# School Absenteeism and other Factors Associated with Post-Traumatic Stress Disorder among Adolescents Living and Attending Primary Schools in Informal Settlements in Kajiado North sub-county, Kenya.

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## Abstract

Living in informal settlements has been found to be replete with multiple traumatic events, which may lead to the development of psychological disorders such as posttraumatic stress disorder (PTSD). This may in turn result to skipping school, social, emotional and academic problems. The purpose of this study was to determine how school absenteeism and other factors are related to PTSD among adolescents in informal settlements in Kajiado County, Kenya. Respondents aged 10 to 14 years in grades 5, 6, and 7 from two purposively selected primary schools in Ngong who scored 31and above in the PTSD instrument, were included in the study. They were screened using the Child PTSD Symptom Scale self-report (CPSS-SR-5), and then a socio-demographic questionnaire was administered with only 194 respondents completing the study. School attendance was extracted from registers maintained by the grade teachers. Analyses of data revealed mean PTSD scores for males (n = 90) as 42.02: 95% CI [40.18 - 43.91], and 45.56: 95% CI [43.61- 47.50] for females (n = 104); [F (1,192) = 6.577, p = 0.011]. Those who had experienced physical violence (n =121) had a mean PTSD score of 45.40: 95% CI [43.65 – 47.16], while those who had not (n = 71), had 41.48: 95% CI [39.37 – 43.59]; [F (1,192) = 7.796, p= 0.006]. PTSD was found to predict absenteeism [(F (1,192) = 31.096, p < 0.001), Absenteeism = -2.160 + 0.090 (PTSD), p < 0.001]. Gender and physical violence were found to be significantly associated with PTSD whereas absenteeism was found to be predicted by PTSD. There is therefore need for interventions that can equip adolescents with coping skills that would cushion them from developing PTSD despite the traumatic experiences they go through.

*Key Words:* Absenteeism and PTSD, gender and PTSD, physical violence and PTSD, adolescents and PTSD, PTSD in informal settlements, PTSD in Kajiado.

## Introduction and Background

Exposure to trauma has been found to affect information processing, brain development and even academic performance among adolescents (van Niekerk & Roets, 2017). This makes trauma and its possible consequences such as PTSD an area of interest to mental health practitioners. Other effects of trauma that have been identified among adolescents may include adoption of some behaviors such as irresponsible sexual behavior, drug abuse and crime. Such risky behaviors are likely to put their health and lives at risk, resulting in social problems, disablity, disease and possibly early death (Reeves, 2017).

Unfortunately, living in urban informal settlements such as where this study was carried out was found to increase childhood traumas (Meinck, Cluver, Boyes, & Mhlongo, 2015). Karandagolle (2014) is in agreement with this revealing how living in informal settlements was likely to lead to negative personality characteristics, skill deficits and problems with motivation. Researchers have also found that children who experience some maltreatment are more likely to repeat a class than their peers and have an irregular attendance (Shonk & Cicchetti, 2001). Further, students exposed to trauma were found to have a higher risk of developing social, emotional and academic problems (Kataoka, Langley, Wong, Baweja, & Stein, 2012).

Additionally, some of the behavioral consequences of traumatic stress identified by NCTSN & SAMHSA (2016) included attachment difficulties, and skipping school. Furthermore, a systematic review that set to examine school-related outcome of traumatic exposure revealed how those exposed to trauma were at a significant risk of developing school-related behaviors such as discipline, drop-out and attendance (Perfect et al., 2016). Further findings however, revealed an improvement in school attendance and consequently, academic performance among the adolescents with PTSD who had been taken through Cognitive Behavioral Intervention for Trauma in Schools intervention (Stein et al., 2003).

It is however, encouraging how studies have found that about 75% of individuals who survive traumatic and victimizing experiences do not develop posttraumatic stress disorder (Zoellner & Feeny, 2014). On the other hand, 25% go on to develop PTSD and other co-morbid disorders (Friedman, Keane, & Resick, 2014) such as anxiety and depression. This raises the question of what factors are likely to be associated with posttraumatic stress disorder. Some of the factors

have been identified as violent situations and living conditions since they are potentially traumatic as indicated in the 5th edition of the Diagnostic Statistical Manual (DSM-5) (American Psychiatric Association, 2013). Evidently, informal settlements, such as where this study was carried out are filled with such violent situations and living conditions that could possibly lead to PTSD.

While there is abundant literature suggesting how young adolescents are more vulnerable to psychological disorders such as depression and anxiety, there seems to be limited urban focused evidence according to Chant, Klett-Davies and Ramalho (2017). Several important variables in the mental health of the urban adolescents such as place of origin, birth-order, and quality of life, were suggested by a single study from Thailand (Chant et al., 2017). According to these authors, such risks were found to be gender biased and likely to lead to individuals developing PTSD.

In the informal settlements, the frequency by which individuals are exposed to many kinds of traumatic experiences or adversity is often high and of multiple forms (Harder et al., 2012). The events are also of different intensity and different adolescent girls experience their first adversity at varied ages. A meta-analysis and a systematic review of experiences indicating multiple forms of victimization (polyvictimization) in children who live in low-and lower-middle-income-countries (LALMIC) and its relation to mental health among other effects was done. Those who had gone through polyvictimization were likely to have increased mental health problems in addition to increased involvement behaviors that were a risk to their health (Le, Holton, Romero, & Fisher, 2018). Further, a study carried out to analyze factors associated with PTSD following a natural disaster among the elderly in Indonesia revealed having chronic illness, public health center utlization and occupational status before the disater to be associated with PTSD (Aurizki, Efendi, & Indarwati, 2019).

A study carried out in South Africa among mothers found recent life stressors to be significantly associated with lifetime trauma whereas childhood trauma and recent stressors were signifcantly associated with PTSD controlling for SES and study site. The same study found no associations between maternal PTSD and birth outcomes (Koen et al., 2016). Another study in Africa was carried out among humanitarian workers in South Sudan and it found chronic stress exposure to be positively associated with PTSD ($p < 0.001$) (Strohmeie, Scholte, & Ager, 2018). Similarly, a cross-sectional study among Koshe island survivors in Ethiopia found the female gender,

divorce, sustained physical injury, history of mental illness, family history of mental illness, poor social support and high rates of perceived stress to be associated with PTSD (Asnakew, Shumet, Ginbare, Legas, & Haile, 2019).

Several theories such as cognitive behavior theories can be applied in explaining the process of posttraumatic stress disorder by highlighting how information processing and learning are involved (Kaminer, Seedat, & Stein, 2005). According to Foa et al. as cited in Kaminer, Seedat, and Stein (2005), following a traumatic event, individuals form a fear network which stores any information about possible sources of threat. This fear network often waits for external and internal cues to activate it. Further, through classical conditioning, fear responses develop when cues that are present during the actual trauma are associated with other cues similar to them. This may explain how some of the adolescents go on to develop PTSD after being exposed to traumatic events.

Therefore, the purpose of this study was to determine how absenteeism and other factors are associated with posttraumatic stress disorder among adolescents who attend selected public primary schools in informal settlements in Kajiado County, Kenya. This would contribute to knowledge on factors that may be associated with the development of posttraumatic stress disorder among adolescents in informal settlements. Additionally, this knowledge would give an insight into how school absenteeism is associated with posttraumatic stress disorder. The knowledge from the findings would therefore be applied by policy makers in mitigation of factors associated with PTSD.

**Methodology**

Data at baseline was analyzed to determine the factors associated with posttraumatic stress disorder among adolescents living and attending primary schools in informal settlements in Kajiado County, Kenya. Two primary schools were purposively selected for the study due to their location in Kajiado informal settlements and the large population of respondents with similar socio-demographic characteristics.

The respondents were screened for PTSD using the Child PTSD Symptom Scale self-report (CPSS-SR-5) after filling assent forms. Following this, they completed a socio-demographic questionnaire. The school administrator provided informed consent for the respondents since

they were all below 18 years. The mean age of the participants (N= 698) was 12.2 years (SD= 1.2). Out of a sample of 212 selected through simple random sampling who scored 31 and above on the PTSD scale and were administered a Socio-demographic questionnaire, only 194 completed the study and their data applied in the analysis. The school attendance data was extracted from the registers kept by grade teachers.

The research assistants distributed the assent forms and explained the purpose of the study to the respondents who then signed the forms if they were willing to take part in the study. The CPSS-SR-5 questionnaires and the Socio Demographic Questionnaire (SDQ) were then distributed to the participants. The questions were each read out loud to the respondents to ensure they understood each question, asked for clarification, and had enough time to answer all the questions to avoid missing values.

The socio-demographic variables that were investigated by the use of the SDQ included the age, gender, grade, religion, and school attendance. The respondents were also asked what their primary language of communication was and the number of friends they had in school and at home. With regard to the family set up, they were asked whether both biological parents were living together, or they were living with a step parent. Further, the respondents were asked if the parents were separated, divorced or whether they were living with a single parent or a guardian. In addition to this, they were asked if they had witnessed violence at home, at school or any other place. Finally, they were asked if they had personally experienced physical violence and the frequency of the violence.

The CPSS-SR-5 was applied to screen, diagnose and assess the presence and severity of PTSD among the participants. The 20 PTSD symptom items on the questionnaire are rated on a 5-point scale measuring frequency and severity with '0' indicating 'not at all' to '4' indicating '6 or more times a week'. In addition to this, there are 7 functioning items rated on 'yes' or 'no'. To calculate the total score of symptom severity, the 20 symptom items are used with scores of 0 to 10 indicating minimal PTSD, 11 to 20, mild PTSD, 21 to 40, moderate PTSD, 41 to 60, severe PTSD and 61 to 80 indicating very severe PTSD. The study included participants with scores of 31 to 60 at baseline indicating moderate to severe PTSD.

The CPSS-SR-5 was found to have a very good internal consistency for total symptom severity (Cronbach's alpha = .924) and a good test-retest reliability (r = .800) (Foa, Asnaani, Zang, Capaldi & Yeh, 2018). Further, the CPSS-SR-5 demonstrated convergent validity with CPSS-I-5 (r = .904), and discriminant validity with the Multidimensional Anxiety Scale (MASC) for Children and Child Depression Inventory (CDI) (Foa, et al., 2018). To identify probable PTSD diagnosis among children who had been assessed, a cut off score of 31 was recommended. According to previous studies, the CPSS-SR-5 was therefore found to be a reliable and valid self-report instrument for diagnosing and assessing the severity of PTSD for children and adolescents between the ages of 8 to 18, as per the symptoms outlined in the fifth edition of the DSM.

To identify the factors associated with PTSD, analysis of variance (ANOVA) was performed. The CPSS-SR-5 score at the baseline stage was used to show the severity of PTSD.

**Results**

From the findings of the study, 46.4% of the respondents were male (N=90) whereas 53.6% were females (N=104) as shown in Table 1. With regard to age, 10.2% of the respondents were 10 years old, 18.6% were 11 years old, whereas 12 and 13 years olds were 28.2% each with 14 year olds being 14.8% of the screened respondents. The respondents in the study were attending the primary schools in classes 5 to 7, with 75 respondents (38.7%) from class 5, while 34% and 27.3% of the respondents were in grades 6 and 7, respectively. The responses revealed that 38.1% of the respondents were Protestants followed by Catholics and other denominations at 25.3% each. Of the remaining respondents, 7.2% belonged to the Seventh Day Adventist church while 4.1% were Muslims. This indicates that majority of the respondents were Christians (95.9%) with a Muslim minority of 4.1%. Among the respondents who were Christians, there were more Protestants than the other denominations with Seventh Day Adventists being the least in numbers.

*Table 1. Sociodemographic Characteristics*

|  |  | Count (N) | Percentage (%) |
|---|---|---|---|
| Gender | Male | 90 | 46.4% |
|  | Female | 104 | 53.6% |
| Age | 10 | 21 | 10.8% |
|  | 11 | 40 | 20.6% |
|  | 12 | 52 | 26.8% |
|  | 13 | 51 | 26.3% |
|  | 14 | 28 | 14.4% |
| Grade | 5 | 75 | 38.7% |
|  | 6 | 66 | 34.0% |
|  | 7 | 53 | 27.3% |
| Religion | Catholic | 49 | 25.3% |
|  | Protestant (PCEA, ACK, AIPC) | 74 | 38.1% |
|  | Seventh Day Adventist | 14 | 7.2% |
|  | Muslim | 8 | 4.1% |
|  | Others | 49 | 25.3% |
|  | Total | 194 | 100.0% |

## PTSD and absenteeism

Numerical records of absenteeism were collected from the attendance register then applied in carrying out various analyses. A linear regression model was estimated with the absenteeism as the dependent variable while PTSD score was the independent variable as demonstrated in the table that follows.

*Table 2. Linear regression Model Summary for absenteeism*

**Model Summary**

| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate |
|---|---|---|---|---|
| 1 | .373[a] | .139 | .135 | 2.153 |

a. Predictors: (Constant), PTSD Score at Baseline

The model was applied to predict the rate of absenteeism from the PTSD score. The model summary, in Table 2 showed that there was a moderate degree correlation of R = 0.373 between absenteeism and PTSD scores. The R square value of 0.139 (13.9%) indicates that only 14% of the absenteeism can be explained by the severity of PTSD determined by the CPSS-SR-5 score. To ascertain if PTSD is a predictor of absenteeism, an ANOVA test was carried out and the results were as shown in the ensuing table.

*Table 3. ANOVA test predicting absenteeism*

**ANOVA[a]**

| Model | | Sum of Squares | Df | Mean Square | F | Sig. |
|---|---|---|---|---|---|---|
| | Regression | 144.126 | 1 | 144.126 | 31.096 | .000[b] |
| 1 | Residual | 889.894 | 192 | 4.635 | | |
| | Total | 1034.021 | 193 | | | |

a. Dependent Variable: Absenteeism at baseline

b. Predictors: (Constant), PTSD Score at Baseline

Table 3 indicates that PTSD predicts absenteeism in a statistically significant way, $F(1,192) = 31.096$, $p < 0.001$. In order to ascertain this prediction, a regression analysis was carried out that indicated the results as demonstrated in the following table.

*Table 4. Coefficients table for absenteeism at baseline*

**Coefficients**[a]

| Model | | Unstandardized Coefficients | | Standardized Coefficients | T | Sig. | 95.0% Confidence Interval for B | |
|---|---|---|---|---|---|---|---|---|
| | | B | Std. Error | Beta | | | Lower Bound | Upper Bound |
| 1 | (Constant) | -2.160 | .722 | | -2.991 | .003 | -3.584 | -.736 |
| | PTSD Score at Baseline | .090 | .016 | .373 | 5.576 | .000 | .058 | .121 |

a. Dependent Variable: Absenteeism at baseline

Table 4 shows that absenteeism could be predicted from PTSD scores using the function; Absenteeism = -2.160 + 0.090 (PTSD), and that PTSD contributes significantly to the model, $p < 0.001$. Considering this, it can be concluded from the simple linear regression model that the severity of PTSD contributes significantly to the rate of absenteeism and that PTSD could be used to predict the rate of absenteeism.

*Other Factors associated with PTSD*

Further analyses were carried out to determine the various factors associated with PTSD as demonstrated in the following table.

*Table 5. Mean PTSD scores by gender, age, family set-up, physical violence, violence at home, school and other places*

| | | N | Mean | SD | Std. Err. | 95% Confidence Interval for Mean | | Min | Max |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Lower Bound | Upper Bound | | |
| Gender | Male | 90 | 42.04 | 8.91 | .94 | 40.18 | 43.91 | 31 | 69 |
| | Female | 104 | 45.56 | 10.01 | .98 | 43.61 | 47.50 | 31 | 77 |
| Age | 10 | 21 | 39.71 | 6.56 | 1.43 | 36.73 | 42.70 | 32 | 53 |
| | 11 | 40 | 44.18 | 10.09 | 1.60 | 40.95 | 47.40 | 31 | 77 |
| | 12 | 52 | 43.46 | 10.07 | 1.39 | 40.66 | 46.26 | 31 | 68 |
| | 13 | 51 | 45.55 | 10.51 | 1.47 | 42.59 | 48.50 | 31 | 69 |
| | 14 | 28 | 44.75 | 8.10 | 1.53 | 41.61 | 47.89 | 31 | 65 |
| Family Set-up | Both biological parents living together | 119 | 43.67 | 9.190 | .84 | 42.00 | 45.34 | 31 | 69 |
| | Living with step parent | 12 | 49.42 | 10.83 | 3.13 | 42.54 | 56.29 | 34 | 67 |
| | Parents separated | 16 | 43.88 | 10.13 | 2.53 | 38.48 | 49.27 | 34 | 68 |
| | Parents divorced | 39 | 43.08 | 10.80 | 1.73 | 39.58 | 46.58 | 31 | 77 |
| | Single parent | 8 | 43.75 | 7.21 | 2.55 | 37.73 | 49.77 | 34 | 53 |
| Physical Violence | No | 73 | 41.48 | 9.042 | 1.06 | 39.37 | 43.59 | 31 | 68 |
| | Yes | 121 | 45.40 | 9.744 | .89 | 43.65 | 47.16 | 31 | 77 |
| Violence at home | No | 66 | 44.09 | 9.71 | 1.20 | 41.70 | 46.48 | 31 | 77 |
| | Yes | 117 | 44.62 | 9.63 | .89 | 42.86 | 46.39 | 31 | 69 |
| Violence at school | No | 97 | 44.76 | 9.49 | .96 | 42.85 | 46.68 | 31 | 69 |
| | Yes | 90 | 43.60 | 9.63 | 1.02 | 41.58 | 45.62 | 31 | 77 |
| Violence in Other places | No | 125 | 43.86 | 9.37 | .84 | 42.21 | 45.52 | 31 | 77 |
| | Yes | 62 | 44.65 | 10.22 | 1.30 | 42.05 | 47.24 | 31 | 68 |

Gender and PTSD

With regard to gender, the analysis as indicated in Table 5 revealed that the mean PTSD scores for the male participants (n = 90) was 42.02: 95% CI [40.18 - 43.91], while for the female respondents (n = 104) was 45.56: 95% CI [43.61-47.50]. Further, ANOVA test was carried out to ascertain if these differences in the gender had a statistically significant effect on the variance of the PTSD scores. Table 6 revealed how the differences in gender had a statistically significant effect on variance of the PTSD score with ANOVA test results as $F(1,192) = 6.577$, $p = 0.011$. The results were found to be statistically significant since $p < 0.05$. In addition, the test between-

subject association, also resulted in a partial eta squared coefficient $\eta^2 = 0.033$, an indication of the potential association between gender and levels of PTSD.

Age and PTSD

When the association between age and PTSD scores was analyzed, the mean PTSD scores varied as shown in Table 5 with respondents who were 10 years of age (n =21) having a mean PTSD score of 39.71: 95% CI [36.73-42.70], 11years (n= 40), mean 44.18: 95% CI [40.95 – 47.40], 12 years (n=52), 43.46: 95% CI [40.66-46.26], 13 years (n =51), 45.55: 95% CI [42.59 – 48.50] and finally, 14 years, 44.75: 95% CI [41.61-47.89]. On further analysis through ANOVA, the difference in age among the respondents did not have a statistically significant influence on the severity of PTSD as indicated by the results F (5,188) = 1.172, p= 0.324 in Table 6.The related partial eta square value was $\eta^2 = 0.03$, but with p = 0.324, which was not statistically significant. This indicated that there was no association between age and PTSD levels in this study population.

Family set-up and PTSD

As for the family set-up, Table 5 presents the five possible categories including biological parents living together, living with a step parent, separated parents, divorced parents and single parents. For the respondents whose biological parents were living together (n = 119), the mean PTSD score was 43.67: 95% CI [42.00-45.34], while for those who were living with step parents (n = 12), the mean PTSD score was 49.42: 95% CI [42.54 – 56.29]. Those whose parents were separated (n = 16) had mean PTSD score of 43.88: 95% CI [38.48-49.27], while those whose parents were divorced (n = 39) had a mean PTSD score of 43.08: 95% CI [39.58-46.58]. Finally, those living with a single parent (n = 8) had a mean PTSD score of 43.75: 95% CI [37.73-49.77]. Further analysis by ANOVA as shown in Table 6 indicated the differences in the family set up did not have a statistically significant effect on the variance of PTSD scores (F (4,189) = 1.069, p= 0.373). The related partial eta squared was equally not statistically significant at $\eta^2 = 0.022$. This showed that there was no association between family set-up of the adolescents and their PTSD levels.

Physical violence and PTSD

The researcher further sought to determine if experiencing physical violence could be associated with PTSD. The statistics in Table 5 indicate that the respondents who had experienced physical violence (n =121) had a mean PTSD score of 45.40: 95% CI [43.65 – 47.16], while those who had not experienced physical violence (n = 71), had a mean PTSD score of 41.48: 95% CI [39.37 – 43.59]. These results show that the respondents who had experienced physical violence seemed to have higher PTSD scores compared to those who had not. To verify this, an ANOVA test was carried out to determine if this difference was statistically significant. The outcome of the ANOVA test in Table 6 indicates that physical violence had a statistically significant influence on the variance of PTSD levels, $F_{(1,192)} = 7.796$, p= 0.006. In addition, the partial eta squared coefficient, was $\eta^2 = 0.039$, indicating that exposure to physical violence was associated with PTSD levels.

Violence at home and PTSD

Considering the location where the violence occurred, the association between PTSD and violence at home, school and other places was assessed. According to Table 5, the respondents who had experienced violence at home (n = 117) had a mean PTSD score of 44.62: 95% CI [42.86 – 46.39], while those who did not experience violence at home (n= 66), the mean PTSD scores were 44.90: 95% CI [41.70 - 46.48]. When this was further analyzed using ANOVA as shown in Table 6, experiencing violence at home did not have a statistically significant effect on the variation of PTSD scores, $F_{(1,181)} = 0.129$, p= 0.720 with a related partial eta value $\eta^2 = 0.001$. This indicated that there was no association between the location where the violence occurred, and PTSD levels in this study population.

Violence at school and PTSD

Similarly, for the respondents who experienced violence at school (n=90), the mean PTSD score was 43.60: 95% CI [41.58-45.62], while for those who did not experience violence at school, the mean PTSD score was 44.76: 95% CI [42.85-46.68] as shown in Table 5. When this difference was put through ANOVA analysis as shown in Table 6, experiencing violence at school did not have a statistically significant influence on the variance of PTSD scores, $F_{(1, 185)} = 0.691$, p=

0.407, with a partial eta squared value of $\eta^2 = 0.004$. It can be noted therefore that there was no association between the levels of PTSD and violence at school.

Violence in other places and PTSD

Table 5 also shows how the respondents who had experienced violence in other places (n = 62), had a mean PTSD score of 44.65: 95% CI [42.05 – 47.24], while those who did not experience violence in other places (n = 127), had a mean PTSD score of 43.86: 95% CI [42.21 – 45.52]. To test if this difference was statistically significant, an ANOVA test was carried out as indicated in Table 6. It revealed that experiencing or not experiencing violence in other places did not have a statistically significant effect on the variation of PTSD scores either, $F (1,185) = 0.271$, $p = 0.603$ and partial eta squared coefficient of $\eta^2 = 0.001$. This indicates that there was no association between experiencing violence in other places and levels of PTSD.

*Table 6. ANOVA test results of the association between PTSD scores and various factors.*

| Factor | | Sum of Squares | Df | Mean Square | F | Sig. |
|---|---|---|---|---|---|---|
| Gender | Between Groups | 595.514 | 1 | 595.514 | 6.577 | .011 |
| | Within Groups | 17385.476 | 192 | 90.549 | | |
| | Total | 17980.990 | 193 | | | |
| Age | Between Groups | 543.628 | 5 | 108.726 | 1.172 | .324 |
| | Within Groups | 17437.361 | 188 | 92.752 | | |
| | Total | 17980.990 | 193 | | | |
| Family set-up | Between Groups | 397.835 | 4 | 99.459 | 1.069 | .373 |
| | Within Groups | 17583.154 | 189 | 93.033 | | |
| | Total | 17980.990 | 193 | | | |
| Physical Violence | Between Groups | 701.613 | 1 | 701.613 | 7.796 | .006 |
| | Within Groups | 17279.376 | 192 | 89.997 | | |
| | Total | 17980.990 | 193 | | | |
| Violence at home | Between Groups | 11.989 | 1 | 11.989 | .129 | .720 |
| | Within Groups | 16878.908 | 181 | 93.254 | | |
| | Total | 16890.896 | 182 | | | |
| Violence at school | Between Groups | 63.132 | 1 | 63.132 | .691 | .407 |
| | Within Groups | 16897.146 | 185 | 91.336 | | |
| | Total | 16960.278 | 186 | | | |
| Violence in Other places | Between Groups | 25.290 | 1 | 25.290 | .271 | .603 |
| | Within Groups | 17250.882 | 185 | 93.248 | | |
| | Total | 17276.171 | 186 | | | |

From the above analyses, physical violence and gender were found to have a statistically significant influence on the variance of PTSD indicating that they were associated with developing PTSD among adolescents.

**Discussion**

The study set to find out how absenteeism and other factors are associated with PTSD among adolescents living in informal settlements. With regard to absenteeism, the findings indicated that there was a statistically significant positive correlation between the rate of absenteeism and PTSD levels. This confirmed that the rate of absenteeism could be predicted from PTSD levels.

A moderate degree correlation between absenteeism and PTSD scores was established indicating that 14% of the absenteeism could be explained by the severity of PTSD. The results also indicated that PTSD predicts absenteeism in a statistically significant way.

Several studies have revealed how poor mental health could lead to reduced or poor school attendance describing anxiety disorders as particular risk factors (Egger, Costello, & Angold, 2003; Elliott, & Place, 2009). For instance, a systematic review of anxiety disorders and poor attendance at school revealed associations between anxiety and different types of absenteeism (Finning, et al., 2019). Another study set out to investigate school performance among adolescents after a shooting found a decline in school performance and attendance in the year that the shooting occurred (Strom, Schultz, Wentzel- Larzen, & Dyb, 2016).

Yet another study done to assess the academic performance and absenteeism among survivors of a terrorist attack in Norway recorded improved school attendance and therefore performance, an indication that the recovery from trauma had a role to play in the outcome (Strøm, et al., 2016). In agreement with these findings was a study carried out by Yablon (2015) confirming that a reduction in PTSD led to an increase in school attendance among students in an armed conflict zone in Israel. Considering factors associated with PTSD, a study carried out after an earthquake in Indonesia among the elderly revealed that having Chronic illness (OR=2.490; 95% CI=1.151–5.385), public health center utilization (OR=2.200; 95% CI=1.068–4.535) and occupational status before the disaster (OR=2.726; 95% CI=1.296–5.730) were associated with PTSD (Aurizki, Efendi, & Indarwati, 2019).

With regard to gender, the findings of this study revealed higher mean PTSD scores among female than male respondents. These differences in gender had a statistically significant effect on the variance of the PTSD levels. This confirms that there is a potential association between gender and PTSD and therefore, gender difference is likely to influence the severity of PTSD.

The finding that gender is significantly associated with PTSD was supported by the  American Psychological Association (2013) that noted how females have a higher risk of developing PTSD than their male counterparts. Similarly, a study in Europe confirmed that compared to men, women had two to three times higher risk of developing PTSD (Olff, 2017). Further, a systematic review of gender differences in the mental health of unaccompanied refugee minors

(URM) that was also carried out in Europe found that girls were more likely to develop late-onset PTSD than males URM (OR = 1.64, p = <0.1) (Mohwinkel, Nowak, Kasper, and Razum, 2018).

Other authors further argued that although gender is associated with PTSD, it is less clear what the disparity can be attributed to. According to Farhood, Fares, and Hamady (2018), the gender disparity was proposed to arise from differences associated with pretrauma, trauma and posttrauma factors. Additionally, the differences could partly arise from specific profiles that are unique to specific genders such as cultural, and traditional social  values. For example, in a patriachial society such as where the current study was carried out, the adolescent girls may have faced social and religious factors that are unique to them. This could predispose them to stressful situations due to the heavy workload, leaving them vulnerable to developing PTSD when faced with a traumatic event.

Studies in Africa have since confirmed the proposition that women are likley to develop PTSD than men. This difference has been attributted to the difference in exposure to traumatic events and to the different ways in which they repsond to traumatic events (Idemudia, William, Boehnke, & Wyatt, 2013). For example, a cross-sectional study among Koshe island survivors in Ethiopia found the female gender to be associated with PTSD (AOR = 1.74, 95% CI 1.21 TO 2.50) (Asnakew, Shumet, Ginbare, Legas, & Haile, 2019). Another study in Ethiopia among road traffic survivors also found being female (AOR = 2.23, 95 CI 1.40, 3.56) to be associated with PTSD (Yohannes, Gebeyehu, Adera, Ayano, & Fekadu, 2018). Similarly, in a study carried out in Uganda, females were found to be at a greater risk of developing PTSD (44.4%) than males (31%) (Elklit, & Mandrup, 2014). This was further affirmed by Jenkins et al. (2015) in a cross-sectional household survey in Kenya that found being female a risk factor for PTSD. Another study done among Kenyan school children during a period of widespread post-election violence was in agreement with these findings. The study confirmed gender to be a correlate of PTSD (with girl as referent AOR = .70, 95% CI = .57–.86) (Mbwayo, Mathai, Harder, Nicodimos, & Stoep, 2019).

On the other hand, a study carried out by Harder et al. (2013) among adolescents in an informal settlement in Kenya six months after post election violence showed no sex difference in the development of PTSD. Similarly, a study carried out in Nothern Uganda seven years after

conflict in three districts found no association between sex and PTSD (Mugisha, Muyinda, Wandiembe, & Kinyanda, 2015). These findings were further supported by a study that was carried out 10 to 11 years after the September 11, 2001 terrorist attack in the USA where 13.7% men and 24.1% women had met the criteria for PTSD. However, when all other variables such as socioeconmic, demographic and social resources were taken into consideration, gender was not qualified as a significant predictor of severity of PTSD symptoms (Bowler, Adams, Gocheva, Li, Mergler, Brackbill, & Cone, 2017).

With regard to age, the difference in age among the respondents in this study did not have an influence on the severity of PTSD since the difference was not statistically significant. This is supported by findings of a study in northern Uganda that found no association between age and PTSD (Mugisha et al., 2015). It is however contrary to what other studies have found such as a systematic review of child mental health in sub-Saharan Africa that asserted how children's age is a risk factor for developing PTSD. The study found that older children were at a higher risk of developing PTSD (Cortina, Sodha, Fazel, & Ramchandani, 2012). Another study in Kenya supported this in its findings that revealed age as a statistically significant predictor of PTSD symptoms [$F_{(2,87)} = 2.479$, $P < .05$] where older adolescents were more likely to develop PTSD than their younger counterparts (Nyagwencha, Munene, & James, 2019). On the other hand, some studies revealed that being young is a predictor of severity of symptoms of PTSD (Bowler et al., 2017).

Arguably, the findings in this study that age was not associated with the severity of PTSD could possibly be due to the fact that there was very little difference in age among the respondents. This study was carried out among 10 to 14 year olds who are more or less within the same age group and therefore, were likely to respond to PTSD in a similar manner where age related factors were concerned.

This study also found the respondents who had experienced physical violence to have higher PTSD scores indicating a statistically significant influence on the variance of PTSD levels. This finding was supported by an early meta-analysis of risk factors for PTSD that found childhood adversity to predict PTSD consistently across various studies (Brewin et al., 2000). A study on victimization among Ugandan youth similarly supported these findings that physical abuse had a positive relationship with PTSD (Elklit, & Mandrup, 2014). Another study in Kenya after post-

election violence confirmed those adolescents who experienced post-election communal violence to have higher levels of PTSD (Mwania & Muola, 2013). This was further supported by another study that confirmed how previously experiencing physical violence was a risk factor for being raped (Baiocchi et al., 2019), a traumatic event likely to result into PTSD.

Contrary to this, however, a study in China among health workers revealed a different finding. The study concluded that the aftermath of physical violence contributed to prevalence of PTSD with 50.8% of victims of physical violence not exhibiting PTSD symptoms and 47% not meeting the criteria for PTSD (Shi, et al., 2017). The study found the level of PTSD symptoms to be negatively correlated with the scores for physical violence on the SSRS ($r=-0.188$, $p<0.001$) indicating that the difference in the scores was statistically significant. This implied that there were more people who had experienced physical violence yet they did not meet the criteria for PTSD suggesting that there was no association between physical violence and PTSD.

Concerning other factors, the differences in the family set up were found not to have a statistically significant effect on the variance of PTSD scores. The findings of this study were contrary to findings from other studies such as one done in the USA to assess family functioning and PTSD in adolescent survivors of cancer. The study revealed that adolescents who were diagnosed with PTSD had poorer family functioning especially in the domains of Affective Responses ($F$ [1,116] $=8.03$, $p=.005$, partial $\eta^2=.07$), and Affective Involvement (F [1, 92] $=6.81$, $p=.011$, partial $\eta^2=.07$). Further, 75% of adolescents with PTSD came from families that were described as poorly functioning. The study found adolescents with PTSD to be 5.32 times as likely to be members of families described as poorly functioning (95% CI: 1.28–22.72) (Alderfer, Navsaria, & Kazak, 2009). This shows that there was an association between family functioning and levels of PTSD.

Further, experiencing violence at home did not have a statistically significant effect on the variation of PTSD scores. This, however, is contrary to the findings of a study by Baiocchi et al. (2019) that established how previous experience of violence at home was a risk factor for traumatic events such as rape that often results into PTSD. Supporting this view was another study that revealed how exposure to domestic violence was related to anxiety and depression symptoms. The same study added that how a child perceives their father-child, and father-mother relationships are both associated with symptoms of anxiety and PTSD (Paul, 2019). The

explanation that is likely to be applicable for the statistically insignificant effect of violence at home on the PTSD scores could be that the violence has been normalized among the participants.

Similarly, experiencing violence at school did not have a statistically significant influence on the variance of PTSD scores. These findings are, however, contrary to results of a meta-analysis that found a correlation of.42 (95% CI: .36–.48; $p < .001$) between bullying and PTSD (Nielsen, Tangen, Idsoe, Matthiesen, & Magerøy, 2015). In agreement with this were results of another study that revealed 50% (range 46.2 -61.5%) of bullied adolescents had PTSD scores within the clinical range (Ossa, Pietrowsky, Bering, & Kaess, 2019). Bullying is likely to be the most common form of violence in any school set up. The findings of this study could therefore imply that the violence the students experienced in school was probably not severe enough to significantly predict PTSD. On the other hand, cultural differences are likely to influence the neural and psychological differences aberrant in PTSD as evidenced in this study. The collectivistic culture of adolescents in the informal settlements may have affected how they perceive themselves and therefore how they react to traumatic events in school. This could be explained by the adolescents perceiving everyone in their community as interdependent and therefore focusing on social harmony by building relationships that help to fulfill social roles (Lidell, & Jobson, 2016). This is likely to alter how they perceive any traumatic events they experience in school resulting in fewer cases developing into posttraumatic stress disorder.

**Conclusion**

The findings of this study reveal that PTSD can be applied in predicting absenteeism. Other findings describe some of the factors that are likely to be associated with PTSD among adolescents living in the informal settlements. The two factors that were found to have a statistically significant association with PTSD in this study were gender and experiencing physical violence. Further research is required to find out how these factors can be mitigated to cushion the adolescents against the exposure to traumatic events, and the adverse side effects of the traumatic events such as absenteeism. Additionally, more studies on other factors associated with PTSD not revealed by this study need to be carried out in detail. Nevertheless, the findings confirm some of the propositions on factors associated with PTSD and would therefore furnish the policy makers with valuable information that would help protect the adolescents who are at risk in the informal settlements. Since the population in this study was very specific to the

adolescents in informal settlements, it may restrict the generalizability of the study. However, the study applied a strict methodology and a standardized tool, the CPSS-SR-5 to measure PTSD. This improves the credibility of this study such that it can be generalized among similar and related populations such as adolescents in general.

# References

Alderfer, M.A., Navsaria, N., & Kazak, A.E. (2009). Family Functioning and Posttraumatic Stress Disorder in Adolescent Survivors of Childhood Cancer. *Journal of Family Psychology, 23*(5), 717-725. doi:10.1037/a0015996

American Psychiatric Association, (2013). *Diagnostic and statistical manual of mental disorders* (5th ed.).Washington, DC: Author. American Psychiatric Publishing, Inc. https://doi.org/10.1176/appi.books.9780890425596

Asnakew, S., Shumet, S., Ginbare, W., Legas, G., & Haile, K. (2019). Prevalence of post-traumatic stress disorder and associated factors among Koshe landslide survivors, Addis Ababa, Ethiopia: a community-based, cross-sectional study. *BMJ Open, 9*(6). doi:10.1136/bmjopen-2018-028550

Aurizki, G., Efendi, F., & Indarwati, R. (2019). Factors associated with post-traumatic stress disorder (PTSD) following natural disaster among Indonesian elderly. *Working with Older People, 24*(1), 27-38. doi:10.1108/WWOP-08-2019-0020

Baiocchi, M., Friedberg, R., Rosenman, E., Amuyunzu-Nyamongo, M., Oguda, G., Otieno, D., & Sarnquist, C. (2019). Prevalence and risk factors for sexual assault among class 6 female students in unplanned settlements of Nairobi, Kenya: Baseline analysis from the IMPower & Sources of Strength cluster randomized controlled trial. *PLoS One, 14*(6). doi: 10.1371/journal.pone.0213359

Bowler, R. M., Adams, S. W., Gocheva V. V., Li, J., Mergler, D., Brackbill, R., & Cone J. E. (2017). Posttraumatic Stress Disorder, Gender, and Risk Factors: World Trade Center Tower Survivors 10 to 11 Years After the September 11, 2001 Attacks. *Journal of Traumatic Stress, 30*(6), 564-570. doi:10.1002/jts.22232.

Brewin, C. R., Andrew, B., & Valentine, J. D. (2000). Meta-analysis of risk factors for posttraumatic stress disorder in trauma-exposed adults. *Journal of Consulting and Clinical Psychology, 68*(5), 748-766. doi:0022-006X.

Chant, S., Klett-Davis, M., & Ramalho, J. (2017). Challenges and potential solutions for adolescent girls in urban settings: a rapid evidence review. *Gender and Adolescence: Global Evidence.*

Cortina M.A.,Sodha, A., Fazel, M., & Ramchandani, G. (2012). Prevalence of Child Mental Health Problems in Sub-Saharan Africa A Systematic Review. *Archives of Pediatric and Adolescence Medicine, 166*(3), 276-281.

Egger, H. L., Costello, J. E., & Angold, A. (2003). School refusal and psychiatric disorders: A community study. *Journal of the American Academy of Child & Adolescent Psychiatry, 42*, 798- 807.

Elklit, A., & Mandrup, L. (2014). Victimization and PTSD in Ugandan Youth. *Open Journal of Epidemiology, 4*, 141-156. doi:10.4236/ojepi.2014.43020

Elliott, J. G., & Place, M. (2009). Practitioner review: School refusal: Developments in conceptualisation and treatment since 2000. *Journal of Child Psychology and Psychiatry, 4*, 4-15. doi:10.1111/jcpp.12848

Farhood, L., Fares, S., & Hamady, C. (2018). Correction to: PTSD and gender: could gender differences in war trauma types, symptom clusters and risk factors predict gender differences in PTSD prevalence? *Archives of Wome's Mental Health, 21*, 735-743.

Finning, K., Ukoumunne, O.C., Ford, T., Danielson-Waters, E., Shaw, L., De Jager, I.R., …, & Moore, D.A. (2019). Review: The association between anxiety and poor attendance at school – a systematic review. *Child and Adolescent Mental Health, 24*(3). doi:10.1111/Camh.12322

Foa E. B., Embree, E., Cahill, S. Rauch, S., Riggs, D., Feeny, N., & Yadin, E. (2005). Randomized trial of prolonged exposure for posttraumatic stress disorderwith and without cognitive restructuring:Outcome at academic and community clinics. *Journal of Consulting and Clinical Psychology, 73*, 953-964.

Foa, E. B., Asnaani, A., Zang, Y., Capaldi, S., & Yeh, R. (2018). Psychometrics of the Child PTSD Symptom Scale for DSM-5 for trauma-exposed children and adolescents. *Journal of Clinical child and adolescent psychology, 47*(1), 38-46. doi:10.1080/15374416.2017

Friedman, M. J., Resick, P. A., & Keane, T. M. (2014). PTSD from DSM-III to DSM-5: Progress and challenges. In T. M. M. J. Friedman, & T. M. M. J. Friedman (Ed.), *Handbook of PTSD: Science and practice* (2nd ed., pp. 3-20). New York: NY: The Guilford Press.

Harder, V. S., Mutiso, V. N., Khasakhala, L. I., Burke, H. M., & Ndetei, D. M. (2012). Multiple traumas, postelection violence, and posttraumatic stress among impoverished Kenyan youth. *Journal of Traumatic Stress, 25*(1), 64-70.

Idemudia, E. S., William, J. K., Boehnke, K., & Wyatt, G. (2013). Gender Differences in Trauma and Posttraumatic Stress Symptoms among Displaced Zimbabweans in South Africa. *Journal of Trauma Stress Disorder Treatment, 2*(3), 1340. doi:10.4172/2324-8947.1000110

Jenkins, R., Othieno, C., Omollo, R., Ongeri, L., Sifuna, P., Mboroki, J. K., …, & Ogutu, B. (2015). Probable Post Traumatic Stress Disorder in Kenya and Its Associated Risk Factors: A Cross-Sectional Household Survey. *International journal of Environmental Research and Public Health, 12*(10), 13494-509. doi:10.3390/ijerph121013494

Kaminer, D., Seedat, S., & Stein, D. J. (2005). Post-traumatic stress disorder in children. *World Psychiatry, 4*(2), 121-125.

Karandagolle, W. (2014). Assessment of psychopathic personality deviation in slum children: A pilot study. *International Journal of interdisciplinary and Multidisciplinary Studies, 1*(4), 35-41.

Kataoka, S. Langley, A., Wong, M., Baweja, S., & Stein, B. (2012). Responding to students with PTSD in schools. *Child and Adolescent Psychatric Clinics of North America, 21*(1), 119-133. doi:10.1016/j.chc.2011.08.009

Koen, N., Brittain, K., Donald, K.A., Barnett, W., Koopowitz, S., Mare, K., …, & Stein, D.J. (2016). Psychological trauma and posttraumatic stress disorder:risk factors and associations with birth outcomes in the Drakenstein Child Health Study. *European Journal of Psychotraumatology, 7*. doi:10.3402/ejpt.V7.28720

Le Minh T. H., Holton, S., Romero, L., & Fisher J. (2016). Polyvictimization among children and adolescents in Low- and Lower- Middle Income Countries: a systematic review and meta-analysis. *TRAUMA, VIOLENCE, & ABUSE*, 1-20. doi:DOI: 10.1177/1524838016659489

Lidell, B.J., & Jobson, L. (2016). The impact of cultural differences in self-representation on the neural substrates of posttraumatic stress disorder. *European Journal of Psychotraumatology, 7*. doi:10.3402/ejpt.v7.30464.

Mbwayo, A.W., Mathai, M., Harder, V.S., Nicodimos, S., & Stoep, A.V. (2019). Trauma among Kenyan School Children in Urban and Rural Settings: PTSD Prevalence and Correlates. *Journal of Child and Adolescent Trauma*. doi:10.1007/s40653-019-00256-2

Meinck, F., Cluver, L. D., Boyes, M. E., & Mhlongo, E. L. (2015). Risk and protective factors fo physical and sexual abuse of children and adolescents in Africa: A review and implications for practice. *Trauma, Violence, & Abuse, 16*(1), 81-107.

Mohwinkel, L., Nowak, A.C., Kasper, A., & Razum, O. (2018). Gender differences in the mental health of unaccompanied refugee minors in Europe: a systematic review. *BMJ Open, 8*. doi:doi:10.1136/bmjopen-2018-022389

Mugisha, J., Muyinda, H., Wandiembe, P., & Kinyanda, E. (2015). Prevalence and factors associated with Posttraumatic Stress Disorder seven years after the conflict in three districts in northern Uganda (The Wayo-Nero Study). *BMC Psychiatry, 15*, 170. doi:10.1186/s12888-015-0551-5.

Mwania, J. M., & Muola. J.M. . (2013). Relationship Between Post Election Violence Traumatic Events and the Level of Posttraumatic Stress Disorder Among Primary school Pupils in Kibera and Kayole Settlements, Nairobi, Kenya. *International Journal of Education and Research, 1*(10).

National Child Traumatic Stress Network (NCTSN), (2012). CBITS:General Information. *Trauma Informed Interventions*, 1-9.

Nielsen, M.B., Tangen, T., Idsoe, T., Matthiesen, S.B., & Magerøy, N. (2015). Post-traumatic stress disorder as a consequence of bullying at work and at school. A literature review and meta-analysis. *Aggresion and Violent Behavior, 21*, 17-24. doi:10.1016/j.abv.2015.01.001

Nyagwencha, S.K., Munene, A., & James, N. (2019). Predictors of Symptoms of PTSD, Depression and Anxiety Disorders Among Abused and Neglected Adolescents Living in Charitable Children's Institutions in Nairobi County, Kenya. *African Journal of Clinical Psychology, 2*(2).

Olff, M. (2017). Sex and gender differences in post-traumatic stress disorder: an update. *European Journal of Psychotraumatology, 8*(sup 4). doi: 10.1080/20008198.2017.1351204

Ossa, F.C., Pietrowsky, R., Bering, R., & Kaess, M. (2019). Symptoms of posttraumatic stress disorder among targets of school bullying. *Child and Adolescent Psychiatry and Mental Health, 13*(43). doi:10.1186/s13034-019-0304-1

Paul, O. (2019). Perceptions of Family Relationships and Post-Traumatic Stress Symptoms of Children Exposed to Domestic Violence. *Journal of Family Violence, 34*, 331-343. doi:10.1007/s10896-018-00033-z

Perfect, M. M., Turley, M. R., Carlson, J. S., Yohanna, J., & Saint Gilles, M. P. (2016). School-related outcomes of traumatic event exposure and traumatic stress symptoms in students: a systematic review of research from 1990 to 2015. *School Mental Health, 8*(1), 7-43.

Reeves, M. A. (2017). The identification, assessment, and treatment of trauma and PTSD at School. *The Identification, Assessment, and Treatment of Trauma and PTSD at School*, (pp. 1-26). Winthrop University.

Shi, L., Wang, L., Jia, X., Li, Z., Mu, H., Liu, X., ..., & Fan, L. (2017). Prevalence and correlates of symptoms of post-traumatic stress disorder among Chinese healthcare workers exposed to physical violence: a cross-sectional study. *BMJ Open, 7*(7). doi:10.1136/bmjopen-2017-016810.

Shonk, S. M., & Cicchetti, D. (2001). Maltreatment, competency deficits, and risk for academic and behavioral maladjustment. *Developmental Psychology, 37*(1), 3-17.

Stein, B., Jaycox, L., Kataoka, S., Wong, M., Tu, W., Elliott, M., & Fink, A. (2003). A mental health intervention for school children exposed to violence: A randomized controlled trial. *Journal of the American Medical Association, 290*, 603-611.

Strohmeie, H., Scholte, W.F., & Ager, A. (2018). Factors associated with common mental health problems of humanitarian workers in South Sudan. *PLoS ONE, 13*(10). doi:10.1371/journal.pone.0205333

Strøm, I.F., Schultz, J., Wentzel-Larsen, T., & Dyb, G. (2016). School performance after experiencing trauma: a longitudinal study of school functioning in survivors of the Utøya shootings in 2011. *European Journal of Psychotraumatology, 7*(1). doi:10.3402/ejpt.v7.31359

Substance Abuse and Mental Health Services Administration (SAMHSA), (2018). Trauma and Violence. Rockville.

van Niekerk, A. M. S., & Roets, H. E. (2017). The psycho- educational practice of mental toughness in dealing with trauma. *International Journal of Psychological Studies, 9*(4), 83-93.

Yablon, Y. (2015). Positive school climate as a resilience factor in armed conflict zones. *Psychology of Violence, 5*(4), 393-401. doi:10.1037/a0039600

Yohannes, K., Gebeyehu, A., Adera, T., Ayano, G., & Fekadu, W. (2018). Prevalence and correlates of post-traumatic stress disorder among survivors of road traffic accidents in Ethiopia. *International Journal of Mental Health Systems, 12*, 50. doi:10.1186/s13033-018-0229-8. eCollection 2018.

Zoellner, L. A., & Feeny, N. C. (Eds.). (2014). *Facilitating resilience and recovery following trauma.* New York: NY: Guilford Press.