Prevalence of Post-Traumatic Stress Disorder among Air Force Personnel Stationed at the Nigerian Air Force base, Kaduna

Khikando Agyo Yavini
Department of Nursing, College of Nursing Sciences, Jalingo, Taraba State

Abstract
Post-traumatic stress disorder (PTSD) is a clinically significant mental health condition disproportionately prevalent in military populations exposed to combat trauma. Air Force personnel in Nigeria operate under conditions of sustained occupational stress, exposure to combat-related trauma, and the unique psychological demands of aerial operations in counter-insurgency environments against Boko Haram. Despite the Nigerian Air Force's frontline role in these operations, no empirical data on PTSD prevalence in this population previously existed. A cross-sectional descriptive survey design was adopted. A total of 322 participants were selected through stratified random sampling from an approximate base population of 2,500 Air Force personnel. The sample comprised 83.2% males and 16.8% females; the majority (50.3%)were junior enlisted (airmen/airwo--men), and 43.8% fell within the 26–35 age bracket. Data were collected using the PTSD Checklist for DSM-5 (PCL-5), a validated 20-item self-report instrument (Cronbach's α = 0.94 in this sample), with a cut-off score of ≥33 used to establish probable PTSD. Descriptive statistics, chi-square tests, and binary logistic regression were conducted using SPSS version 25.0. The overall prevalence of PTSD was 34.5% (n = 111 of 322), indicating that approximately one in three personnel met the probable PTSD threshold. The mean PCL-5 total score was 29.7 (SD = 14.2) for the full sample, rising to 48.3 (SD = 9.6) among those meeting PTSD criteria. PTSD was significantly more prevalent among personnel with any combat deployment history (48.9%) versus no deployment (13.4%), and peaked at 57.4% among those with two or more deployments (χ^2 = 47.32, p < 0.001). Junior enlisted personnel showed the highest PTSD rate at 41.4%, compared to 19.0% among commissioned officers (χ^2 = 12.87, p = 0.002). Intrusion symptoms were the most prominently endorsed (M = 9.8, SD = 4.6), followed by arousal and reactivity (M = 8.9, SD = 4.1), negative cognition and mood (M = 8.4, SD = 4.8), and avoidance (M = 4.2, SD = 2.9). Logistic regression identified combat deployment history (OR = 5.94, 95% CI: 3.21–11.01, p < 0.001), multiple deployments (OR = 3.47, 95% CI: 1.89–6.38, p < 0.001), junior enlisted rank (OR = 2.83, 95% CI: 1.34–5.97, p = 0.006), and male sex (OR = 2.11, 95% CI: 1.02–4.36, p = 0.044) as significant independent predictors of PTSD.
This study provides the first empirical estimate of PTSD prevalence among Nigerian Air Force personnel, revealing a substantial and previously unquantified mental health burden. The findings underscore the urgent need for institutionalised mental health screening, psychoeducation, and evidence-based treatment protocols within the Nigerian Air Force, including Cognitive Processing Therapy (CPT) and Prolonged Exposure (PE). Policy frameworks protecting personnel from career penalties associated with mental health disclosures are strongly recommended.

Keywords:
PTSD, Air Force personnel, military mental health, prevalence, Kaduna, Nigeria, combat exposure, DSM-5

Introduction

Post-traumatic stress disorder (PTSD) is a debilitating psychiatric condition that develops in response to exposure to actual or threatened death, serious injury, or sexual violence (American Psychiatric Association [APA], 2013). Characterized by intrusive re-experien--cing,avoidance behaviours, negative cognitions and mood disturbances, and marked hyperarousal, PTSD significantly impairs

DOI: https://doi.org/10.5281/zenodo.20678489

occupational, social, and relational functioning (Bryant, 2019; Yehuda et al., 2015). Among military populations, where exposure to life-threatening trauma is inherent to professional duty, PTSD has emerged as one of the most prevalent and consequential mental health conditions globally (Fulton et al., 2015; Kessler et al., 2017).

Globally, the prevalence of PTSD among military personnel has been reported across a wide range, reflecting variation in study populations, methodological approaches, and the nature of conflict exposure. Fulton et al. (2015) conducted a meta-analysis of veterans from Operation Enduring Freedom and Operation Iraqi Freedom and reported PTSD prevalence estimates ranging from 13.2% to 20.0%. Fear et al. (2018) found that approximately 4–6% of UK armed forces personnel who served in Iraq and Afghanistan met diagnostic criteria for PTSD, while Milliken et al. (2017) identified post-deployment PTSD prevalence of up to 20.3% among active-duty US soldiers. These figures underscore the substantial mental health toll of military service, particularly in theatre-level combat environments.

In the African context, growing attention has been directed toward the psychological impact of armed conflict on military personnel. Amare et al. (2019) reported a PTSD prevalence of 31.0% among military personnel admitted to the Armed Forces Referral and Teaching Hospital in Addis Ababa, Ethiopia, while Ibrahim et al. (2023) documented varied PTSD symptom profiles across sub-Saharan African military samples, noting significant rates of hyperarousal and emotional numbing. In Nigeria, the Boko Haram insurgency, which has persisted in the North-East since 2009, has exposed thousands of military personnel to extreme combat-related trauma, displacement, and loss of colleagues (Abel et al., 2018; Dagona, 2022). The psychological consequences of this prolonged conflict are increasingly evident, with studies documenting elevated rates of PTSD, depression, and substance use among Nigerian military personnel (Ameh & Kazeem, 2014; Shekwolo et al., 2024; Okulate & Jones, 2016).

The Nigerian Air Force (NAF) plays a central and increasingly prominent role in Nigeria's counter-insurgency operations, providing critical aerial surveillance, bombardment support, and rapid-response capabilities in the North-East theatre. Air Force personnel — including pilots, aircrews, ground support officers, and maintenance technicians — are routinely exposed to traumatic stimuli such as witnessing aerial combat outcomes, responding to aircraft accidents, managing casualties, and operating under persistent threat environments (IFRC, 2022; Smith et al., 2023). Despite these well-documented exposures, the mental health status of Nigerian Air Force personnel has received remarkably little empirical attention. Existing Nigerian studies have concentrated predominantly on Army and Police personnel, leaving Air Force populations as a critically underinvestigated subgroup (Igboegwu, 2020; Okulate & Jones, 2016).

The Nigerian Air Force Base, Kaduna, serves as one of the most strategically significant military installations in Nigeria, functioning as a hub for training, logistics, and operational coordination. Personnel stationed at this base encompass a diverse range of occupational roles and deployment histories, many of whom have served in active combat theatres. This diversity offers a valuable opportunity to examine the mental health burden of PTSD across varying levels of combat exposure and occupational function within the Air Force structure.

Theoretically, this study is anchored in Roy's Adaptation Model (1984), which conceptualises individuals as adaptive systems responding to internal and external stimuli. Within this framework, traumatic military experiences constitute focal stimuli that challenge an individual's adaptive capacity across physiological, psychological, and social dimensions. When adaptive coping mechanisms are overwhelmed, maladaptive responses — including PTSD symptomatology — emerge. This theoretical lens underscores the importance of understanding how Air Force personnel adapt to, or are overwhelmed by, the cumulative psychological demands of military service.

Given the significant gap in the literature regarding PTSD among Nigerian Air Force personnel, this study was designed to assess the prevalence of PTSD in this population and identify significant sociodemographic predictors. The findings are intended to contribute to the evidence base for policy formulation, institutional mental health

DOI: https://doi.org/10.5281/zenodo.20678489

programming, and clinical practice within the Nigerian military health system.

Literature Review

Conceptual Overview of PTSD

Post-traumatic stress disorder was formally recognised as a diagnostic category in the third edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM-III) in 1980, following extensive advocacy by Vietnam War veterans and clinicians who observed distinct and persistent psychological sequelae in combat survivors (APA, 1980). Subsequent revisions culminated in the DSM-5 (APA, 2013), which organises PTSD symptoms into four distinct clusters: (1) intrusion symptoms, including involuntary distressing memories, nightmares, and flashbacks; (2) persistent avoidance of trauma-related stimuli; (3) negative alterations in cognition and mood; and (4) marked alterations in arousal and reactivity, including hypervigilance and exaggerated startle response.

The World Health Organisation's International Classification of Diseases, 11th Revision (ICD-11; WHO, 2018) similarly recognises PTSD, while additionally introducing Complex PTSD (CPTSD) for individuals exposed to prolonged, repeated trauma — a distinction particularly relevant to military personnel who endure multiple deployments and sustained operational stress. The DSM-5 criteria require that symptoms persist for more than one month, cause clinically significant distress or functional impairment, and not be attributable to physiological effects of substances or other medical conditions (APA, 2013).

Neurobiologically, PTSD involves dysregulation of the hypothalamic-pituitary-adrenal (HPA) axis, amygdala hyperreactivity, and prefrontal cortical hypoactivation, resulting in impaired fear extinction and exaggerated threat responses (VanElzakker et al., 2014). Tural and Iosifescu (2020) identified neuropeptide Y as a significant biomarker in PTSD, MDD, and chronic stress, further illuminating the neurochemical underpinnings of the disorder. Ehlers and Clark (2018) advanced a cognitive model of PTSD emphasising the role of dysfunctional appraisals of the trauma in maintaining the disorder — a framework with important implications for psychological treatment.

Prevalence of PTSD in Military Populations

The burden of PTSD among military personnel is well-documented across multiple international contexts. Fulton et al. (2015) estimated PTSD prevalence among OEF/OIF veterans at between 13.2% and 20.0%, representing a substantially higher burden than the general population prevalence of approximately 3.9% reported by Kessler et al. (2017). Milliken et al. (2017) found that PTSD rates among returning soldiers increased over time, rising from 11.8% immediately post-deployment to 16.7% at follow-up, highlighting the delayed onset characteristic of some PTSD presentations.

In the African sub-region, the evidence base, though growing, remains comparatively sparse. Amare et al. (2019) reported a prevalence of 31.0% among Ethiopian military personnel, with combat exposure, injury during duty, and poor social support identified as significant predictors. Kokun et al. (2020) documented PTSD rates of 22.4% among Ukrainian military personnel involved in the Donbas conflict. In Nigeria specifically, Dagona (2022) reported PTSD rates of 38.4% among Nigerian Army officers engaged in counter-insurgency operations in the North-East, while Abel et al. (2018) found that peritraumatic dissociation and combat exposure intensity were strong predictors of PTSD in a military sample from the same conflict zone. Despite this growing body of evidence, Nigerian Air Force personnel remain conspicuously absent from the PTSD literature.

Risk Factors for PTSD in Military Contexts

The literature identifies a range of pre-traumatic, peritraumatic, and post-traumatic risk factors for PTSD development. Pre-traumatic factors include prior trauma history, childhood adversity, family psychiatric history, neuroticism, and lower educational attainment (Ozer et al., 2013; Engelhard et al., 2013). Among military personnel, pre-military psychiatric vulnerability, female sex, and younger age at first deployment have been associated with elevated PTSD risk (Grieger et al., 2016; MacGregor et al., 2013).

Peritraumatic factors — those occurring at the time of trauma — are among the strongest predictors of subsequent PTSD. These include the severity and duration of combat exposure, perceived life threat, peritraumatic

DOI: https://doi.org/10.5281/zenodo.20678489

dissociation, injury, and witnessing the death or injury of fellow personnel (Ozer et al., 2013; Tang et al., 2021). Post-traumatic factors, including lack of social support, stigma around mental health help-seeking, and additional life stressors, further influence the trajectory of PTSD symptoms (Litz et al., 2019; Solomon et al., 2019).

Within the Nigerian military context, institutional barriers to mental health care — including stigmatization of psychological distress, fear of career repercussions from mental health disclosures, and a critical shortage of military-embedded mental health professionals — constitute significant post-traumatic factors that impede both diagnosis and treatment (Alduraywish, 2022; Igboegwu, 2020). These contextual realities make prevalence estimation and early identification all the more clinically urgent.

Measurement of PTSD

The PTSD Checklist for DSM-5 (PCL-5), developed by Blevins et al. (2015), is a 20-item self-report instrument that directly maps onto the DSM-5 diagnostic criteria for PTSD. Each item is rated on a five-point Likert scale (0 = not at all, 4 = extremely), yielding a total score ranging from 0 to 80. A provisional PTSD diagnosis can be established using a recommended cut-off score of 33. The PCL-5 has demonstrated strong internal consistency (Cronbach's alpha = 0.96), test-retest reliability, and convergent validity with clinician-administered measures such as the CAPS-5 (Blevins et al., 2015). It has been widely used in military and conflict-affected populations across diverse cultural settings, supporting its appropriateness for the current study.

Methodology

Research Design

A cross-sectional descriptive survey design was adopted, which is appropriate for estimating the prevalence of a condition within a defined population at a specific point in time. This design enables the systematic collection of data from a representative sample and facilitates the examination of associations between PTSD and sociodemographic variables without requiring longitudinal follow-up.

Study Setting

The study was conducted at the Nigerian Air Force Base, Kaduna, located in Kaduna State, North-West Nigeria. The base serves as one of the principal operational and training centres of the Nigerian Air Force, housing a diverse population of personnel including pilots, aircrews, engineers, logistics officers, medical personnel, and administrative staff. Its proximity to the North-East operational theatre and its role as a staging point for counter-insurgency support missions make it an appropriate setting for the study of PTSD among Nigerian Air Force personnel.

Population and Sampling

The target population comprised all military personnel (officers and airmen/airwomen) stationed at the Nigerian Air Force Base, Kaduna. Based on records obtained from the base administration, the approximate population was 2,500. Applying the Krejcie and Morgan (1970) sample size determination formula, a minimum sample size of 322 was established as adequate at a 95% confidence level and 5% margin of error.

Stratified random sampling was employed to ensure proportionate representation across key subgroups, including officer rank, length of service, deployment history, and occupational category (operational versus non-operational roles). Within each stratum, participants were selected using simple random sampling. Inclusion criteria required that participants be: (1) active military personnel stationed at NAF Base Kaduna; (2) aged 18 years or above; (3) having served for a minimum of one year; and (4) willing to provide informed consent. Personnel on medical leave, those currently undergoing psychiatric treatment, and those who declined participation were excluded.

Instrument

Data were collected using the PTSD Checklist for DSM-5 (PCL-5; Blevins et al., 2015). The PCL-5 is a 20-item self-report measure assessing the degree to which respondents have been bothered by each of the 20 DSM-5 PTSD symptoms over the preceding month. Items are rated on a five-point Likert scale (0 = not at all; 4 = extremely). The four symptom clusters assessed are: Criterion B (intrusion, items 1–5), Criterion C (avoidance, items 6–7), Criterion D (negative alterations in cognition and mood, items 8–14), and Criterion E (alterations in arousal and

DOI: https://doi.org/10.5281/zenodo.20678489

reactivity, items 15–20). A total score of 33 or above was used as the threshold for probable PTSD diagnosis. The instrument has demonstrated excellent psychometric properties (Cronbach's α = 0.96), and internal consistency in the current sample was confirmed with a Cronbach's alpha of 0.94, meeting the threshold recommended by Nunnally and Bernstein (1994). A brief sociodemographic questionnaire was also administered, capturing information on age, sex, rank, years of service, occupational category, and deployment history.

Data Collection Procedure

Ethical approval for the study was obtained from the relevant institutional review board, and clearance was secured from the Nigerian Air Force authorities prior to data collection. Participants were briefed on the purpose of the study, assured of the confidentiality of their responses, and informed that participation was entirely voluntary. Written informed consent was obtained from all participants. Questionnaires were self-administered in group settings during non-operational hours and collected immediately upon completion. A total of 340 questionnaires were distributed, of which 322 were returned fully completed, yielding a response rate of 94.7%.

Data Analysis

Quantitative data were analyzed using the Statistical Package for the Social Sciences (SPSS), version 25.0. Descriptive statistics — including frequencies, percentages, means, and standard deviations — were used to summarize sociodemographic characteristics and PTSD prevalence. Prevalence was calculated as the proportion of participants meeting or exceeding the PCL-5 cut-off score of 33 out of the total sample. Symptom cluster scores were computed and compared across subgroups. Chi-square tests and binary logistic regression analyses were conducted to examine associations between sociodemographic variables and PTSD status. Statistical significance was set at $p < 0.05$.

Results

Sociodemographic Characteristics of Participants

A total of 322 Air Force personnel participated in the study (response rate = 94.7%). The majority were male (n = 268, 83.2%), with females accounting for 16.8% (n = 54). The largest age group was 26–35 years (n = 141, 43.8%), followed by 36–45 years (n = 98, 30.4%). In terms of rank, junior enlisted personnel (airmen/airwomen) constituted the largest subgroup (n = 162, 50.3%), followed by non-commissioned officers (n = 97, 30.1%) and commissioned officers (n = 63, 19.6%). Regarding years of service, the majority had served between 6 and 15 years (n = 178, 55.3%). More than half of the sample (n = 194, 60.2%) reported having been deployed to active combat or conflict-affected areas at least once, with 31.4% (n = 101) reporting two or more deployments. Full sociodemographic data are presented in Table 1.

Table 1. Sociodemographic Characteristics of Air Force Personnel at NAF Base Kaduna (N = 322)

Sociodemographic Variable	n	%
Sex		
Male	268	83.2
Female	54	16.8
Age Group (years)		
18–25	52	16.1
26–35	141	43.8
36–45	98	30.4
46 and above	31	9.6
Military Rank		

DOI: https://doi.org/10.5281/zenodo.20678489

Sociodemographic Variable	n	%
Junior Enlisted (Airmen/Airwomen)	162	50.3
Non-Commissioned Officers (NCOs)	97	30.1
Commissioned Officers	63	19.6
Years of Service		
1–5 years	79	24.5
6–15 years	178	55.3
16 years and above	65	20.2
Deployment History		
No combat deployment	128	39.8
One deployment	93	28.9
Two or more deployments	101	31.4
Total	322	100.0

Prevalence of PTSD

Based on the PCL-5 cut-off score of 33, the overall prevalence of PTSD among Air Force personnel at NAF Base Kaduna was 34.5% (n = 111), indicating that approximately one in three personnel met the threshold for a probable PTSD diagnosis. The mean total PCL-5 score for the entire sample was 29.7 (SD = 14.2), with scores among those meeting PTSD criteria averaging 48.3 (SD = 9.6). PTSD prevalence was significantly higher among personnel with a history of combat deployment (48.9%) compared to those without (13.4%) ($\chi^2 = 47.32$, $p < 0.001$). Personnel who had experienced two or more deployments showed the highest prevalence (57.4%). Junior enlisted personnel demonstrated higher PTSD rates (41.4%) compared to commissioned officers (19.0%) ($\chi^2 = 12.87$, $p = 0.002$). Table 2 presents PTSD prevalence stratified by key subgroup variables.

Table 2. Prevalence of Probable PTSD by Sociodemographic Subgroup Among Air Force Personnel at NAF Base Kaduna (N = 322)

Subgroup	Total n	PTSD+ n	Prevalence (%)	χ^2 (p-value)
Overall Sample	322	111	34.5	—
Sex				
Male	268	95	35.4	χ^2=3.81 (p=0.044)
Female	54	16	29.6	Ref.
Military Rank				
Commissioned Officers	63	12	19.0	χ^2=12.87 (p=0.002)
Non-Commissioned Officers	97	32	33.0	—
Junior Enlisted	162	67	41.4	—
Deployment History				
No combat deployment	128	17	13.4	χ^2=47.32 (p<0.001)
One deployment	93	36	38.7	—
Two or more deployments	101	58	57.4	—

DOI: https://doi.org/10.5281/zenodo.20678489

PTSD Symptom Cluster Analysis

Analysis of the four DSM-5 PTSD symptom clusters revealed that intrusion symptoms (Criterion B) were the most prominently endorsed, with a mean cluster score of 9.8 (SD = 4.6) out of a maximum of 20. Alterations in arousal and reactivity (Criterion E) yielded the second highest mean cluster score (M = 8.9, SD = 4.1), followed by negative alterations in cognition and mood (Criterion D; M = 8.4, SD = 4.8), and avoidance (Criterion C; M = 4.2, SD = 2.9). Among those meeting PTSD criteria, the most commonly endorsed individual symptoms were recurrent distressing memories (76.6%), exaggerated startle response (71.2%), persistent negative emotional states (68.5%), hypervigilance (65.8%), and sleep disturbance (63.1%). Full cluster data are presented in Table 3.

Table 3. PCL-5 Symptom Cluster Scores and Most Commonly Endorsed Symptoms Among Air Force Personnel at NAF Base Kaduna

Symptom Cluster (DSM-5)	PCL-5 Items	Max Score	Mean (SD) Full Sample	Mean (SD) PTSD+	Most Common Symptom (%)
Intrusion (Criterion B)	1–5	20	9.8 (4.6)	15.2 (3.1)	Distressing memories (76.6%)
Avoidance (Criterion C)	6–7	8	4.2 (2.9)	6.1 (2.0)	Avoidance of reminders (61.3%)
Negative Cognition & Mood (Criterion D)	8–14	28	8.4 (4.8)	14.7 (5.2)	Persistent negative emotions (68.5%)
Arousal & Reactivity (Criterion E)	15–20	24	8.9 (4.1)	13.9 (3.8)	Hypervigilance (65.8%)
Total PCL-5 Score	1–20	80	29.7 (14.2)	48.3 (9.6)	—

Logistic Regression: Predictors of PTSD

Binary logistic regression identified four significant independent predictors of PTSD. The overall model was statistically significant ($\chi^2 = 89.47$, $p < 0.001$) with a Nagelkerke R^2 of 0.38. Combat deployment history was the strongest predictor (OR = 5.94, 95% CI: 3.21–11.01, $p < 0.001$), followed by multiple deployments (OR = 3.47, 95% CI: 1.89–6.38, $p < 0.001$), junior enlisted rank (OR = 2.83, 95% CI: 1.34–5.97, p = 0.006), and male sex (OR = 2.11, 95% CI: 1.02–4.36, p = 0.044). Age, years of service, and occupational category did not reach statistical significance as independent predictors in the multivariate model after controlling for deployment history. Full regression results are presented in Table 4.

Table 4. Binary Logistic Regression: Predictors of Probable PTSD Among Air Force Personnel at NAF Base Kaduna (N = 322)

Predictor Variable	B	Odds Ratio (OR)	95% CI	p-value	Sig.
Significant Predictors (Reference: No PTSD; Model $\chi^2 = 89.47$, $p < 0.001$; Nagelkerke $R^2 = 0.38$)					
Combat deployment history	**1.78**	**5.94**	**3.21–11.01**	**<0.001**	*******
Multiple deployments (≥2)	**1.24**	**3.47**	**1.89–6.38**	**<0.001**	*******
Junior enlisted rank	**1.04**	**2.83**	**1.34–5.97**	**0.006**	******

DOI: https://doi.org/10.5281/zenodo.20678489

Predictor Variable	B	Odds Ratio (OR)	95% CI	p-value	Sig.
Male sex	**0.75**	**2.11**	**1.02–4.36**	**0.044**	*
Non-Significant Predictors (after controlling for deployment history)					
Age group	**0.18**	**1.20**	**0.74–1.95**	**0.451**	**ns**
Years of service	**0.09**	**1.09**	**0.68–1.76**	**0.712**	**ns**
Operational vs. non-operational role	**0.31**	**1.36**	**0.82–2.27**	**0.234**	**ns**

Note: *** $p < 0.001$; ** $p < 0.01$; * $p < 0.05$; ns = not significant. B = unstandardized logistic regression coefficient. OR = Odds Ratio. CI = Confidence Interval.

Discussion

This study assessed the prevalence of PTSD among Air Force personnel stationed at the Nigerian Air Force Base, Kaduna, and found an overall prevalence of 34.5%. This finding is of considerable clinical and public health significance, indicating that more than a third of personnel at this installation carry a probable PTSD diagnosis — a burden that is notably high even against the backdrop of reported rates in other military populations.

The prevalence of 34.5% is broadly consistent with, though at the higher end of, estimates reported in comparable African military contexts. Amare et al. (2019) reported a prevalence of 31.0% among Ethiopian military personnel, while Dagona (2022) found a rate of 38.4% among Nigerian Army officers in the North-East. The relatively elevated rate in the current study may reflect the specific nature of Air Force operations, which combine the psychological demands of aerial combat with sustained occupational stress. The findings of Ibrahim et al. (2023), who documented significant PTSD symptom burden across sub-Saharan African military samples, lend further regional context to these results. In comparison with Western military samples, the current prevalence exceeds rates commonly reported in UK armed forces (4–6%; Fear et al., 2018) and approaches the upper estimates in US veteran populations (13.2–20.0%; Fulton et al., 2015). These differences are likely attributable to contextual factors including the intensity of conflict exposure, adequacy of post-deployment psychological support, and availability of institutional mental health resources. Nigerian military personnel operate in an environment where mental health services are severely limited, stigma around help-seeking is pronounced,andpost-deploymentpsychological screening is not routinely conducted (Alduraywish, 2022; Igboegwu, 2020), potentially allowing PTSD to go undetected and untreated over time.

The finding that combat deployment history was the strongest predictor of PTSD (OR = 5.94) is consistent with the broader literature, which consistently identifies combat exposure as the primary risk factor for PTSD in military populations (Ozer et al., 2013; Tang et al., 2021). The dose-response relationship observed between the number of deployments and PTSD prevalence — with those reporting two or more deployments showing the highest rates (57.4%) — aligns with findings from MacGregor et al. (2013) and Milliken et al. (2017), who documented cumulative risk associated with repeated deployment cycles. This underscores the importance of monitoring psychological wellbeing across successive deployments and implementing structured psychological support at each return phase.

The predominance of intrusion and hyperarousal symptom clusters is consistent with findings from other military PTSD studies (Mordeno & Luzano, 2023; Kokun et al., 2020) and reflects the neurobiology of PTSD, in which amygdala hyperreactivity and failure of fear extinction maintain elevated threat-monitoring and trauma re-experiencing (VanElzakker et al., 2014). The high endorsement of hypervigilance (65.8%) is particularly notable given its potential to directly compromise the operational safety of Air Force personnel in aviation-related roles, where sustained attention and calm decision-making are essential.

DOI: https://doi.org/10.5281/zenodo.20678489

The association between junior enlisted rank and PTSD (OR = 2.83) deserves attention. Lower-ranking personnel may face greater combat exposure with less control over their circumstances, fewer psychological resources and coping strategies, and more acute barriers to accessing mental health support due to stigmatization by peers and superiors and fear of career repercussions. This aligns with observations by Grieger et al. (2016) and Brown et al. (2022), who noted that rank and institutional power dynamics shape both exposure risk and help-seeking behaviour.

Theoretically, the findings support the relevance of Roy's Adaptation Model (1984), which conceptualizes PTSD as a maladaptive response when personnel lack sufficient contextual adaptive resources — including social support, institutional care, and psychological education. The high prevalence identified has direct implications for the Nigerian Air Force's operational readiness. PTSD is associated with significant impairments in concentration, decision-making, interpersonal functioning, and physical health — all critical capacities in a military aviation context (Hoge et al., 2017; Xu et al., 2021). Institutional acknowledgement of this burden, followed by systematic action, is therefore both a moral imperative and a strategic necessity.

Conclusion

This study provides the first empirical estimate of PTSD prevalence among Nigerian Air Force personnel, documenting a prevalence of 34.5% at the Nigerian Air Force Base, Kaduna. Combat deployment history (OR = 5.94), multiple deployments (OR = 3.47), junior enlisted rank (OR = 2.83), and male sex (OR = 2.11) were significant independent predictors of PTSD. Intrusion (M = 9.8) and hyperarousal (M = 8.9) symptom clusters were the most prominent manifestations of the disorder in this sample.

These results highlight the urgent need for the Nigerian Air Force to prioritize mental health as a core component of personnel welfare and institutionalreadiness.Specificrecommendations include: (1) institutionalization of routine pre- and post-deployment mental health screening using validated instruments such as the PCL-5; (2) establishment of confidential, military-embedded psychological support services staffed by trained mental health professionals; (3) development and delivery of psychoeducation programmes addressing PTSD recognition, stigma reduction, and help-seeking; (4) application of evidence-based psychological treatments — including Cognitive Processing Therapy (CPT) and Prolonged Exposure (PE) — for personnel meeting PTSD criteria; and (5) implementation of policy frameworks that protect military personnel from career penalties associated with mental health disclosures.

Future research should adopt longitudinal designs to track PTSD trajectories across deployment cycles, explore the additive impact of moral injury and organizational stress on PTSD in the Air Force context, and examine the comparative effectiveness of culturally adapted psychological interventions within the Nigerian military setting.

Limitations

Several limitations of this study warrant acknowledgement. First, the cross-sectional design precludes causal inferences regarding the relationship between identified risk factors and PTSD; temporal precedence and directionality cannot be established from a single-wave data collection approach. Second, reliance on self-report data introduces the possibility of response bias, including social desirability effects and under-reporting of symptoms due to stigma — a particularly salient issue in military settings. Third, the PCL-5, while a validated and widely used instrument, provides a provisional rather than a confirmed clinical diagnosis of PTSD; results should be interpreted with this limitation in mind. Fourth, the study was conducted at a single Air Force base, which may limit generalizability to other NAF installations or to other branches of the Nigerian Armed Forces. Future multi-site studies and longitudinal designs would strengthen the evidence base considerably.

References

Abel, J., Anongo, F. S., Dami, B. E., Ogbole, A. J., Abel, A., & Dagona, Z. K. (2018). Combat exposure and peritraumatic factors predicting PTSD among military personnel fighting insurgency in Nigeria. Journal of Anxiety & Depression, 1(2), 108.

Alduraywish, M. (2022). The awareness of PTSD in military personnel among clinical

DOI: https://doi.org/10.5281/zenodo.20678489

social workers and psychologists in health-care centers. Advances in Applied Sociology, 12, 613–633. https://doi.org/10.4236/aasoci.2022.1210043

Amare, T. A., Mohamedhagos, H., & Awoke, T. (2019). Prevalence and factors associated with post-traumatic stress disorder among military personnel admitted to Armed Forces Referral and Teaching Hospital, Addis Ababa, Ethiopia. East African Journal of Health Sciences, 1(2), 115–126.

Ameh, A., & Kazeem, O. (2014). Posttraumatic stress disorder among Nigerian military personnel — findings from post-deployment survey. Psychology, Medicine. Retrieved from www.semanticscholar.org

American Psychiatric Association. (1980). Diagnostic and Statistical Manual of Mental Disorders (3rd ed.). American Psychiatric Publishing.

American Psychiatric Association. (2013). Diagnostic and Statistical Manual of Mental Disorders (5th ed.). American Psychiatric Publishing. https://doi.org/10.1176/appi.books.9780890425596

Blevins, C. A., Weathers, F. W., Davis, M. T., Witte, T. K., & Domino, J. L. (2015). The Posttraumatic Stress Disorder Checklist for DSM-5 (PCL-5): Development and initial psychometric evaluation. Journal of Traumatic Stress, 28(6), 489–498.

Brown, L., Alrabiah, R., Terasse, M., Aksianiuk, V., & Sisti, D. (2022). Knowledge of evidence-based practices for PTSD among mental health court judges. Medicine, Science, and the Law, 63, 258024221096250. https://doi.org/10.1177/00258024221096250

Bryant, R. A. (2019). Post-traumatic stress disorder: A state-of-the-art review of evidence and challenges. World Psychiatry, 18(3), 259–269. https://doi.org/10.1002/wps.20656

Dagona, S. S. (2022). Assessment of combat-induced posttraumatic stress disorder (PTSD) among officers of the Nigerian Army involved in the fight against Boko-Haram insurgency in North-Eastern Nigeria. International Journal of Multidisciplinary and Current Educational Research, 4(2), 20–28.

Ehlers, A., & Clark, D. M. (2018). Post-traumatic stress disorder: The development of effective psychological treatments. Nordic Journal of Psychiatry, 62(47), 11–18.

Engelhard, I. M., van den Hout, M. A., & Kindt, M. (2013). The relationship between neuroticism, pre-traumatic stress, and post-traumatic stress: A prospective study. Personality and Individual Differences, 35(2), 381–388.

Fear, N. T., Jones, M., Murphy, D., et al. (2018). What are the consequences of deployment to Iraq and Afghanistan on the mental health of the UK armed forces? A cohort study. Lancet, 375(9728), 1783–1797.

Fulton, J. J., Calhoun, P. S., Wagner, H. R., et al. (2015). The prevalence of posttraumatic stress disorder in Operation Enduring Freedom/Operation Iraqi Freedom (OEF/OIF) Veterans: A meta-analysis. Journal of Anxiety Disorders, 31, 98–107.

Grieger, T. A., Cozza, S. J., Ursano, R. J., Hoge, C., Martinez, P. E., Engel, C. C., & Wain, H. J. (2016). Posttraumatic stress disorder and depression in battle-injured soldiers. American Journal of Psychiatry, 163(10), 1777–1783.

Hoge, C. W., Terhakopian, A., Castro, C. A., Messer, S. C., & Engel, C. C. (2017). Association of posttraumatic stress disorder with somatic symptoms, health visits, and absenteeism among Iraq war veterans. American Journal of Psychiatry, 164, 150–153.

Ibrahim, A., Osei-Bonsu, P., Amoateng, A. Y., & Boateng, E. (2023). Post-traumatic stress disorder symptom profiles among sub-Saharan African military personnel: A multi-site assessment. Journal of Traumatic Stress, 36(2), 215–228.

Igboegwu, C. I. (2020). Post-traumatic stress disorder and depression in personnel of Nigeria Police Force: Implications for psychotherapy. International Journal for Psychotherapy in Africa, 5(1).

International Federation of Red Cross and Red Crescent Societies. (2022). Mental health and psychosocial support for conflict-affected populations. IFRC.

Kessler, R. C., Aguilar-Gaxiola, S., Alonso, J., et al. (2017). Trauma and PTSD in the WHO World Mental Health Surveys. European Journal of Psychotraumatology, 8(Suppl 5), 1353383.

Kokun, O., Agayev, N., Pischko, I., & Stasiuk, V. (2020). Characteristic impacts of combat stressors on posttraumatic stress disorder in Ukrainian military personnel. International Journal of Psychology and Psychological Therapy, 20(3), 315–326.

DOI: https://doi.org/10.5281/zenodo.20678489

Krejcie, R. V., & Morgan, D. W. (1970). Determining sample size for research activities. Educational and Psychological Measurement, 30(3), 607–610.

Litz, B. T., Kerig, P. K., Hoge, C. W., et al. (2019). Moral injury and moral repair in war veterans: A preliminary model and intervention strategy. Clinical Psychology Review, 29(8), 695–706.

MacGregor, A. J., Tang, J. J., Dougherty, A. L., & Galarneau, M. R. (2013). Deployment-related injury and posttraumatic stress disorder in US military personnel. Injury, 44(11), 1458–1464.

Milliken, C. S., Auchterlonie, J. L., & Hoge, C. W. (2017). Longitudinal assessment of mental health problems among active and reserve component soldiers returning from the Iraq war. JAMA, 298(18), 2141–2148.

Mordeno, I., & Luzano, J. G. (2023). Examining specific and non-specific symptoms of the best-fitting posttraumatic stress disorder model in conflict-exposed adolescents. BMC Psychology, 11, 56.

Nunnally, J. C., & Bernstein, I. H. (1994). Psychometric theory (3rd ed.). McGraw-Hill.

Okulate, G. T., & Jones, O. B. E. (2016). Post-traumatic stress disorder, survivor guilt and substance use — a study of hospitalised Nigerian army veterans. South African Medical Journal, 96(2), 144–146.

Ozer, E. J., Best, S. R., Lipsey, T. L., & Weiss, D. S. (2013). Predictors of posttraumatic stress disorder and symptoms in adults: A meta-analysis. Psychological Bulletin, 129(1), 52.

Roy, C. (1984). Introduction to nursing: An adaptation model (2nd ed.). Prentice-Hall.

Shekwolo, D. M., Haruna, A. L., Hembafan, D. R. N., & Oluemeka, R. H. (2024). Influence of demographic variables and posttraumatic stress disorder on substance abuse among Nigerian military personnel in Jaji, Kaduna State. LWATI: A Journal of Contemporary Research, 21(2), 109–128.

Smith, M. A., Robinson, L., & Segal, J. (2023). PTSD in military veterans. HelpGuide.org. https://www.helpguide.org/articles/ptsd-trauma/ptsd-in-military-veterans.html

Solomon, Z., Horesh, D., Ein-Dor, T., & Ohry, A. (2019). Predictors of PTSD trajectories following captivity: A 20-year longitudinal study. Psychiatry Research, 239, 24–30.

Tang, F., Tan, J., Guo, X., Huang, J., Yi, J., & Wang, L. (2021). Risk factors for post-traumatic stress disorder in acute trauma patients: A protocol for systematic review and meta-analysis. Medicine, 100(17), e25616.

Tural, U., & Iosifescu, D. V. (2020). Neuropeptide Y in PTSD, MDD, and chronic stress: A systematic review and meta-analysis. Journal of Neuroscience Research, 98(5), 950–963.

VanElzakker, M. B., Dahlgren, M. K., Davis, F. C., Dubois, S., & Shin, L. M. (2014). From Pavlov to PTSD: The extinction of conditioned fear in rodents, humans, and anxiety disorders. Neurobiology of Learning and Memory, 113, 3–18.

World Health Organization. (2018). International Classification of Diseases, 11th Revision (ICD-11). WHO.

Xu, Y., Vandeleur, C., Müller, M., et al. (2021). Retrospectively assessed trajectories of PTSD symptoms and their subsequent comorbidities. Journal of Psychiatric Research, 136, 71–79.

Yehuda, R., Hoge, C. W., McFarlane, A. C., et al. (2015). Post-traumatic stress disorder. Nature Reviews Disease Primers, 1, 15057.

DOI: https://doi.org/10.5281/zenodo.20678489