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RESEARCH ARTICLE

PREVALENCE AND FACTORS ASSOCIATED WITH POST-TRAUMATIC STRESS DISORDERS AMONG ADOLESCENT REFUGEES LIVING IN GASHORAEMERGENCY TRANSIT MECHANISM CAMP IN RWANDA

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Abstract

Mental health issues contribute significantly to the global health burden of disease, with Post-Traumatic Stress Disorder (PTSD) affecting approximately 4% of the world's population. Adolescents, particularly refugees, are especially vulnerable to PTSD due to their exposure to traumatic events. This study focused on estimating prevalence and identifying the factors associated with PTSD among adolescent refugees living in the Gashora Emergency Transit Mechanism (ETM) in Rwanda. The findings from this study are crucial for policymakers in addressing PTSD among adolescent refugees and planning mental health interventions. The results will also help public health professionals to design appropriate psychosocial support programs for this vulnerable population. The aim of the study was to estimate PTSD prevalence and determine factors associated among adolescent refugees living in the Gashora Emergency Transit Mechanism. The cross-sectional design using a quantitative approach was employed. The study targeted 245 adolescent refugees aged 14 to 19 years living in the ETM. A sample of 152 respondents was selected using simple random sampling, calculated using Yamane's formula [n=N/1+N (e) 2]. Data were collected using a structured questionnaire, including socio-demographic information and the PTSD Checklist (DSM-5). The data were analyzed using SPSS version 25.0, with results presented in tables and graphics. As result, the findings reveal that 42.8% of adolescents experienced PTSD in the past three months. Adolescents aged 14-15 were 3.5 times more likely to have PTSD compared to those aged 18-19 (COR: 3.572, 95% CI: 2.946 – 6.936), and females had a threefold increased risk compared to males (COR: 3.358, 95% CI: 1.217 – 9.265). Witnessing the death of a family member or close friend increased the likelihood of PTSD by three times (COR: 3.206, 95% CI: 1.046 – 9.821), while losing a family member during migration similarly raised the risk (COR: 2.852, 95% CI: 1.071 – 7.594). Adolescents who received support at the ETM were significantly less likely to suffer from PTSD (COR: 0.156, 95% CI: 0.136 – 0.927). By conclusion, the study highlights that younger age, female gender, and exposure to traumatic events significantly increase the risk of PTSD among adolescents. However, access to mental health support services plays a critical role in reducing this risk.

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Introduction:

Mental health issues contribute significantly to the global burden of disease, with Post-Traumatic Stress Disorder (PTSD) affecting approximately 4% of the world's population. Adolescents, particularly refugees, are especially vulnerable to PTSD due to their exposure to traumatic events. Being a refugee is an extremely stressful condition as it involves numerous traumatic experiences such as abrupt environmental changes, poverty, social injustice, physical and sexual violence, diseases, and loss of friends and families (Bosqui, 2020).

Between 2000 and 2011, studies on Post-Traumatic Stress Disorder in teens revealed that 3-57% of adolescents suffer from PTSD and that trauma affects adolescents more frequently than it does adults or younger children. Adolescent who has experienced trauma on regular basis, regardless of age or gender, are more likely to develop PTSD. PTSD is also associated with poor physical health, a lack of social support, drug abuse, suicide, and academic challenges.

Apart from hindering biological development, PTSD might also have a role in the chronic mental and behavioral disorders that affect a large number of adolescents suffering from the condition. Recommendation for research and practice on the creation of customized prevention and intervention programs are provided in an effort to maximize adolescents' strengths and minimize their vulnerabilities (Baak et al., 2020).

The objective of this research was to estimate prevalence and identify associated factors with PTSD that contribute to the occurrence of PTSD among adolescent refugees residing in the Gashora Emergency Transit Mechanism. Torture and trauma are common experiences for refugees and asylum seekers who from their home countries because of violence, conflict, persecution, and loss. They may also experience trauma from potentially traumatic events while traveling from their country of origin(Bosqui, 2020).

In 2019, a pact was established between Rwanda's government, the UNHCR, and the African Union (AU) to aid in the transfer of asylum seekers and refugees from Libya to Rwanda. The Rwandan government has generously set out a transit facility in Gashora, Bugesera District, Western province playing a crucial role in protecting many at-risk refugees and asylum-seekers across Africa (Linos &Chachko, 2022).

The prevalence of Post-Traumatic Stress Disorder among adolescent refugees is a growing concern, as this vulnerable group faces unique challenges due to exposure to violence, displacement, and loss. Despite increasing recognition of PTSD's impact on refugee populations, limited research focuses specifically on adolescents in refugee settings. This gap in understanding is crucial, as adolescents are at a developmental stage where trauma can significantly affect their mental, emotional, and social well-being.

Africa in general and Rwanda in particular are facing this mental health problem among young adolescents who live at Gashora Emergency Transit Mechanism (ETM) due to war, displacement issues, separation with their relatives, huge deprivation, witnessing death, sea accidents, injuries of family members or close friends, discrimination, and various forms of torture which accelerate the symptoms of post-traumatic stress disorders (PTSD). Even if post-traumatic stress disorder (PTSD) is a common mental health issue among this group, yet little is known about the specific prevalence and contributing factors of PTSD among adolescent refugees in the Camp, that's the reason this study has been done.

This study aimed to estimate the prevalence of PTSD among adolescent refugees in Gashora Transit Mechanism Camp and identify the key sociodemographic and psychological factors that contribute to its development. The findings will inform the design of targeted mental health interventions, aimed at reducing the impact of trauma and supporting the well-being of adolescent refugees in the Gashora ETM.

2.Materials and Methods:

1.Study population and sampling design

This study employed a cross-sectional study design using quantitative approach to identify factors associated with PTSD among adolescent refugees living in Gashora Emergency Transit Mechanism camp located in Eastern

province, Bugesera district, Gashora sector, this Emergency Transit Mechanism has specificity of being a camp where are different categories of refugees from Lybia with various nationalities of Eritrea, Soudan, Somalia, Ethiopia, South Soudan and Guinea, in Rwanda.

The target population of this study are 245 adolescent refugees and asylum seekers between 14 to 19 years old living in ETM Gashora.Being an adolescent refugee under 14 years old,having severe mental disorders which can be barrier to get responses from the intervieweeand not being present at the ETM during the period of our research were exclusion criteria.The minimum sample size for this study was 152 respondents. The sample size was calculated using Yamane's formula [n=N/1+N(e)2]. The sample size(n) for 95% confidence level, the margin error (e) of 0.05. By estimating a population proportion (P) with specified relative precision (ε), with a 95% confidence level. it was obtained by using the Yamane formula [n=N/1+N (e) 2]. With "N" the number of target population, "e" the margin of error of 0.005, and "n" the sample size, n=245/〖1+245*(0.05)〗^2 =152. A simple random sampling technique was used to select the study respondents of this study.

3. Data Collection and analysis

A questionnaire was created to gather sociodemographic data and associated factors to PTSD. It is suitable for adolescents and may be given as an interview or as a self-report. PTSD Checklist and questionnaire was used in this study. The researcher employed a questionnaire to collect quantitative information from respondents on their sociodemographic features and traits associated with the PTSD Checklist. The survey was translated from English into the beneficiary languages by qualified translators and interview the respondents.

The questionnaire's validity was ensured by following the study objectives and the literature review, which was translated into the languages of the respondents and use familiar, straightforward language in short, concise phrases in English. Additionally, thereliabilityanalysis, within the first ten responders who satisfy the inclusion requirements, the PTSD checklist and the questionnaire were pre-tested. Their input was used to adapt the PTSD checklist and related parameters in order to guarantee the validity of the research.

Prior to starting the data collecting process,Ethical disclaimers were obtained from Mount Kenya University Ethics Committee and Ministry in charge of Emergency Management (MINEMA) to conduct this research at ETM-Gashora.Research participants' rights to confidentiality and anonymity regarding the questionnaire and the study as a whole, information about the study's purpose, their right to withdraw participation at any time, and the use of their responses solely for this research was protected by the procedures and strategies advised by research ethics.

Also, a consent form for guardians & selected adolescents and an assent form for adolescent below eighteen years old were available. In conducting the study, the researcher respected the human rights of the participants and minimized any risk of harm. As a professional psychologist with experience in this field, the researcher collaborated closely with psychologists and health providers in the camp (ETM) to support participants who may have re-experienced trauma due to the interview questions.

Additionally, the researcher provided the contacts of mental health professionals for any necessary intervention in case of distress during or after the interviews. All sources of information were quoted and referenced in an ethical manner to avoid plagiarism and other academic malpractices. The researcher also complied with national and humanitarian laws, ensuring that data collection adhered to national data protection laws, safeguarding against fraud and copyright violations.

During the data analysis, Statistical Package for the Social Sciences (SPSS) version 25.0 was utilized for automated coding, categorization, and analysis of quantitative data that has been collected. Logistic regression was used to identify independent variables and factors related to PTSD. When a p-value is less than or equal to 0.05, a 95% confidence interval indicates statistical significance. The results are presented using tables and graphs.

4. Presentation of Findings

In this part of the research, the socio-demographic and economic characteristics of the study respondent were described and summarized in frequency distribution tables, the results from questionnaire were analyzed and

descriptively presented in tables and figures, and two research questions were addressed: estimating PTSD prevalence among adolescent refugees living in Gashora Emergency Transit Mechanism, and identifying factors associated with PTSD among adolescent refugees living in Gashora Emergency Transit Mechanism.

4.1. DemographicCharacteristicsofRespondents

The table 1, represent the socio-demographic characteristics of respondents, the sample population is composed of adolescents and young adults aged 14 to 19 years, with a mean age of 17.55 years (Standard Deviation of 1.301). The majority of respondents 91(59.87%) are aged 18-19, while 50(32.89%) fall within the16-17 age group. The youngest group (aged 14-15) represents a smaller portion of the population at 11(7.24%). In terms of gender distribution, males constitute 90(59.21%) of the sample, while females account for 62(40.79%). The majority of respondents 124(81.58%) have never been married, while a smaller group 28(18.42%) reported having been married. In terms of education, a considerable number of individuals have no formal education 56(36.84%), with others having attained primary 55(36.18%) or secondary education 41(26.97%).

In terms of employment, the majority of participants 101(66.45%) were employed, which contrasts with 51(33.55%) who were not employed. A significant proportion 84(55.26%) categorized their family income as middle, while 58(38.16%) indicated low income, and only10(6.58%) reported high income. Regarding country of origin, the largest portion of respondents 69(45.39%) originated from Sudan, followed by Eritrea 52(34.21%), and smaller proportions from Ethiopia 13(8.55%), Somalia 12(7.89%), and South Sudan 6(3.95%). The predominant religion among participants is Islam 110(72.37%), followed by Orthodox Christianity 16(10.53%), Catholicism 19(12.50%), and a small percentage following traditional religions or having no religious affiliation. A significant proportion of respondents reported experiencing physical violence 73(48.03%), sexual violence 40(26.32%), psychological violence 9(5.92%), and emotional violence 7(4.61%) during migration. In addition, 13(8.55%) reported other forms of violence, while 10(6.58%) indicated that they had not experienced any violence. When asked how they managed the violence they experienced, a majority 88(57.89%) reported being indifferent, while 37(24.34%) resorted to smoking too much, and 10(6.58%) used substances.

Regarding mental health, a majority of respondents 142(93.42%) reported receiving mental health support at the Emergency Transit Mechanism (ETM) facility, which is a positive indication of access to care. However, despite the availability of support, 65(42.76%) of participants still reported experiencing traumatic stress disorders, highlighting the long-lasting impact of their experiences. A significant number of respondents 117(76.97%) lost family members during migration, and 130(85.53%) were separated from their family members at some point, which underscores the personal losses and emotional challenges experienced by this population.

Additionally, 126(82.89%) witnessed the death of a family member, relative, or close friend, further amplifying the emotional toll. The respondents have varying durations of stay at the ETM facility, with 77(50.66%) having been there for 6-12 months, 57(37.50%) for 3-6 months, and 14(9.21%) for over a year. Only a small percentage 4(2.63%) had been at the ETM for less than three months. Regarding the family status, 77(50.66%) of respondents indicated that both parents are alive, while 41(26.97%) reported having one surviving parent, and 16(10.53%) lost both parents. Interestingly, 18(11.84%) did not know the status of their parents, which may reflect the disconnection and uncertainty caused by migration.

Table 4.1: Socio-demographic characteristics of respondent

Study variables	Category	Frequency	Percent
	14-15	11	7.2
Age	16-17	50	32.9
	18-19	91	59.9
Age: mean=17.55, Std. Deviation= 1.301, Minimum=14, Maximum=19			
Gender	Male	90	59.2
	Female	62	40.8
Being married	No	124	81.6
	Yes	28	18.4
	None	56	36.8
Educational level	Primary	55	36.2

	Secondary	41	26.9
Respondent Employed	No	51	33.6
	Yes	101	66.5
	High	10	6.6
Family income	Middle	84	55.3
	Low	58	38.2
	Eritrea	52	34.2
	Ethiopia	13	8.6
Country of origin	Sudan	69	45.4
	South Sudan	6	3.9
	Somalia	12	7.9
	None	4	2.6
	Traditional	3	1.9
Religion	catholic	19	12.5
	Muslim	110	72.4
	Orthodox	16	10.5
	Sexual violence	40	26.3
	Physical violence	73	48.0
	Psychological	9	5.9
Kind of violence experienced	Emotional violence	7	4.6
	Others	13	8.6
	None	10	6.6
Management of violence	Substance use	10	6.6
	Smoking too much	37	24.3
	Indifferent	88	57.9
	Others	17	11.2
Having physical injury during migration	No	102	67.1
	Yes	50	32.9
Torture form experienced	Physical	83	54.6
	Emotional	59	38.8
	Psychological	10	6.6
Witnessing the death of any family member, relatives, or closer friend?	No	26	17.1
	Yes	126	82.9
Receiving any mental health support at ETM	No	10	6.6
	Yes	142	93.4
Losing any of your family members during migration	No	35	23.0
	Yes	117	76.9
Being separated with family member	No	22	14.5
	Yes	130	85.5
Having any immediate family member who has a psychiatric disorder	No	137	90.1
	Yes	15	9.9
Duration in ETM?	0-3 months	4	2.6
	3-6 months	57	37.5
	6-12 months	77	50.7
	Over 1 year	14	9.2
Parents status	One alive	41	26.9
	Both alive	77	50.7
	Both died	16	10.5
	I do not know	18	11.8
Experiencing any traumatic stress disorder at ETM	No	87	57.2
	Yes	65	42.8

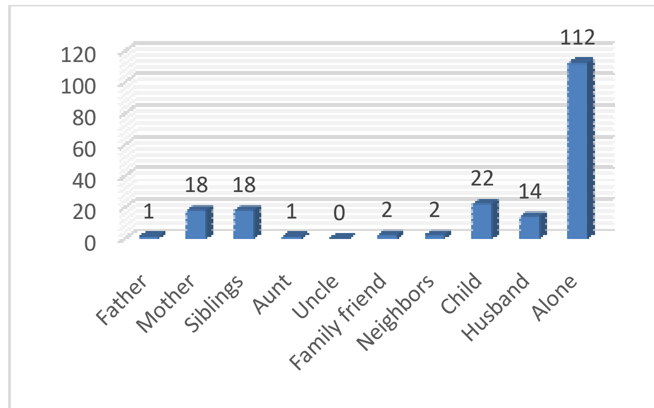

Figure 4.1: People who stayed together with respondent

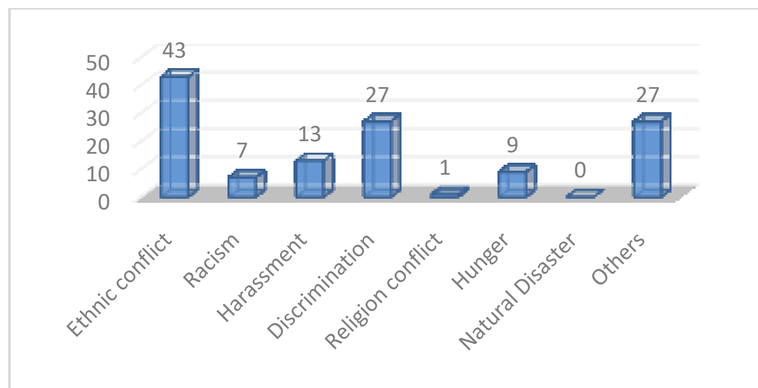

Figure 4.2: Reasons to leave country/emigration

The figure 2, provides an overview of the people with whom respondents are staying at the Emergency Transit Mechanism (ETM) in Gashora. It reveals that the vast majority of respondents, 112 individuals, are living alone, reflecting a significant level of isolation among the refugee population. Some respondents, however, are living with family members, such as children (22), mothers (18), siblings (18), and husbands (14). A small number of individuals are staying with extended family members or acquaintances, such as aunts (1), family friends (2), and neighbors (2). The table indicates a marked absence of father or uncle figures, with only one person staying with their father and none with an uncle. This data suggests that many respondents are facing their displacement without the immediate support of their broader family networks, which may contribute to increased vulnerability and emotional strain.

The figure 3, addresses the reasons why respondents left their home countries, with ethnic conflict emerging as the most common reason, affecting 43 individuals. Discrimination was also a significant factor, cited by 27 respondents, alongside other causes of displacement such as harassment (13), hunger (9), and racism (7). Other reasons, affecting 27 respondents, are unspecified but likely reflect additional personal or situational circumstances. Interestingly, only one person cited religious conflict as their reason for leaving, and no respondents reported natural disasters as the cause of their displacement. This distribution of causes highlights the predominance of sociopolitical issues like ethnic conflict and discrimination in driving forced migration, emphasizing the complex and often dangerous environments from which these refugees are fleeing.

Table 4.2: problems that people sometimes have in response to a very stressful experience

In the past month, how much were you bothered by:	Post-Traumatic Stress Disorder checklist					
	Not at all / A little bit	%	Moderately	%	Quite a bit / Extremely	%

Repeated, disturbing, and unwanted memories of the stressful experience	132	86.84	18	11.84	2	1.3
Repeated, disturbing dreams of the stressful experience	125	82.24	25	16.45	2	1.3
Suddenly feeling or acting as if the stressful experience were actually happening again (as if you were actually back there reliving it).	128	84.21	22	14.47	2	1.3
Feeling very upset when something reminded you of the stressful experience.	112	73.68	33	21.71	7	4.6
Having strong physical reactions when something reminded you of the stressful experience (for example, heart pounding, trouble breathing, sweating).	90	59.21	53	34.87	9	5.9
Avoiding memories, thoughts, or feelings related to the stressful experience.	35	23.03	83	54.61	34	22.4
Avoiding external reminders of the stressful experience (for example, people, places, conversations, activities, objects, or situations).	31	20.39	81	53.29	39	25.7
8Trouble remembering important parts of the stressful experience.	49	32.24	72	47.37	31	20.4
Having strong negative beliefs about yourself, other people, or the world (for example, having thoughts such as: I am bad, there is something seriously wrong with me, no one can be trusted, the world is completely dangerous).	99	65.13	34	22.37	19	12.5
Blaming yourself or someone else for the stressful experience or what happened after it.	132	86.84	12	7.89	8	5.3
Having strong negative feelings such as fear, horror, anger, guilt, or shame.	139	91.45	8	5.26	5	3.3
Loss of interest in activities that you used to enjoy.	75	49.34	70	46.05	7	4.6
Feeling distant or cut off from other people	124	81.58	26	17.11	2	1.3
Trouble experiencing positive feelings (for example, being unable to feel happiness or have loving feelings for people close to you).	120	78.95	26	17.11	6	3.9
Irritable behavior, angry outbursts, or acting aggressively	133	87.50	14	9.21	5	3.3
Taking too many risks or doing things that could cause you harm	131	86.18	20	13.16	1	0.7
Being "super alert" or watchful or on guard	136	89.47	15	9.87	1	0.7
Feeling jumpy or easily startled	134	88.16	15	9.87	3	1.9
Having difficulty concentrating	138	90.79	10	6.58	4	2.6
Trouble falling or staying asleep	136	89.47	14	9.21	2	1.3

The table 4.2, presents responses to a Post-Traumatic Stress Disorder (PTSD) checklist, categorizing individuals' experiences across 20 symptoms commonly associated with PTSD. The results are divided into three response categories: "Not at all / A little bit," "Moderately," and "Quite a bit / Extremely," based on how much individuals were bothered by each symptom over the past month.

A majority of respondents report minimal disturbance from the listed symptoms. For example, 132 respondents said they were not or only slightly bothered by repeated disturbing memories (item 1), with only 2 respondents experiencing this symptom "Quite a bit" or "Extremely." This trend continues for other symptoms related to re-experiencing trauma, such as disturbing dreams (item 2) and feeling as if the event is happening again (item 3). For these core PTSD symptoms, most respondents show little to no significant distress.

However, avoidance behaviors, such as avoiding thoughts (item 6) and external reminders (item 7), are more pronounced in a portion of the sample. Over 80 respondents report moderate or high levels of avoidance, indicating that these aspects of PTSD are more persistent in this population. Additionally, strong negative beliefs about oneself

or the world (item 9) are also moderately or severely present in a notable group, with 19 respondents reporting high levels of this symptom, which suggests that cognitive impacts may be more distressing for some individuals. The symptoms of hyperarousal, including being "super alert" (item 17) and feeling easily startled (item 18), appear to affect a smaller subset of individuals, with most respondents again reporting mild or no issues. Sleep disturbances (item 20) and concentration difficulties (item 19) also seem to be of low concern for most respondents, but a small group still experiences these symptoms at a higher intensity. Overall, the majority of respondents show minimal distress, but a subset is affected by avoidance, negative cognitions, and certain physiological reactions, which could be indicative of varying degrees of PTSD severity across the sample.

A. 4.2. Presentation of findings

B. 4.2.1. PrevalenceofPost Traumatic Stress Disorder

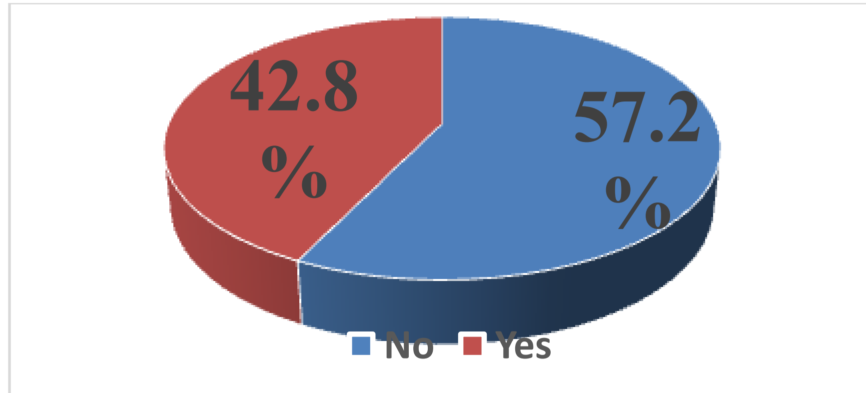

Figure 4.3: Prevalence of PTSD among adolescent refugees living in Gashora Emergency Transit Mechanism

The figure 4, represent the prevalence of PTSD among adolescent refugees living in Gashora Emergency Transit Mechanism. The respondent who had a total score of 29-33, were considered as they have had post-traumatic stress disorder. Theresults showthat, 42.8percent amongadolescent refugees living in Gashora Emergency Transit Mechanism had Post Traumatic Stress Disorder.

4.0.1. Factors associated with Post Traumatic Stress Disorder.

The table 4.3, bivariate analysis reveals several significant associations between certain sociodemographic variables and the Post-Traumatic Stress Disorder (PTSD) at ETM, as indicated by their p-values (p <= 0.05). Theresultsshowthatage(p=0.006), gender(P<0.001), employment status(P=0.001),kind of violence experienced(P=0.027), witnessing the death of any family member, relatives, or closer friend (P=0.005), losing family members during migration (P=0.029), receiving the mental health support (P=0.014). The study resulted that, there were no significant association found for other variable tested unless the above mentioned.

Table 4.3 Bivariate analysis of the association between sociodemographic and Post Traumatic Stress Disorder.

		Experiencing any traumatic stress disorder at ETM					
		No		Yes		X^2	
Study variables	Categories	Freq	%	Freq	%		p-value
	14-15	10	13.70	1	1.27		
Respondent age	16-17	26	35.62	24	30.38	10.39	
	18-19	37	50.68	54	68.35		0.006
	Male	54	73.97	36	45.57	12.67	
Gender	Female	19	26.03	43	54.43		<0.001
	No	64	87.67	60	75.95		
Being married	Yes	9	12.33	19	24.05	3.47	0.063
	None	31	42.47	25	31.65		0.103

Education level	Primary	28	38.36	27	34.18		
	Secondary	14	19.18	27	34.18	4.55	
	No	34	46.58	17	21.52		
Employed	Yes	39	53.42	62	78.48	10.68	
							0.001
	High	5	6.85	5	6.33		
Family income	Middle	37	50.68	47	59.49		
	Low	31	42.47	27	34.18	1.23	
							0.54
	Eritrea	20	27.40	32	40.51		
Country of origin	Ethiopia	6	8.22	7	8.86		
	Sudan	37	50.68	32	40.51		
	South Sudan	4	5.48	2	2.53		
	Somalia	6	8.22	6	7.59	3.64	
							0.456
	None	4	5.48	0	0.00		
Religion	Traditional	1	1.37	2	2.53		
	catholic	6	8.22	13	16.46		
	Muslim	54	73.97	56	70.89		
	Orthodox	8	10.96	8	10.13	6.72	
							0.151
Kind of violence experienced	Sexual violence	14	19.18	26	32.91		
	Physical violence	36	49.32	37	46.84		
	Psychological	9	12.33	0	0.00		
	Emotional violence	3	4.11	4	5.06		
	Others	6	8.22	7	8.86	12.62	
	None	5	6.85	5	6.33		
							0.027
management of violence	Substance use	4	5.48	6	7.59		
	Smoking too much	13	17.81	24	30.38		
	Indifferent	54	73.97	34	43.04	17.95	
	Others	2	2.74	15	18.99		<0.001
Have any physical injury during migration	No	46	63.01	56	70.89		
	Yes	27	36.99	23	29.11	1.07	0.302
Witnessing the death of any family member, relatives, or closer friend	No	19	26.03	7	8.86		
	Yes	54	73.97	72	91.14	7.89	0.005
Receiving any mental health support at ETM	No	6	11.32	2	2.02		
	Yes	47	88.68	97	97.98	11.37	0.014
Losing any family member during migration	No	14	19.18	21	26.58		
	Yes	59	80.82	58	73.42	9.25	0.029
Ever separated with your family member	No	11	15.07	11	13.92		
	Yes	62	84.93	68	86.08	0.4	0.841
Immediate family member who has a psychiatric disorder	No	63	86.30	74	93.67		
	Yes	10	13.70	5	6.33	2.32	0.128
	0-3 months	1	1.37	3	3.80		
	3-6 months	28	38.36	29	36.71		
Duration in ETM	6-12 months	39	53.42	38	48.10		
	Over 1 year	5	6.85	9	11.39	1.94	0.585
	One alive	19	26.03	22	27.85		
	Both alive	38	52.05	39	49.37		
Parents status	Both died	9	12.33	7	8.86		
	I do not know	7	9.59	11	13.92	1.14	0.768

Table 4.4: Multivariate Analysis for factors associated with Post Traumatic Stress Disorder.

Study variables	Categories	COR	95% C.I. for COR Lower	Upper	P-value	AOR	95% C.I.for AOR Lower	Upper	P-value
Being married	No	0.255	0.083	0.780	0.017	0.325	0.097	1.091	0.069
	Yes	Ref				Ref			
Management of that violence	Substance use	Ref				Ref			
	Smoking too much	7.680	1.687	34.959	0.008	7\.143	1.183	43.125	0.032
	Indifferent	1.622	0.460	5.721	0.452	0.752	0.167	3.391	0.711
	Others	2.880	0.593	13.985	0.190	0.872	0.137	5.551	0.885
Witnessing the death of any family member, relatives, or closer friend.	No	Ref				Ref			
	Yes	3.158	1.328	7.508	0.009	3.206	1.046	9.821	0.041
Losing any family member during migration	No	Ref				Ref			
	Yes	2.899	1.335	6.296	0.007	2.852	1.071	7.594	0.036
Receiving any mental health support at ETM	No	Ref				Ref			
	Yes	0.523	0.169	0.742	0.029	0.156	0.136	0.927	0.019

The table 4.4, presents the results of univariate and multivariate analyses examining the association between study variables and PTSD. The findings indicate that in the univariate analysis, most variables showed a significant association with PTSD. For instance, the adolescent who were aged between 14-15 were 2 times more likely to have PTSD (COR: 2.036, % CI: 1.963 – 3.163) compared to those aged between 18-19, the female gender was also 3 times more likely to associated with PTSD (COR: 2.153, % CI: 1.536 – 3.745) compared to male gender, the respondent who were not married were less likely to have PTSD (COR: 0.255, % CI: 0.083 - 0.780) compared to those who were married. Respondent who Witnessed the death of a family member, relative, or close friend were 3 times more likely to experience PTSD (COR: 3.158, % CI: 1.328 - 7.508) compared to those who did not witness the death of their family members. Furthermore, the study indicated that the respondent who lose any of family members during migration were 2.8 times more likely to experience PTSD (COR: 2.89, % CI: 1.335 – 6.296) compared to those who did not lose any one. The respondent who gets any support in the ETM were less likely to experience PTSD (COR: 0.523, % CI: 0.169 - 0.742) compared to those who do not.

The multivariate analysis revealed several significant factors associated with PTSD, where also the, the adolescent who were aged between 14-15 were 3.5 times more likely to have PTSD (COR: 3.572, % CI: 2.946 – 6.936) compared to those aged between 18-19, the female gender was also 3 times more likely to associated with PTSD (COR: 3.358, % CI: 1.217 – 9.265) compared to male gender. Additionally, respondents who witnessed the death of a family member, relative, or close friend had a threefold increased risk of experiencing PTSD (COR: 3.206, 95% CI: 1.046 - 9.821) compared to those who did not witness such deaths. The study also showed that those who lost a family member during migration were nearly three times more likely to develop PTSD (COR: 2.852, 95% CI: 1.071 - 7.594) compared to those who did not experience such losses. Moreover, respondents who received support while at the ETM were less likely to suffer from PTSD (COR: 0.156, 95% CI: 0.136- 0.927) compared to those who did not receive any support.

5.1. Conclusion

The findings of the study reveal a high prevalence of Post-Traumatic Stress Disorder (PTSD) among adolescents, with 42.8% having experienced PTSD in the last three months. Key factors associated with an increased risk of PTSD include younger age (14-15 years), female gender, witnessing traumatic events such as the death of a loved one, and losing family members during migration. Conversely, receiving support at the Emergency Transit Mechanism (ETM) significantly reduced the likelihood of PTSD. These results emphasize the profound psychological impact of traumatic events on vulnerable adolescents and the crucial role of support systems in reducing PTSD risk.

5.2. Recommendations:-

1.Enhance psychological support programs for adolescents in trauma-affected areas: Interventions should target high-risk groups, such as younger adolescents and females, by providing trauma-informed mental health care and counselling services.

2. Establish or strengthen support systems during crises and migrations: Providing timely psychological, emotional, and social support at emergency centers and during migration can significantly reduce PTSD risk. Programs should prioritize access to such support for individuals who have witnessed traumatic events or suffered personal losses.

3. **Community-based trauma education and awareness:** Raising awareness among communities about PTSD and the importance of seeking psychological help is vital. Encouraging family and community involvement in trauma recovery may also provide adolescents with the necessary social support to cope with their experiences.

5.3. Suggestions for Further Studies

Further research could explore the long-term psychological effects of PTSD in adolescents, examining how PTSD impacts their developmental trajectory, education, and social relationships over time. Additionally, studies should investigate the effectiveness of various trauma intervention programs, particularly in post-crisis settings, to identify the most effective strategies for reducing PTSD. Lastly, understanding the role of cultural, familial, and community dynamics in influencing resilience and recovery from trauma could provide valuable insights into designing more contextually appropriate interventions. By implementing these recommendations and pursuing further studies, it would be possible to better address the mental health needs of adolescent refugees and improve overall well-being.

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