

# Epidemiology of Mental Health Disorders Particularly PTSD among Internally Displaced People (IDPs) in Port-Sudan Post-Conflict Setting: A Community-Based Cross-Sectional study

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**Abstract:-** PTSD is a psychiatric disorder that may develop after experiencing or witnessing a traumatic event or circumstance. This study aimed to assess the epidemiology of PTSD among Internally Displaced People (IDPs) residing in the city of Port Sudan and the most suitable psychological intervention/s needed to address their PTSD. A mixed-method approach was employed using a combination of open-ended and close-ended questions via a self-filled questionnaire distributed throughout various areas in the city of Port-Sudan where IDPs reside. Out of 498 respondents, 109 exhibited potential symptoms of PTSD and required urgent psychological assistance whereas 276 of the respondents showed borderline tendencies of PTSD. 334 of the respondents expressed their need for psychosocial interventions such as programmes that support the social and emotional skills. The study found a high prevalence of PTSD among IDPs, with some experiencing unexplained physical symptoms.

**Keywords:-** Mental Health, Post-Traumatic Stress Disorder, Military Conflict, Internally Displaced People, Suicidal Thoughts, Physical Symptoms.

## I. INTRODUCTION

Mental health plays a crucial role in promoting holistic well-being by assisting people and communities in effectively coping with stress, nurturing their capabilities, and making meaningful contributions to their socioeconomic, communal, and personal progress (World Health Organization, WHO 2010). Various mental health disorders, such as anxiety disorders, bipolar affective disorder, depression, dissociative disorders, eating disorders, obsessive-compulsive disorder (OCD), Paranoia, Psychosis, Attention deficit hyperactivity disorder (ADHD), and post-traumatic stress disorder (PTSD), can impact an individual's cognitive processes, perceptual experiences, emotional states, and behavioural patterns (Institute of Health Metrics and Evaluation, 2021).

Several contributing variables are associated with the development of poor mental health. These factors include experiences of abuse and trauma, social isolation and loneliness, prejudice, bereavement, long-term physical health concerns, unemployment, homelessness, domestic violence, bullying, military combat, and victimization of violent crimes<sup>1</sup>. Although these ailments are widespread globally, there exists a notable disparity in their occurrence across Low- and Middle- Income Countries (LMICs) (Demyttenaere, K., 2004.). Various socioeconomic issues, such as poverty, social marginalization, poorer educational attainment, economic hardships, indebtedness, and difficulties in accessing basic requirements, have been identified as contributing to an elevated risk of mental illnesses (Patel, V., 2007, and Patel, Vikram, and Arthur Kleinman 2003).

Exposure to post-conflict circumstances, characterized by severe stressors such as torture, sexual assault, physical abuse, watching or participating in an armed conflict, seeing a friend or family member die violently, or being subjected to forced displacement has the potential to induce PTSD as observed after conflicts in South Sudan (Ameresekere, M. and Henderson, D.C., 2012) and Ethiopia (Madoro D et al 2020.), hence exerting adverse effects on an individual's psychological, physiological, and sociological welfare (Yehuda, et al 2015.). PTSD is distinguished by a confluence of symptoms related to trauma and depression, including emotional manifestations such as sadness, hopelessness, and depressive mood, as well as behavioural indicators such as frequent sobbing, disrupted eating habits, social avoidance, dissociative states, social withdrawal, and sleep disturbances (Lee, C., Nguyen, A.J., Russell, T., Aules, Y. and Bolton, P., 2018), (Echiverri, et al 2011.) An example would be a Sudanese refugee who complained of persistent back and stomach pain; after ruling out all other possible medical explanations, it was discovered that his abdominal discomfort was a physical manifestation of PTSD, which was treated with antidepressants (Ameresekere, M. and Henderson, D.C., 2012).

PTSD exhibits a multitude of characteristics that extend beyond the traumatic incident itself, including exposure to stressful experiences and socioeconomic disadvantages. The observed link remains statistically significant even after accounting for potential confounding factors, including but not limited to age, gender, rural or urban residency, and socioeconomic level (Ayazi, T., Lien, L., Eide, A., Swartz, L. and Hauff, E., 2014).

Suicidal thoughts and even suicidal attempts may occur as a consequence of trauma and PTSD. Women are likely to experience PTSD than men (O'Neill, S., Ferry, F., Murphy, S., Corry, C. and Bolton, D., 2014.).

Sudan has encountered a series of health-related and ecological challenges, civil upheaval, and inter-communal conflicts since December 2018, with the highest intensity seen in 2023 when an intense armed conflict broke out in the capital city Khartoum, and later on expanded to other parts of the country, where a considerable number of displaced individuals migrated to other stable Sudanese states, such as Port-Sudan, in search of sanctuary. A sizeable number of persons have encountered instances of violence, which has the potential to have a significant influence on their mental health and general state of well-being. Prior research has shown a notable incidence of PTSD in those impacted by natural calamities, armed conflicts, and hostilities. Nevertheless, the incidence rates differ as a result of variations in study techniques, the characteristics and magnitude of the catastrophe, cultural and contextual differences and post-disaster interventions. Gaining insight into the frequency of PTSD among IDPs is essential for developing customized mental health interventions that align with the specific cultural context and the affected community perspectives (Başoğlu, M., Kiliç, C., Şalcioğlu, E. and Livanou, M. 2004), (Roberts, B., Damundu, E.Y., Lomoro, O. and Sondorp, E. 2009.), (Ayazi, T., Lien, L., Eide, A.H., Ruom, M.M. and Hauff, E. 2012).

#### ➤ Objectives

##### • General Objective:

- ✓ This study aims to determine the frequency of occurrence of PTSD among IDPs in Port-Sudan in a post-conflict setting.

##### • Specific Objectives:

- ✓ To determine whether PTSD has associated physical symptoms.
- ✓ To develop community-oriented and psychological interventions that would help address identified post-conflict PTSD and mental health disorders.

## II. LITERATURE REVIEW

#### ➤ Topic 1:

Experiencing or witnessing traumatic events can cause PTSD, a psychiatric disorder resulting from exposure to daily stressors and conflict (Yehuda, et al 2015.).

#### ➤ Topic 2:

The common symptoms of PTSD include feelings of sadness, hopelessness, and depression. However, the counselling intervention is an appropriate and effective way to help individuals suffering from PTSD, as per existing research studies (Lee, C., Nguyen, A.J., Russell, T., Aules, Y. and Bolton, P., 2018),

#### ➤ Topic 3:

PTSD can significantly impact one's life, leading to suicidal ideation or attempts. Studies indicate that females are more susceptible to this disorder (O'Neill, S., Ferry, F., Murphy, S., Corry, C. and Bolton, D., 2014.).

## III. METHODOLOGY AND RESEARCH DESIGN

#### ➤ Methodology:

A mixed-method approach was employed using a combination of open-ended questions with an option for the respondents to enter their points of view via a self-filled questionnaire distributed throughout various areas in Port-Sudan where IDPs mostly reside. The questionnaire involved a component of the Harvard Trauma Questionnaire (HTQ) as a screening measure for trauma and PTSD-related symptoms among IDPs in the city of Port-Sudan. 498 respondents from different origins and backgrounds took part in the study. The qualitative data was analysed using thematic analysis, whereas the quantitative components of the collected data were analysed using descriptive analysis utilizing SPSS.

#### ➤ Research Design:

This research employed the use of a questionnaire using a self-administered survey technique. The survey was delivered in many locations inside the city of Port-Sudan, specifically targeting regions where IDPs are residing. The questionnaire involved a component of the Harvard Trauma Questionnaire (HTQ) as an assessment tool to screen for symptoms of trauma and PTSD among IDPs residing in the densely populated city of Port-Sudan. The HTQ has received favourable evaluations from bi-cultural workers/professionals, study participants, and refugee patients and communities because of its concise nature, straightforward administration and scoring procedures, and its adaptability and translatability for various refugee populations (Berthold, S.M., Mollica, R.F., Silove, D., Tay, A.K., Lavelle,

J. and Lindert, J. 2019.). The use of a mixed-method approach, specifically the inclusion of a qualitative component in this survey, serves the purpose of enhancing the quantitative data gathered and providing additional understanding of information, viewpoints, and insights that may not be fully captured by a purely quantitative approach.

The ultimate questionnaire was formulated with a total of twelve inquiries, encompassing both open-ended and multiple-choice formats. Its primary objective was to evaluate the epidemiology of mental health disorders, specifically PTSD, among IDPs. Additionally, the questionnaire aimed to gather insights from respondents regarding the necessary psychological interventions for addressing this disorder.

➤ *Data Collection:*

The survey was disseminated over several locations inside the city of Port-Sudan and Sawakin, encompassing places where IDPs are settled (Fig. 1). The respondents in this study were selected using a random selection technique, ensuring representation from diverse origins and varying socioeconomic positions. These individuals were both willing and able to provide accounts of the events they had experienced, as well as their perspectives on the most effective psychiatric therapies they believed they required. The sampling framework was established using the following criteria:

- Gender: Inclusive of individuals identifying as both male and female
- Background: Encompassing both those with professional and non-professional experiences
- Age: From 16 years and above

The study team circulated the questionnaire in the targeted locations in the Arabic language after conducting multiple revisions of the questionnaire among the research team members. The data collectors immediately responded to any inquiries or requests for clarification made by the

respondents. The Arabic responses were subsequently translated into English. The researchers determined that a sample size of 500 respondents would be sufficient to achieve data saturation or to align with the sample sizes used in previous studies and account for the likelihood of respondents completing the questionnaires.

➤ *Data Analysis:*

The qualitative section of the survey was subjected to manual thematic analysis wherein the researchers approached the analysis with a neutral stance, allowing themes to arise through the coding process. The analysis was carried out following the six processes outlined by Braun and Clarke. These steps include becoming acquainted with the data, creating initial codes, identifying themes, evaluating themes, defining, and naming themes, and ultimately producing the final report (Antić, M., 2022.). The statistical data gathered was subjected to descriptive analysis using SPSS.

➤ *Ethical Considerations:*

The study was carried out following the principles of the 1975 Helsinki Declaration (Deutsch, E., 2001). All participation was voluntary and written consent was obtained from all respondents before answering the survey. Participant confidentiality was highly prioritized and thoroughly maintained; only the research team had access to the data. All results were documented and recorded without any possibility of tracing individual respondents. Ethical Approval from the Ministry of Health in Port-Sudan was obtained following the established guidelines for conducting research in Port Sudan.

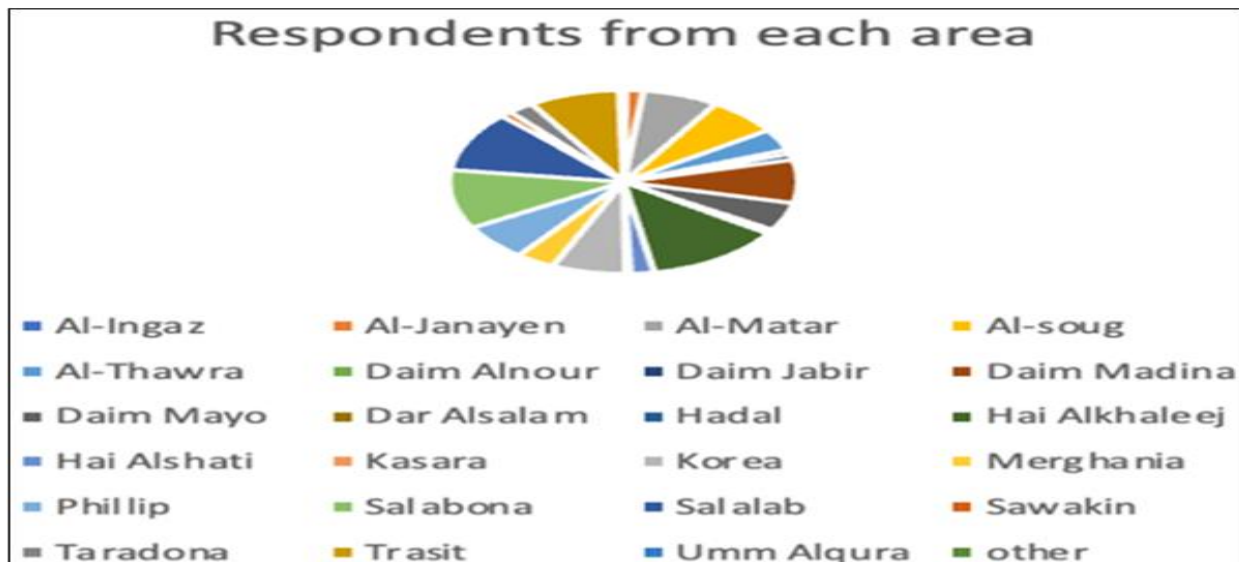


Fig 1 Figure Representing the Areas from which the Responses Were Obtained.

**IV. RESULTS**

The study involved 500 respondents who voluntarily completed a questionnaire administered by data collectors in person. 2 were excluded because they were below 16 years of age. The questionnaire consisted of a series of 12 questions. Below are the results of the analysis:

The majority of responses were obtained from respondents currently residing in Port-Sudan city (Hai Alkhaleej). Since the study is based in Port-Sudan the findings may only be extrapolated to the specific context of Port-Sudan.

Male respondents were observed to be slightly more than the female respondents (247 females and 251 males). Most of the respondents were between the ages of 16-25 with an average age of 21.

Overall, regarding the perceived level of safety in the city of Port-Sudan, the respondents' opinions can be summarised as follows: 249 reported feeling safe in Port-Sudan whereas 258 expressed apprehensions regarding a potential decline in safety conditions and the potential outbreak of conflict within the city. 346 expressed their intention to migrate beyond the city of Port-Sudan, and 152 had intentions to stay and reside in Port-Sudan until the resolution of the war.

33% of the respondents (total 164, 100 males, 64 females) have stated that they do not need any psychological intervention, however, 67% (total 334, 151 males, 83 females) mostly between the ages of 16-25, stated that they require psychological intervention, and most respondents reported that programmes that help develop their social and emotional skills are supportive of elevating their mental status. The primary psychological disturbance identified by the questionnaire responses in this study was PTSD. 109 (56 male, 53 female) respondents exhibited potential symptoms of PTSD and require urgent psychological assistance whereas 276 of the respondents are showing borderline tendencies of PTSD. The majority of respondents indicated a preference for a certain psychological intervention which is to join programmes that support the development of social and emotional skills. as seen in Fig. 2, which displays the distribution of preferred psychological interventions reported by the respondents.

Based on the research findings, all respondents were currently located in the city of Port-Sudan having migrated to this region as a result of the continuing fighting in the city of Khartoum, and the use of statistical analysis employing the Pearson Correlation Coefficient demonstrated that these

individuals exhibit a higher propensity to display symptoms associated with PTSD. 53 individuals originating from Syria have experienced double involuntary displacement from their nation of origin and have subsequently resettled in Khartoum, only to face further forced displacement and relocate to Port-Sudan.

267 of respondents reported experiencing physical symptoms that they frequently encountered following the conflict such as limb and joint pains, sleep-related disturbances, and frequent headaches.

The thematic analysis from the open-ended responses identified many primary themes that reflect the respondents' opinion of the preferred psychological intervention they require along with the ones suggested in the questionnaire. The initial topic is I) Financial aid: This theme describes the overall problem of receiving psychological support due to the high expenses associated. The second theme is II) Medical-oriented approach: This theme describes the need for psychological support to be received by visiting psychiatrists in clinics rather than community-based interventions.

When considering the implications of the results, it is important to acknowledge that the majority of respondents who completed the questionnaire were between the age range of (16-25) years. Consequently, there is a higher likelihood of encountering an age bias in the findings, which may not accurately reflect the perspectives and perceptions of individuals when disaggregated by age. Although the sampling method employed in the questionnaire was random, it is important to note that the statistical significance of the respondents' age is limited. This is primarily due to the inadequate representation of other demographic groups in the sample. It is crucial to acknowledge that this statement is speculative and should only be considered if applicable to the specific study.

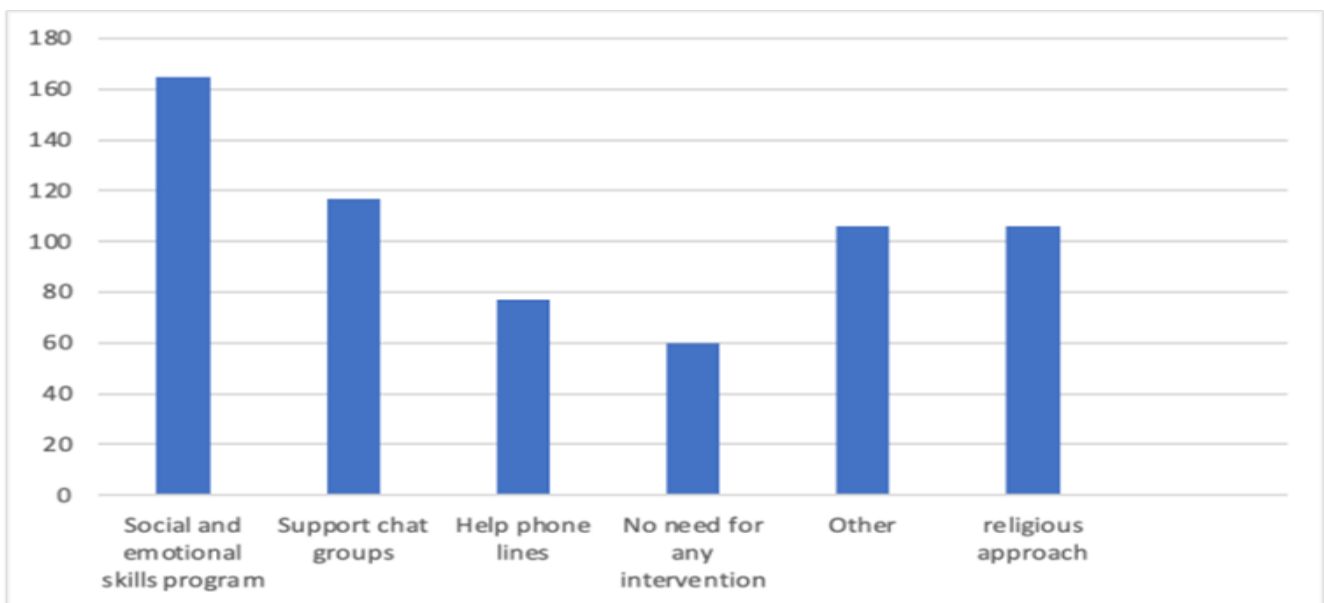


Fig 2 Figure Representing the Respondents' Preferred Psychological Interventions (Multiple Answers were Allowed).



## V. DISCUSSION

The findings of the investigation indicate that a certain percentage of the respondents had symptoms indicative of PTSD in the aftermath of a combat situation. This finding is similar to a previous study done in South Sudan, which reported that PTSD only was found in 331 (28%) in a cross-sectional study that was conducted in South Sudan examining the prevalence of PTSD among the targeted audience (Ayazi, T., Lien, L., Eide, A., Swartz, L. and Hauff, E., 2014). According to our study, the majority of respondents who have exhibited symptoms indicative of PTSD are of male gender which opposes the outcomes reported in a previous investigation done within a comparable context that studies the gender differences in the prevalence of PTSD where females were demonstrated to have consistently shown the higher prevalence of PTSD in that context (Farhood, L., Fares, S. and Hamady, C., 2018. ). Some of the respondents who exhibit PTSD symptoms tend to perceive themselves as not requiring any form of psychological therapy. This inquiry is expected to pertain to the social stigma around mental illnesses, as compared to a previous study conducted to examine the prevalence and correlation between PTSD and associated stigma, which revealed that there is a significant level of association between the two (Bonfils, K.A et al), and the Final Report for the President's New Freedom Commission on Mental Health which shed light on the fact that stigma is a major hindrance for people suffering from mental illness (Hogan, M.F., 2003.).

This study also unveiled a significant incidence of stress-induced physical symptoms that lack a clear explanation among the respondents, with headaches being the most common manifestation. This observation is consistent with the findings of Kessler and colleagues (Kessler et al 2005.), who found that PTSD and Post-Traumatic Stress Syndrome (PTSS) were associated with modest reductions in physical health-related quality of life. This study has indicated that the psychological intervention that is most desired is to provide the community with programmes to support the development of social and emotional skills. It is important to use caution when interpreting this data, as it is possible that the community's preference for this particular psychological intervention may not align with the most effective technique for addressing the issue at hand. This approach aims to optimize the effectiveness of interventions in mitigating the psychological risks associated with PTSD and other mental health disorders, therefore, ideally, and by the aforementioned research findings, it is recommended that psychological support programmes and strategies, along with appropriate channels, be customized to cater to specific target groups, as many approaches could be leveraged to treat PTSD, including: Cognitive Behavioural Therapies (CBT) (Foa, E.B. and Rothbaum, B.O., 2001), pharmacotherapy treatments with Selective Serotonin Reuptake Inhibitors (SSRIs) (Connor, K.M et al 199).

## VI. CONCLUSION

This study revealed a significant prevalence of PTSD among IDPs with a subset of individuals experiencing stress-induced physical symptoms that lack clear explanation.

A significant proportion of participants demonstrated an awareness of their current state of experiencing PTSD and/or other mental health conditions and expressed a recognised necessity for psychological therapies. This study highlights the prevalence of PTSD among IDPs in the city of Port-Sudan and the psychological therapies recommended by the respondents that are deemed necessary.

## RECOMMENDATIONS

Based on the results obtained in this study, it can be concluded that the psychological intervention most favoured by respondents is programmes that support social and emotional skills. Therefore, it is recommended that mental health support sessions be customized to specifically address the needs of individuals exhibiting symptoms of PTSD in the city of Port-Sudan. It is important to use caution when interpreting this information, since it may not provide a comprehensive therapy approach for PTSD or other mental health disorders. Instead, it should be seen as a supplemental strategy that may offer limited benefits. In contrast, this may be satisfactory for certain individuals. Moreover, this necessitates the implementation of treatments that are tailored and focused to guarantee that trauma-exposed young individuals and those suffering from PTSD get suitable treatment, it is essential to implement enhanced screening measures, minimize obstacles to care provision, and conduct complete clinical assessments. Furthermore, the engagement of community workers in initiating dialogues with IDPs is highly encouraged to enhance the mental health profile of IDPs by increasing their social skills. This will be a promising intervention, as it was demonstrated to be preferred by Sudanese refugees in Australia (Savic, M., Chur-Hansen, A., Mahmood, M.A., and Moore, V.M., 2016.).

Some respondents expressed the importance of religion in alleviating PTSD. The examination of the influence exerted by religious leaders and religious preaching on the perception of health via a religious lens is a significant area of inquiry.

This study has shed some light on the mental health status of IDPs in Port-Sudan and provided valuable insights into the perceptions of mental health illnesses among Sudanese culture and communities. The information presented in this study may be utilized to develop customized and targeted psychological support initiatives to attain optimal effectiveness.

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