

Predictors of Symptoms of PTSD, Depression and Anxiety Disorders Among Abused and Neglected Adolescents Living in Charitable Children's Institutions in Nairobi County, Kenya

Stella Kemuma Nyagwencha, PhD., United States International University; Alice Munene, Psy.D., and Naomi James, PhD., Daystar University

Abstract

Research shows that people exposed to traumatic events are relatively more prone to developing post-traumatic stress disorder (PTSD) which tends to co-exist with depression and anxiety disorders. This study sought to establish the predictors of symptoms of PTSD, depression and anxiety disorders among abused and neglected adolescents living in charitable children's institutions in Nairobi County, Kenya. The sample was 115 adolescents aged 13-18 years, presenting with symptoms of mild and moderate anxiety disorder comorbid with PTSD and depression and living in 3 purposely selected charitable children's institutions. Participants who met the inclusion criteria were included in the study. Participants were administered a Socio Demographic Questionnaire, Becks Anxiety Inventory, Becks Depression Inventory-II and Harvard trauma questionnaire. Results of a multiple hierarchical regressions showed that symptoms of PTSD were statistically significantly predicted by age ($F(2, 87) = 2.479, p < .05$) and sexual abuse in the second model ($F(6, 83) = 2.689, p < .05$) and third model ($F(8, 81) = 2.182, p < .05$). Depression was statistically significantly predicted by emotional abuse seen in the second ($F(6, 83) = 3.005, p < .05$) and third model ($F(8, 81) = 2.364, p < .05$). Symptoms of anxiety disorder were predicted by the first ($F(2, 87) = .669, p < .05$), second ($F(6, 83) = 1.729, p < .05$) and third ($F(8, 81) = 1.416, p < .05$) model collectively. Abuse and neglect could lead to adolescents developing symptoms of PTSD, depression and anxiety disorders.

Key Words: predictors, anxiety, depression, PTSD, abuse, neglect, charitable children's institution

Introduction and background

Anxiety disorders and depression are among the most common psychological disorders in children and adolescents in the general population (Al-Biltagi & Sarhan, 2016). This could be because the period of adolescence is characterized by physical, cognitive, social and emotional changes (Higa-McMillan, Francis, Rith-Najarian, & Chorpita, 2015). When an adolescent

experiences abuse and neglect, he/she develops psychological disorders such as PTSD, depression, substance misuse, eating disorders, self-injurious behaviour, sexual symptoms, and anxiety disorders (Harkness & Lumley, 2008; Lazenbatt, 2010). It is therefore important to identify the predictors of PTSD, depression and anxiety disorders among abused and neglected adolescents in order to come up with early interventions to prevent them from developing such disorders which may interfere with their functioning.

According to American National Centre for PTSD (2016), factors that determined whether someone exposed to a traumatic event developed PTSD included age, gender or personal factors such as previous exposure to trauma. Further, what happened after the traumatic event was also important. This is because stress can make PTSD more likely to develop while social support can make it less likely. Trickey et al. (2012) piloted a meta-analysis on factors that would predispose one to develop PTSD and found that pre-trauma demographic factors like age, ethnicity and sex showed small effects but peri-traumatic factors like fear and perception of threat during the event showed larger effects. Research conducted on traumatized children and adolescents attending a youth clinic found sexual abuse to predict symptoms of PTSD (Carey, Walker, Rossouw, Seedat, & Stein, 2008). Another study conducted among adolescents in Gaza found that predictors of PTSD included exposure to war, female gender, older age and unemployed father (Kolltveit et al., 2012).

In Kenya, Ndeti et al. (2011) identified causes of trauma which could lead to development of PTSD among high school students to include receiving bad news, seeing a violent crime, violence among caregivers, experienced violence, sexual abuse, death of a loved one and post-election violence of 2007. A study conducted by Jenkins et al. (2015) found that being female, experiencing life events and spending time in an institution before age 16 predicted symptoms of PTSD. Various other studies have been carried out to identify the predictors of PTSD, depression and anxiety disorders.

A meta-analysis conducted by Maniglio (2012) of a review of four meta-analyses of 3,214,482 articles found that there was a link between sexual abuse and development of anxiety disorders despite the age of abuse. Studies have shown that anxiety disorders are more common among females compared to males in the general population with an estimated proportion of 1:1.7 times

ratio (Post et al., 2015). A study conducted in North-Eastern Uganda among 3-19-year-olds found predictors of anxiety disorders to include experience of war, being female, having unemployed caregivers, living in temporary housing, having uneducated parents and living without parents (Abbo et. al., 2015). Another study conducted in Gaza among adolescents found exposure to war, female gender and older age to predict symptoms of anxiety (Kolltveit et al., 2012).

A 10-year follow-up of a study conducted by Weissman, Warner, Wickramaratne, Moreau, and Olfson (1997) found that the greatest risk for developing anxiety disorders for the first time was in childhood while for major depression was in adolescence. The peak age for the onset of major depression among high and low risk offspring was found to be between 15 and 20 years. In an international meta-analysis conducted in Auckland in 2015 to determine whether there was an association between sexual abuse in childhood and development of depressive disorders, the study found that sexual abuse led to a higher probability of developing depression compared to physical abuse, domestic violence in the home and community and multiple traumas (ACC, 2015).

Similarly, a study conducted by Khasakhala and others (2012) to establish the prevalence of depressive symptoms among adolescents in Nairobi public secondary schools found that rejecting parental behaviour ($p < 0.001$) and under protective paternal behaviour ($p = 0.005$) was correlated with age ($p < 0.001$). Further, girls exhibited higher prevalence of depression than boys at $p < 0.01$ as well as students who were in boarding schools had higher symptoms of depression compared to students who attended day schools ($p = 0.01$).

A study conducted by Khasakhala, Ndeti, Mathai, and Harder (2013) among 250 youth sampled from Kenyatta National Hospital in Nairobi, Kenya, also found that maternal behavior that was rejecting of a child (AOR=2.165, 95%CI 1.060 to 4.422, $p = 0.003$) and having a mother with major depressive disorder were significantly related to youth developing major depressive disorder. This was because the youth's perception that he was rejected by the mother created a barrier between the youth and the mother leading to development of insecure attachment.

Certain parental characteristics have also been found to be indicators of mental disorders. A study that was carried out within 20 years in America by Weissman et al. (2006) on children of parents who were depressed compared to those who were not depressed found that such children had a three times greater risk of developing mood and anxiety disorders. This was supported by a study conducted by Avenoli and Merikangas (2006) whose findings showed that adolescents whose parents had a mental illness had a greater probability of developing a depressive disorder. This was also found to be true in a study that found a 2-3-fold risk of developing anxiety and major depressive disorders among children and adolescents of depressed parents as compared to non-depressed parents (Klein, Lewinsohn, Seeley & Rohde, 2001; Lieb, Isensee, Hofler, Pfister, & Wittchen, 2002; Williamson, Birmaher, Axelson, Ryan, & Dahl, 2004).

This study sought to establish the predictors of PTSD, anxiety and depression among adolescents living in charitable children's institutions in Nairobi County, Kenya in order to inform stakeholders to come up with the relevant interventions to prevent them from developing psychological disorders after experiencing a traumatic event.

Methodology

Approvals were sought from National Council for Science, Technology and Innovation (NACOSTI), Daystar University Ethics and Review Board, Daystar University department of Psychology and the directors of the three charitable children's institutions. Further, informed consent was sought from adolescents' aged 18 years while those below 18 years provided assent to participate in the study. Participants were free to withdraw from the study whenever they wanted. Three CCIs were purposely selected to represent CCIs in Nairobi County, Kenya. Selected CCIs had similar characteristics as they were all registered with the government of Kenya.

The study population was adolescents aged between 13-18 years who were living in charitable children's institutions in Nairobi County, Kenya. Their mean age was 16.65 (\pm 1.665 SD). Sample size was 115 participants with 66 being male while 49 were female.

Socio-demographic questionnaire was used to collect information on participant's sociodemographic characteristics such as age and gender and exposure to abuse and neglect. The socio demographic questionnaire was pretested with a population of similar characteristics and the necessary corrections made on it. Becks Anxiety Inventory was used to collect information on participants who presented with symptoms of anxiety disorder. Only participants with mild (score of 8-15) and moderate symptoms of anxiety disorder (scores of 16-25) were included in the study. Participants with minimal and severe anxiety disorders were excluded from the study.

Becks Depression Inventory-II was used to screen participants for symptoms of depression. Participants who scored 10-63 were considered to have symptoms of depression and were included in the study.

Harvard Trauma Questionnaire was used to screen for symptoms of PTSD and participants who scored >2.5 were considered to present with symptoms of PTSD and were included in the study.

Results

Multiple hierarchical regressions with forced block-wise entry were done to identify the predictors of symptoms of PTSD as presented in Table 1. Criterion: symptoms of post-traumatic stress disorder (HTQ score) with demographic characteristics entered in the first, different types of abuse experienced in the second block and parents treated by psychiatrists and living together entered the third.

Table 1: Multiple Regressions Table of Predictors of PTSD Symptoms (n=115)

	B	SE B	β	Sig	R ² change
Step 1 (df = 2, 87)					.054
Constant	14.459	7.740		.065	
Gender	.628	1.492	.044	.675	
Age	1.012	.455	.233	.029*	
Step 2 (df = 6, 83)					.109*
Constant	16.385	7.577		.033	
Gender	.373	1.526	.026	.808	
Age	.709	.460	.164	.127	
Physical abuse	3.010	1.744	.187	.088	
Emotional abuse	1.560	1.651	.110	.347	
Sexual abuse	4.993	2.269	.232	.031*	
Neglect	1.887	1.634	.131	.252	
Step 3 (df= 8, 81)					.015
Constant	17.804	8.411			
Gender	.431	1.534	.030	.779	
Age	.646	.464	.149	.168	
Physical abuse	3.106	1.762	.192	.082	
Sexual abuse	5.083	2.306	.237	.030*	
Emotional abuse	1.495	1.658	.105	.370	
Neglect	1.835	1.642	.128	.267	
One parent treated by psychiatrist	-1.254	1.666	-.078	.454	
Parents live together	1.266	1.533	.085	.411	

Notes: * $p < .05$

Analysis was done to establish the predictors of PTSD symptoms as presented in Table 1. In model one, Correlations Coefficients tests showed that age on its own statistically significantly

predicted PTSD symptoms at ($F(2, 87) = 2.479, p < .05$). The study findings indicated that the older an adolescent was, the more the symptoms of PTSD they presented with. The second regression model statistically significantly predicted the outcome variable of PTSD and was a good fit for the data. Sexual abuse also individually statistically significantly predicted PTSD symptoms in the second model at ($F(6, 83) = 2.689, p < .05$) and the third model at ($F(8, 81) = 2.182, p < .05$). These findings established that age and sexual abuse predicted symptoms of PTSD among respondents.

Predictors of Symptoms of Depression

Multiple hierarchical regressions with forced block-wise entry were done as seen in Table 2. Criterion: symptoms of depression (BDI-II score) with demographic characteristics entered in the first, different types of abuse experienced in the second block and parents treated by psychiatrist and living together entered third.

Table 2: Multiple Regressions Table of Predictors of Symptoms of Depression (n=115)

	B	SE B	β	Sig	R ² change
Step 1 (df = 2, 87)					.030
Constant	16.664	9.311		.077	
Gender	2.016	1.795	.119	.265	
Age	-.569	.548	-.110	.302	
Step 2 (df = 6, 83)					.149*
Constant	20.201	8.916		.026*	
Gender	1.196	1.796	.071	.507	
Age	-.957	.541	-.186	.080	
Physical abuse	2.215	2.052	.116	.283	
Emotional abuse	4.732	1.943	.280	.017*	
Sexual abuse	4.835	2.670	.189	.074	
Neglect	.877	1.923	.051	.650	
Step 3 (df= 8, 81)					.011*
Constant	23.003	9.917		.023*	
Gender	1.233	1.808	.073	.497	
Age	-.909	.548	-.177	.101	
Physical abuse	1.958	2.078	.102	.349	
Sexual abuse	5.163	2.719	.202	.061	
Emotional abuse	4.798	1.955	.284	.016*	
Neglect	.970	1.936	.057	.618	
One parent treated by psychiatrist	-.687	1.965	-.036	.727	
Parents live together	-1.839	1.808	-.105	.312	

Notes: * $p < .05$

Analysis was done to establish the predictors of symptoms of depression as presented in Table 2. When coefficients test was applied to the data, the result was that the second and third regression

models statistically significantly predicted the outcome variable of depression symptoms, hence, were a good fit for the data. However, individually, emotional abuse significantly predicted symptoms of depression as seen in the second ($F(6, 83) = 3.005, p < .05$) and third model ($F(8, 81) = 2.364, p < .05$). These findings showed that emotional abuse was an indicator of symptoms of depression among respondents.

Predictors of Anxiety Symptoms

Multiple hierarchical regressions with forced block-wise entry were done as seen in Table 3. Criterion: symptoms of anxiety disorder (BAI score) with demographic characteristics entered in the first, different types of abuse experienced in the second block and parents treated by psychiatrist and living together entered third.

Table 3: Multiple Regressions Table of Predictors of Anxiety Symptoms

	B	SE B	β	Sig	R ² change
Step 1 (df = 2, 87)					.018
Constant	15.981	5.386		.004*	
Gender	1.173	1.038	.121	.262	
Age	-.034	.317	-.012	.914	
Step 2 (df = 6, 83)					.074
Constant	15.288	5.325		.005*	
Gender	1.269	1.073	.131	.240	
Age	.052	.323	.017	.874	
Physical abuse	2.372	1.225	.216	.056	
Emotional abuse	-1.636	1.160	-.169	.162	
Sexual abuse	2.342	1.594	.160	.146	
Neglect	-1.629	1.148	-.166	.160	
Step 3 (df= 8, 81)					.014
Constant	16.752	5.923		.006*	
Gender	1.286	1.080	.133	.237	
Age	.083	.327	.028	.801	
Physical abuse	2.222	1.241	.202	.077	
Sexual abuse	2.518	1.624	.172	.125	
Emotional abuse	-1.594	1.168	-.165	.176	
Neglect	-1.574	1.156	-.161	.177	
One parent treated by psychiatrist	-.299	1.174	-.027	.800	
Parents live together	-1.108	1.080	-.110	.308	

* p<.05

Analysis was done to establish the predictors of symptoms of anxiety disorder as presented in Table 3. When coefficients test was applied to the data, the result was that the first model

predicted symptoms of anxiety at ($F(2, 87) = .669, p < .05$) as well as the second model at ($F(6, 83) = 1.729, p < .05$). The third model also predicted symptoms of anxiety at ($F(8, 81) = 1.416, p < .05$). However, none of the variables on their own predicted symptoms of anxiety disorder. These findings established that none of the variables predicted symptoms of anxiety disorder. This could be due to the limited range of anxiety symptoms (mild and moderate) which formed part of the inclusion criteria.

Discussion

The study sought to identify predictors of symptoms of anxiety disorder, depression and PTSD among adolescents with mild and moderate symptoms of anxiety disorder. The findings showed that age predicted PTSD symptoms at ($F(2, 87) = 2.479, p < .05$). Older respondents presented with more symptoms of PTSD compared to younger adolescents. These findings were similar to those of a study carried out among adolescents in Gaza that found that older age ($\beta = .304, p < .001$) predicted symptoms of PTSD (Kolltveit et al., 2012).

Sexual abuse also individually statistically significantly predicted PTSD at ($F(6, 83) = 2.689, p < .05$) and ($F(8, 81) = 2.182, p < .05$). The study found that the more the cases of sexual abuse a participant experienced, the more the respondents presented with higher symptoms of PTSD. This finding was similar to a study conducted among traumatized children and adolescents who had been referred to a youth clinic in South Africa that found that sexual abuse predicted PTSD symptoms at $p < 0.001$ (Carey et al., 2008). This finding was similar to findings of a study conducted among 2,041 boys and girls from 18 schools in Nairobi and Cape Town that found age to predict symptoms of PTSD at $p < 0.001$ (Seedat et al., 2004). This finding established that older adolescents who had experienced abuse and neglect were at larger threat of developing symptoms of PTSD than younger adolescents.

Emotional abuse significantly predicted symptoms of depression as seen in the second model at ($F(6, 83) = 3.005, p < .05$) and the third model at ($F(8, 81) = 2.364, p < .05$). Previous research done found an association between emotional abuse and symptoms of depression at $d = .93$: 95% CI = .930-.934 (Infurna et al., 2015).

Due to the narrow range of symptoms of anxiety disorder (mild and moderate), no single socio-demographic characteristic predicted symptoms of anxiety disorder although all the three models predicted symptoms of anxiety disorder. This was contrary to a study conducted in North Eastern Uganda which found that anxiety disorder was predicted by experience of war, female gender and living without parents among others (Abbo et. al., 2013). Similarly, Al-Biltagi and Sarhan (2016) found that female gender, lower education, familial anxiety disorders, low socioeconomic status, behavioural inhibition, introversion personality, parental psychopathology, high levels of protectiveness, authoritarian parenting, adverse experience and traumatic life events were indicators of anxiety disorders. By contrast, gender did not predict symptoms of anxiety, depression or PTSD in this study. Other studies findings showed that gender predicted symptoms of anxiety, depression or PTSD (Jenkins et. al., 2015; Kessler et al., 2012; Trickey et al., 2012).

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