

TRAUMA EXPOSURE AND SOCIO-DEMOGRAPHIC RISK FACTORS FOR POST-TRAUMATIC STRESS DISORDER AMONG SECONDARY SCHOOL STUDENTS IN SAMBURU WEST, KENYA

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Abstract: *The relationship between trauma exposure and Post-Traumatic Stress Disorder (PTSD) symptoms among secondary school students in Samburu West, Kenya was explored in the study. Using a cross-sectional survey, 380 students were sampled through multi-stage sampling. Data was collected via self-report questionnaires and the PCL-5 scale for PTSD symptoms. Analysis, conducted through SPSS using logistic regression, revealed significant associations between trauma, socio-demographic factors, and PTSD. A notable finding was the prevalence of students witnessing violence in their communities, with many reporting personal experiences of physical assault and the loss of loved ones due to violence. Witnessing inter-communal violence emerged as the most common trauma type. On average, the PTSD symptom severity within the sample was moderate, with a mean PCL-5 score of 52. However, male students reported significantly higher symptom severity (mean score = 64) compared to females (mean score = 58), highlighting gender differences in PTSD vulnerability. Logistic regression analysis revealed that exposure to violence, was a strong predictor of PTSD symptoms ($p < .001$). Additionally, losing loved ones due to violence significantly contributed to PTSD risk ($p < .01$). Among specific trauma types, witnessing inter-communal violence had the strongest association with PTSD ($p < .001$). Socio-demographic factors also played a role. Male had a higher likelihood of developing PTSD compared to females ($p < .05$), and students from lower socioeconomic backgrounds, indicated by parental education levels, were at greater risk ($p < .05$). Interestingly, while family structure did not have a significant main effect on PTSD risk, an interaction effect showed that students from single-parent households who experienced violence were more likely to develop PTSD ($p < .01$). Boarding school status had no significant impact on PTSD risk. These findings highlight the critical need for mental health interventions, particularly for students from single-parent and low socioeconomic backgrounds.*

Keywords: *Trauma Exposure, PTSD, Adolescents, Samburu West, Kenya, Gender, Socioeconomic Status, Family Structure, Mental Health Services*

INTRODUCTION

Post-Traumatic Stress Disorder (PTSD) has become an increasing concern globally, particularly among populations exposed to trauma. The World Health Organization (WHO) reports that over 70% of the global population will experience at least one traumatic event in their lifetime, with approximately 6% developing PTSD (WHO, 2022). These numbers highlight the widespread nature of trauma and its potential to severely impact mental health, especially in vulnerable populations. Trauma exposure varies significantly across different socio-demographic groups, with risk factors such as gender, age, socioeconomic status, and family structure playing crucial roles in the development of PTSD (Amstadter et al., 2021).

Disproportionately, certain socio-demographic groups are affected by trauma and PTSD as noted by Davison et al. (2021). For instance, women are more likely to develop PTSD than men, despite men being more likely to experience traumatic events. A study by Dworkin et al. (2020) found that the lifetime prevalence of PTSD is nearly twice as high in women (10.4%) compared to men (5%). Similarly, individuals from lower socioeconomic backgrounds are at greater risk due to increased exposure to violence, crime, and environmental stressors (Levy et al., 2021). These disparities point to the need for targeted interventions that consider the specific risk factors and challenges faced by different demographic groups.

Age is another significant factor influencing trauma exposure and the development of PTSD. Studies show that younger individuals, particularly adolescents, are more vulnerable to trauma due to developmental and environmental factors. Adolescents exposed to trauma are at a heightened risk for PTSD, with about 30% of trauma-exposed adolescents developing the disorder (McLaughlin et al., 2020). This high prevalence among younger populations underscores the importance of early intervention and support for trauma-exposed youth, especially in conflict-affected regions and communities experiencing high levels of violence.

In addition to gender, socioeconomic status, and age, family structure also plays a critical role in shaping trauma exposure and PTSD risk. Research by Smith *et al.* (2021) indicates that individuals from single-parent households or those who experience domestic violence are at significantly higher risk of both trauma exposure and subsequent PTSD development. Family environments characterized by instability, conflict, or neglect are particularly detrimental to children's mental health, increasing their vulnerability to trauma and stress disorders. Thus, addressing family dynamics and providing support to at-risk households can be an essential component of PTSD prevention strategies.

Students in Kenya, particularly those residing in marginalized regions like Samburu West Constituency, face a heightened risk of trauma exposure. Marginalization as a result of experiencing chronic social, economic, and political exclusion with limited access to basic necessities such as food, water, shelter, healthcare, and education, is disproportionately affected

by environmental hazards and climate change (Omuse, 2018). This region has a history of inter-communal violence, cattle rustling, and natural disasters such as droughts according to Lekimain(2020). Marginalized areas can have a severe impact on mental health, particularly for adolescents. Research suggests a strong link between social exclusion and a heightened risk of developing PTSD according to Garry and Checchi (2020). Further, MusisiandKinyanda (2020) highlight that these communities often face chronic stressors like poverty, violence, and limited access to resources, creating a constant state of hardship that can overwhelm young people's emotional well-being and increase their vulnerability to PTSD. To effectively address this issue, it's crucial to understand the specific factors associated with PTSD among secondary school students in Samburu West constituency. This requires a disaggregated analysis that examines not only the types of traumatic experiences these students face, but also how socio-demographic characteristics interact with those experiences to influence PTSD symptoms.

METHODOLOGY

A cross-sectional survey research design was employed in the study, focusing on secondary school students in Samburu West Constituency, Kenya. This design was chosen to capture a snapshot of the prevalence and correlates of PTSD among the students at a single point in time. The study's aim was to explore the relationship between traumatic experiences and PTSD symptoms, providing insights into how socio-demographic factors might influence this relationship. The cross-sectional approach was deemed appropriate for identifying patterns and potential risk factors related to PTSD within the target population.

The target population for the study comprised secondary school students within Samburu West Constituency. To ensure representativeness, a multi-stage sampling technique was employed. Initially, a random sample of secondary schools was selected from a comprehensive list of schools within the constituency. This step aimed to capture a broad spectrum of students across different educational settings. Following the selection of schools, a random sample of students from each chosen school was invited to participate in the study. The sample size was determined based on prevalence estimates of PTSD in Samburu west Constituency (Ng *et al.*, 2020), ensuring that the study had adequate power to detect significant associations.

Data collection was conducted using a self-report questionnaire, designed to capture students' exposure to various traumatic events. The questionnaire was carefully adapted from existing validated measures, commonly used in conflict-affected regions (Atran, 2021). This adaptation process involved modifying language and scenarios to ensure cultural relevance and sensitivity, thereby enhancing the accuracy of the data collected. The questionnaire also gathered detailed demographic information, including age, gender, ethnicity, religion, family structure, socioeconomic status, and school boarding status, providing a comprehensive view of the participants' backgrounds.

To assess PTSD symptoms, the PTSD Checklist for DSM-5 (PCL-5) was utilized. The PCL-5 is a standardized and validated tool that aligns with the latest diagnostic criteria for PTSD (Bieschke, Knaevelsrud and Znoj, 2018). Its cultural adaptability made it an ideal choice for this study, as it ensured that the assessment of PTSD symptoms was both accurate and sensitive to the cultural nuances of the students in Samburu West Constituency. The use of this tool provided a reliable measure of PTSD severity, facilitating a deeper understanding of how traumatic experiences impacted the mental health of the students.

Data analysis was conducted using the Statistical Package for Social Sciences (SPSS) software. Descriptive statistics were used to summarize the sample characteristics, trauma exposure rates, and levels of PTSD symptoms among the students. Logistic regression models were employed to examine the association between specific types of trauma exposure, socio-demographic factors, and PTSD symptoms. Additionally, interaction terms were included in the analysis to explore potential moderating effects of socio-demographic characteristics on the relationship between trauma exposure and PTSD, offering insights into the complex dynamics of PTSD development. Ethical considerations were rigorously observed throughout the study. Informed consent was obtained from both the students and their parents or guardians, in accordance with ethical guidelines established by the Kenyan National Commission for Science, Technology and Innovation (NACOSTI). This process ensured that participants were fully aware of the study's purpose, procedures, and potential risks before participation. Additionally, the confidentiality and anonymity of the participants were maintained, with all data securely stored and accessible only to authorized research personnel. These ethical measures were crucial in ensuring the integrity of the research and the protection of the participants' rights and well-being.

RESULTS

3.1 Demographic Characteristics of the Respondents

The study involved 380 participants aged between 14 and 19 years, with a mean age of 16.78 years ($SD = 1.23$). Table 1, summarizes the demographic and socio-economic characteristics of the participants in the study.

Table 1: *Demographic Characteristics of the Respondents*

Characteristic	Category	Frequency (n)	Percentage
Participants	Total	380	100%
Age	14–19 years	380	100%
Gender	Female	190	50%
	Male	190	50%
Ethnicity	Samburu	247	65%
	Other	133	35%
Religion	Christian	334	88%
	Muslim	8	2%
	Traditional Religions	38	10%
Family Structure	Single-parent household	160	42%
	Two-parent household	220	58%
Parents' Education	No formal education	133	35%
	Primary education	152	40%
	Secondary or higher education	95	25%
Household Income	Below Ksh700	236	62%
	Above Ksh700	144	38%
School Type	Day students	261	68.8%
	Boarding students	119	31.2%

The sample was equally split between female and male respondents (190 each, 50%). Ethnically, 65% of the respondents were Samburu, while the remaining 35% belonged to other ethnic groups. The majority identified as Christian (88%), followed by 2% Muslim and 10% adhering to traditional religions. Family structure varied, with 42% of the participants coming from single-parent households and 58% from two-parent households.

Socioeconomic data revealed that 35% of the students' parents had no formal education, 40% had primary education, and 25% had secondary or higher education. A significant portion (62%) reported a household income below approximately 700 Kenyan Shillings (Ksh), while 38% reported an income above Ksh 700. Additionally, 68.8% of the students were day students, and 31.2% resided in boarding schools.

3.2 Prevalence of Trauma Exposure among Students

The analysis revealed an alarming prevalence of trauma exposure among the participants. Figure 1 illustrates on the prevalence.

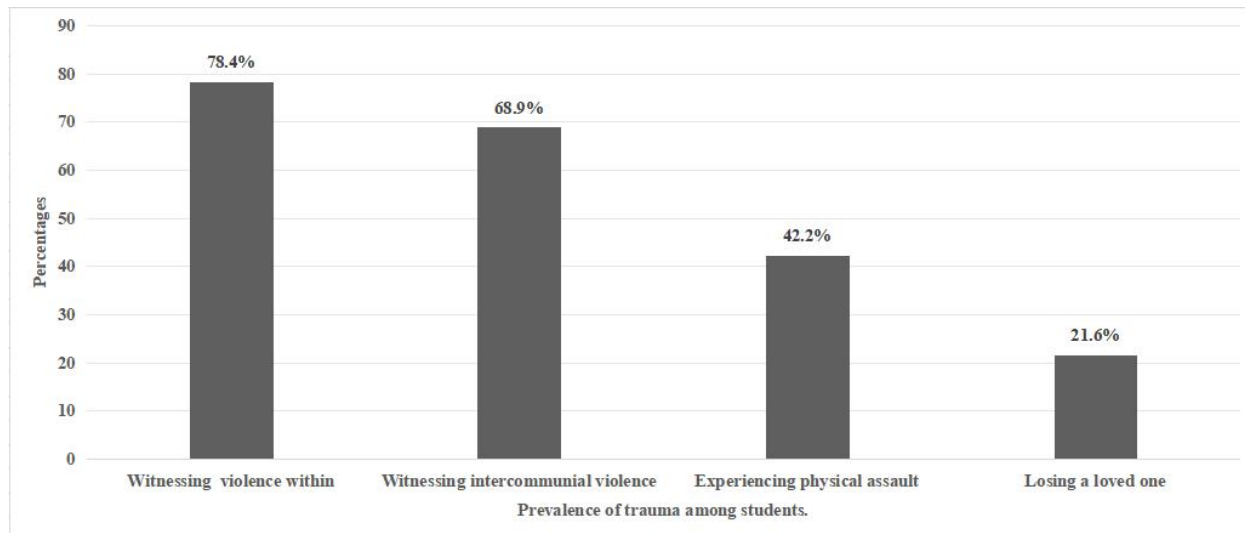


Figure 1: *Prevalence of Trauma Exposure among Students*

A significant 78.4% ($n = 302$) reported witnessing violence in their communities, a figure that greatly exceeded expectations. Additionally, 42.2% ($n = 162$) of respondents reported having personally experienced physical assault. Furthermore, 21.6% ($n = 83$) had lost a loved one or close relative due to violence or natural disasters. Witnessing inter-communal violence was identified as another prevalent form of trauma, reported by 68.9% ($n = 267$) of respondents, suggesting that this specific type of violence is particularly pervasive and damaging in the region.

3.3 Association between Socio-Demographic Risk Factors and PTSD

The relationship between socio-demographic factors and PTSD symptoms was explored in detail. Table 2 illustrates PTSD symptoms by gender.

Table 2: *Association between Socio-Demographic Risk Factors and PTSD by Gender*

Gender	Mean PCL-5 Score (SD)
Male	41.7 (11.8)
Female	34.7 (13.1)

The average PCL-5 score indicated moderate PTSD symptoms among the participants (mean score = 38.2, SD = 12.4). A significant gender difference was observed ($p < .001$), with male respondents reporting higher PTSD severity (mean score = 41.7, SD = 11.8) compared to female respondents (mean score = 34.7, SD = 13.1). This finding supports existing research on gender disparities in PTSD.

3.3.1 Socio-Economic Status and PTSD

Socioeconomic status, as measured by parental education, significantly influenced PTSD symptoms ($p < .05$). Table 3 illustrates on the socio-economic status and PTSD measured by education.

Table 3: *Socio-Economic Status and PTSD by Parental Education*

Parental Education	Mean PTSD Score	Standard Deviation
None	43.1	12
Primary	39.8	11.6
Secondary or Higher	32.4	10.8

Students whose parents had no formal education had the highest average PTSD scores (mean score = 43.1, SD = 12.0). Those with parents who had primary education followed with a mean score of 39.8 (SD = 11.6), while students with parents who had secondary or higher education reported the lowest average PTSD scores (mean score = 32.4, SD = 10.8). These findings align with the broader literature on the social determinants of mental health, indicating that lower socioeconomic status is associated with higher PTSD risk.

3.3.2 Witnessing Violence and PTSD

Witnessing violence was found to have a strong association with PTSD. The data showed that the effect of witnessing violence on PTSD symptoms was particularly pronounced, especially among male respondents. This gender difference in response to trauma could be explained by societal norms around gender roles, which might influence how males perceive and cope with violence. Further research could focus on understanding these coping mechanisms and their impact on PTSD development.

3.3.3 Family Structure and PTSD

Family structure also played a crucial role in moderating PTSD risk. Students from single-parent households were found to be at a higher risk of developing PTSD after experiencing violence compared to those from two-parent households. This suggests that the presence of a two-parent household might offer a stronger social support system, which could buffer the negative effects of trauma exposure on mental health. Although boarding school status did not have a significant effect on PTSD risk, this area warrants further investigation to better understand the specific environmental factors at play.

DISCUSSION

The findings of this study contribute to a deeper understanding of PTSD risk factors among secondary school students. The high prevalence of trauma exposure paints a concerning picture of the challenges faced by this population. This study adds its voice to a growing body of research highlighting the detrimental effects of trauma exposure on adolescent mental health. The strong link observed between violence exposure and PTSD symptoms ($p < .001$) resonates with findings from studies conducted across diverse contexts (Karsberg, Rasmussen & Elklit, 2012). These findings emphasize on the universality of the psychological toll that violence takes on young people, regardless of geographical location or culture.

Further strengthening the study's message is the finding that witnessing violence has a stronger association with PTSD compared to other traumas like cattle rustling or displacement. This aligns with research by Hazer and Gredebäck (2023) who emphasize the psychological impact of witnessing violence. Witnessing violence can be a particularly insidious form of trauma as it can create a pervasive sense of insecurity and fear, even if the individual is not directly physically harmed. The unpredictable nature of witnessing violence, coupled with the potential helplessness one might feel, can significantly increase the risk of developing PTSD.

The observed gender difference in PTSD prevalence, with male respondents exhibiting higher symptom severity compared to female respondents, aligns with findings from some prior research (Kimerling, Smith & Great, 2002). However, other studies have reported no significant gender difference in PTSD symptoms (Lambert & Denckla, 2021). These conflicting findings underscore the necessity for further research that explores the contextual factors influencing how individuals respond to trauma, particularly in the Kenyan context. Factors such as cultural norms, gender roles, access to social support, and varying exposure to traumatic events may play significant roles. Understanding these nuances can provide more tailored interventions and support mechanisms for both male and female trauma survivors in Kenya.

The association between lower socioeconomic status, measured by parental education level, and increased PTSD risk ($p < .05$) aligns with existing research on the social determinants of mental health (Ng *et al.*, 2020). Individuals from lower socioeconomic backgrounds often have limited access to resources such as healthcare and mental health services. This lack of access can hinder early intervention and effective management of PTSD symptoms. Additionally, lower socioeconomic status often correlates with limited social support networks, which are crucial for coping with trauma. Living conditions commonly associated with poverty, such as overcrowding, inadequate housing, and lack of basic necessities, introduce additional stressors. These environmental factors not only heighten daily stress but also amplify the psychological impact of trauma exposure, making it more challenging for individuals to recover and maintain mental health stability.

The findings that family structure moderated the impact of violence exposure on PTSD, with single-parent households conferring additional risk ($p < .01$), underscores the crucial role of social support systems in adolescent mental health (Ole-Kishau, Wasanga and Mberia, 2022). Two-parent households typically offer a more robust support network, as each parent can provide emotional support, guidance, and stability. This dual support system can buffer adolescents against the adverse effects of trauma, promoting resilience. Conversely, single-parent households often face greater challenges, including financial strain and time constraints, which can limit their capacity to offer adequate support to their children. The increased responsibilities on a single parent may reduce the availability of emotional and practical resources necessary for helping children cope with traumatic experiences. Consequently, adolescents in single-parent households may be at a higher risk of developing PTSD following exposure to violence, highlighting the need for targeted support interventions for these families.

CONCLUSION

The study revealed a high prevalence of trauma exposure among secondary school students in Samburu West, Kenya, with a significant portion reporting experiences of violence and loss. This widespread exposure to trauma was strongly associated with PTSD symptoms, particularly among students from lower socioeconomic backgrounds and single-parent households. Gender differences also emerged, with male students showing higher PTSD symptom severity, especially in response to witnessing violence. The findings underscore the complex interplay between socio-demographic factors, such as family structure and parental education, and the mental health outcomes of adolescents in this region. The study highlights the vulnerability of these students to PTSD and the critical need for targeted mental health interventions.

Given the high levels of trauma exposure and its link to PTSD among students in Samburu West, the study recommends the urgent need for tailored mental health services, especially for students from single-parent households and lower socioeconomic backgrounds who are at greater risk. Gender-sensitive approaches are essential to ensure both male and female students receive appropriate care. Integrating mental health education into schools is key, with teachers trained to recognize PTSD symptoms and offer initial support, fostering a safer learning environment. The study recommends a comprehensive mental health support program within schools, emphasizing early identification and intervention, particularly for vulnerable students, to address trauma-related challenges and promote long-term well-being.

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