

## **PTSD, DEPRESSION AND ANXIETY COMORBIDITY AMONG ADOLESCENTS LIVING IN NEEMA AND TUMAINI CHILDREN HOMES**

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### **ABSTRACT**

Previous studies on Post Traumatic Stress disorder (PTSD) in adolescents have indicated that PTSD is co-morbid with other mental disorders such as anxiety and depression. PTSD is an anxiety disorder that may develop following an individual's experiences or even witness of traumatic experiences where the natural ability of "fight or flight" responses are damaged or altered. The purpose of this study was to identify co-morbidities of PTSD among adolescents. The target population of the study was Neema and Tumaini children homes at Nyandarua County, Kenya. Quasi –experimental research design was adopted for this study with a target of 402 adolescents living in the children's home. A sample size of 160 was selected using purposive sampling. The tools used for this study included University of California, Los Angeles (UCLA) PTSD-Revised Index for PTSD, Children Depression Inventort (CDI) for depression and Beck's Anxiety Inventory (BAI) for anxiety. Data was analyzed using SPSS-21 and was presented through tabulation. The findings of this research indicate that PTSD co-morbids depression and anxiety. The analysis conducted at the end of the study showed that ICBT significantly reduced depression and anxiety symptoms with  $P < 0.003$  for depression and  $P < 0.001$  for anxiety.

**Keywords:** PTSD, adolescents, comorbidity, anxiety, depression

### **INTRODUCTION AND BACKGROUND**

#### **PTSD**

PTSD is an emotional condition that has adverse consequences on the individuals from it. It is associated with high levels of social, occupational and physical disability as well as considerable economic cost and high levels of medical utilization (APA, 2013). PTSD is highly co-morbid with other mental disorders (Sareen, 2014). Comordity is the occurrence or coexistence of more than one disorder in an individual at the same time (Australian Instituted of Health and welfare, 2012)

Apart from trauma exposure, what would differentiate PTSD from other disorders is the re-experiencing symptoms like nightmares and flashbacks (Sareen, 2014). Other PTSD symptoms such as hyperarousal, avoidance and numbing overlap with other mental disorders such as depression and anxiety. This study therefore screened for depression and anxiety of PTSD co-morbid.

### **Depression**

Studies have estimated that half of the population with PTSD suffers Major Depression Disorder (MDD) (Flory & Yeluda; 2015). Individuals with PTSD are 80% more likely than those without to have MDD (DSM- V, 2013). The strongest risk factors for depression in adolescents are family history of depression and exposure to both psychological and psychosocial trauma (Thapar, Collishaw, Pine, & Thapar, 2012). A study that was done in China by Adams, Danielson, Summer, McCauley, Cohen, Ruggiero, (2015), on a population based on a sample of 2000 adolescents aged 12-17 found out that the adolescents who had PTSD were 20% while those with MDD were 22.7% and the comorbidity was at 3.7%.

Results of meta-analysis from different studies of PTSD in adolescents that were published from 2000 to 2011 indicated that females who had PTSD had MDD that was higher (6.3%) than that of males (3.7%) (Kilpatrick, et al., 2003; MacDonald, 2010). This shows that females were almost 3 times likely to have PTSD and MDD concurrently (Nooner et al; 2012). In a major study that investigated the prevalence of different types of psychiatric disorders in the United States, MDD was found to coexist with PTSD. In almost half of the cases among men with PTSD, 47% had co-occurring MDD, while among women, 48% of those with PTSD also suffered from MDD, (Janice, 2012). In another study of low income minority African-American Latino women in America a total of 267 who were recruited for a depression treatment trial, at baseline, 33% were found to have current co-existing PTSD (Green , Krupnick, Chung, Krause, Revicki, Frank & Miranda, 2006)

### **Anxiety**

Anxiety is a disorder that encompasses different groups of mental illnesses that have in common increased and uncontrolled degree of fear which most likely leads to impairment dysfunction and disadvantageous physical symptoms (Helton & Lohoff, 2015). While fear is the emotional response to real or imminent threat, anxiety is the anticipation of future threat (DM 5, 2013). Anxiety has been known to be caused by biological and physiological factors as well as adverse life experiences like traumatic life events and family history of anxiety disorders (APA, 2000). Anxiety is a mental health problem that is most common in children and adolescents (Albano, Charpita & Barlow, 2003) which has been reported to have a lifetime prevalence rates between 8 and 27 % (Costello, Egger & Angold, 2005). Children and adolescents who have anxiety side

effects on their psychosocial functions and their inter personal functioning's and self-esteem is adversely affected (Teubert & Pinquart, 2011)

A study that was done in Denmark of 755 children and adolescents revealed a prevalence of 5.7% anxiety disorder (Esborjorn, Hoeyer, Dyrborg, Leth & Kendeall, 2010).

## **METHODOLOGY**

The aim of this study was to identify the co- morbidities of PTSD among adolescent living in Neema and Tumaini children homes in Nyandarua County, Kenya. The population of the study was 402 adolescents. A sample size of 160 participants was derived by use the Lemeshow et al. (1998) formula was used to calculate the minimum required sample size as follows:

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

n - Minimum required sample size

$\alpha$  - Type 1 Error (0.05)

$\beta$  - 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)

$\mu_1$ - 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.

$\mu_2$ - 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.

$\delta$ – 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. In a total number of 160 adolescents, 80 were placed in the experimental group (Neema Children Home) and 80 in the control group. (Tumaini Children Home). The inclusion criteria for the adolescent were based on age which was between 12-17 years and met the diagnostic criteria for PTSD in all clusters. The adolescents with the required age group and had at least one of the criteria in each of the clusters for PTSD as indicated in DSM-5 were included. PTSD clusters are A- Exposure, B-Intrusion, C- Avoidance, D- Negative alteration in cognitions and E- Arousal. The exclusion criteria was based on age <12 and >17 and also failing to meet the PTSD diagnostic criteria in all the clusters. Therefore, the adolescents in the homes and were less than 12 years and above 17 years were excluded from the study.

Prior to the data collection, the research assistants were trained on how to administer the data collection instruments. The social-demographic questionnaire that was used brought out social demographic factors from the participants within the sample.

UCLA PTSD reaction index was used to bring out the severity of PTSD among the participants. The reliability of UCLA Reaction Index (children and adolescent version) for both samples was adequate, .88 and .89 respectively which Milot, Plamondon, Ehier, Lemelin, Laurent & Roussea, (2013) considered to be excellent reliability.

In addition and for the purposes of this study, Child Depression Inventory (CDI) for depression among adolescents was used to screen for depression among participants. CDI is a 27 item self-report questionnaire that assesses the presence and measures the severity of depression symptoms in 8 to 18 year olds (Allgier, Fruhe, Pietsch, Baethmann & Scitte-Korne, 2012). It is one of the most widely used depression screening instrument for assessing the presence and severity of depression among children and adolescents between 7-17 years (Bans, Park & Kim, 2015). This instrument is particularly designed for children and adolescents so its wording is simple for the participants in this study. CDI can be completed within 15 minutes and measure characteristics, attitudes and symptoms of depression (Beck, 1961).

## **RESULTS**

A total population of adolescents and aged 12 – 17 years participated in the study. The adolescent had been at the homes for between 18 to 108 months (SD+-6) Most of the participants had siblings 130 (38.4%), while 124(38.9) had other relatives but majority were taken to the homes by well-wishers 66 (38.7 %), as indicated in the table 1 below:

**Table 1.0: PTSD Mean Scores in Relation to Social Support System**

Variables	n	Mean	SD	95% CI			
				Lower	Upper	Min	Max
<b>Has siblings</b>							
No	30	38.9	6.7	36.4	41.4	28	51
Yes	130	38.4	8.2	37.0	39.8	25	59
P-Value		0.740					
<b>Has other relatives</b>							
No	36	37.3	8.9	34.2	40.3	25	59
Yes	124	38.9	7.6	37.5	40.2	25	55
P-Value		0.283					
<b>Who brought the child to the home</b>							
Mother/Father	46	36.5	6.9	34.5	38.6	26	48
Sister/Brother	7	36.3	7.9	29.0	43.6	26	45
Other relatives	41	40.7	8.2	38.1	43.3	25	55
Well wishers	66	38.7	8.2	36.7	40.7	25	59
P-Value		0.084					

In this study the comorbidities of interest were depression and anxiety. Comorbidity involving PTSD is likely to lead to decreased health-related quality of life (Mehnert et al, 2010). The risk for committing suicide in those with comorbidities of PTSD has been noted to be higher than in those who suffered from either of them separately (Kimbrel, Calhoun & Elbogen, 2014). Therefore, identifying shared risk factors for PTSD alone and comorbidity involving PTSD is significant.

When comparing comorbid rates for females and males, the data revealed that rates among females was higher 99 (15.1% SD =8.3) than among males 61(14.0% SD = 8.0) – p-value = 0.42.

In this study gender differences were not statistically different. However, the finding in this study differed significantly from earlier studies that showed that females were 3 times as likely to have PTSD and MDD 6.3% for female and 3.7% for males (Kilpatrick et al. 2003, Macdonald, et al 2010)

In a study of 2000 adolescents with a similar age bracket as of this study revealed that adolescents who had PTSD were 26.9% and those with depression were 22.9% (Yehuda et al., 2015). The finding by Yehuda and colleagues, (2015) was higher than the findings of this study. According to Nurman et al, (2011), PTSD and depression symptoms often co-occur following

traumatic events and that they usually overlap. Although depression has been reported to be a risk factor for PTSD development, (Di-Gangi et al 2013), this study did not look at what comes first in their comorbidity. Again, PTSD was the disorder of interest for this study. The results of this study revealed that PTSD comorbid anxiety (37.8%) was higher than PTSD comorbid depression (31.9%). This disagrees with Taylor et al, (2017) who reported that the relationship between PTSD and depression was stronger than the relationship between PTSD and anxiety. This can be explained by the overlap of symptoms of both PTSD and anxiety. Similarly, a study conducted by Allwood, Dyl, Hunt, & Spirito, A. (2008) found that some traumatized adolescents developed depression but not PTSD.

Again results of a study that was done on 2,250 adolescents in China showed that 142 (15.8%) recorded clinical PTSD, had a depression mean score of 40.5% and an anxiety mean score of 24.5% (Fan, Zhang, Yang, Mo, & Liu, 2011). These mean scores are lower than those of this study. The difference in mean scores between the study in China and this one is attributable to cultural, environmental, economic and social factors within the two settings.

## **DISCUSSION**

The purpose of this study was to establish PTSD comorbidities among adolescents in Neema and Tumaini Children's Home. Our findings showed that out of the 417 adolescents in the two homes, 160 were found to have PTSD. Among the 160 (100%) adolescents, 102 (63.75%) were found to have depression while 121(75.65%) had anxiety specifically among participants who had PTSD, (90.2%) had mild depression symptoms while 9.8% had moderate depression symptoms. Again the participants who had PTSD, 21(107.35%) had mild anxiety and 100 (82.6) had moderate anxiety. In this study the relationship between PTSD and anxiety was reported to be stronger than the relationship between PTSD and depression. Among the adolescents, PTSD had a mean score of (38.5% SD 11.25), depression had a mean score of (14.61% SD 8.05). Those with anxiety had a mean score of (21.35% SD 9.05). The findings here agreed with other findings by Taylor et al, (2017), who reported findings from a meta-analysis study that showed a significant strong positive relationship between PTSD and anxiety among adolescents with  $r = 0.51$ , 95% CI (0.3%). However, findings from a study done in China of 2250 adolescents, of those who were found to have PTSD, 40.5% had depression and 24.5% had anxiety (Fan et al; 2011) although the difference was not statistically significance. Our findings indicate that PTSD among adolescent's co-occur together with depression and anxiety. This is because PTSD, depression and anxiety symptoms overlap.

## **CONCLUSION**

Differences in mean scores between these studies are attributable to cultural, environments, economic and social factors within the different settings. However, it has been found that there

are some adolescents first like adults who after having a traumatic experience develop depression anxiety and not PTSD (Allwood et al., 2008). It is important therefore that adolescents in children homes be helped to access professional help to deal with these disorders again prior to admissions to the homes, proper screening need to be done and the necessary helped accorded to those who are found to be exhibiting with either or some of those disorders.

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