Protocol for the development and piloting of a cluster randomised controlled trial for stress prevention, management, and coping mechanism among police officers in Nigeria

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Abstract

Background

Policing is a stressful occupation. Police officers are exposed to stressors that are inherent in the organization and operations of the law enforcement institution. Similar to their counterparts around the world, many Nigeria police officers are exposed to high levels of stress, making them vulnerable to stress-related mental health conditions and other non-communicable diseases. Despite these risks and their consequences to the health and safety of police officers and the larger society, interventions are currently not available to address this challenge in Nigeria. The current study is designed to address this knowledge gap. This pilot study aims to assess the burden of stress from a national sample of police officers and test the feasibility of an intervention for stress prevention, management, and coping mechanisms among police officers in Nigeria.

Methods

This is a three-phase study (1) a needs assessment and situational analysis using a mixed methods approach to determine the prevalence of stress and mental health burden among 1200 police officers in four randomly selected states in four geo-political zones of the country (2) the development of a peer-led intervention for stress prevention, management, and coping mechanism which will be tested using a cluster randomized trial among 200 police officers and (3) the preliminary evaluation of the intervention based on knowledge about stress management and mental disorders and psychological distress and reduction in stress levels. These measures will be obtained at baseline, immediate, and six months post-intervention. Feasibility will be determined based on enrollment rate, attendance and completion of the group sessions. Linear regression models taking into account clustering effects will be used to estimate between-group differences in outcome measures.

Discussion

Findings from the study will inform policy review and the development of a pragmatic intervention on stress prevention and management among police officers. This will enhance the policing role of officers, thus contributing to the safety of the communities they serve.

Trial registration


Background

The contribution of the police in the maintenance of law and order is pivotal to the national development of any country. However, policing is one of the most stressful and demanding occupations [1,2]. Inherent in the routine of police officers is daily exposure to stressful situations which occur at higher frequencies
in the police than in most other professions [2]. The work schedule of a police officer involves long stretches of relative inactivity, followed by unpredictable and stressful bursts of high-intensity events that demand urgent responses to life-threatening emergencies [3]. Other sources of stress are constant exposure to people in pain and suffering, threats to officers’ safety and well-being, and being in possession of firearms [2]. and responsibility for maintaining peace and protecting lives and properties.

In Nigeria, police officers are exposed to stress from multiple sources including their occupation, family, and community. The occupational stresses that Nigeria police officers experience include confronting armed criminals, lack of sleep, excessive work in fighting crime, and sitting for long hours at a desk completing paperwork [4]. Research has shown that 80% of the variance in police officers’ job performance is explained by their exposure to stress inherent in policing duties [5]. Performing routine duties leaves many police officers with insufficient time to adequately take care of their own families. The communities that the police serve in Nigeria also under-value their contributions to law and order in society. As a result, police officers are stigmatized and operate in one of the most hostile work environments [6].

The constables face the greatest levels of stress among the police rank and file. Although constables face multiple challenges such as controlling angry mobs, counter-insurgency operations, traffic control, and security during political rallies and religious festivals, they are expected to be calm and composed while undertaking these tasks [6]. Due to exposure to high levels of stress, Nigeria Police officers are vulnerable to many stress-related mental health conditions including depression, anger disorder, mood swings, burn-out, PTSD, and suicidal ideation [4, 7] as well as risk factors for cardiovascular conditions such as hypertension and abdominal obesity [8].

Recent studies have confirmed that many police officers in Nigeria have poor knowledge about stress [4,6,7]. They apply unhealthy coping mechanisms to deal with occupational stress including excessive use of alcohol and abuse of stimulants to stay awake while on rotational night shift duty [6], and they also deploy excessive aggression on the citizenry [9]. As the first responders to many risky situations, police officers need skills to successfully manage stress not only for their mental health but also for the safety of the communities they serve [10]. Given the important role they play in maintaining law and order in society, police officers need to be mentally and emotionally healthy to perform their policing duties effectively and efficiently. Existing stress-related studies have recommended the development of an appropriate stress prevention and management program targeting the police [4,6,7,8]. This is an indication of the lack of or an ineffective internal mechanism to deal with the problem. We are not aware of any intervention designed to intentionally prevent stress and stress-related mental health conditions among police officers in Nigeria. This protocol was developed to address this knowledge gap. This pilot study aims to assess the burden of stress from a national sample of police officers and test the feasibility of an intervention for stress prevention, management, and coping mechanisms among police officers in Nigeria.

**Conceptual Framework**
This study will be guided by two theoretical frameworks—*the conceptual framework of stress and health in policing* [11] and *the PRECEDE-PROCEED model*—a holistic planning model that provides a step-by-step process that guides assessment, planning, implementation, and evaluation of public health programs and its effectiveness [12]. The diagnostic phase of the study will be conducted using the *conceptual framework of stress and health in policing* (Fig. 1) and the *PRECEDE component of the PRECEDE-PROCEED model* (Fig. 2). This phase will focus on the social and epidemiological burden of stress among police officers coupled with the behavioural, workplace, and other factors that contribute to this challenge. The PROCEED component of the PRECEDE-PROCEED conceptual framework will guide the development and implementation of a multi-level pilot intervention which will be developed in collaboration and partnership with representatives of the Nigeria Police Force, thus ensuring their sustainability. Stress in the police force is beyond an individual’s control hence stakeholders at all levels will be targeted for a successful intervention. Figure 2 outlines the application of the PRECEDE PROCEED model to the study.

**Methodology**

**Study Design**

This pilot study is a three-phase study with descriptive and intervention components. The first phase is a needs assessment and situational analysis using a mixed methods approach to determine the prevalence and factors contributing to stress and mental health outcomes among police officers in four randomly selected states in four out of the six geo-political zones of the country. This phase will be conducted in four randomly selected states in the four geo-political regions of Nigeria. The states are Bauchi (North East), Nasarawa (North Central), Akwa-Ibom (South-South), and Oyo (South West). The second phase is a pilot study that will utilize a parallel cluster randomized trial to assess a peer-led intervention for stress prevention, management, and coping mechanisms among 200 police officers. The pilot trial will be conducted in only one state (Oyo). The third is the preliminary evaluation of the intervention based on knowledge about stress management and mental disorders and reduction in stress levels. These measures will be obtained at baseline, immediate, and six months post-intervention. Feasibility will be determined based on enrollment rate, attendance, and completion of the group sessions.

**Study setting**

The Nigeria Police Force (NPF) was established in 1820. Staff of the NPF are distributed across the 36 states of the federation and Abuja, Federal Capital Territory (FCT). NPF staff are also involved in international policing and peacekeeping assignments on behalf of the Economic Commission for West Africa, the African Union, the United Nations, and Interpol. The Inspector General of Police commands and supervises the NPF. There are 17 operational zonal commands (usually composed of two to four state commands) headed by an Assistant Inspector-General of Police; and 37 state commands, including the FCT.
The study will be conducted in Bauchi, Nassarawa, Akwa Ibom, and Oyo states. Each state has a Command led by a Commissioner of Police, Area Commands managed by an Assistant Commissioner of Police, and several Divisions administered by a Chief Superintendent or Superintendent (www.npf.gov.ng). As stated in Section 4 of the Police Act of 2020, the duties of the police are to prevent crime, apprehend offenders, protect public safety, keep the peace, safeguard and protect individuals and their properties. The rank and file of the police personnel need to be in optimal mental health to successfully perform these duties. The organizational structure of the NPF are: Force Headquarters; Zonal Headquarters; State Command Headquarters; Area Command Headquarters; Divisional Police Headquarters; Police Station; Police post and Village Police post (www.npf.gov.ng). The NPF has seven specialised departments designated as letters A-G which include the police medical services under the “A” department and the Research and Planning under the “E” department.

**Study Population**

The study population will consist of male and female police officers including Senior officers (Commissioner, Deputy Commissioners, Assistant Commissioners, Chief Superintendent, Deputy Superintendent and Assistant Superintendent of Police) and Junior officers (Inspectors, Sergeants, Corporals and Constables).

**Inclusion criteria**

The criteria for selection will include:

- Informed consent
  1. and willingness to participate in the study.
  2. Serving as a full-time police officer in the division
  3. Attachment to a defined police formation.
  4. Schedule that involves direct interactions with the community members.
  5. Availability throughout the period of the research work.

**Exclusion criteria**

1. Police officers who are ill and unavailable during the conduct of the study
2. Posting to duty stations outside Nigeria

**Phase One of the study: Needs assessment and situation analysis**

**Sample size determination**

The sample size for the needs assessment and situation analysis will be derived using the following assumptions: $\alpha = 0.05$, $\beta = 0.8$, a design effect of 1.0, 95% CI and the proportion of police officers (93.4%)
who had experienced stress from a recent study [7]. The calculated sample size for the quantitative component of the study will also include 20% non-response resulting in approximately 300 police officers per state (total 1,200). The sample for the qualitative component is 40 police officers. Together 1,240 police officers will be recruited into the study (see Table 1 for details). In selecting respondents for the survey component, the plan is to recruit police officers in the ratio of 1:4 senior and junior officers based on the preponderance of junior officers in the Nigeria Police Force.

<table>
<thead>
<tr>
<th>Site</th>
<th>Method and sample</th>
<th>Total</th>
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<tbody>
<tr>
<td></td>
<td>Quantitative</td>
<td>Qualitative</td>
</tr>
<tr>
<td></td>
<td>Survey Questionnaire</td>
<td>Informant/in-depth interviews</td>
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<tr>
<td>North east (Bauchi)</td>
<td>300</td>
<td>10</td>
</tr>
<tr>
<td>North central (Nasarawa)</td>
<td>300</td>
<td>10</td>
</tr>
<tr>
<td>South-South (Akwa Ibom)</td>
<td>300</td>
<td>10</td>
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<tr>
<td>Southwest(Oyo)</td>
<td>300</td>
<td>10</td>
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<tr>
<td><strong>Total</strong></td>
<td><strong>1,200</strong></td>
<td><strong>40</strong></td>
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Instruments for quantitative data collection

We will use stress-related police-specific tools and other tools to collect quantitative data (Supplementary file 1). These include the Perceived Stress Scale, [13], Operational Police Stress Questionnaire (PSQ-Op) and Organizational Police Stress Questionnaire (PSQ- Org) [14], Burn out using the Maslach Burnout Inventory (MBI-22 item) [15], Sleep disorders using the Pittsburgh sleep quality index (PSQI) [16], Psychological wellbeing using the 12-Item General Health Questionnaire [17], common mental disorders using the Patient health questionnaire (PHQ-9) for depression [18] and the generalized anxiety disorder (GAD-7) for anxiety [19], alcohol and substance use disorders using the Alcohol, Smoking and Substance Involvement Screening Test (ASSIST) [20]. The Alcohol, Smoking, and Substance Involvement Screening Test (ASSIST) is a screening tool developed by the World Health Organization [20]. It assesses lifetime and past three-month use of psychoactive substances, problems related to substance use, risk of current or future harm and level of dependence. Substances assessed include tobacco, alcohol, cannabis, cocaine, amphetamine-type stimulants, sedatives, hallucinogens, inhalants, opioids, and other drugs. The CIDI short-form suicidality module will be used to assess the presence of suicidal behaviours including suicidal ideas, suicidal plans, and suicide attempts in the last 12 months [21]. The CIDI is a lay-administered structured diagnostic instrument designed to ascertain the diagnosis of mental disorders based on either the DSM or WHO International Classification of Diseases and Related Health Problems (ICD) diagnostic criteria.

Instrument for qualitative data collection
Key informants guide will be used to conduct the interviews. The plan is to interview 40 police officers to document their personal experiences and coping with stress-related issues and existing services to manage stress and related mental health issues (Supplementary File 2).

**Measures**

The combination of quantitative and qualitative methods is aimed at triangulation, which will yield breadth and depth of data needed for both diagnosis and planning of appropriate interventions. The variables of interest are knowledge about stress, the experience of stress, the severity of stress, reported coping mechanisms, level of depression, sleep disorder, anxiety disorder, and substance use.

**Procedure for data collection**

Before the data collection, advocacy visits will be paid to the Police Headquarters in Abuja as well as to each of the State Police Commands to obtain official permission to conduct the study. In each selected state, contact will be made with either the state Commissioner of police or State Police Medical officer who will send a signal/directive to all the selected divisions in the state.

There are not less than 40 police divisions in each state. A minimum of 10 divisions will be randomly selected from two out of the three senatorial districts in each state to reflect the potential diversity in each state. Members of the research team and trained research assistants will obtain consent from Police officers who are willing to participate in the study. Efforts will be made to select female and male police officers in a ratio of 1 to 3. We will also ensure that the selection of the different police cadres (ranks) takes into cognizance the proportion of junior and senior officers in the police force.

The quantitative data will be interviewer-administered by trained research assistants (RAs) using the KoboCollect. The interviews will take place at a time and place convenient for each participant. Privacy will be maintained throughout the period. We envisage that the tool will take approximately 50–60 minutes to administer. Each interviewer is expected to interview 30 police officers (per state) in total (1,200) and they are expected to conduct the interviews for 6 days making a total of 5 interviews per day.

For key informant interviews, we envisage that 40 interviews will be needed to reach saturation, a situation where a researcher stops data collection because no new information is received. The categories of persons to be interviewed will include senior officers (Chief Superintendent of Police, Superintendent of Police, Deputy Superintendent of Police) and junior officers (inspectors, corporal, and constables). All interviews will be recorded on a digital recorder after consent has been obtained from each study participant. The state research team will designate a time and location for interviews that is convenient for the participants. The interviews are anticipated to take between 45 and 60 minutes to elicit rich details about the topics covered while conscious of the participants' time. Trained RA will conduct interviews including taking notes, operating the recorder, and ensuring that the interviewee is comfortable. The interviewer will inform each prospective respondent that participation in the study is voluntary. The interviewer will provide clarification of any issue the respondent may have regarding the questions.
Quality assurance

During the data collection period, the transcription will occur parallel to data collection and will be shared on an ongoing basis with the study team leader to ensure the quality of the data. State team leaders will be in constant communication while on the field to respond to any issues that arise during data collection. To ensure good quality data, adequate training will be conducted to capacitate all the field staff through a well-developed training manual. This training manual will serve as a guide to all the field staff to consult in case they encounter any issues relating to the field activities.

Data analysis

Quantitative Data

The analysis will be performed using SPSS version 25.0. Descriptive statistics will be used to summarize the data to present the prevalence of stress, burnout, and mental disorders (depression, anxiety, alcohol use disorder and substance use disorders. The associations between demographic variables and stress with mental disorders and suicidal behaviour will be explored using T-Test and ANOVA for continuous variables and Chi-square for categorical variables. Linear regression models will be used to assess the correlates of severity of mental disorders based on the scores on the instruments for those who meet the diagnostic criteria for the different conditions. The level of significance will be set at 0.05 two-tailed.

Each of the tools to be administered is a standardized scale with specified cut points for each condition. For example, the PSQ-Op has 20 items that measure the prevalence of stress with categories that range from ‘no stress at all’ to ‘a lot of stress’. The PHQ-9 and the GAD-7 are derived from the full patient health questionnaire. The PHQ-9 is a 9-item screening instrument for depression that has been previously used and validated in earlier studies in Nigeria [22]; a cut-off score of 10 or higher denotes probable depression. The GAD-7 is a 7-item screener for generalized anxiety disorder with probable generalized anxiety disorder indicated by a score of 10. Further questions derived from the CIDI short form will be administered to participants who screen positive on the PHQ-9 and the GAD-7 to ascertain whether they meet the Diagnostic and Statistical Manual (DSM-V) diagnostic criteria for depression or anxiety disorder [21].

Qualitative data

Transcription

All digitally recorded interviews will first be transcribed verbatim using a structured transcription format. Verbatim transcription will be performed close to the time of completion of the interviews/discussions to maintain the originality of the information without loss of themes. Transcriptions will be conducted by the interviewers. Data transcription will be performed under the supervision of the team leader who will review it for completeness. Transcripts will be de-identified and participants will be identifiable only by a unique identifier code. Participant’s names and personal information will not be recorded. The transcript
will be uploaded into the qualitative data management software Atlas.ti. The code book will be developed by the team members to guide coding and ensure consistent classification of themes. Thematic analysis will also be used to code the documents and transcripts, pointed out by the major research questions. We will adopt the Consolidated Criteria for Conducting and Reporting Qualitative Studies (COREQ) (Tong et al, 2007) for presenting and reporting the qualitative data.

**Phase two: Pilot parallel cluster randomized trial**

**Trial Design**

We will pilot test this intervention using a cluster randomized controlled trial (cRCT) design (See Fig. 3). While the police formation will be the unit for randomization, outcome assessment will be conducted on individual participants (police officers). cRCT is justified based on the format for the delivery of the interventions to groups of police officers selected based on the usual team/office-based distribution of police officers (police formation).

**General sensitization on stress management**

A general sensitization meeting will be held in the intervention and control arms with the rank and file of police officers. The sensitization will include a general discussion of the cause of stress, prevention, and management. The sensitization meeting will be held during one of the monthly meetings convened by the Commissioner of Police which all police personnel in the state typically attend. We envisage that approximately 100 police personnel will attend the meeting.

**Description of the intervention, adaptation, and development**

**Intervention group**

Participants will be exposed to an evidence-based peer-led team-based format adapted from an earlier programme of safety and health improvement for law-enforcement officers (The SHIELD) study carried out in the US [23]. The intervention was implemented among individuals who worked in the same location and the same shift schedule and they were organised into groups. One participant was selected per group to serve as the team leader and they received a 20-minute orientation session and a scripted manual to guide each session. Other group members used a corresponding workbook. The curriculum had 12 modules, scripted, peer-led, team-based sessions. Sessions were delivered weekly during work hours. Each session comprised three or four brief interactive activities focusing on lifestyle factors such as stress management, exercise, healthy eating, body weight, and sleep. The peer-led, team format fosters support and accountability at the workplace. Participants were encouraged to support one another with the achievement of weekly goals and scripted discussion prompts facilitated the sharing of suggestions and tips [24].
A peer-led intervention is proposed because interventions delivered by peers are credible and can be sustained. The SHIELD intervention and a relevant publication by the World Health Organisation [25] will be adapted by stakeholders consisting of representatives of the junior and senior police officers and the research team at different adaptation meetings. The details of the specific contents of the pilot intervention to be implemented will be derived from the analysis of the results of the survey and interviews. We will aim to have no more than 8 modules that can be delivered in fortnightly sessions over a period of two months with each session lasting approximately 30 minutes.

**Control group**

A general sensitization meeting on the causes of stress, prevention, and management will be held in the control arm.

**Sample size estimation**

We aim to recruit 100 participants for each study arm. The sample size was determined based on the findings of a simulation study by [26] which suggests that a sample size of between 60–100 participants per arm in a pilot trial provides a reliable estimate of recruitment parameters.

**Participant Recruitment and retention**

There will be an announcement for participation using the police radio services, bulletins, and signals. Trained research assistants will help to recruit interested participants. Recruited participants will complete the surveys at enrollment. Participant recruitment will be conducted in the two study arms and will span 6 weeks. Eligible police formations (that is formations with a team of officers made up of a minimum of 10 men/women) will be stratified based on location (rural versus urban) to reflect the distribution of the State police command. Twenty of these eligible formations will be randomly selected for the pilot and these will be randomly assigned by an independent researcher who is not a member of the research team to the intervention (peer-led group support n = 10) and control groups (n = 10) using a computer generated table of random numbers.

Each of the teams assigned to the intervention arm will be requested to nominate 2 members each to be trained as Volunteer Peer Champions (VPC) for stress and mental health promotion (total of 20). The criteria for nomination/selection of VPC will include availability for the period of the intervention

1. Availability for the period of the intervention.
2. Willingness to participate in the intervention phase.
3. Commitment to implement prevention activities after training.
4. Possession of leadership and communication skills.
5. Approachability.

To promote participant retention, there will be monthly text messages and phone call reminders to participate in the intervention and data collection activities. We will provide a small incentive to all
participants regardless of the treatment arm enrollment and we will aim for at least 80% retention at the 6-month follow-up.

**Intervention delivery/implementation**

The peer-led group sessions will comprise 20 peer leaders working together in a team; this approach is aimed at helping police officers collectively address identified modifiable stressors within their team as well as develop relevant coping strategies that have the potential to build resilience and improve mental well-being. The role of VPC will be to (1) help police officers identify stress and stress manifestations in their personal lives (2) provide an understanding of the relationship between stress and work performance/health (3) teach adaptive coping strategies and (4) improve police officer’s awareness of mental health conditions and promote help-seeking behaviour including referral. The peer champions will also be capacitated to identify signs of psychological distress and mental disorders and provide mental health first aid to their peers. Peer champions will have an established protocol for linking team members in need of further evaluation or treatment to the police clinic. The peer champions will deliver these interventions for six months.

**Integration of care for mental disorders into the police medical service**

The doctors and nurses working in the ten police clinics in Oyo State will be trained using the WHO Mental Health Gap Action Programme Intervention Guide (mhGAP-IG) to identify and treat common mental disorders. Support and supervision will be provided by an identified psychiatrist in the University College Hospital in Ibadan, Oyo state. To ensure that the health workers keep to the agreed protocol for consultations and referrals to specialists, care providers will be provided with recharge cards for telephone calls. In addition, four hotlines to provide anonymous counselling for police officers who require support will be provided by the care providers. Four mobile phones with designated phone numbers will be provided for this purpose.

**Phase three: Preliminary evaluation of the intervention**

**Blinding**

The outcome assessments will be carried out by blinded assessors (research assistants with qualifications like those who conducted the initial survey) trained in the use of the instruments that does not have any information about the assignment of the police formation or the interventions.

**Outcome Measures**

The preliminary effectiveness of the intervention will be assessed using a reduction in stress levels (measured on the Perceived Stress Scale (PSS) [13] and the Maslach Burnout Inventory (MBI) [15]), improved knowledge about stress management and mental disorders (based on pre-and post-test questions for each session of the training curriculum) and psychological distress (measured using the World Health Organization 20-item Self-Reporting Questionnaire (SRQ-20) [27].
These measures will be administered at baseline, two months after baseline (after the group sessions), and six months at the end of the intervention sessions to police officers in the intervention and control arms. The baseline characteristics of the participants in both arms and outcome measures at the two-month and six-month follow-up will be described. Participation recruitment, retention rate, and compliance assessment will be presented. All recruited participants will be included in the analyses. Linear regression models considering clustering effects will be used to estimate between-group differences in outcome measures.

**Implementation measures**

Four implementation measures—adaptation, fidelity, feasibility, and acceptability of the intervention will be assessed. Adaptation will be assessed based on the number and mix of stakeholders who participate in the adaptation process, the number of meetings held to adapt/refine the materials and obtain feedback, and qualitative assessment of the quality of the adaptation process.

To assess fidelity, a research team member will sit in to observe about one-third of the sessions delivered by the group leaders using the curriculum. The sessions will be randomly selected. We shall also keep track of referrals to care and contact with specialist services. Feasibility will be assessed based on the proportion of police officers who provide consent and are enrolled in the pilot study and reasons for non-consent, the number of police officers who volunteer as peer educators, records of the group sessions to track the proportion of sessions that were conducted on schedule, the proportion of police officers who attend ≥ 75% of the sessions and reasons for dropouts and engagement of the group members as well as monitoring of performance of practice exercises. Acceptability will be assessed using a self-reported acceptability rating scale. Appropriate descriptive statistics will be used to summarize indicators of feasibility, acceptability, and fidelity.

**Monitoring and Evaluation of Pilot Intervention**

There will be monthly project review meetings using a team-based approach to assess the project progress in line with the performance indicators. The review meetings will provide an opportunity to track progress and determine outcomes taking into cognisance the project work plan and the indicators. The meetings will also be an opportunity to identify and discuss problems and challenges encountered during project implementation and propose clear recommendations for scale-up and replication of future interventions. In addition, we shall collect information on the number of health workers in the police clinic trained, the number of Volunteer Peer Champions trained, the number of supervisory meetings held with the champions after training, the number of persons that peer champions reached with interventions and number of those referred to the police clinic to receive mental health care.

**Ethical Approval**

Approval was obtained from the National Health and Research Ethics Committee (NHREC), Federal Ministry of Health, Abuja (NHREC/01/01/2007- 25/04/2023). All study activities will be implemented in
line with ethical guidelines. Any amendment to the protocol will be communicated to the investigators, the ethical review committee, trial participants and the trial registry.

**Data management**

Each participant will be assigned an anonymized identification number (CODE). All information collected will be kept confidential; all electronic data will be stored in encrypted files, and physical copies will be stored in locked cabinets accessible only to the research team. The outcome data will be collected on electronic forms on KoboCollect and will be transferred to the IBM Statistical Package for the Social Sciences (SPSS) database (SPSS version 27, Chicago, IL, USA) for data analysis.

**Data sharing**

Individual participant data that underlie the results reported in the articles published from the study will be available after deidentification. The study protocol will be published. The deidentified data will available beginning 12 months and ending 36 months following the publication of articles. These data will only be provided to investigators whose proposed use of the data has been approved by an independent review committee. Proposals may be submitted up to 36 months following article publication. After 36 months the data will be available in our University's data warehouse but without investigator support other than deposited metadata. Proposals should be submitted to the Principal Investigator (ajajuwon@yahoo.com)

**Dissemination of findings**

The research team will convene dissemination workshops where the findings of the project will be presented to stakeholders including policy makers, staff from the Nigeria Police in the intervention sites, Nigeria Police Commission, the National Assembly, academics, journalists, and professionals from the NGO communities. Policy Briefs will be developed highlighting the key findings, lessons learnt and policy implications for prevention and management of stress among police officers. The findings of the study will be published in peer-review journals and the final report will be submitted to TETFund.

**Discussion**

The described protocol is aimed at pilot testing the feasibility and preliminary effectiveness of an intervention for stress prevention, management, and coping mechanisms among police officers in Nigeria using a two-arm cluster randomized trial. Stress has been linked to a variety of negative health outcomes, and it is critical that police personnel receive stress management strategies that are both effective and safe to enable them to perform their duties well. Fortunately, stress as well as its mental health consequences can be prevented and managed. Management interventions provided to police officers and police recruits are commonly categorized in two areas: (1) clinical interventions based on techniques such as psychological counselling, or (2) interventions aimed at improving coping strategies
based on training or other methods using stress reduction techniques ranging from exercise to transcendental meditation [28]. Unfortunately, there are no organized stress and related mental health prevention and management interventions targeting the police in Nigeria. Hence the need for the current study.

The literature on existing interventions to manage stress among police officers is sparse, recent but evolving. There are some studies including rational emotive coaching [29] and mindfulness training [30-32] that show that interventions are feasible and effective in addressing stress among police officers. However, these studies have some limitations: they have focused only on stress even though police officers experience both stress and related mental health disorders; the sample sizes were generally small limiting the generalizability of the findings. Another shortcoming is that most of the studies were implemented by the authors with limited efforts to integrate stress prevention and mental health services into the existing police healthcare system. This strategy will enhance the sustainability of the intervention.

The current study is designed to improve existing studies and enrich the literature on stress and mental health problems affecting police officers in Nigeria. The SHIELD intervention which will be adopted has documented evidence of effectiveness; self-reported stress among the intervention group was significantly lower compared to the control group at 6 months. The peer-led, team-based curriculum was effective at reducing stress by targeting specific stress-relieving healthy actions that could be easily implemented both on a routine daily basis and during a crisis [23,24]. This potentially may be appropriate for the Nigerian context.

**Study limitations**

A potential limitation that is typical with adapted intervention is the difficulty in balancing adaptation, fidelity and fit. This occurs when participants have their suggestions/ideas about modalities for the implementation of the intervention which could be at variance with our study protocol. We will therefore implement recommendations on balancing fidelity and fit [33] and document any variations between the proposed trial and the implemented version. Another potential challenge is the dynamic nature of the policing job which includes frequent postings, and changes in shift duties and assignments. This may affect the power analysis for the study and attrition rate. We will address this by recruiting more participants, monitoring attrition, and documenting and analysing its effect on the outcomes of the study.

**Conclusion**

We expect that this pilot study will provide evidence for the development and implementation of interventions for stress prevention and management in the Nigeria Police Force and similar formations in other parts of the world. The lessons learned would be useful in adapting and replicating similar interventions and this holds great value for implementation and sustainability in many high countries.
Abbreviations

ASSIST Alcohol, Smoking and Substance Involvement Screening Test
CIDI Composite International Diagnostic Interview
DSM Diagnostic and Statistical Manual
FCT Federal Capital Territory
GAD Generalised Anxiety Disorder
ICD International Classification of Diseases and Related Health Problems
MBI Maslach Burnout Inventory
mhGAP-IG WHO Mental Health Gap Action Programme Intervention Guide
NPF Nigeria Police Force
PHQ Patient Health Questionnaire
PSQI Pittsburgh sleep quality index
PSQ-Op Operational Police Stress Questionnaire
PSQ- Org Organizational Police Stress Questionnaire
PSS Perceived Stress Scale
SRQ Self-Reporting Questionnaire
VPC Volunteer Peer Champions

Declarations

Ethics approval and consent to participate

The research ethics application for the study was reviewed and approved by the Health Research Ethics Committee of the Federal Capital Territory Administrations board in Abuja, Nigeria. The reference number is NHREC/01/01/2007- 25/04/2023. All participants will provide written informed to participate in the study.
Consent for publication

Not Applicable

Competing interests

The authors declare that they have no competing interest.

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Author's contribution

AJA, MT, AA, MMO, BO, HO, UO and PO conceptualized the study. All authors (AJA, MT, AA, MMO, BO, HO, UO, PO, OA and EU) were involved in developing and editing the manuscript. MMO led the development of the draft manuscript and AJA provided leadership for the process. All authors read and approved the final manuscript.

Availability of data and materials

Data sharing is not applicable to this article as no datasets were generated or analyzed during the current study.

References


Figures

Figure 1

Application of the conceptual framework of stress and health in policing
Figure 2

Application of the Precede-Proceed Model to the Study

Supplementary Files

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