Assessment of Risk Factors and Symptoms Identification of Post-Traumatic Stress Disorder among Air Force Personnel in Nigerian Air Force base Kaduna

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Abstract
This study assessed risk factors and symptoms of post-traumatic stress disorder (PTSD) among Nigerian Air Force (NAF) personnel at NAF Base Kaduna. A cross-sectional descrip--tive design was employed with a sample of 207 uniformed personnel selected from a target population of 405 using the Krejcie and Morgan (1970) sampling table. A structured questionnaire comprising four validated sections — covering PTSD knowledge, risk factor endorsement, symptom identification via the Harvard Trauma Questionnaire (HTQ), and PTSD prevalence via the PTSD Checklist for DSM-5 (PCL-5) — was administered with a 100% response rate. Data were analysed using descriptive statistics and Pearson product-moment correlation. Respondents had a mean age of 41 years and were predominantly male (86%). Good PTSD knowledge was demonstrated by 83.6% of personnel. The most frequently endorsed risk factors were lack of social support (46.9%), loss of property (43.0%), and poor camp conditions (42.0%). The most intensely reported symptoms were difficulty adapting to new situations, feelings of betrayal, and persistent exhaustion. A 21.9% prevalence of probable PTSD was established using a PCL-5 cut-off of ≥ 33, indicating approximately one in five personnel affected. Years of service ($r = .798$, $p = .016$) and educational qualification ($r = .731$, $p = .028$) were both significantly and positively correlated with PTSD knowledge. The findings highlight a substantial psychological burden and underscore the urgent need for routine mental health screening, psychoeducation, and trauma-focused interventions within the Nigerian military health system.

Keywords:
post-traumatic stress disorder, Nigerian Air Force, military mental health, risk factors, trauma symptoms, PTSD prevalence, Kaduna

Introduction

Post-traumatic stress disorder (PTSD) is a debilitating psychiatric condition arising from exposure to actual or threatened death, serious injury, or sexual violence (American Psychia--tric Association [APA], 2013). Military personnel represent a particularly high-risk group due to repeated occupational exposure to combat violence, life-threatening environ--ments, and the loss of colleagues (Bryant, 2019; Grieger et al., 2016). Globally, as armed forces engage in prolonged counter-insurgency and peacekeeping operations, the psychologi--cal burden on service members has intensified substantially, with PTSD recognised as one of the signature injuries of modern warfare (Milliken et al., 2017; Hoge et al., 2017).

In Nigeria, the protracted Boko Haram insurgency in the North-East, persistent inter-communal conflicts in the Middle Belt, and pervasive criminal violence across multiple geopolitical zones have placed Nigerian Air Force (NAF) personnel at the frontline of sustained traumatic exposure over more than a decade (Abel et al., 2018; Dagona, 2022). The operational tempo of the NAF has intensified considerably since 2009, with personnel rotating through active engagement in counter-insurgency, hostage-rescue, and force-protection missions — all of which carry substantial risk of traumatic exposure. Despite

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this elevated risk context, empirical investigations into PTSD among NAF personnel remain sparse, and institutional mental health infrastructure has not kept pace with the growing psychological burden (Okulate & Jones, 2016; Igboegwu, 2020).

PTSD, as defined by the Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM-5), manifests across four symptom clusters: (1) intrusion, (2) persistent avoidance, (3) negative alterations in cognition and mood, and (4) marked alterations in arousal and reactivity (APA, 2013). These symptom domains can severely impair occupational functioning, interpersonal relationships, physical health, and overall quality of life if left unaddressed (Yehuda et al., 2015; Tural & Iosifescu, 2020). The neurobiological substrate of PTSD involves dysregulation of the hypothalamic-pituitary-adrenal (HPA) axis, amygdala hyperreactivity, and impaired prefrontal cortical modulation — mechanisms that underpin the persistence of fear conditioning beyond the original traumatic context (VanElzakker et al., 2014).

The risk factors for PTSD are multifaceted, spanning pre-trauma vulnerabilities (prior psychiatric history, low social support, neuroticism), peri-traumatic features (severity, proximity, and duration of exposure), and post-trauma factors (ongoing life stressors, institutional support deficits, peritraumatic dissociation) (Ozer et al., 2013; Feely et al., 2023; Engelhard et al., 2013). Social support consistently emerges as the most critical post-traumatic moderator, with its absence substantially amplifying vulnerability to disorder onset and maintenance (Chen et al., 2019; Tang et al., 2021). In military populations, the unique combination of combat exposure, moral injury, institutional stigma against help-seeking, and the erosion of social networks through repeated deployments creates a particularly fertile context for PTSD onset and chronicity.

This study was conducted among uniformed personnel of the 413 Force Protection Group, NAF Base Kaduna — a unit regularly deployed to active conflict zones across Nigeria. The specific objectives were to: (i) assess the level of PTSD knowledge among personnel; (ii) identify dominant risk factors; (iii) characterise the symptom profile using the Harvard Trauma Questionnaire; (iv) establish the prevalence of probable PTSD using the PCL-5; and (v) examine the relationship between sociodemographic variables and PTSD knowledge. The findings are intended to generate evidence-based data for policy formulation and the integration of robust mental health services within the Nigerian Air Force.

Literature Review

Conceptual Definition and Diagnostic Evolution of PTSD

Although the psychological sequelae of traumatic exposure have been observed in military populations across recorded history — described variously as 'soldier's heart' during the American Civil War, 'shell shock' in World War I, and 'combat fatigue' in World War II — the formal psychiatric recognition of PTSD was not achieved until the publication of DSM-III in 1980 (APA, 1980; Yehuda et al., 2015). This formalisation was catalysed in large part by advocacy from Vietnam War veterans and feminist scholars who highlighted parallel trauma responses in sexual assault survivors, establishing that the disorder was a normative psychological response to extraordinary stress rather than a sign of personal weakness.

Through successive DSM revisions, the conceptualisation of PTSD has grown substantially more nuanced. DSM-IV consolidated the diagnosis around three symptom clusters — re-experiencing, avoidance/numbing, and hyperarousal — while DSM-5 restructured this into four clusters by separating avoidance from negative cognitions and mood, and added the specifiers 'with dissociative symptoms' and 'with delayed expression' (APA, 2013). Critically, DSM-5 removed PTSD from the anxiety disorders chapter and placed it in a newly created chapter on Trauma- and Stressor-Related Disorders, reflecting growing evidence that fear dysregulation is but one of several pathogenic mechanisms. Alongside re-experiencing and hyperarousal, negative alterations in cognition — including pervasive negative beliefs about oneself or the world, distorted blame, estrangement, and persistent negative emotional states — are now recognised as central features (Ehlers & Clark, 2018).

The International Classification of Diseases, 11th Revision (ICD-11), published by the World Health Organization in 2018,

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introduced a simplified PTSD diagnosis requiring only three core symptom clusters (re-experiencing, avoidance, and hyperarousal) while simultaneously creating a separate complex PTSD (CPTSD) diagnosis for individuals with more pervasive difficulties in affect regulation, self-concept, and interpersonal functioning — a presentation particularly relevant to survivors of prolonged, repeated trauma (WHO, 2018). This diagnostic divergence between DSM-5 and ICD-11 has implications for prevalence estimation and treatment planning in military populations subjected to chronic combat exposure.

Epidemiology of PTSD in Military and Conflict-Affected Populations

Global lifetime prevalence estimates for PTSD in general community populations range from 1.3% to 12.2%, with substantial cross-national variation attributable to differential trauma exposure, cultural idioms of distress, and methodological heterogeneity across studies (Atwoli et al., 2018; Kessler et al., 2017). In military populations, prevalence is considerably elevated. A comprehensive meta-analysis by Fulton et al. (2015) reported a pooled PTSD prevalence of 23% among combat veterans, compared with 4–7% in age-matched civilian controls. Among US military personnel deployed to Iraq and Afghanistan, Hoge et al. (2017) documented PTSD rates of 12–20%, with rates substantially higher among personnel who experienced intense combat, witnessed atrocities, or sustained physical injury.

In the United Kingdom, data from the KCMHR cohort indicated lower but still significant PTSD rates of approximately 4–6% in regular forces and up to 7% among reservists, differences attributed to selection effects and occupational cultural factors (Fear et al., 2018). Studies from Israel, a nation with sustained high-intensity military engagement, report PTSD prevalence rates of 10–16% among combat veterans, with evidence of dose-response relationships between combat intensity and symptom severity (Solomon et al., 2019). Importantly, delayed-onset PTSD — where full diagnostic criteria are not met until six or more months after the traumatic event — is well documented in military populations, with MacGregor et al. (2013) reporting that up to 30% of eventual PTSD cases had a delayed presentation, underscoring the limitations of cross-sectional point-prevalence estimates.

In the African context, evidence is growing but remains comparatively sparse. Amare et al. (2019) reported a PTSD prevalence of 28.1% among Ethiopian military personnel admitted to referral hospital care, with combat injury, witnessing the death of colleagues, and lack of debriefing services identified as primary predictors. In Uganda, Mugisha et al. (2021) documented PTSD rates of 22–31% among soldiers deployed in counter-insurgency operations in South Sudan, with female combatants at significantly elevated risk relative to male counterparts. In South Africa, Olashore et al. (2018) reported a 21.5% prevalence of PTSD among mental health hospital staff — a population facing occupational trauma broadly analogous to that of military personnel — providing a useful regional benchmark.

Within Nigeria specifically, Ameh and Kazeem (2014) conducted one of the earliest documented post-deployment surveys among Nigerian military personnel, finding PTSD symptom rates of 15–30% depending on the assessment instrument and combat intensity of the unit surveyed. Abel et al. (2018) subsequently confirmed that combat exposure and peritraumatic dissociation were significant PTSD predictors among troops engaged in counter-insurgency operations in the North-East, estimating that roughly one in four personnel in high-intensity deployment units met symptom criteria. Dagona (2022), in a focused assessment of Nigerian Army officers engaged against Boko Haram, documented prominent intrusive recollections and hypervigilance, with higher symptom burden among junior enlisted ranks who bore proportionally greater operational risk. Most recently, Shekwolo et al. (2024) reported analogous symptom patterns among combined NAF and Army personnel stationed in Jaji, Kaduna State, further confirming a regionally consistent pattern of elevated military PTSD burden.

Risk Factors for PTSD

Pre-Traumatic Risk Factors

Pre-traumatic vulnerabilities encompass a broad range of biological, psychological, and social variables that elevate susceptibility to PTSD onset following traumatic exposure. At the biological level, neurobiological studies

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have identified polymorphisms in serotonin transporter genes, corticotropin-releasing hormone receptor genes, and FKBP5 — a gene regulating glucocorticoid receptor function — as moderators of stress reactivity and PTSD risk (Yehuda et al., 2015; Tural & Iosifescu, 2020). A prior personal or family history of psychiatric disorder — particularly major depression, generalised anxiety, and substance use disorders — consistently predicts elevated PTSD risk, as these conditions share overlapping neurobiological vulnerabilities and may deplete the psychological resources necessary for post-traumatic adaptation (Ozer et al., 2013).

Psychosocial pre-traumatic risk factors include prior trauma exposure, childhood adversity, lower educational attainment, lower socioeconomic status, and dispositional neuroticism — a personality trait characterised by emotional instability and negative affective reactivity (Engelhard et al., 2013). Female sex is a robust pre-traumatic risk factor in civilian populations, with women having approximately twice the lifetime PTSD risk of men following index trauma exposure; however, in military populations, this gender differential is attenuated, as occupational selection processes and training may reduce but do not eliminate baseline vulnerability differences (Fear et al., 2018). Importantly, prior trauma exposure — particularly in childhood — does not invariably increase PTSD risk; the directionality depends on whether earlier trauma was resolved or sensitising, with unresolved prior trauma generally producing sensitisation to subsequent exposure.

Peri-Traumatic Risk Factors

The nature of the traumatic event itself — its severity, proximity, duration, intentionality, and the degree of perceived life threat — is among the strongest predictors of PTSD onset. Interpersonal violence, including combat assault, torture, and sexual violence, is associated with particularly high PTSD risk relative to accidents or natural disasters, as intentional harm engages additional psycholo--gical mechanisms of betrayal, moral injury, and violation of the 'just world' assumption (Feely et al., 2023). In military contexts, moral injury — the damage sustained when personnel perpetrate, witness, or fail to prevent acts that violate their moral code — has emerged as a distinct but overlapping construct with PTSD, associated with profound guilt, shame, and spiritual distress (Litz et al., 2019).

Peritraumatic dissociation —depersonalistion derealisation, time distortion, or emotional detachment occurring during or immediately after the traumatic event — is one of the most consistently identified peri-traumatic predictors of subsequent PTSD across diverse trauma types and populations (Ozer et al., 2013; Abel et al., 2018). Peritraumatic emotional responses, including horror, helplessness, and extreme fear at the time of the event, similarly predict post-traumatic symptom severity, particularly in individuals with limited prior trauma experience. For military personnel, the aggregated effect of multiple combat tours compounds peri-traumatic risk, as cumulative exposure progressively erodes the psychological resources available for adaptive coping.

Post-Traumatic Risk Factors

Post-traumatic modifiers represent the most actionable targets for prevention and intervention, as they are theoretically modifiable through deliberate social, clinical, and institutional intervention. Social support is the most consistently identified post-traumatic moderator: a robust meta-analysis by Ozer et al. (2013) found that perceived social support lack was the single strongest predictor of PTSD symptom severity among 68 independent study samples, with an effect size substantially exceeding that of trauma severity measures. Tang et al. (2021) confirmed this in a systematic review of acute trauma populations, demonstrating that low social support accounted for approximately 18% of variance in PTSD outcomes — a magnitude with clear clinical significance.

In military populations, the social support architecture is complex. Cohesive unit relationships provide a critical source of support during and immediately after deployment, but these bonds are fractured by death of colleagues, unit reassignment, and the social distance that develops between deployed personnel and their civilian families (Kokun et al., 2020). Reintegration difficulties — arising from the mismatch between the hypervigilant orientation acquired in combat environments and the demands of civilian life — further erode social support access and

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quality in the post-deployment period. For Nigerian Air Force personnel operating in a resource-limited institutional context with minimal formal post-deployment psychological support, these post-traumatic social support deficits are likely particularly pronounced.

Additional post-traumatic risk factors include ongoing life stressors — financial strain, housing instability, marital conflict — and the availability and quality of institutional mental health support. Chen et al. (2019) demonstrated that patients experiencing ongoing stressors in the month following trauma had threefold higher PTSD risk than those whose stressor burden diminished. Loss of property — documented as a prominent risk factor in the present study population — operates both as a material stressor and a symbol of displacement and loss of personal identity, amplifying grief and resourcelessness simultaneously (International Federation of Red Cross, 2022). In conflict-affected populations specifically, forced relocation disrupts entire social ecosystems, severing community networks, occupational continuity, and access to culturally normative coping rituals — all of which compound PTSD vulnerability over time.

Symptom Presentation in Military and African Contexts

While the four-cluster DSM-5 framework provides a universal diagnostic template, the phenomenological presentation of PTSD is substantially shaped by cultural context, occupational socialisation, and the type of traumatic exposure (Rawal et al., 2018; Amare et al., 2019). In Western military populations, hyperarousal — manifesting as hypervigilance, exaggerated startle, and sleep disturbance — and intrusive re-experiencing are the most consistently documented dominant symptom domains (Hoge et al., 2017; MacGregor et al., 2013). However, in African and collectivist cultural contexts, studies increasingly identify cognitive and interpersonal symptoms — particularly feelings of betrayal, social alienation, shame, and pervasive distrust of institutions — as proportionally more prominent than in individualist Western samples (Dagona, 2022; Amare et al., 2019).

This cultural variation has theoretical grounding in Ehlers and Clark's (2018) cognitive model of PTSD, which proposes that the disorder is maintained by two key mechanisms: (i) excessively negative appraisals of the trauma and its sequelae, and (ii) a disturbance in autobiographical memory that prevents the event from being situated as a time-limited past occurrence. In collectivist societies where social identity is constitutively relational, betrayal trauma — the violation of trust by a relied-upon institution or individual — generates particularly severe negative appraisals and identity disruption, explaining the prominence of interpersonal cognitive symptoms in Nigerian and broader African military cohorts. Ibrahim et al. (2023) confirmed this pattern in a multi-site assessment of sub-Saharan African military personnel, finding that betrayal, alienation, and occupational disengagement loaded as the highest-severity symptom items after controlling for combat exposure intensity.

Somatic presentations of PTSD are also more frequently emphasised in African and Asian military samples relative to Western counterparts, with unexplained fatigue, musculoskeletal pain, and gastrointestinal disturbance serving as culturally permissible channels for psychological distress in contexts where emotional expression is constrained by masculine occupational norms (Rawal et al., 2018). The HTQ was specifically designed to capture these cross-cultural symptom expressions, including somatic symptoms not captured by Western-derived instruments — an important reason for its selection in the present study over DSM-aligned instruments alone. The alignment between HTQ findings and DSM-5-based PCL-5 scores in this study provides convergent validity for the symptom profile identified.

Theoretical Framework: Roy's Adaptation Model

This study is theoretically anchored in Roy's Adaptation Model (RAM), first articulated by Sister Callista Roy in 1976 and subsequently refined in multiple editions (Roy, 1984). RAM conceptualises the individual as an adaptive system operating through cognator and regulator subsystems to respond to environmental stimuli across four adaptive modes: physiological-physical, self-concept-group identity, role function, and interdependence. Health is conceptualised as a state of successful adaptation, while illness

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and psychological disorder represent the consequences of ineffective adaptive responses to environmental demands that exceed current coping capacity.

Applied to PTSD in military populations, the RAM framework situates traumatic events as focal stimuli that overwhelm existing adaptive mechanisms, producing ineffective responses across multiple modes simultaneously. The physiological mode manifests in HPA axis dysregulation, sleep disturbance, and somatic symptomatology; the self-concept mode in identity fragmentation, shame, and distorted beliefs about personal worth and agency; the role function mode in occupational impairment and role disruption; and the interdependence mode in social withdrawal, trust violation, and interpersonal alienation (Roy, 1984). Social support — the most prominent risk factor identified in this study — functions within the RAM as a critical contextual stimulus that either buffers or amplifies the impact of focal traumatic stimuli on adaptive capacity. The centrality of social support to both PTSD onset and recovery is thus theoretically coherent within the RAM framework, which identifies interdependence as foundational to homeostatic adaptation. From a nursing science perspective, interventions that strengthen the interdependence mode — through structured peer support, family reintegration programmes, and community network rebuilding — represent theoretically grounded, evidence-aligned strategies for restoring adaptive equilibrium in PTSD-affected military personnel.

Mental Health in the Nigerian Military: Policy Context

The Nigerian military mental health infrastructure has historically lagged substantially behind the scale of psychological need generated by prolonged operational engagement. The Nigerian Armed Forces operate under the Nigerian Defence Headquarters, with health services coordinated through the Defence Health Maintenance Limited (DHML) and the three service-specific medical services (Army, Navy, and Air Force). While the NAF Medical Services maintains primary health facilities at all major bases, psychiatry and clinical psychology services are concentrated in a small number of specialist facilities — most notably the 44 Nigerian Army Reference Hospital, Kaduna, and the Nigerian Naval Hospital, Lagos — with limited decentralised access for personnel based at forward operating units (Okulate & Jones, 2016).

Help-seeking for mental health conditions within the Nigerian military is significantly constrained by occupational stigma — the perception that emotional distress is incompatible with military professionalism and that disclosing psychological difficulties will negatively affect career progression and security clearance status (Igboegwu, 2020; Abel et al., 2018). This stigma is embedded in broader West African cultural discourses that construct mental illness as spiritually caused, morally weakening, or shameful — discourses that interact with military masculine norms to produce particularly powerful barriers to disclosure and help-seeking. The integration of routine, confidential, and destigmatised mental health assessment into standard military health practice — as recommended by this study and consistent with international military mental health standards — would require deliberate policy reform, leadership endorsement, and sustained resource investment.

Methodology

Research Design, Setting, and Sample

A cross-sectional descriptive design was employed, selected for its efficiency in establishing prevalence estimates and examining associations between variables at a defined time point (Johnson et al., 2023; Wang & Cheng, 2020; Kumar & Singh, 2022). The study was conducted at the 413 Force Protection Group, NAF Base Kaduna — a frontline ground-assault unit with a primary mandate of force protection, base security, and deployment support for air operations. Personnel in this group have documented histories of deployment to active conflict zones in North-East Nigeria, including operations in Borno, Yobe, and Adamawa States.

The target population comprised 405 uniformed personnel stationed at the base during the study period. Using the Krejcie and Morgan (1970) sample size determination table for a known population, a minimum sample of 199 was indicated; this was inflated to 207 to account for potential non-response and to improve the precision of prevalence estimates. Stratified random sampling was employed to ensure proportional

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representation across rank categories (officers, senior NCOs, junior NCOs, airmen/women), years of service, and gender strata — critical considerations given documented rank- and service-length-related variation in PTSD knowledge and risk.

Research Instruments

Data were collected using a four-section self-administered structured questionnaire. Section A captured sociodemographic data including age, sex, rank, years of service, marital status, ethnicity, religion, and educational qualification. Section B assessed PTSD knowledge with a seven-item Likert scale (Agree = 3, Neutral = 2, Disagree = 1) adapted from Alduraywish (2022); scores of 11–21 indicated good knowledge and 0–10 indicated poor knowledge. Section C assessed seven binary yes/no risk factor items covering social support, property loss, camp conditions, coping skills, relocation, witnessed violence, and bereavement.

Section D employed the Harvard Trauma Questionnaire (HTQ) Part IV — a 23-item cross-culturally validated instrument developed to capture trauma-related symptoms across diverse cultural and occupational contexts, scored on a 1–4 scale; a mean score above 2.5 classified respondents as symptomatic (Mollica et al., 1992). Section E used the PTSD Checklist for DSM-5 (PCL-5), a 20-item self-report measure scored on a 0–4 scale with a validated cut-off of ≥ 33 for probable PTSD (Blevins et al., 2015). The PCL-5 has demonstrated excellent psychometric properties across military and clinical populations internationally and has been validated for use in sub-Saharan African research contexts.

Content validity was established through expert review by three nursing faculty members with trauma care expertise and a consultant psychiatrist from a NAF medical facility. The instruments were pilot-tested with 15 personnel drawn from a comparable unit at a different base. Cronbach's alpha reliability coefficients were: Knowledge Scale (α = 0.78), HTQ Part IV (α = 0.82), and PCL-5 (α = 0.89) — all exceeding the accepted threshold of 0.70 for research instruments (Nunnally & Bernstein, 1994).

Data Collection, Analysis, and Ethical Considerations

Questionnaires were administered by the principal researcher and two trained research assistants during scheduled parade activities over a four-week data collection period in May 2025. The structured setting maximised response rates while minimising selection bias. A 100% response rate was achieved. Data were entered and analysed using IBM SPSS Statistics Version 28. Descriptive statistics (frequencies, percentages, means, standard deviations) were used to characterise the sample and summarise instrument scores. Pearson product-moment correlation was used to examine the bivariate relationships between years of working experience, educational qualification, and PTSD knowledge, with statistical significance set at α = 0.05 (two-tailed).

Ethical clearance was obtained from the Bayero University Kano Research Ethics Committee(Reference: BUK/NHREC/2025/01 Institutional clearance and site access were granted by the Commander, 413 Force Protection Group. All participation was strictly voluntary; no pressure was exerted through the chain of command. Written informed consent was obtained from each participant prior to questionnaire administration. Anonymity was preserved by excluding identifying information from questionnaires; completed questionnaires were stored in sealed envelopes and destroyed following data entry. Participants experiencing acute psychological distress during data collection were referred to the base medical officer.

Results

Sociodemographic Characteristics

Table 1 presents the full sociodemographic profile of the 207 participants. The majority were male (86.0%; n = 178), aged 25–34 years (48.3%), and held the rank of Lance Corporal/Corporal (36.7%). Most had 6–10 years of service (39.1%) and were married (48.3%). The Hausa ethnic group was most represented (34.8%), and Christianity was the predominant religion (47.8%). The mean age of the cohort was 41 years (SD not reported).

Table 1: Sociodemographic Characteristics of Respondents (N = 207)

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Characteristic	n	%
Gender – Male	178	86.0
Female	29	14.0
Age group: 25–34 years (modal)	100	48.3
35–44 years	55	26.6
≥ 45 years	34	16.4
Rank – Lance/Corporal (modal)	76	36.7
Aircraftman/woman	52	25.1
Sergeant	38	18.4
Years of service: 6–10 (modal)	81	39.1
3–5 years	47	22.7
11–15 years	39	18.8
Marital status – Married	100	48.3
Single	89	43.0
Ethnicity – Hausa (modal)	72	34.8
Religion – Christianity (modal)	99	47.8

Source: Field Survey, NAF Base Kaduna, May 2025.

PTSD Knowledge, Risk Level, and Prevalence

Table 2 consolidates findings on knowledge, overall risk level, and PTSD prevalence. Most personnel (83.6%) demonstrated good PTSD knowledge (scores 11–21). Regarding risk, 67.6% recorded low risk factor scores while 32.4% fell in the high-risk category. Using the PCL-5 cut-off of ≥ 33, 21.9% (n = 45) of respondents met criteria for probable PTSD — approximately one in five personnel.

Table 2: Summary of PTSD Knowledge, Risk Level, and Prevalence (N = 207)

Category	n	%
PTSD Knowledge		
Good knowledge (score 11–21)	173	83.6
Poor knowledge (score 0–10)	34	16.4
Risk Factor Level		
Low risk (score 1–14)	140	67.6
High risk (score 15–28)	67	32.4
Probable PTSD (PCL-5 ≥ 33)	**45**	**21.9**

Knowledge cut-off: Good = 11–21; Poor = 0–10. Risk cut-off: Low = 1–14; High = 15–28. PTSD: PCL-5 ≥ 33.

Individual Risk Factors

Table 3 presents the distribution of specific risk factors. Lack of social support was the most frequently endorsed risk factor (46.9%), followed by loss of property (43.0%), poor camp conditions (42.0%), poor coping skills (39.1%), relocation from usual residence (35.3%), witnessing violence (35.3%), and death of a close relation (31.9%).

Table 3: Distribution of Individual PTSD Risk Factors (N = 207)

Risk Factor	Yes n (%)	No n (%)
Lack of social support	97 (46.9)	110 (53.1)
Loss of property	89 (43.0)	118 (57.0)
Poor camp conditions	87 (42.0)	120 (58.0)
Poor coping skills	81 (39.1)	126 (60.9)
Relocation from usual residence	73 (35.3)	134 (64.7)
Seeing someone stabbed or killed	73 (35.3)	134 (64.7)
Death of close relation	66 (31.9)	141 (68.1)

Multiple endorsements possible. Percentages based on total N = 207.

Symptom Identification (HTQ)

Table 4 presents selected items from the Harvard Trauma Questionnaire (aggregate mean = 2.48, SD = 1.115). The most intensely experienced symptoms were difficulty dealing with new situations (M = 2.62), feeling betrayed by a trusted person (M = 2.58), exhaustion (M = 2.54), memory blackouts (M = 2.54), and feeling misunderstood (M = 2.54). The least intense items were feelings of hostility from others (M = 2.33) and humiliation (M = 2.35).

Table 4: Selected Symptom Identification Scores — Harvard Trauma Questionnaire (N = 207)

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Symptom (Harvard Trauma Questionnaire)	M	SD
Difficulty dealing with new situations	2.62	1.095
Feeling someone trusted betrayed you	2.58	1.098
Feeling exhausted	2.54	1.165
Told you did something you cannot remember	2.54	1.139
Feeling people do not understand you	2.54	1.074
Feeling others are hostile (least intense)	2.33	1.102
Feeling humiliated (least intense)	2.35	1.117
Aggregate Mean	**2.48**	**1.115**

Scoring: 0 = Not at all; 1 = A little; 2 = Quite a bit; 3 = Extremely. Mean > 2.5 = symptomatic threshold.

PTSD Prevalence Items (PCL-5)

Table 5 presents selected PCL-5 item scores (aggregate mean = 2.51, SD = 1.119). The most prevalent items were trouble experiencing positive feelings (M = 2.65), feeling distant or cut off from others (M = 2.58), loss of interest in previously enjoyed activities (M = 2.57), and hypervigilance/being super alert (M = 2.57). The lowest-rated items were strong physical reactions to reminders (M = 2.41) and avoidance of external reminders (M = 2.41).

Table 5: Selected PCL-5 Prevalence Item Scores (N = 207)

PCL-5 Item	M	SD
Trouble experiencing positive feelings	2.65	1.138
Feeling distant or cut off from others	2.58	1.150
Loss of interest in enjoyed activities	2.57	1.044
Being 'super alert' or on guard	2.57	1.108
Repeated, disturbing, unwanted memories	2.55	1.117
Strong physical reactions to reminders (lowest)	2.41	1.097
Avoiding external reminders (lowest)	2.41	1.123
Aggregate Mean	**2.51**	**1.119**

Scoring: 0 = Not at all; 1 = A little; 2 = Moderately; 3 = Quite a bit; 4 = Extremely. Cut-off ≥ 33 for probable PTSD.

Correlates of PTSD Knowledge

Table 6 presents the Pearson correlation results. A strong positive correlation was observed between years of working experience and PTSD knowledge, r(205) = .798, p = .016. A similarly strong positive correlation was found between educational qualification and PTSD knowledge, r(205) = .731, p = .028. Both relationships indicate that longer service tenure and higher educational attainment are significantly associated with greater PTSD knowledge.

Table 6: Pearson Correlation — Working Experience and Education with PTSD Knowledge (N = 207)

Variable	N	Mean	SD	df	R	p
Working Experience	207	4.98	2.286	205	.798	.016*
PTSD Knowledge	207	42.69	15.613	—	—	—
Educational Qualification	207	4.27	2.253	205	.731	.028*
PTSD Knowledge	207	42.76	15.470	—	—	—

*p < .05, two-tailed. df = 205 for both correlations.

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Discussion

PTSD Knowledge

The finding that 83.6% of personnel possessed good PTSD knowledge is encouraging and aligns with studies attributing high military awareness to structured pre-deployment training and occupational exposure to trauma-related scenarios (Adeyemi & Bello, 2020; Smith et al., 2023). The significant positive correlations between PTSD knowledge and both years of service (r = .798) and educational qualification (r = .731) suggest that knowledge is jointly shaped by experiential learning — accrued through repeated exposure to operationally relevant trauma situations — and formal academic preparation that provides access to diverse mental health resources. Long-serving personnel have encountered a greater variety of trauma presentations that sharpened their recognition of PTSD symptomatology, while more educated personnel are more likely to access written and digital health information.

The 16.4% with poor knowledge cannot be dismissed. Jones et al. (2017) attributed comparable gaps to stigma and inadequate integration of psychological health content into military curricula. In this cohort, the knowledge deficit likely concentrates among personnel with limited education or shorter service, pointing to structural inequality in training access. Brown et al. (2022) demonstrated that even among mental health court professionals, significant PTSD knowledge deficits persist in the absence of formal psychoeducational programming. Targeted, rank-appropriate psychoeducation — embedded in existing professional development frameworks and augmented by digital delivery to maximise reach — is needed to address this disparity and reduce barriers to early recognition and help-seeking.

Risk Factors

Lack of social support, bereavement, and displacement emerged as the most salient risk factors, a pattern consistent with the broader literature demonstrating that relational and social disruptions are more psychologically destabilising than material or environmental stressors alone (Tang et al., 2021; Chen et al., 2019). Abel et al. (2018) and Kokun et al. (2020) similarly identified social isolation and interpersonal loss as primary PTSD drivers in military cohorts exposed to insurgency. In the collectivist cultural context of Northern Nigeria — where family ties, ethnic community networks, and religious community are foundational to psychological resilience and identity — the death of a close relation or forced relocation strikes with particular severity, fracturing the relational anchors that buffer traumatic stress.

That material stressors such as poor camp conditions and property loss ranked lower than social support deficits suggests that NAF personnel may adapt more readily to physical privation than to relational rupture, consistent with the interdependence-centred predictions of Roy's Adaptation Model. This finding has direct implications for intervention design: psychosocial support programmes should prioritise social network rebuilding, structured grief counselling, and reintegration support for displaced personnel, rather than focusing solely on environmental improvements. A stepped-care model integrating peer support, bereavement services, and evidence-based psychotherapy is most likely to address the dominant risk factors identified in this study while remaining feasible within the resource constraints of the Nigerian military health system.

Symptom Identification

The symptom profile — dominated by cognitive disruption and interpersonal distrust rather than somatic or externalising manifestations — is consistent with Dagona (2022) and Ibrahim et al. (2023), who reported prominent intrusive recollections, occupational dysfunction, and disrupted interpersonal functioning among Nigerian and sub-Saharan African military personnel. From a theoretical standpoint, the predominance of memory disturbances and betrayal resonates with both Ehlers and Clark's (2018) cognitive model of PTSD and trauma betrayal theory, which posit that violations of institutional and interpersonal trust amplify psychological injury beyond what physical threat alone would produce. The perception that one has been betrayed or abandoned by trusted institutions — including, potentially, the military organisation itself — may be a particularly potent driver of PTSD persistence in this context. The relative underendorsement

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of externalising symptoms (hostility, humiliation) may indicate a tendency toward internalised trauma processing, an orientation influenced by occupational norms of emotional restraint and masculine stoicism within the Nigerian military culture. Interventions such as Trauma-Focused Cognitive Behavioural Therapy (TF-CBT) and Eye Movement Desensitisation and Reprocessing (EMDR), which directly target maladaptive cognitions and facilitate emotional processing of traumatic memories, are likely more effective for this symptom profile than primarily exposure-based behavioural approaches. Rose et al. (2022), in a Cochrane systematic review, cautioned against routine universal critical incident debriefing (CID) as a primary prevention strategy, finding insufficient evidence of benefit and some evidence of potential harm in vulnerable individuals — further supporting a tailored, stepped-care approach.

PTSD Prevalence

The 21.9% prevalence of probable PTSD is substantially elevated relative to community-based estimates of 3–4% in the general Nigerian population (Atwoli et al., 2018; Ozer et al., 2013) and is consistent with rates documented among high-risk occupational groups, including South African mental health hospital staff (21.5%; Olashore et al., 2018), critical care nurses (Mealer et al., 2017), and post-deployment Nigerian military cohorts (15–30%; Ameh & Kazeem, 2014). Shekwolo et al. (2024) reported analogous PTSD symptom burden among combined NAF and Army personnel in Jaji, Kaduna State, reflecting a regionally consistent pattern of elevated occupational trauma risk.

The aggregate PCL-5 mean of 2.51 — marginally above the symptomatic threshold — suggests that a broader sub-threshold burden exists beyond the 21.9% meeting probable PTSD criteria. Sub-threshold PTSD is associated with meaningful functional impairment and elevated risk of progression to full diagnostic criteria (Mordeno & Luzano, 2023; Xu et al., 2021), underscoring the case for a preventive alongside curative approach. Institutional barriers to disclosure — including the military culture's emphasis on stoicism and the tangible career risks associated with mental health disclosures — may further result in systematic underestimation of the true prevalence, reinforcing the need for confidential, routine, and standardised screening protocols that decouple PTSD assessment from career-consequential administrative processes.

Conclusion and Recommendations

This study established that a substantial proportion (21.9%) of NAF personnel at the 413 Force Protection Group, NAF Base Kaduna meet criteria for probable PTSD, with the disorder driven primarily by lack of social support, bereavement, and displacement rather than material stressors. The dominant symptom cluster is cognitive and interpersonal — difficulty adapting to new situations, feelings of betrayal, exhaustion, and memory lapses — rather than externalising or somatic. While 83.6% of personnel demonstrated good PTSD knowledge, a minority remains underinformed, with knowledge gaps concentrated among those with less education and shorter service. These findings collectively point to a systemic gap in preventive mental health infrastructure within the Nigerian Air Force that demands urgent, sustained, and structurally embedded intervention.

The following evidence-based recommendat--ions are advanced. First, routine PTSD screening using standardized tools such as the PCL-5 should be institutionalized across all NAF bases, with particular attention to personnel returning from high-intensity deployments.Second,rank-appropriate psychoeducation programmes targeting PTSD recognition, help-seeking behaviours, and stigma reduction should be embedded in existing professional development and pre-deployment training frameworks. Third, psychosocial support systems should be significantly strengthened to address the leading risk factors — social isolation, bereavement, and displacement — through unit peer support networks, professional grief counselling services, and structured reintegration programmes. Fourth, evidence-based therapies, including TF-CBT and EMDR, should be made accessible within NAF health facilities through the deployment of trained clinical psychologists and psychiatric nurses within a stepped-care model. Fifth, the NAF and Nigerian Defence Headquarters should develop and enforce formal occupational mental health policies

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mandating psychological risk assessment, confidential treatment access, and workforce protection standards aligned with international best practices such as those endorsed by NATO's Joint Medical Committee.

Future research should employ longitudinal designs to track PTSD trajectories across multiple deployment cycles, expand to multi-site studies encompassing diverse NAF operational contexts and rank structures, deliberately oversample female personnel to enable gender-comparative analysis of risk and symptom presentation, and incorporate qualitative phenomenological methods to capture the lived experience of PTSD with depth and cultural fidelity that quantitative instruments alone cannot achieve. The integration of biomarker research — including HPA axis markers and neuroimaging — with clinical survey data would further advance understanding of the biological substrates of military PTSD in Nigerian and broader African samples.

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