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RESEARCH ARTICLE

ASSESSMENT OF PTSD LEVELS AMONG ADOLESCENTS RESIDING AT NEEMA AND TUMAINI CHILDREN HOMES

***Jane Kuria, (Clinical Psychology), Sylvia Tuikong (PhD) and Moses Mwangi (KMRI)**

Daystar University, Nairobi-Kenya

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ABSTRACT

Introduction: The objective of this study was to determine the levels of PTSD among adolescents living in Neema and Tumaini Children Homes in Nyandarua County, Kenya. Adolescents who are registered into Children homes are vulnerable and highly prone to PTSD. Traumatic events that are experienced by adolescents may lead to the development of posttraumatic stress disorder (PTSD). **Objective:** To assess the levels of PTSD among Adolescents Residing at Neema and Tumaini Children Homes. **Methodology:** Quasi experimental research design was utilized for this study. The Population for the study consisted of 400 adolescents aged 11-17 years in the two homes. The Lemeshow *et al*., (1998) formula was used to calculate the sample size. A sample size of 180 from the two homes was obtained by use of purposive sampling. Out of the 180, 90 were for the experimental group (Neema), while 90 were for the control group (Tumaini). Adolescents were administered social demographic questionnaire, University of California, Los Angeles (UCLA) for PTSD. **Analysis:** The collected data was analyzed using statistical package for social sciences (SPSS) version 20 to compute univariate, bivariate and multivariate analysis. The results indicated that overall mean PTSD score was 38.5 (I 7.9SD) ranging between 25 and 59 and the score was not significantly different between participants enrolled in the two homes. **Results:** The analysis of the study revealed that the adolescents who had mild PTSD were 51.3% and those who had moderate PTSD were 48.8%. Overall mean PTSD score was 38.5 (± 7.9 SD). **Conclusion:** Adolescents in the homes have been found to suffer PTSD. The home managers should adapt therapeutic programs that help them recover and be able to live productive lives as they relate well with self, their caregivers and peers.

Glossary of Abbreviations
CCIs- Charitable Children Institutions
PTSD- Post Traumatic Stress Disorder
UCLA- University of California, Los Angeles
WHO-World Health Organization

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INTRODUCTION

Adolescence is a phase of life that separates an individual from early childhood and adults (UNICEF 2014). World Health Organization (WHO, 2014), defined adolescence as the period in human growth and development that occurs after childhood and before adulthood (10-19 years). It has long been considered as a turbulent time beginning with major changes in hormonal levels and consequent bodily changes (Burnet and Blakemore 2009). As a result, compared to traumas that occur at different points during the life course, traumatic events encountered during adolescence may be more central to one's identify (Ogle, Rubin and Siegler, 2013).

Corresponding author:* **Jane Kuria,
Daystar University, Nairobi-Kenya
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One's identify has been shown to be a strong predictor of post traumatic outcomes including PTSD (Bernstein and Robin, 2006, 2007). PTSD has been defined as an anxiety disorder that may develop following an individual experience or even witness of traumatic events where the natural ability of 'fight or flight' responses are damaged or altered (APA, 2013). However, DSM-V 2013, not negating the above definition has categorized PTSD under trauma and stressor related disorder as an individual entity with its own diagnostic criteria (APA, 2013). PTSD has for a long time been thought to affect adults only (Sareen, 2014) but the disorder has in the recent past been diagnosed in children and adolescents (Hamblen and Bernet, 2012). Although not all children and adolescents who are exposed to traumatic events develop PTSD, findings from a meta analysis of 43 studies indicate that, overall, approximately 16% of children and adolescents develop PTSD after exposure to a traumatic event (Alisic etc all, 2014).

In another study that was done in Australia it was found out that there was a PTSD rate of 9.2% for the total sample of adolescent participants (Elklit and Transcend 2014). PTSD is a mental health problem that affects 10-20% of children and adolescents worldwide (Kieling *et al*. 2011). In 2012 Child Protective Services in the United States received 3.4 million referrals of those suffering PTSD, thus representing 6.2 million children and adolescent (Hamblen and Evisan, 2012). In another study that was done in Australia, it was discovered that there was a PTSD rate of 7.7% and a substantial PTSD rate of 9.2% for the total sample of 1088 adolescent participants (Elkit and Trandsen, 2014). In Africa, 5% of the total population suffers mental illness such as PTSD (Craig, 2013). In a study carried out in South Africa, 91% of adolescents reported having been exposed to a traumatic event while 38% reported symptoms severe enough to be classified as PTSD and 19% were found to have PTSD (Suliman, Kaminer, Seedat and Stein 2005). There has been scanty information on PTSD symptoms and structure among adolescents in the developing countries. However, a study that was done in Uganda, the adolescents that were associated with armed groups had suffered mentally with PTSD symptoms (Winkler, *et al* 2015).

In Kenya, adolescents are not subjected to military conditions and those who exhibit PTSD symptoms are usually exposed to other forms of traumatic events. PTSD is one of the most common mental conditions in Kenya among adolescents living in poverty (Harder, Mutiso, Khasakhala, Burke and Ndeti, 2012). Mental illnesses are common in Kenya with an adult prevalence of 4% (Maragu, Sands, Roltey, Ndetei,and Mansouri, 2014). Nguli, Khasakhala, Ndetei and Robert (2010) found out that the burden of unmet mental health needs was especially high in adolescents. On the internationally development agenda, mental health issues among adolescents are rarely considered especially when budgets are constrained (UNICEF, 2014). This could possibly imply that PTSD among adolescents is not catered for in terms of diagnosis and treatment. It is therefore imperative that adolescents who are vulnerable and prone to PTSD need urgent help in diagnosis, assistance and support.

Surveys among people affected by conflicts have found prevalence rates of 15% for PTSD among adolescents (WHO, 2011). These rates are higher than average rates in the general population. Therefore, it is important that the burden associated with common mental disorders including PTSD rise abruptly in childhood and get to the peak in adolescents (Whitefond *et al*., 2013). These rates are higher than average rates general population. PTSD among adolescents living in CCIs is limited in number compared to PTSD among the general population of adolescents in Kenya (Khasakhala). This study in effect sought to determine the levels or severity of PTSD among adolescents living in CCIs.

MATERIALS AND METHODS

Quasi experimental design was employed for this study to collect quantitative data at Neema and Tumaini Children's home in Nyandarua County. The aim of this study was to establish the levels of PTSD among adolescents living in the two homes. Neema was used as the experimental group while Tumaini was the control group. The population for the study was 402 adolescents from the two homes (Neema = 206 and Tumaini = 196).

The Sample size was arrived at by use of Lemeshow etal, (1998) formula as follows:

$$n = \frac{\delta^2 (Z_{\alpha/2} + Z_{1-\beta})^2}{(\mu_1 - \mu_2)^2} \quad ¥$$

n - Minimum required sample size
α - Type 1 Error (0.05)
β - Type 2 Error (0.10)
$Z_{\alpha/2}$ - Standard normal deviate at 95% CI (1.96)
$Z_{1-\beta}$ - Standard normal deviate at 90% power CI (1.28)
μ_1- Estimated mean PTSD score among adolescents after receiving treatment as usual at Tumaini children's home, (39.1 - derived from McMullen *et al* 2013 and O'Callaghan *et al* 2013) – Control arm.

μ_2- Estimated mean PTSD score among adolescents after receiving Trauma-Focused Cognitive Behavioral Therapy in addition to treatment as usual at Neema children's home, (34.1) – Experimental arm.

δ– Standard deviation of mean PTSD score among adolescents after receiving treatment as usual at Neema children's home, (9.4 - derived from McMullen *et al*. (2013) and O'Callaghan *et al*. (2013)

$\mu_1 - \mu_2$ – Effect size, (5)

n =*75*

Allowing for 20% attrition, the total sample size was adjusted upwards to 90 per study arm. The 20% catered for any of the participants who might drop out of the study after the baseline assessment. In a total number of 180 adolescents, 90 (control) received treatment as usual, while 90 (experimental) received Trauma-Focused Cognitive Behavioral Therapy in addition to treatment as usual. The inclusion criteria were that the adolescents were based on age (between 11 and 17years) and met the PTSD diagnostic criteria in all clusters. Those within the required age group and portrayed at least one of the criteria in each of clusters for PTSD as indicated in DSM-5 were be included. Such clusters are (A) -exposure, (B) -intrusion symptoms, (C) -avoidance, (D) -negative alterations in cognitions and (E)-arousal. The exclusion criteria were based on age and failing to meet the PTSD criteria in all the clusters. Thus, those adolescents in the home and were less than 11 years and those above 17 will be excluded. Preceding data collection, research assistants were trained on how to administer the data collection instruments. The researcher developed a questionnaire which brought out social-demographic factors from the adolescents within the sample. In addition, and importantly, ULCA PTSD Reaction Index was used to elicit the levels of PTSD among adolescents within the sample size. The reliability of UCLA PTSD was tested in Nigeria with two samples and it was found out that the overall UCLA Reaction index (Children and adolescent's version) for both samples is adequate, .88 and .89, respectively which is considered excellent reliability (Milot *et al*., 2013). All the necessary preliminaries were carried out before data collection was done. Appointments with home managers were booked, meetings held at the homes where both consent and assent forms were signed. The Nairobi Hospital Research and ethics and ethics Board (NHREB) as well as National commission for

Science, Technology and innovation (NACOSTI), Kenya, granted approval for this study.

RESULTS

The target population consisted of 402 from Neema (206) and Tuamini (196). Out of the 402, a sample of 160 adolescent participants was drawn which met the criteria for PTSD. Neema (experimental group) had 61 (38.1%) males and 99 (61.9%) females. On the other hand, Tumaini (control group) had 31(38.8%) male and 49(61.3%) female respondents. Each group had 80 participants. According to the selection criteria, the age range was 11 to 17 years.

In a cross sectional study of 216 adolescents who had been exposed to traumatic events of a tsunami nature in Malaysia 103 (47.7%) were males and 113 (52.3%) were females. This is congruent with a study that was done in the U.S., which reported that from the ones exposed to traumatic events, 3% to 15% girls developed PTSD against 1% to 6% boys who met full PTSD diagnosis criteria (Hamblen and Barnet, 2012). In this study, the results indicated that female participants who had PTSD had a mean of 37.9 while males had a mean of 39.4. Although this differed from studies referred to in this study, the difference is not significant. Among the 160 adolescents, 82(51.3%) had had mild, PTSD while 39.8% had moderate PTSD (Siti *et al*. 2013).

Table 4.1. Socio-demographic characteristics of the participants by study group at baseline

Variables	Total (n=160)		Experimental (n=80)		Control (n=80)		χ^2 value	Df	p value
	N	%	n	%	N	%			
Age in years									
12 to 14	68	42.5%	41	51.3%	27	33.8%	5.01	1	0.025
15 to 17	92	57.5%	39	48.8%	53	66.3%			
Gender									
Male	61	38.1%	30	37.5%	31	38.8%	0.03	1	0.871
Female	99	61.9%	50	62.5%	49	61.3%			
Primary language of communication									
English	87	54.4%	42	52.5%	45	56.3%	0.23	1	0.634
Kiswahili	73	45.6%	38	47.5%	35	43.8%			
Religion									
Protestant	113	70.6%	57	71.3%	56	70.0%	1.42	2	0.491
Catholic	33	20.6%	18	22.5%	15	18.8%			
Seventh day Adventist	14	8.8%	5	6.3%	9	11.3%			
School Grade									
Class 1 to 4	17	10.6%	12	15.0%	5	6.3%	5.90	3	0.117
Class 5 to 8	76	47.5%	41	51.3%	35	43.8%			
Form 1 to 2	49	30.6%	20	25.0%	29	36.3%			
Form 3 to 4	18	11.3%	7	8.8%	11	13.8%			

In this study the number of females (148) was higher than that of males (92). This disagrees with a study that was carried out in Turkey (Caman and Ozcebe, 2011) which reported that among the adolescents who resided in orphanages, 108 were males while 56 were females. From the experimental group 42 (52.5%) speaks English and 38 (41.5%) speaks English and 38 (47.5%) speaks Kiswahili. On the other hand, in the control group 42 (52.5%) speak English while 35 (43.8%) while 45 (56.3%) use Kiswahili. As per the mean, standard Deviation and range of PTSD scores, there were no social demographic characteristics significantly associated with PTSD levels. The levels of importance for this study were 25-39 for mild and 40 – 59 for moderate. For multivariate analysis linear regression was used to model PTSD scores among participants using factors identified to be associated $p<0.1$ during bivariate analysis. One independent predictor of PTSD scores among the participants was identified as presented in Table 4.9. Not having a friend in the home was significantly associated with elevated PTSD scores among participants compared to having a friend (β=8.09; 95%CI: 0.34 – 15.85; p=0.041). Those with friends were unlikely to have high scores on PTSD.

DISCUSSION

The purpose of this study was to establish levels of PTSD among adolescents living in the two children homes. In a total of 160 adolescents who were screened and found to have developed PTSD, majority were females (99) while males were 61. This agrees with other studies that indicated that females exposed to traumatic events are more likely to develop PTSD more than male adolescents exposed to similar events.

This study compared to the Malaysia one, indicates higher % of those who had mild and moderate PTSD. The social economic status increases or decreases an adolescent's chances of developing PTSD after a traumatic event (Hudson, 2005). Adolescents living in the home of study have been found to have come from very low social economic status which has led them to be admitted to the homes.

Conclusion

In conclusion, results of this study demonstrated that participants who had PTSD were in three levels, thus, mild, moderate and severe. This was brought out by PTSD assessment at base line. For the purposes of this study, the - levels of interest were mild and moderate. Majority (51.3%) of the participants had mild PTSD and those who had moderate PTSD were 48.8%. However the difference was not statistically significant. The elevations were associated to "Has no friend in the home" with a p – value of 0.041.

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