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RESEARCH ARTICLE

EXPOSURE TO POST ELECTION VIOLENCE AND DEVELOPMENT OF POST TRAUMATIC STRESS DISORDER AMONG CHILDREN IN ELDORET SUB-COUNTY, KENYA

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ABSTRACT

This study sought to determine the presence and the prevalence of PTSD among children exposed to post election violence (PEV) in Eldoret Sub County, Kenya. The study applied ex-post facto correlational research design. The study drew its population from the 1,218 class eight children in 8 purposively selected public schools categorized as urban, peri-urban, rural and slum schools in Eldoret Sub-County. Stratified random sampling method was utilized to give a sample of 192 pupils. Further, 32 teachers were purposively selected to participate in the study, making a total sample of 224 respondents. The instruments for data collection used in this study were a child Impact of Event Scale Revised Version for the screening of PTSD in children, and a Child Behavior Checklist for teacher's assessment of the children. Data was analyzed using descriptive and inferential statistics with the aid of the Statistical Package for Social Sciences (SPSS) for Windows Version 17. The findings of the study indicated that approximately 5 years after exposure to post election violence in Eldoret, children were still exhibiting PTSD symptoms. The study further found a 45.5 % prevalence of PTSD in the region. Consequently, the study recommends a screening of PTSD for children in the region with an aim of treatment. The study further recommends child-centered supportive therapy centers in schools as a trauma-focused psycho-therapeutic foundation as well as a multi-level trauma prevention approach for traumatized children in Kenya.

INTRODUCTION

Exposure to violence disrupts children's lives on multiple levels, including exposure to destruction, injury and terror and the effects to their surroundings. This disruption of the children's natural balance can threaten basic expectations of safety and normalcy, leading to a clinical picture of grief, guilt, depression and posttraumatic stress disorder (PTSD) symptoms, as well as changes in behavior and personality (Laor and Wolmer, 2007). Studies have shown that Children and adolescents often exhibit higher levels of psychological distress to disasters than adults despite seeming to perform normally on a superficial level (Maeda, Kato and Maruoka, 2009). Kenya suffered a severe humanitarian political crisis, one of the worst since independence, following the general elections of 2007. The crisis resulted in protests from the leaders of the main opposition political party and its supporters after rejection of election results of the incumbent presidential victory. According to http://www.irininews.org, the crisis degenerated into widespread violence as decades of economic frustration and ethnic rivalry spiraled out of control. In the North Rift of the country, the effects of the riots were felt heavily as people were killed, maimed, raped and houses set on fire. Mistrust and hatred amongst the communities was high and there was spontaneous attacks selectively targeting specific communities. According to BBC News, (February 28, 2008) many children especially in Rift Valley, experienced enormous traumatic events which included burning of houses, schools and property, being displaced to unfamiliar environments (e.g. police stations and Internally Displaced Camps), separation from loved ones, going hungry for days, sexual abuse just to mention a few. School-going children from destroyed schools were forced to stay at home while others, whose homes were destroyed, became internally displaced persons (IDPs) at the Eldoret show ground. These traumatic events were difficult to bear even among adults, who have the mental capabilities to process and articulate their experiences, and therefore were worse for children overwhelming the psychological wellbeing of the children in the region. Part of the possible psychological distress was post traumatic stress disorder (PTSD).

PTSD is a debilitating illness characterized by symptoms of re-experiencing, avoidance, emotional numbing and hyper-arousal resulting from an emotionally traumatic event with actual or perceived threat (American Psychiatric Association, 2000). PTSD first appeared in the DSM-III in 1980. The impetus for the development of this diagnostic category arose primarily from the need to account for the characteristic array of

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symptoms exhibited by Vietnam veterans in the United States, and as such PTSD was conceptualized around traumatized adults. However, since that time there has been increasing recognition that children, too, can develop severe and debilitating reactions to traumatization (Giaconia *et al.,* 1995).

Children and adolescents often exhibit higher levels of psychological distress to disasters than adults despite seeming to perform normally on a superficial level (Maeda, Kato and Maruoka, 2009). Several studies have shown that war and ongoing political violence are associated with higher population levels of PTSD (Ai *et al*., 2002; Canetti, Halperin, Sharvit and Hobfoll, 2009; Cardozo *et al*., 2000; de Jong *et al*., 2001; Hall *et al*., 2008; Hobfoll *et al*., 2006; Johnson and Thompson 2008). While rates vary greatly depending on the type of trauma and the population exposed, levels of PTSD often reach or exceed 50% in a given population (Attanayake *et al*., 2009). For example, in a study of Palestinians injured in the first Intifada (uprising), 50% of 120 participants had symptoms consistent with PTSD (Khamis, 1993). In a random sample of Gaza communities, 17.8% of the population was diagnosed with PTSD using structured clinical interviews (de Jong *et al*., 2001). Another study of 190 settlers in Gaza conducted on the eve of the disengagement from Gaza by Israel reported that 26% of the sample had probable PTSD (Hall *et al*., 2008). Taken together, these studies suggest PTSD afflicts a sizeable proportion of individuals exposed to conditions of chronic instability, and these symptoms often become chronic, lasting for many years after the conflict ceases (Goenjian *et al.,* 2000).

The study sought to (1) to determine the presence of PTSD in children exposed to post election violence in Eldoret Sub-County Public Primary Schools. (2) To establish the prevalence of PTSD in children exposed to post election violence in Eldoret Sub-County Public Primary Schools. **(**3) Determine whether there was a significant difference in manifestation of PTSD among children exposure to post election violence trauma. One-sample t-test was used to determine the extent of difference in manifestation of PTSD.

MATERIALS AND METHODS

This study applied an *ex post facto* (correlational) research design. The study population comprised of 192 class seven children in selected Public Primary Schools in Eldoret Sub-County, Uasin Gishu County, who were exposed to Post Election Violence. The participants were drawn from 8 schools in the categories of Rural, Urban, Peri urban and Slum as provided by the Sub-County. Data was collected by use of an Impact of Event Scale-R for assessment of PTSD. The Impact of Event Scale-Revised (Weiss and Marmar, 1997) is a 22-item PTSD screening tool used to measure how distressing each item has been during the past week. Scale scores are formed for the three subscales, which reflect intrusion (8 items), avoidance (8 items), and hyper-arousal (6 items), and show a high degree of inter-correlation (*rs* = .52 to .87, (Creamer, Bell, Failla2003). A review of 40 studies concluded that the IES has good validity and reliability, and is a good indicator of the need for psychiatric intervention (Sundin and Horowitz 2002).

RESULTS AND DISCUSSION

The first objective sought to determine the presence of PTSD in children exposed to post election violence in Eldoret Sub-County Public Primary Schools. The impact of event scale revised (IES-R) was used to measure the presence of PTSD symptoms mainly avoidance, intrusion and hyper arousal. Examples of items for each symptom cluster include, intrusion/re-experiencing: “having bad dreams or nightmares”, avoidance/ numbing: “trying to avoid activities, people or places that remind the individual of the traumatic event”; and hyper-arousal; “having trouble falling or staying asleep”. Answers are recorded on a 4-point Likert type scale, ranging from 0 (not at all), 1 (rarely), 2 (sometimes)), to 3 (often). Table 1 through 3 present the percentage frequency scores, mean, and standard deviation for each of the IES-R subscales for PTSD symptoms (avoidance, intrusion and hyper arousal).

Table 1. Distribution of Avoidance Symptoms (IES-R Avoidance Subscale)

No	Item	Not at all	Rarely	Some-times	Often
5.	Did you have strong feelings about PEV?	40 (20.8%)	46 (24%)	60 (31.2%)	43 (22.4%)
7.	Did you stay away from reminders of PEV?	41 (21.4%)	42 (21.90%)	48 (25.0%)	58 (30.2%)
8.	Did you feel as if PEV had not happened or wasn’t real?	68 (35.4%)	35 (18.2%)	42 (21.90%)	47 (24.4%)
11.	Did other things make you think about PEV?	10 (10.4%)	45 (23.4%)	86 (44.8%)	41 (21.4%)
12.	Were you aware that you still had a lot of feelings about PEV, but you didn’t deal with them?	67 (34.9%)	50 (26.0%)	46 (24.0%)	29 (15.1%)
13.	Do you startle more easily because of loud unexpected sounds or feel jumpy or nervous than before PEV?	43 (22.4%)	42 (21.9%)	59 (30.7%)	48 (25%)
17.	Have you had any trouble feeling such as love happiness sadness?	57 (29.7%)	49 (25.5%)	60 (31.2%)	26 (13.5%)
22.	Were your feelings about PEV kind of numb?	76 (39.6%)	37 (19.3%)	53 (27.6%)	26 (13.5%)
	Avoidance Subscale	52 26.83%	43 22.53%	57 29.55%	40 20.69%

Avoidance Symptoms of PTSD

The Impact of Event Scale – Revised version was used to measure avoidance symptoms of PTSD. The results of the findings are presented in Table 1(one). The results indicate that on average approximately 21% of the respondents *often* avoid situations that remind them of PEV while 30 % of the respondents reported that they *sometimes* avoid situations aforementioned. This adds up to 51% of the respondents presenting with avoidance symptoms of PTSD. These results show that half of the respondents often or sometimes tended to avoid situations that reminded them of post election violence.

The findings in this study are consistent with those reported in a retrospective chart review in Cape Town that found PTSD to be one of the most common disorders at the Child and Adolescent Psychiatry Unit at Tygerberg Hospital (Traut *et al.,* 2002). A community study in Khayelitsha, Ensink, Robertson, Zissis and Leger (1997) found that the most commonly reported PTSD symptoms were avoidance of thoughts and activities associated with the trauma, difficulties in sleeping, and hyper-vigilance. A school survey of 307 Grade Ten pupils in the Western Cape found that adolescents reported an average of 3.5 childhood traumatic experiences, and 12.1% met DSM-IV criteria for PTSD on self-report measures (Seedat *et al.,* 2000). The most commonly reported symptoms were: avoiding thoughts about the event (34.4%), irritability (28.2%), difficulty showing emotion (26.5%), emotional upset at being reminded of the trauma (24.9%), and intrusive recollections of the event (19.4%). A significant positive correlation between multiple trauma exposure and PTSD symptoms was also found.

Intrusion/Re-experiencing Symptoms of PTSD

The Intrusion subscale of the impact of event scale was used to measure Intrusion symptoms of PTSD. Table 2 presents the results of the findings. The findings indicate that on average, about 53.16% of the respondents presented with intrusion symptoms of PTSD. Frequency results show that on average 34.56% sometimes suffer from intrusion symptoms of PTSD while 18.6% often have the same symptoms. Notably, results in the comprehensive item-by-item in Table 2 show that 32.8% of the respondents often tried to remove PEV events from their memory while up to 39.1% of the respondents said that 'sometimes' they had dreams about PEV (item 3 and 6 respectively).

These results thus point towards a significant number of respondents suffering from intrusion symptoms of PTSD.

In describing the effect of exposure to traumatic events, the DSM V (APA, 2013) describes a component of the three symptom clusters in PTSD as persistent re-experiencing/intrusion of the trauma (e.g., intrusive memories and flashback experiences, often triggered by exposure to traumatic reminders, and recurring trauma related nightmares); The DSM V notes that, in children, re-experiencing may occur through repetitive play involving trauma-related themes, rather than through memories, and nightmares and that children may have generalized, rather than trauma-specific, content (American Psychiatric Association, 2013). Intrusive/re - experiencing symptoms include intrusive recollections of the trauma, nightmares or night terrors relating to the trauma, flashbacks to the event, feelings of distress, and heightened physiological reactivity in response to traumatic cues. For children, signs of these symptoms may be observed in their play behavior including repetitive play and acting out of the trauma in their play. Additionally, children's trauma related nightmares or night terrors may shift to dreams filled with more generally frightening content (Rigterink 2013).

Hyper-arousal Symptoms of PTSD

The hyper-arousal symptoms of PTSD were measured using the hyper-arousal subscale of the Impact of Event Scale – Revised. The results are presented in Table 3.

From the findings, it can be observed that more than 51% of the respondents were still exhibiting hyper-arousal symptoms of PTSD as indicated by *'sometimes'* or *'often'* responses in the hyper-arousal subscale. Further analysis of the item-by-item scores in Table 3 (item 10) shows that up to 60% of the respondents reported that pictures of PEV coming into mind made them irritable *(sometimes or often)* and approximately the same percentage sometimes or often hear or see things that remind them of what happened during PEV (Table 3, item 4). This is an indication that majority of the respondents still suffered from hyper-arousal symptoms of PTSD at the time of the study. In terms of hyper-arousal, this study found that the respondents still exhibited hyper-arousal symptoms of PTSD, with 66 (34.23%) indicating that they sometimes and 33 (17.41%) indicating that they often had hyper-arousal

Table 2. Distribution of Intrusion Symptoms (IES-R Intrusion Subscale)

No	Item	Not at all	Rarely	Sometimes	Often
1.	Did you think about PEV when you did not want to?	42 (21.90%)	63 (32.80%)	72 (37.50%)	15 (7.80%)
2.	Did you avoid letting yourself get upset when you thought about PEV or were reminded of it?	53 (27.60%)	48 (25%)	55 (28.60%)	34 (17.70%)
3.	Did you try to remove PEV events from memory?	34 (17.70%)	37 (19.30%)	57 (29.70%)	63 (32.80%)
6.	Did you have dreams about PEV?	52 (27.10%)	42 (21.90%)	75 (39.10%)	22 (11.50%)
9.	Did you try not to talk about PEV?	45 (23.40%)	37 (19.30%)	61 (31.80%)	49 (25.50%)
16.	Do things that remind you about PEV cause or trigger bodily reactions (increased heart beat, trembling)?	35 (18.20%)	34 (17.70%)	85 (44.50%)	37 (19.30%)
20.	Do you have difficulty remembering what happened?	61 (31.77%)	42 (21.88%)	59 (30.73%)	30 (15.63%)
	Intrusion Subscale	46 23.95%	43 22.55%	66 34.56%	36 18.60%

symptoms. These findings are consistent with other findings across studies. For example, Gunnar *et al*. (2009) found elevated sympathetic nervous system activation in 10 to 12 year olds who had experienced institutionalization for their 1st year of life or greater as compared to controls. In terms of sympathetic nervous system functioning in the context of violence, Saltzman *et al*. (2005) found children exposed to violence had higher baseline heart rates and higher levels of heart rate reactivity in response to an interview about the violence than controls. Conversely, one study in a metropolitan area in the Northeast, conducted by Davies *et al*. (2009), found that toddlers exposed to inter-parental aggression displayed hyper-arousal symptoms of PTSD.

Distribution of Overall PTSD Symptoms (Avoidance, Intrusion/Re-experiencing and Hyper-arousal)

The overall PSTD scores were presented in Figure (1). The histogram indicates that IES-R scores of PTSD symptoms were evenly distributed around the mean and the frequency gradually reduced towards the extreme values in both directions. This information is substantiated by the measure of dispersion and shape which shows that IES-R scores were evenly distributed and were neither peaked nor flatter than normal. Further analysis of the results in Figure 1 shows that majority of the respondents lie between an IES R score of 29.4 and 44. This is an average of 36.7 total score.

Table 3. Mean, Standard Deviation and Item by Item Percentage Frequency of Hyper-arousal Subscale

	Item	Not at all	Rarely	Sometimes	Often
4.	Did you have problems falling asleep or staying asleep because of pictures or thoughts about it that came into your mind?	43 (22.40%)	40 (20.80%)	75 (39.10%)	34 (17.70%)
10.	Did pictures about PEV coming into your mind make you irritable?	40 (20.80%)	34 (17.70%)	83 (43.20%)	35 (18.20%)
14.	Have you suddenly acted or felt like PEV was happening again?	63 (32.80%)	51 (26.60%)	46 (24%)	32 (16.70%)
15.	Have you heard or seen things that make you think about what happened during the PEV?	21 (10.90%)	53 (27.60%)	81 (42.20%)	37 (19.30%)
18.	Do you easily get irritable?	69 (35.90%)	44 (22.90%)	54 (28.10%)	25 (13.00%)
19.	Are you alert, watchful even when there is no obvious need to be?	23 (12%)	50 (26%)	73 (38%)	46 (24%)
21.	Have you been less interested in activities that you used to enjoy (i.e. sports hobbies, games)?	90 (46.90%)	29 (15.10%)	48 (25%)	25 (13%)
	Hyper-arousal Subscale	50 (25.96%)	43 (22.39%)	66 (34.23%)	33 (17.41%)

Table 4. Frequency Distribution of Child Behavior Checklist

	Item	YES	NO	Missing
1.	Does the child experience aches or pains without medical reasons?	18%	62%	20%
2.	Does the child act younger than his/her age?	14.20%	65.40%	20.40%
3.	Does the child cling to adults or is increasingly dependent?	29.60%	49.60%	20.80%
4.	Does the child act defensively?	29.60%	49.60%	20.80%
5.	Does the child bully others?	20.40%	59.60%	20%
6.	Has the child been aggressive, verbal, physical or both?	29.60%	50%	20.40%
7.	Has the child been hyper-vigilant or overtly alert?	27.50%	51.70%	20.80%
8.	Does the child overreact to minor provocations?	37.10%	42.90%	20%
9.	Does the child startle easily?	32.90%	47.10%	20%
10.	Does the child avoid discussions on the traumatic events?	32.10%	47.90%	20%
11.	Does the child avoid sounds that remind him/her of the traumatic events?	37.90%	42.10%	20%
12.	Does the child avoid places that remind him/her of the traumatic events?	40.80%	39.20%	20%
13.	Has the child been experiencing decreased interest in extracurricular activities?	22.50%	57.50%	20%
14.	Has the child been socially withdrawn?	20.80%	59.20%	20%
15.	Has the child been inattentive?	21.70%	58.30%	20%
16.	Does the child make and play with weapons toys?	16.70%	63.30%	20%
17.	Does the child talk about violence quite often?	13.30%	65.80%	21%
18.	Does the child draw pictures related to violence?	15.80%	63.80%	20.40%
19.	Does the child write about the traumatic events or violence in general?	30%	50%	20%
20.	Is the child unpredictable?	18.30%	61.70%	20%
21.	Has the child been defiant?	20.40%	59.20%	20.40%
22.	Is child's behavior unchanged by punishment?	44.20%	35.80%	20%
23.	Does the child get into many fights?	15.40%	63.80%	20.80%
24.	Does the child get too upset?	31.70%	48.30%	20%
25.	Does the child cry a lot?	18.30%	61.70%	20%

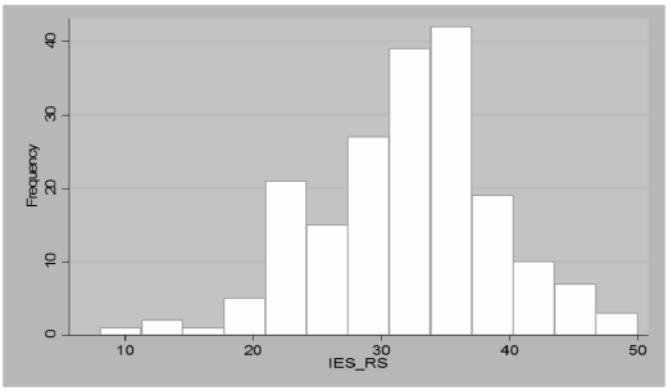

Figure 1. Distribution of PTSD Scores (IES-R)

Weiss (2007) recommends a total IES-R score of 33 or over as a likely presence of PTSD. In this study, consistent with Weiss (2007), an IES-R score of 33 signified the likely presence of PTSD. Subsequently both the mean score in each group, i.e., intrusion, avoidance and hyper-arousal symptoms along with the standard deviation (SD), as well as the sum of the scores were considered while analyzing the data. Results from this study show that exposure to post election violence was positively related to PTSD. These findings were not a surprise as numerous precedent studies have documented associations between exposure to violence and post traumatic stress disorder symptoms including re experiencing the trauma (e.g. nightmares and flaskbacks), avoidance of stimuli associated with the trauma, and increased arousal (Berman *et al*., 2000; Turner *et al*., 2006; Zahradnik *et al*., 2010). On the same, studies have revealed that violence exposure was associated with major depressive episode, posttraumatic stress disorder, and/or substance abuse and dependence (Kilpatrick *et al*, 2000; Kilpatrick *et al.*, 2003).

To further confirm the presence of PTSD among the respondents, it was important to gather information from the teachers who spend a lot of time with the children in school. A tool was administered to four teachers in every school for the 192 children who participated in the study. The Child behavior checklist, Teachers version, was an important tool in the assessment of PTSD symptoms by the teachers. The condition for administering the tool was that the teacher must have known the child for at least a period of one year. Table 4 presents the distribution of Child Behavior Checklist scores as presented by the teacher's tool.

It should be noted that all items in the child behavior checklist tool asked whether a child exhibited different symptoms that portray violent tendencies, avoidance tendencies, intrusion tendencies, unexplained pains and other PTSD related signs and symptoms. It is important to mention that approximately 20% of the teachers' questionnaires had missing values across all items. This could be associated with the fact that some PTSD symptoms are internalized while others are externalized. The externalized symptoms like aggression, hyper vigilance and unexplained pains are easily noticeable by another party other that the individual in question. This could help in explaining the missing responses. Based on the teacher's observations, the findings in Table 4 show that the respondents exhibited different PTSD symptoms. These are avoidance symptoms as indicated in items10 through 12 with an average of 36.93%. 32.5% of the respondents presented with hyper-arousal symptoms of PTSD (items 7-9) and 44.20% were reported not to respond to punishment (item 22), while 20.83% still exhibited intrusion symptoms of PTSD (items 16, 18, and 19).

Other symptoms that the respondents exhibited as observed by the teachers included unexplained pains 35 (18%), clinging to adults or is increasingly dependent 57 (29.60%) and crying a lot 35 (18.30%). In-attentiveness (21.70%) and overreacting to minor provocations (37.10%) and physical aggression 125 (65.4%) marked by items 6, 21 and 23 were also reported by the teachers. Given the relatively high levels of PTSD related symptoms observed, indications show that respondents were still experiencing some form of Post traumatic stress disorder. These findings correspond with the findings of previous studies. According to Shonk and Cicchetti (2001), hyper-vigilant children who are prone to reactivity and impulsiveness may become verbally and/or physically aggressive towards teachers and peers. One study found that traumatized children were less attentive to relevant social cues, made more mis-attributions of others' negative or hostile intent, and were less likely to generate competent solutions to interpersonal problems (Van der Kolk, 2005).

Unexplained pains such as stomachaches and headaches are positively associated with community violence exposure. Studies have shown an association between exposure to community violence and somatic symptoms. Bailey *et al*. (2005) used a cross-sectional cohort design with a sample of 268 African-American children. They found that community violence exposure in children was associated with a 28% increased risk of appetite problems, 94% increased risk of sleeping problems, 57% increased risk of headaches, and a 174% increased risk of stomachaches. These results were based on children's self-report as well as teachers' report.

Hart, Hodgkinson, Belcher, Hyman and Cooley-Strickland (2012) also conducted a cross-sectional cohort study using a sample of 409 primarily African American (85.6%) urban elementary school children. In this study, exposure to community violence was measured by child self-report. Information regarding somatic complaints was collected in two ways: by child self-report and by parent report. Hart *et al*. (2012) found that community violence exposure was positively associated with children's self-reports of somatic complaints. Children reporting community violence exposure were at an increased risk for self report, clinically significant somatic complaints. Additionally, a study in Uganda by Amone-P'Olak *et al*. (2007), found that the more the Ugandan children had experiences of war atrocities and other negative life events, the more they had internalizing symptoms such as withdrawal, somatic complaints and anxiousness. Dyregrov *et al*. (2002), in an earlier longitudinal study of the mental health of Iraqi children found that children continued to experience sadness and remained afraid of losing their family, two years after the Gulf War.

In addition, child maltreatment research has likewise broadened its spectrum from problem behaviour to

internalizing symptoms as well as to social relations. Comparing traumatized and non traumatized children, those with experiences of trauma had higher levels of internalizing and externalizing behavior (Toth *et al*., 2002; Flores *et al*., 2005). An earlier study indicated that abused children who experience more serious physical abuse show more internalizing and externalizing behavioural problems than those who experience less serious abuse (Stockhammer *et al*., 2001). The child behavior checklist therefore confirmed that the respondents still exhibited PTSD related symptoms five years after the post election violence.

Prevalence of PTSD

The findings of this study indicate that on average 45.50% of the respondents still exhibited symptoms of PTSD approximately 5 years after exposure to violence. This is one the highest prevalence reported. While prevalence rates vary greatly depending on the type of trauma and the population exposed, levels of PTSD often reach or exceed 50% (Attanayake, 2009; Yule, 2000). 25% PTSD prevalence among Palestinian children during war conflict was reported (Thabet *et al*., 2004) and 41% PTSD prevalence rate in children living in Sarajevo during the Bosnian war (Allwood *et al*., 2002). Further, a survey conducted with Rwandan orphans 10 years after the genocide found that 44% of the youth was still suffering from PTSD (Schaal and Elbert 2006) thus revealing the chronic nature of the mental health problems in children due to the war. Epidemiological studies of childhood PTSD in economically developed countries like the United States (Breslau *et al*., 2004; Kilpatrick and Saunders 1997) and Germany (Perkonnig *et al*., 2005) have reported prevalence rates of between 1% and 6.3% for boys, and 2.2% and 7.9% for girls. However, several studies with school-going samples aged 10 years and older have found that over 20% of participants have enough symptoms for a PTSD diagnosis (Seedat *et al*., 2004; Suliman *et al*., 2009). Some other studies of post traumatic symptoms among children in South Africa have yielded lower rates of risk for full-blown PTSD, such as 8% in a study of children in the Northern Province (Peltzer, 1999) and 5.8% of adolescents in a study of private schools in Cape Town (Ward *et al*., 2001), but found high rates of sub-clinical traumatic stress symptoms. Some studies have found that the overall level of exposure to community violence is more strongly predictive of emotional and behavioural symptoms amongst children and adolescents (Fincham *et al*., 2009) than overall levels of domestic violence, but these studies did not explore the contributions of specific forms of community and domestic violence to mental health outcomes. Such information would assist with prioritizing prevention and intervention programmes in a context where resources are limited.

A study by Fasfous *et al*. (2013) to evaluate the symptoms of PTSD among Palestinian school children found a prevalence of 77.4% of moderate-to-severe PTSD one of the extremely high prevalence reported. It is similar with the results of the study by Thabet *et al*. (2004) involving Palestinian refugee children, and the study by Attari *et al*. (2006) involving Iranian children who had witnessed a public hanging. Other studies, however, have found lower percentages (Elbedour *et al*., 2007; Khamis, 2005; Saigh, 1991; Smith *et al*., 2002; Thabet and Vostanis, 2000). Just like in the current study, all these studies indicate a variation in the prevalence of PTSD.

Statistical Difference in Manifestation of PTSD

As indicated earlier, in this study, a cut-off score of 33 for IES-R (overall PTSD) total scores was adopted and used to test whether development of PTSD among children in Eldoret municipality was statistically significant. It should be noted that there is no standard PTSD tool nor is there a universally accepted threshold for IES R used to diagnose PTSD. This notwithstanding the fact that a large body of research has utilized IES-R as a suitable tool when measuring risk, development and severity of PTSD (Weiss and Marmar, 1997; Creamer *et al*., 2003). Weiss (2007) recommends a threshold of 33 while Harowitz (1979), earlier recommended that a sum of the score greater than 26 should be considered as severe PTSD.

Table 5. Descriptive Statistics for IES R-score and One-sample t-test for PTSD

		Mean
Overall PTSD statistics: R-score (Statistic)		36.70
Standard deviation		7.14
One Sample T-test		
Overall PTSD statistic score	t-stat (df=191)	5.82
Cutoff score = 33	Sig. (2 tailed)	0.000

Table 5 shows that the average mean and standard deviation of overall PTSD scores as diagnosed by IES-R was 36.70 and 7.14 respectively. One sample t-test was used to establish whether the means were significantly different from the cut-off score of 33. The results show that the IES R (overall PTSD) score had a t-statistic of 5.82 and p-value of 0.000. Since p-value was less than 0.025, it was concluded that at 5 percent significance level, 36.70 was significantly different from the overall cut off score of 33. This means that the respondent's PTSD scores were greater than the threshold. There is reason therefore to believe that exposure to post election violence influenced development of PTSD.

The findings of this study conform to findings in other studies. Fowler, Tompsett *et al*. (2009) synthesized data from 114 studies in their meta-analysis. They found an association between exposure to violence and PTSD. The proximity of the community violence (victimization, witnessing, hearing, etc.) did not have an effect on PTSD symptoms. In fact, community violence victimization, witnessing, and hearing were equal in predicting PTSD symptoms. Further, Hunt, Martens and Belcher (2011), conducted a retrospective cohort study using the medical records of 257 African American children, and found that exposure to community violence was associated with higher levels of PTSD. Children who had been exposed to community violence were 2.6 times as likely to display clinically significant PTSD symptoms.

Conclusions and Recommendation

From the findings, it can be concluded that exposure to post election violence led to development of PTSD among children in Eldoret. Given the fact that the research was conducted five

years after post-election violenc. He, it follows that trauma related indicators for children exposed to violence consolidated into trauma memories that may last a lifetime unless treated. PTSD is associated with substantial impairments in social and academic functioning, even at subclinical levels and, if left untreated, may run a chronic course for at least 5 years or more in more than one third of children who develop the disorder (Yule *et al*., 2000). This study found a post traumatic stress disorder prevalence of 45.5 % in the region. Owing to the fact that exposure to violence was found to be considerably related to development of PTSD in this study, it is suggested that the children in the region ought to be assessed and a diagnosis made with an aim of treatment. This study proposes that Trauma Focused Cognitive Behavior Therapy (TFCBT) could be used by counseling psychologists to treat the adolescents who were exposed to violence and meets the diagnostic criteria for PTSD.

Also, a child-centered supportive therapy that demonstrates an empathic approach to healing could be introduced and used in schools for adolescents suffering from trauma resulting from exposure to community violence. An environment that consists of empathy, unconditional positive regard and acceptance are key elements in the child-centered supportive therapy. This study also recommends a longitudinal study which would have allowed the researcher to measure effects over time as well as the severity and its relationship to development of PTSD.

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