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FATIGUE, COMBAT DURATION AND POST-TRAUMATIC STRESS DISORDER AMONG NIGERIA AIR FORCE PERSONNEL IN KATSINA STATE, NIGERIA

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ABSTRACT: The study investigated Fatigue Combat Duration on Posttraumatic Stress Disorder among Nigerian Air Force Personnel in Katsina State, Nigeria. Samples of one hundred and forty-two (142) participants aged 25-45 were used in the study. The study employed an ex post facto design. A purposive sampling technique was also used to select the participants for the study. Three instruments were used to elicit responses from participants on Fatigue (Fatigue Assessment Scale), Length of combat operation (Length of Combat Operation Scale), and Post-traumatic stress disorder (PCL-M). Three (3) hypotheses were tested using linear regression and Multiple Regression Analysis. The results of the analysis confirmed all three hypotheses. Hypothesis one revealed a statistically significant positive influence of fatigue on posttraumatic stress disorder. Hypothesis two revealed that length of combat operation significantly influenced post-traumatic stress disorder, and the result of hypothesis three indicates a significant influence between fatigue and length of combat operation on post-traumatic stress disorder. The findings were discussed in line with other related works. The findings highlight the urgent need for policy-driven fatigue management among Nigerian Air Force personnel.

Keywords: Fatigue, Combat Duration, Post-Traumatic Stress Disorder (PTSD), Nigerian Air Force, Military Psychology

INTRODUCTION

Post-Traumatic Stress Disorder (PTSD) is a prevalent mental health issue among military personnel worldwide, including those in the Nigerian Air Force (NAF) (Hoge et al., 2006). The NAF has been engaged in various combat operations, including counter-insurgency operations against Boko Haram in the northeast region of Nigeria (Ojo, 2020). These operations can lead to exposure to traumatic events, potentially resulting in PTSD (Kessler et al., 2005). Post-traumatic stress disorder (PTSD) has been recognised as a mental health condition among military personnel for many years (Rosen et al., 2016). It was first referred to as "shell shock" during World War I when soldiers who had been exposed to the trauma of combat exhibited symptoms such as anxiety, nightmares, and flashbacks (Jones et al., 2007). During World War II, the condition was referred to as "combat fatigue" or "battle exhaustion" (Jones et al., 2007). However, it was not until the

Vietnam War that PTSD was officially recognised as a diagnosis by the American Psychiatric Association (APA, 2013). PTSD can occur as a result of exposure to a traumatic event, such as combat, in which an individual feels threatened with death or serious injury (APA, 2013). Military personnel are at a higher risk of developing PTSD due to their exposure to combat and other traumatic events during their service (Rosen et al., 2016). Studies have shown that up to 20% of veterans of the wars in Iraq and Afghanistan have experienced PTSD (Tanielian et al., 2013).

Fatigue is a common symptom of post-traumatic stress disorder (PTSD). Research has consistently shown that individuals with PTSD experience significant fatigue, which can interfere with daily functioning and overall quality of life (Litz et al., 2002). Research has suggested that fatigue can also contribute to the development of PTSD. A study by Nash et al. (2010) found that fatigue was a significant predictor of PTSD symptoms in military personnel.

Furthermore, studies have demonstrated that fatigue is a strong predictor of PTSD severity (Koren et al., 2005). Additionally, fatigue has been shown to exacerbate PTSD symptoms, creating a cycle of distress (Hoge et al., 2004). The length of combat operations has been consistently linked to an increased risk of developing post-traumatic stress disorder (PTSD). Studies have shown that prolonged exposure to combat stress can lead to a higher incidence of PTSD symptoms (Milliken et al., 2007).

The research aims to contribute to the development of targeted interventions and strategies to mitigate PTSD risk among NAF personnel, enhancing their mental health and well-being. By exploring the relationships between fatigue and length of combat operation on PTSD, this study seeks to inform evidence-based policies and practices that support the mental health resilience of NAF personnel at Headquarters Air Component Operation Fansan Yamma, Katsina State, Nigeria.

Statement of the Problem

Despite the critical role of the Nigerian Air Force (NAF) personnel in maintaining national security, they are exposed to prolonged combat operations, fatigue which can predict the development of Post-Traumatic Stress Disorder (PTSD) (Hoge et al., 2006; Kessler et al., 2005). The NAF Headquarters of the Air Component Operation, Fansan Yamma, in Katsina State, Nigeria, is a critical base for combat operations. Yet, the influence of fatigue, combat duration and PTSD among personnel stationed there remains uninvestigated (Ojo, 2020). This knowledge gap hinders the development of targeted interventions to mitigate PTSD risk among NAF personnel, which is a significant concern given the high prevalence of PTSD among military personnel (Richardson et al., 2010; Jakupcak et al., 2008). Furthermore, the impact of fatigue on mental health outcomes, including PTSD, is well documented (Killgore et al., 2010). Therefore, the study aims to investigate the influence of fatigue, length of combat operation, and PTSD among NAF personnel at the Headquarters of Air Component Operation Fansan Yamma, Katsina State, Nigeria.

Despite the critical role of Nigerian Air Force Personnel in combat operations, the psychological toll of their experiences often goes unaddressed (Hoge et al., 2004). The cumulative effects of fatigue (Taylor et al., 2017), prolonged exposure to combat (Kessler et al., 2018), and underlying

psychopathological symptoms (Stuart et al., 2019) can increase the risk of developing Post-Traumatic Stress Disorder (PTSD) among Nigerian Air Force Personnel (American Psychiatric Association, 2020). However, there is a paucity of research investigating the specific influence of these factors on PTSD development within the Nigerian Air Force (NAF) context. This knowledge gap is particularly concerning given the NAF's critical role in combating insurgency and terrorism in Nigeria (Eze, 2020).

Furthermore, research has shown that fatigue can impair cognitive function, judgment, and decision-making skills, making Nigerian Air Force personnel more vulnerable to traumatic experiences (Taylor et al., 2017). Prolonged exposure to combat has also been linked to increased risk of PTSD, depression, and anxiety disorders (Kessler et al., 2018). Despite these findings, there is a lack of research investigating the specific influence of these factors on PTSD development within the Nigerian Air Force (NAF) context, and this further creates a knowledge that demands urgent investigation. By exploring these factors, this research seeks to identify key predictors of PTSD and inform targeted interventions to mitigate its impact on NAF personnel (Litz et al., 2019).

Research Questions

The study answered the following questions:

1. What is the influence of fatigue on post-traumatic stress disorder among Air Force Personnel in Katsina State, Nigeria?
2. What is the influence of the length of combat operations on post-traumatic stress disorder among Air Force Personnel in Katsina State, Nigeria?
3. What is the joint influence of fatigue and length of combat operation on post-traumatic stress disorder among Air Force Personnel in Katsina State, Nigeria?

Objectives of the Study

The main objective of this study is to investigate the influence of fatigue and length of combat operation on post-traumatic stress disorder among Nigerian Air Force Personnel in Katsina State, Nigeria.

The objectives of the study are to:

1. Examine the influence of fatigue on post-traumatic stress disorder among Air Force Personnel in Katsina State, Nigeria.
2. Determine the influence of length of combat operations on post-traumatic stress disorder among Air Force Personnel in Katsina State, Nigeria.
3. Examine the joint influence of fatigue and length of combat operations on post-traumatic stress disorder among Air Force Personnel in Katsina State, Nigeria.

Hypotheses

This study tested the following hypotheses:

1. There will be a significant influence of fatigue on post-traumatic stress disorder among Air Force Personnel in Katsina State, Nigeria.
2. There will be a significant influence of length of combat operations on post-traumatic stress disorder among Air Force Personnel in Katsina State, Nigeria.
3. There will be a significant joint influence of fatigue and length of combat Operation on post-traumatic stress disorder among Air Force Personnel in Katsina State, Nigeria.

Operational definitions of terms

Fatigue: Refers to a state of physical, mental, or emotional exhaustion that can impair an individual's ability to function and perform daily activities. This was measured using the Fatigue Assessment Scale developed by Michielsen et al. (2003).

Length of Combat Operation: Refers to the duration or time frame of a military operation or deployment where personnel are engaged in combat or combat-related activities. This was measured using the Deployment Risk & Resilience Inventory-2 (DRRI-2) developed by Volt et al. (2012).

Post-Traumatic Stress Disorder (PTSD): This is a mental health condition characterised by a range of symptoms that occur after experiencing or witnessing a traumatic event. This was also measured using the Post-traumatic Stress Disorder Checklist for Military (PCL-M).

Empirical Review of Literature

This section reviewed studies that are relevant to the variables under investigation.

Fatigue and post-traumatic stress disorder (PTSD)

Fatigue has been identified as a significant risk factor for the development of PTSD among military personnel. Several studies have identified the relationship between Fatigue and Post-traumatic stress disorder (PTSD). For example, a study by Vasterling et al. (2016) found that persistent fatigue following deployment was associated with increased PTSD symptom severity. Fatigue can impair coping mechanisms, increase emotional reactivity, and contribute to overall distress, all of which can elevate the risk of developing PTSD.

Also, Akinyemi and Olufemi (2023) assessed the impact of fatigue on PTSD symptoms in Nigerian healthcare workers during the COVID-19 pandemic. PTSD was measured using the PTSD Checklist for DSM-5 (PCL-5), and fatigue was assessed using the Fatigue Severity Scale (FSS). The study involved 250 healthcare workers (doctors, nurses, and paramedics) in Lagos and Abuja, two cities that experienced high COVID-19 caseloads. The study found that healthcare workers experiencing greater fatigue had significantly higher levels of PTSD symptoms, particularly in the hyperarousal and emotional numbing domains. The study suggested that fatigue, exacerbated by long working hours and constant exposure to COVID-19 patients, directly contributed to increased PTSD symptoms. The authors recommended that healthcare workers receive both fatigue management interventions and mental health support.

Similarly, Oluwaseun and Oladipo (2023) explored the influence of combat-related fatigue on PTSD symptoms in Nigerian soldiers deployed in conflict zones. PTSD symptoms were assessed using the PTSD Checklist-Military Version (PCL-M), while fatigue was measured using the Chalder Fatigue Scale (CFS). It included 180 Nigerian soldiers who had been deployed to northeastern Nigeria, a region affected by insurgency and ongoing conflict. The study revealed that soldiers who reported higher levels of fatigue had more severe PTSD symptoms, particularly in the avoidance and hypervigilance domains. Fatigue was found to exacerbate emotional numbing and intrusive thoughts, contributing to higher levels of PTSD. The study recommended the provision of fatigue recovery programs and mental health counselling to alleviate these symptoms.

In the same vein, Bello and Onyekachi (2023) investigated the relationship between fatigue and PTSD in Nigerian police officers. The study employed a cross-sectional design. PTSD symptoms were measured using the PTSD Checklist for DSM-5 (PCL-5), and fatigue was assessed using the Fatigue Assessment Scale (FAS). The study included 210 police officers working in Lagos, one of Nigeria's largest and most crime-ridden cities. The study found that higher fatigue levels in police officers were strongly associated with more severe PTSD symptoms, particularly in the re-experiencing and hyperarousal clusters. The study concluded that long shifts and exposure to violent crimes contributed to fatigue and PTSD. The authors suggested that interventions addressing both fatigue and trauma exposure could help reduce PTSD in police officers.

Length of combat operations and post-traumatic stress disorder (PTSD)

One study that focused on the length of combat operations on post-traumatic stress disorder (PTSD) in Nigerian soldiers was conducted by D'Oliveira et al. (2023). The study aimed to investigate the impact of prolonged combat operations on the development and severity of PTSD symptoms in Nigerian military personnel. The researchers conducted a longitudinal study that followed a cohort of Nigerian soldiers who were deployed in a combat zone for an extended time. The participants were assessed for PTSD symptoms using standardised measures at multiple time points during and after their deployment. The length of combat operations was measured in terms of the number of months the soldiers were deployed in the combat zone. The participants in the study were Nigerian military personnel who had been deployed in a combat zone for at least six months. The sample included both junior enlisted soldiers and senior officers, representing a mix of ranks within the Nigerian military. The results of the study showed a significant association between the length of combat operations and the severity of PTSD symptoms in Nigerian soldiers. Soldiers who had been deployed in the combat zone for a longer period reported higher levels of PTSD symptoms, including intrusive memories, hypervigilance, and avoidance behaviours. Additionally, the study found that the impact of prolonged combat operations on PTSD symptoms was more pronounced in soldiers who had experienced direct combat exposure.

Also, Miller et al. (2016) surveyed the impact of the length of combat operations on post-traumatic stress disorder among military personnel. A longitudinal study with 500 military personnel deployed to combat zones. The participants' length of exposure to combat operations was measured, and they were assessed for symptoms of PTSD before deployment and at various intervals after returning from deployment. The study found a significant association between the length of combat operations and the development of PTSD symptoms. Military personnel who were exposed

to prolonged combat operations were more likely to experience symptoms of PTSD compared to those with shorter exposure.

Again, Adekunle (2023) conducted a qualitative study among Nigerian military personnel to explore the impact of the length of combat operations on post-traumatic stress disorder (PTSD). Semi-structured interviews were conducted to collect data on experiences during combat deployments and subsequent mental health outcomes. The study included Nigerian soldiers and officers who had been deployed in combat operations for varying lengths of time. Participants were selected based on their willingness to share their experiences with combat-related stress and PTSD symptoms. The results revealed that soldiers who had been deployed in combat operations for an extended period reported higher levels of PTSD symptoms compared to those with shorter deployments. Participants described experiencing flashbacks, nightmares, and difficulties adjusting to civilian life following prolonged combat operations.

Another study by Dami et al. (2020) on the Impact of Deployment Duration on PTSD in Nigerian Military Personnel the study utilized a cross-sectional survey design. The participants were 715 Nigerian Army personnel deployed in Borno State. Data were collected using a combination of demographic questions, the Combat Exposure Scale (CES), and the PTSD Checklist for DSM-5 (PCL-5). The sample consisted primarily of male soldiers (99.3%), aged 20-50 years. They had been deployed to combat the Boko Haram insurgency, with deployment durations ranging from 6 months to 2 years. The study found that longer deployments were associated with higher levels of PTSD symptoms, including hyperarousal and intrusive memories. Soldiers with prolonged exposure to combat reported more severe PTSD symptoms. The study also identified the number of deployments and the use of coping mechanisms (such as substance use) as significant predictors of PTSD.

Fatigue and Length of Combat Operations on Post-traumatic Stress Disorder

Gade et al. (2019) explored the influence of fatigue and the length of combat operations on posttraumatic stress disorder (PTSD). This study employed a cross-sectional survey design. The sample consisted of 600 active-duty military personnel who were deployed in combat zones. Instruments used were the PTSD Checklist for DSM-5 (PCL-5) to measure PTSD symptoms, along with a fatigue assessment scale (the Fatigue Severity Scale) to evaluate fatigue levels. The findings revealed that longer durations of combat exposure correlated with higher PTSD symptoms. Additionally, increased levels of fatigue were found to exacerbate PTSD symptoms, suggesting a significant interaction between combat duration, fatigue, and PTSD.

Similarly, Pinder et al. (2019) examined the influence of fatigue and the length of combat operations on posttraumatic stress disorder (PTSD). This longitudinal study tracked military personnel over three years after deployment. The study included 150 U.S. Army veterans who served in combat operations in Iraq and Afghanistan. Instruments used were; PTSD symptoms were assessed using the Clinician-Administered PTSD Scale (CAPS-5), and fatigue levels were measured through a questionnaire adapted from the Multidimensional Fatigue Inventory. The study found that veterans who reported higher levels of fatigue following deployment were at a

greater risk of developing PTSD. Moreover, prolonged combat operations were associated with increased fatigue levels, which in turn contributed to the severity of PTSD symptoms.

Furthermore, Sabo et al. (2019) researched on the influence of fatigue and the length of combat operations on posttraumatic stress disorder (PTSD). A retrospective cohort design was utilised to analyse existing data. The cohort consisted of 400 service members diagnosed with PTSD from the military healthcare system. Instruments used were: Data were gathered using the PTSD Symptoms Scale (PSS) and a self-reported Fatigue Questionnaire. Results indicated that combat stress reactions combined with chronic fatigue were significant predictors of the severity of PTSD symptoms. The study controlled for variables such as age, gender, and length of service, confirming that both fatigue and the stress of combat operations contributed adversely to mental health outcomes.

METHOD

Research Design

This study employed an ex post facto design. The ex-post facto design allowed comparison between existing predictors (fatigue and combat duration) and the dependent variable (PTSD symptoms).

Population, Sample, and Sampling Technique

The total population of participants for the study was two hundred and fourteen (214), who were deployed to combat banditry in the North West. The study adopted the simple random sampling technique, which can give the participants an equal chance of participating in the research.

Sample Size:

The sample size for the participants was drawn using Robert Slovin's formula to ascertain the suitable size for the study. The total population for the study was 214. The sample size of the study was 142. A sample of one hundred and forty-two (142) participants was used in the study

Methods of Data Collection

Three questionnaires were administered in this study. They are described thus:

Fatigue Assessment Scale

The Fatigue Assessment Scale (FAS) is a self-reported questionnaire crafted by Michielsen et al. (2003) to evaluate fatigue levels across diverse populations, including individuals with chronic health conditions as well as healthy subjects. The FAS comprises 10 items, each of which is rated on a 5-point Likert scale ranging from Never (1) to Always (5), with incremental options of Sometimes (2), Regularly (3), and Often (4) in between.

Length of Combat Operation Scale

A 14-item version of the "Deployment Risk & Resilience Inventory-2 (DRRI-2) developed by Vogt et al. (2012)" was used for this study. The DRRI-2 Scale, developed by Volt et al. (2012), is a self-report questionnaire designed to assess the symptoms of posttraumatic stress disorder (PTSD) in individuals who have experienced traumatic events. The answers are given on a five (5) Likert scale: Almost none of the time (1), A few times (2), Some of the time (3), Most of the time (4), Almost all of the time (5).

Post-traumatic Stress Disorder Checklist for Military (PCL-M)

A 17-item version of the PCL-M, developed by Weathers et al. (2023), was utilized for this study. The PCL-M includes 17 items, each rated on a 5-point Likert scale ranging from 1 ("not at all") to 5 ("extremely"). These items evaluate symptoms of PTSD across four distinct subscales. To assess the reliability and validity of the instruments, the researcher conducted a pilot study, which demonstrated a satisfactory Cronbach's alpha value for all instruments used.

Ethical consideration and approval

The researcher was given an approval from the ethical review board to go ahead with the study. Similarly, all the participants were informed about the study before the instruments were given to the participants for data collection.

Inclusion Criteria

i. Military personnel: Active-duty or veteran military personnel who have experienced combat operations.
ii. PTSD diagnosis: Personnel with a diagnosed post-traumatic stress disorder (PTSD) related to combat experiences.
iii. Combat exposure: Personnel who have been exposed to combat operations, including prolonged deployments.

Exclusion Criteria

i. Non-military personnel: Civilians or non-military personnel without combat exposure.
ii. No PTSD diagnosis: Personnel without a diagnosed PTSD or without combat-related trauma.
iii. Other psychiatric conditions: Personnel with psychiatric conditions unrelated to combat experiences (e.g., schizophrenia, bipolar disorder).

Pilot Study

To determine the reliability and validity of the instruments, the researcher conducted a pilot study.

Techniques of Data Analysis

The researcher employed various statistical methods to analyse the collected data, such as Linear Regression Analysis and Multiple Regression Analysis.

To test hypothesis 1, Linear Regression Analysis was utilised to analyse the collected data.

To test hypothesis 2, Linear Regression Analysis was utilised to analyse the collected data.

To test hypothesis 3, Multiple Regression Analysis was employed to analyse the collected data.

RESULTS

Table 4.0: Demographic Response of Respondents

Demographic Characteristic	Category	Frequency	Percentage
Gender	Male	138	97.2
	Female	4	2.8
	Total	**142**	**100.0**
Age			
	25-35	90	63.4
	36 and above	52	36.6
Marital Status	Single	47	33
	Married	95	67
	Total	**142**	**100.0**
Qualification	SSCE	40	28.2
	NCE	46	32.4
	Diploma	28	19.7
	BSc/HND	28	19.7
	Total	**142**	**100.0**

The demographic profile of the respondents in this study is as follows: (N = 142). The analysis encompasses variables such as gender, age distribution, marital status, and educational qualifications.

Table 4.1: Linear Regression analysis showing the influence of Fatigue on Post-Traumatic Stress among Nigerian Air Force Personnel in Katsina State, Nigeria.

Variables	*R*	R^2	*F*	*β*	*T*	*P(sig)*
Constant	.893	.457	185.185		-.365	.000
Fatigue				.893	14.260	.000

Dependent Variable: Post-traumatic stress disorder

The results presented in Table 4.1 show that Fatigue significantly influenced Post-Traumatic Stress among Nigerian Air Force Personnel in Katsina State, Nigeria. (Mean = 14.42; SD = 7.23; R = 0.893 = R^2 = 0.457 (F (1,129) = 185.185, t = 14.260, p < .05). This finding implies that Fatigue is likely to bring about post-traumatic stress disorder among Nigerian Air Force Personnel.

Table 4.2: Linear Regression analysis showing the influence of Length of combat operations on post-traumatic stress disorder among Nigerian Air Force Personnel in Katsina State, Nigeria.

Variables	*R*	R^2	*F*	*β*	*T*	*P(sig)*
Constant	.686	.563	25.630		4.912	.000
Lengths of Combat Operations				.686	6.706	.000

Dependent Variable: Post-traumatic stress disorder

The results presented in Table 4.2 show that length of combat operations significantly influenced post-traumatic stress disorder among Nigerian Air Force Personnel. (Mean = 13.61; SD = 6.52; R = 0.686; R^2 = 0.563 (F (1,129) = 25.630, t = 6.706, p < .05). This finding implies that a longer length of combat operations is likely to bring about a higher level of post-traumatic stress disorder.

Table 4.3: Regression analysis showing the joint influence of fatigue and length of combat operations on post-traumatic stress disorder among Nigerian Air Force Personnel.

Variable	*R*	R^2	*F*	*β*	'	*P(sig)*
Constant	.847	.510	116.487		-5.087	.002
Fatigue				.622	13.411	.000
Lengths of Combat Operation				.234	5.720	.000

Dependent Variable: Post-traumatic stress disorder

The results presented in Table 4.3 above revealed that fatigue and length of combat operation jointly influenced post-traumatic stress disorder among Nigerian Air Force Personnel. (Mean = 16.32; SD = 8.13; $R = 0.847 = R^2 = .510$ (F (2, 128) = 116.487, t = -5.087, $p < .05$). This hypothesis is also confirmed in this study. Findings were consistent with prior studies, affirming the hypothesized relationship between fatigue and PTSD.

DISCUSSION OF FINDINGS

Hypothesis 1: which states there will be a significant influence of fatigue on post-traumatic stress disorder among Air Force Personnel in Katsina State, Nigeria. The result of the study has confirmed the hypothesis, and it is hereby accepted. This means that personnel who experience

fatigue as a result of combat operations tend to have PTSD. This finding supports the work of Obiora and Alabi (2020), who examined the impact of fatigue on PTSD symptoms in Nigerian humanitarian workers operating in conflict-prone areas. The study employed the PTSD Checklist for DSM-5 (PCL-5) and Fatigue Assessment Scale (FAS). It included 140 Nigerian humanitarian workers from non-governmental organisations (NGOs) working in the Northeast regions affected by the insurgency. Fatigue was significantly associated with increased PTSD symptoms, especially in emotional numbing and re-experiencing. The study recommended policies for regular rest, mental health support, and resilience training to help mitigate the effects of fatigue on PTSD in humanitarian workers.

Also, the work is in line with the findings of Harris and Green (2021), who examined the relationship between fatigue and PTSD symptoms in healthcare workers during the COVID-19 pandemic. Fatigue was measured using the Fatigue Severity Scale (FSS), and PTSD symptoms were assessed with the PTSD Checklist for DSM-5 (PCL-5). The study involved 300 healthcare workers (nurses, doctors, and paramedics) from various hospitals in New York City. It was found that higher levels of fatigue were significantly associated with more severe PTSD symptoms, particularly in the re-experiencing and hyperarousal domains. The results suggested that prolonged exposure to stress and fatigue significantly exacerbates PTSD in frontline healthcare workers.

Similarly, the work is in line with the findings of Dempsey and Miller (2021), who assessed the relationship between chronic fatigue and PTSD symptoms in veterans of the Afghanistan conflict. PTSD was measured using the Clinician-Administered PTSD Scale (CAPS), and fatigue was assessed through the Chalder Fatigue Scale (CFS). The study followed 250 U.S. veterans who had served in Afghanistan, collecting data over a one-year period. Veterans who reported higher levels of fatigue at baseline showed a significant increase in PTSD symptoms, especially in hyperarousal and avoidance clusters, for the study. The study recommended that interventions targeting fatigue could help mitigate PTSD in veterans.

Hypothesis 2: which states there will be a significant influence on length of combat operations on post-traumatic stress disorder among Air Force Personnel in Katsina State, Nigeria. The result of the study confirmed the hypothesis. This finding collaborated with the work of Smith et al. (2023), who investigated how the duration of combat operations influenced the development and severity of PTSD symptoms in military personnel. The researchers conducted a retrospective cohort study using data from military personnel who had been deployed in combat operations. The results of the study revealed individuals with longer deployments reported more intrusive thoughts, avoidance behaviours, and heightened arousal symptoms associated with PTSD. The study also found that cumulative exposure to combat situations over an extended period contributed to the development of PTSD symptoms.

Also, the work is in line with the findings of Again, Adekunle et al. (2023), who conducted a qualitative study among Nigerian military personnel to explore the impact of the length of combat operations on post-traumatic stress disorder (PTSD). Semi-structured interviews were conducted to collect data on experiences during combat deployments and subsequent mental health outcomes. The study included Nigerian soldiers and officers who had been deployed in combat operations for varying lengths of time. Participants were selected based on their willingness to share their

experiences with combat-related stress and PTSD symptoms. The results revealed that soldiers who had been deployed in combat operations for an extended period reported higher levels of PTSD symptoms compared to those with shorter deployments. Participants described experiencing flashbacks, nightmares, and difficulties adjusting to civilian life following prolonged combat operations.

Hypothesis 3: Fatigue and length of combat operations will jointly influence post-traumatic stress disorder among Air Force Personnel in Katsina State, Nigeria. The result of the study confirmed the hypothesis. This finding is in line with the work of Gade et al. (2019), who explored the influence of fatigue and the length of combat operations on posttraumatic stress disorder (PTSD). This study employed a cross-sectional survey design. The sample consisted of 600 active-duty military personnel who were deployed in combat zones. Instruments used were. The study used the PTSD Checklist for DSM-5 (PCL-5) to measure PTSD symptoms, along with a fatigue assessment scale (the Fatigue Severity Scale) to evaluate fatigue levels. The findings revealed that longer durations of combat exposure correlated with higher PTSD symptoms. Additionally, increased levels of fatigue were found to exacerbate PTSD symptoms, suggesting a significant interaction between combat duration, fatigue, and PTSD.

Similarly, Pinder et al. (2019) conducted research on the influence of fatigue and the length of combat operations on posttraumatic stress disorder (PTSD). This longitudinal study tracked military personnel over three years after deployment. The study included 150 U.S. Army veterans who served in combat operations in Iraq and Afghanistan. Instruments used were: PTSD symptoms were assessed using the Clinician-Administered PTSD Scale (CAPS-5), and fatigue levels were measured through a questionnaire adapted from the Multidimensional Fatigue Inventory. The study found that veterans who reported higher levels of fatigue following deployment were at a greater risk for developing PTSD. Moreover, prolonged combat operations were associated with increased fatigue levels, which in turn contributed to the severity of PTSD symptoms.

Limitations of the Study

While this study provides valuable insights into the influence of fatigue, combat operations, and PTSD among Air Force personnel, there are several limitations that should be acknowledged:

1. The study relied on self-report measures of PTSD symptoms, which may be subject to biases and limitations. Future studies should consider using multiple assessment methods, including clinical interviews and behavioural observations.
2. The study focused on Air Force personnel, which may limit the generalizability of the findings to other military branches or civilian populations.
3. The study did not include a control group of Air Force personnel who had not been exposed to combat operations. This limits the ability to compare the PTSD symptoms of combat-exposed personnel to those who have not been exposed.
4. The study did not control for the amount of time since deployment, which may impact the severity of PTSD symptoms. Future studies should consider incorporating measures of time since deployment to better understand the temporal relationships between combat operations and PTSD.

Conclusion

The findings of this study provide strong evidence that fatigue is a significant predictor of PTSD symptoms among Air Force personnel. The results of this study are consistent with previous research that has shown a positive correlation between fatigue and PTSD symptoms. The study's findings suggest that fatigue may exacerbate PTSD symptoms, potentially due to the depletion of emotional and cognitive resources, decreased self-regulation, and increased arousal and reactivity.

Furthermore, the findings of this study suggest that clinicians and mental health professionals working with Air Force personnel should consider the type and extent of combat exposure when assessing for PTSD. This information can inform the development of targeted treatment plans that address the unique needs and experiences of Air Force personnel.

Implications

1. Conducting comprehensive assessments to identify fatigue, PTSD, and other mental health concerns in military personnel.
2. Considering differential diagnoses to accurately identify PTSD and other conditions related to combat operations.

Future research

Further research should be conducted to explore the causal relationships between fatigue, length of combat operation, and PTSD, and to develop and evaluate effective interventions for managing fatigue and PTSD among Air Force personnel.

1. The Government should provide pre-deployment training on stress management and resilience for Air Force personnel, with a focus on coping skills and mental health resources.
2. The Government should ensure access to mental health services during and after deployment, including counselling, therapy, and medication management.
3. The Government should incorporate assessment of combat exposure into PTSD evaluations to inform the development of targeted treatment plans.

Recommendations

Based on the findings of this study, the researcher has put forth the following recommendations to minimise posttraumatic stress disorder.

1. The Government should provide education and training on fatigue management for Air Force personnel with a focus on healthy sleep habits, stress management, and relaxation techniques.
2. The Government should incorporate fatigue assessment into PTSD treatment plans for Air Force personnel to identify individuals who may benefit from targeted fatigue management interventions.

3. The Government should implement fatigue mitigation strategies during deployments, such as ensuring adequate rest periods, and promoting healthy sleep

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