDR therapy as an effective treatment method for not only PTSD but all other psychological and emotional distress as has been the practice in other parts of the world.

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