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Effect of a 12-Week Selected Yogic Practice Programme on Psychological Resilience among Female Defence Personnel: A Mixed-Methods Study of Coping and Wellbeing

Mani Sharma

Research Scholar, Department of Yoga, Monad University

Dr. Arachna Sharma

Associate Professor, Department of Yoga, Monad University

1. Abstract

The role of psychological resilience has been emphasized for female defense personnel who are working in challenging occupational setting. Ability to cope up with the stress and challenges of environment, emotional management and maintain functionality may positively contribute to psychological functioning and coping.

The present study aimed to assess the impact of a selective yoga practice program on psychological resilience on female defense personnel by implementing an intervention for 12 weeks and measured the changes on pre- and post-test with control group, using a mixed-method research with semi-structured interviews in exploring coping, emotion regulation and wellbeing among female defense personnel by using yogurt practice.

This research is intended to provide an understanding of yoga's impact on psychological resilience and the participant's own experience in dealing with the yoga as coping strategy and it can be used to design similar program on yoga on psychological well-being for the military women.

Keyword: Female Defence Personnel; Yogic Practices; Psychological Resilience; Coping; Emotional Regulation; Yoga Intervention; Psychological Wellbeing; Defence Personnel; Stress Management; Mixed-Methods Research.

2. Introduction

2.1 Background and Context

Psychological resilience has become an increasingly important concept in occupational and military psychology due to the physical, psychological, uncertain, high-responsibility, and potentially traumatic nature of defence duties. Resilience differs from the absence of psychological distress in that it refers to the ability to cope with adversity and return to effective psychological functioning. Resilience is particularly pertinent within a military context due to the fact that occupational stressors inevitably persist, and personnel must often continue to function effectively within such conditions.

Recent military research has demonstrated the importance of examining resilience as an individual and organisational concern. A systematic review of resilience among active-duty



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soldiers noted numerous resilience-related factors operating at individual, organisational, and broader environmental levels, with adaptive coping and other individual resources receiving particular attention. The review highlighted the continued conceptual diversity surrounding resilience within the field of military research.

The relevance of resilience is further demonstrated in relation to female defence personnel. Research examining military training demonstrated differences between male and female participants at both psychological and physiological levels when exposed to occupational stress. A recent study of military training noted that the female participants experienced greater perceived stress and reductions in measured resilience during training compared with their male counterparts, suggesting that sex-specific responses to demanding military environments warrant further investigation.

These findings highlight an important rationale for investigating interventions that may strengthen psychological resources among female defence personnel. Rather than focusing exclusively on the reduction of negative psychological outcomes such as stress and anxiety, the study of resilience examines the development of adaptive capacities that may allow personnel to manage occupational challenges more effectively.

2.2 Psychological Resilience in Defence Settings

Resilience has been conceptualised in a number of ways within psychological research. It may be understood as a relatively stable individual characteristic, an outcome resulting from exposure to adversity, or as a dynamic process through which individuals cope with difficult circumstances. This conceptual diversity has also been noted in the field of military research.

Connor and Davidson (2003) conceptualised resilience as a measure of stress-coping ability and developed the Connor-Davidson Resilience Scale (CD-RISC) to assess resilience. Their work has demonstrated that resilience can be quantified and may change in response to psychological interventions.

Resilience has been associated with important indicators of psychological health and occupational functioning within the military. A meta-analysis of prospective military studies found that psychological resilience has measurable associations with several mental-health and functioning outcomes, though the magnitude of these relationships was generally small and varied across studies (Kunzler et al., 2020). The authors have stressed the need to pay close attention to conceptualisation, measurement, directionality, and the specific stressors experienced by military personnel within the field of resilience research. As such, resilience should not be regarded as an unquestioned protective factor, but is a complex construct that may interact with individual characteristics, occupational conditions, social resources, coping strategies, and exposure to stress.

2.3 Female Defence Personnel and Psychological Resilience



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The specific study of resilience among female defence personnel is particularly important, given that women may experience military occupational demands differently from men. Research examining female military populations have demonstrated associations between deployment-related stressors, psychological symptoms, and resilience.

For example, Wooten (2012) examined Army National Guard women exposed to deployment-cycle stressors and investigated the potential of resilience as a mediator of the relationship between deployment stress and post-traumatic stress symptoms. Such research highlights the potential importance of resilience in understanding how female military personnel can cope with psychological responses to occupational and deployment-related stressors.

More recently, evidence has demonstrated the need to address sex-specific characteristics within the context of military training. Research examining male and female military personnel during demanding military training found that the female participants experienced greater perceived stress and a reduction in resilience over the duration of training.

These findings highlight the potential value of investigating interventions that may strengthen psychological resilience, particularly within the female defence population. However, evidence concerning effective resilience-building interventions specifically examining this population remains comparatively limited.

2.4 Stress, Coping and Resilience

Stress, coping, and resilience are closely related constructs. Lazarus and Folkman's (1984) transactional theory of stress and coping proposes that psychological stress is influenced by an individual's appraisal of environmental demands and the resources available to manage them.

In this context, coping refers to the cognitive and behavioural efforts used to manage stressful circumstances and resilience can be understood as an important psychological capacity to support adaptation when individuals face adversity.

For defence personnel, their occupational demands may not always be controllable or avoidable and as such, the development of adaptive coping resources may be a more realistic approach than attempting to eliminate occupational stressors. Interventions that promote self-regulation, emotional awareness, attentional control, and adaptive responses may therefore be valuable in strengthening resilience.

This conceptual link is particularly valuable when considering yoga, as yogic practices incorporate physical activity, breathing, concentration, and meditative processes. These components may provide individuals with the necessary strategies for regulating physiological arousal and responding more adaptively to stressful circumstances.

2.5 Yoga as a Potential Resilience-Building Intervention



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Yoga has traditionally been conceptualised as an integrated system of physical postures, breathing practices, concentration, and meditation. Contemporary research is increasing the focus on yoga as a mind-body intervention which can influence psychological wellbeing.

A systematic review of modern postural yoga identified resilience, mindfulness, affect, and wellbeing among the principal positive mental-health indicators investigated. Although heterogeneity across the findings was observed, a majority of the studies noted improvements in one or more positive mental-health indicators. However, the authors have emphasised the methodological limitations of the existing research, as well as the need to utilise stronger experimental designs.

The potential relevance of yoga to resilience may stem from several mechanisms which are common to yogic practice. Regular yoga practice may promote awareness of bodily and emotional states, attentional regulation, self-compassion, emotional regulation, and behavioural self-regulation. Riley and Park (2015), for example, identified mindfulness, positive affect, and self-compassion among psychological mechanisms potentially involved in yoga's effects on stress.

Though these mechanisms do not necessarily suggest that yoga directly increases resilience, they provide a theoretical foundation for examining whether regular yogic practice may strengthen psychological resources associated with adaptive coping.

2.6 Yoga, Mindfulness and Psychological Resilience

The meditative component of yoga may be relevant to resilience due to the fact that mindfulness-based approaches encourage individuals to observe thoughts, emotions, and bodily sensations with greater awareness and reduced automatic reactivity.

A systematic review and meta-analysis of randomised controlled trials found that mindfulness-based interventions were generally more effective than inactive controls in promoting resilience at post-intervention and follow-up assessments (O'Connor et al., 2023). Though the effects relative to active comparison interventions were less consistent, evidence from broader resilience-training research can similarly highlight the potential for interventions that incorporate mindfulness to positively influence psychological resilience. A systematic review and meta-analysis of resilience interventions found a moderate overall effect of resilience-building programmes with mindfulness-based and mixed interventions demonstrating beneficial effects (Joyce et al., 2018).

These findings are relevant to the present study given that dhyana and related contemplative practices are part of the selected yogic intervention. However, mindfulness-based interventions and yoga are not interchangeable and as such, evidence from mindfulness research should be regarded as supportive theoretical evidence. That is, mindfulness research provides a theoretical



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foundation for examining the potential value of the present yoga programme, though it does not constitute direct evidence of its effectiveness.

2.7 Yoga and Resilience: Existing Evidence

Compared to the extensive literature on yoga and stress or anxiety, there is a relative dearth of research specifically examining yoga and psychological resilience.

Domingues (2018), in a systematic review of modern postural yoga as a mental-health-promoting intervention, identified resilience among the most frequently investigated positive mental-health indicators. However, the findings were mixed with some studies reporting significant improvements and others reporting no significant differences. The review concluded that stronger experimental research was necessary.

This methodological uncertainty is particularly relevant to the present study due to the fact that a systematic 12-week intervention with a control group provides an opportunity to examine whether changes in resilience can be more confidently attributed to participation in selected yogic practices.

At the same time, a recent systematic review of mind-body therapies for resilience reported inconsistent evidence for yoga specifically, with two included yoga trials among adolescents failing to demonstrate significant improvements in resilience. This finding highlights the need to conduct population-specific research rather than assuming that yoga will have equivalent effects across different populations.

2.8 Yoga in Military and High-Stress Populations

Research examining military personnel provides additional support for the investigation of yoga as a psychological intervention. Previous military studies have demonstrated beneficial effects of yoga on anxiety and other psychological outcomes, though most have focused on distress reduction rather than resilience itself.

Stoller et al. (2012), for example, reported reductions in state and trait anxiety following a yoga intervention among deployed military personnel. Similarly, Telles et al. (2019) found reduced state anxiety and improvements in related outcomes among Indian Border Security Force personnel.

These studies demonstrate the feasibility of yoga within demanding military and security environments. However, the majority of military yoga research has focused on outcomes such as stress, anxiety, sleep, and general wellbeing rather than directly examining psychological resilience.

This distinction is key to Paper 2, as Paper 1 examines the question of whether yoga reduces psychological distress whereas Paper 2 examines whether yoga may strengthen a positive psychological resource, resilience, and improve adaptive coping.

2.9 Rationale for the Present Study



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The rationale for the present study is based on three major considerations.

First, defence personnel work in environments where occupational stressors may be unavoidable and therefore require effective psychological adaptation.

Second, resilience is increasingly regarded as an important psychological resource within military populations, while recent evidence has suggested that female personnel may demonstrate distinct responses to demanding military training.

Third, while yoga has been associated with several positive mental-health outcomes, evidence specifically examining its effects on resilience among female defence personnel is limited.

The present study therefore investigates whether a structured 12-week programme incorporating selected asana, pranayama, and dhyana practices can improve psychological resilience among female defence personnel. The study incorporates qualitative exploration to understand participants' perceptions of changes in coping, emotional regulation, and psychological wellbeing.

2.10 Research Gap

The literature highlights several important research gaps:

1. Population gap: There has been limited intervention research specifically examining psychological resilience among female defence personnel.
2. Intervention gap: The research regarding yoga has focused substantially on stress, anxiety, and general wellbeing rather than resilience as a primary outcome.
3. Military resilience gap: Although resilience has been extensively discussed within military psychology, evidence concerning effective yoga-based resilience interventions is limited.
4. Gender gap: Recent research has suggested that female and male military personnel may respond differently to demanding military training.
5. Mixed-methods gap: Quantitative studies can determine whether resilience scores change, but qualitative investigation can help to explain how participants experience and interpret changes in coping and psychological functioning.
6. Applied gap: There is a need for research examining whether structured yogic practices could realistically contribute to resilience-building and psychological wellbeing programmes within defence settings.

2.11 Objective of the Study

The objective of the present study is to examine the effect of a 12-week selected yogic practice programme on psychological resilience among female defence personnel.

The study seeks to:

1. assess changes in psychological resilience following participation in the selected yogic practice programme;



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2. compare changes in resilience between the intervention and control groups;
3. explore participants' perceptions of yoga in relation to coping with occupational demands;
4. identify perceived changes in emotional regulation, psychological wellbeing, and adaptive coping;
5. integrate quantitative and qualitative findings to develop a more comprehensive understanding of the potential role of yoga in resilience enhancement.

2.12 Research Questions

RQ1: Does participation in a 12-week selected yogic practice programme improve psychological resilience among female defence personnel?

RQ2: Is the change in psychological resilience greater among participants receiving the yoga intervention than among those in the control group?

RQ3: How do female defence personnel describe their experiences of using yogic practices to cope with occupational demands?

RQ4: What perceived psychological changes emerge from participants' experiences following the intervention?

2.13 Hypotheses

H1: Female defence personnel participating in the 12-week selected yogic practice programme will demonstrate a statistically significant improvement in psychological resilience compared with the control group.

H2: The intervention group will demonstrate a significantly greater pre-test to post-test increase in psychological resilience than the control group.

3. Review of Literature

3.1 Concept of Psychological Resilience

Psychological resilience relates to a person's ability to adapt effectively to adversity or stress. It does not imply that a person will not experience psychological difficulty; instead, it concerns their ability to maintain effective functioning while exposed to stress.

The literature has conceptualised resilience in various ways, including as a relatively stable individual characteristic or outcome after exposure to adversity. This conceptual diversity is relevant to intervention research because the interpretation of resilience determines whether it is perceived as a fixed trait or a capacity that may be strengthened through experience and intervention. Recent military research similarly indicates the lack of a single universally accepted definition of resilience. Connor and Davidson (2003) conceptualised resilience as a measure of stress-coping ability and developed the CD-RISC as a quantitative measure of resilience. Their findings suggested that resilience is measurable and may change in association with treatment-



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related improvement. The present study adopts an intervention-oriented perspective, where resilience is considered a psychological resource that may be strengthened.

3.2 Psychological Resilience in Military Personnel

Military occupations expose personnel to multiple stressors, including demanding physical training, sleep disruption, occupational uncertainty, separation from family, operational responsibilities, and potentially traumatic experiences. Therefore, resilience has become an important area of military psychological research.

A recent systematic review of resilience factors among active-duty soldiers identified factors operating at micro-, meso- and macro-levels. Adaptive coping and other individual characteristics were prominent among micro-level factors, whereas organisational and structural factors were less frequently investigated.

The importance of resilience is also supported by longitudinal research. A meta-analysis of prospective studies found that psychological resilience was associated with several indicators of military mental health and functioning, although the magnitude of associations was generally modest and heterogeneous (Kunzler et al., 2020). This evidence indicates that resilience is relevant to military functioning, but also cautions against considering it as a simple or universally protective construct. Its relationship with psychological health may depend on the type and intensity of stressor, individual characteristics, social support, and occupational context.

3.3 Resilience among Female Defence Personnel

Female defence personnel represent an increasingly important component of military organisations, but gender-specific research on resilience is comparatively limited.

Wooten (2012) examined deployment-cycle stressors, post-traumatic stress symptoms, and resilience among Army National Guard women. The study specifically considered resilience as a potential mediator between deployment-related stressors and psychological symptoms, highlighting the relevance of resilience within female military populations. More recent research has provided further evidence that male and female personnel may respond differently to military training. A study published in *Physiology & Behavior* reported that female candidates experienced greater perceived stress and reductions in resilience during officer candidate training compared with males. These findings strengthen the rationale for investigating resilience-enhancing interventions specifically among women rather than assuming that evidence obtained from predominantly male military populations can be directly generalised.

3.4 Stress, Coping and Resilience

The relationship between stress, coping, and resilience can be understood through Lazarus and Folkman's (1984) transactional model. This model proposes that individuals continuously evaluate environmental demands and their available coping resources. Stress arises when perceived demands exceed perceived coping capacity. From this perspective, resilience may



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influence the way individuals appraise stressful situations. Adaptive coping strategies may enable individuals to manage difficult circumstances without experiencing disproportionate psychological disruption.

Military personnel cannot always control the occupational stressors to which they are exposed. Therefore, interventions that strengthen self-regulation, emotional awareness, attentional control, and coping may be particularly relevant. Yoga may potentially contribute to this process as it provides structured practices involving physical awareness, breathing regulation, concentration, and meditation. These practices may support the development of psychological skills that assist in more adaptive responses to stress.

3.5 Yoga and Positive Mental Health

Research on yoga has increasingly moved beyond the study of negative psychological outcomes and begun to examine positive mental-health indicators, including resilience, mindfulness, self-compassion, affect, and wellbeing. Domínguez (2018) systematically reviewed modern postural yoga as a mental-health-promoting intervention and found that resilience was among the most frequently investigated positive mental-health outcomes. Although results were heterogeneous, most studies reported improvements in one or more positive mental-health indicators. This literature is important as resilience represents a positive psychological capacity rather than merely the absence of stress or anxiety. Consequently, studying resilience provides a different perspective on the potential value of yoga.

3.6 Yoga and Psychological Resilience

The direct evidence connecting yoga and resilience is still developing. Existing studies suggest potential benefits but also considerable methodological variation.

The systematic review by Domínguez (2018) found that yoga studies examining positive mental health produced mixed results, with some demonstrating significant improvements and others finding no differences relative to controls. The authors identified methodological concerns and recommended more rigorous experimental designs. More recent evidence also remains inconclusive. A systematic review of mind-body therapies for resilience found inconsistent evidence concerning yoga including two yoga trials that did not show significant improvements in resilience among adolescents. The authors concluded that heterogeneity across populations and interventions prevented strong recommendations regarding mind-body therapies for resilience enhancement. These findings actually strengthen the rationale for the present study. Rather than assuming that yoga improves resilience, the present research seeks to test this proposition in a specific high-stress occupational population.

3.7 Mindfulness, Yoga and Self-Regulation

One potential pathway through which yoga may influence resilience is enhanced self-regulation.



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Yoga incorporates practices that require individuals to direct attention towards bodily sensations, breathing, movement, and mental activity. Repeated engagement with these practices may increase awareness of internal states and improve the ability to regulate responses to stressful situations.

Riley and Park (2015) reviewed proposed mechanisms underlying yoga's effects on stress and identified mindfulness, positive affect, and self-compassion as psychological mechanisms with empirical support.

Although these mechanisms were examined mainly in relation to stress rather than resilience, they are theoretically relevant as self-regulation and emotional awareness may contribute to adaptive coping and resilience.

3.8 Mindfulness Based Interventions and Resilience

Evidence from mindfulness research provides additional support for investigating mind-body approaches to resilience.

O'Connor et al. (2023) conducted a systematic review and meta-analysis of randomised controlled trials examining mindfulness-based interventions and resilience. The findings indicated that mindfulness-based interventions outperformed inactive controls at post-intervention and follow-up, although results were less consistent when compared with active interventions. Similarly, Joyce et al. (2018) reviewed resilience-training interventions and found a moderate overall positive effect, with mindfulness-based and mixed approaches demonstrating beneficial effects. These findings provide indirect theoretical support for the meditative and attentional components of yoga. However, mindfulness interventions should not be treated as equivalent to yoga; therefore, the evidence supports the rationale for the present study rather than establishing its expected outcome.

3.9 Yoga, Coping and Emotional Regulation

Coping represents another potential pathway linking yoga to resilience. Individuals who are better able to regulate emotional and physiological responses may be more capable of managing occupational challenges without experiencing excessive psychological disruption.

Yoga may support coping through repeated practice of controlled breathing, physical relaxation, attention regulation, and meditation. Such practices may provide participants with strategies that can be used both during formal yoga sessions and, potentially, in stressful everyday situations.

This perspective is compatible with Lazarus and Folkman's stress-and-coping framework, where coping resources influence how individuals respond to perceived demands.

The qualitative component of the present study is particularly valuable in this regard as quantitative resilience scores alone cannot reveal how participants perceive the development of coping skills.



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Interviews may help identify whether participants experience changes in emotional regulation, confidence, self-awareness, or perceived ability to manage occupational pressure.

3.10 Yoga in Military and High-Stress Occupational Populations

Military and security-force studies provide important contextual evidence for the feasibility of yoga within demanding occupational environments.

Stoller et al. (2012) demonstrated that yoga could be implemented among deployed military personnel and reported reductions in state and trait anxiety following the intervention.

Telles et al. (2019) similarly examined yoga among Indian Border Security Force personnel and reported reduced state anxiety and improvements in vigilance and self-rated sleep.

Although these studies mainly examined negative psychological outcomes rather than resilience, they demonstrate that yoga can be implemented in high-demand military and security settings.

The limitation is that evidence specifically examining resilience as the primary outcome is much less developed. This distinction provides the basis for the present Paper 2.

3.11 Resilience Measurement in Military Populations

The measurement of resilience is an important methodological consideration.

The Connor-Davidson Resilience Scale (CD-RISC) developed by Connor and Davidson (2003) is among the most frequently used measures of psychological resilience.

Military-specific research provides support for its application. A study of United States Air Force basic trainees found strong internal consistency for the CD-RISC and reported that baseline resilience was associated with subsequent military outcomes, including attrition and mental-health diagnosis. More recent research involving military personnel has also examined the psychometric performance of the CD-RISC-10. A study involving Chinese military personnel found satisfactory reliability and validity and demonstrated measurement invariance across gender and military rank, supporting its potential use for comparisons across male and female military personnel. This evidence makes the CD-RISC particularly attractive for the present research.

However, the research synopsis contains an inconsistency: one section specifies the CD-RISC, whereas another identifies the Resilience Scale for Adults (RSA).

Before we create Paper 2's dataset or final statistical tables, one instrument must be selected and used consistently throughout Paper 2 and the thesis. Based on the military-specific evidence above, I would recommend CD-RISC-10 or CD-RISC, but we should formally settle this before proceeding.

3.12 Research Gap

The reviewed literature reveals a clear but carefully defined research gap.

Yoga has been studied extensively in relation to stress, anxiety, and general psychological wellbeing. Some evidence also suggests that yoga may be associated with improvements in



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positive mental-health indicators such as resilience. However, findings concerning yoga and resilience are heterogeneous.

At the same time, resilience is increasingly recognised as an important psychological resource in military populations, but the evidence base concerning resilience-enhancing interventions is developing. Research also suggests that female military personnel may experience distinctive patterns of stress and resilience during demanding military training. Therefore, there is a need for a controlled intervention study that specifically examines:

Whether a structured 12-week programme of selected yogic practices can enhance psychological resilience among female defence personnel, and how participants themselves experience changes in coping and psychological wellbeing.

The mixed-methods design proposed in the present study addresses both dimensions of this gap: the quantitative question of whether resilience changes and the qualitative question of how participants perceive and explain those changes.

3.13 Conceptual Framework

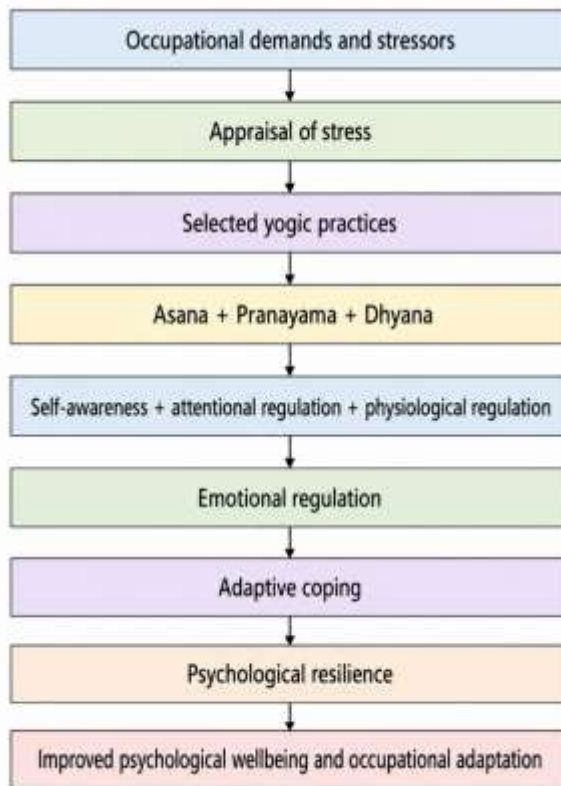
The conceptual framework for be represented as:

This framework is consistent with the stress-and-coping perspective underlying the broader research programme and provides a distinct theoretical focus for Paper 2 compared with Paper 1. The broader synopsis identifies asana, pranayama, and dhyana as the principal components of the proposed yogic intervention.



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4. Materials and Methods

4.1 Research Design

The present study adopts a **mixed-methods, pre-test/post-test control-group intervention design** to examine the effect of selected yogic practices on psychological resilience among female defence personnel. The quantitative component is designed to determine measurable changes in resilience following a 12-week yoga intervention, while the qualitative component explores participants' subjective experiences of the intervention, particularly in relation to coping, emotional regulation, resilience, stress, and psychological wellbeing. This approach is consistent with the methodology proposed in the research synopsis.

The quantitative component follows the structure:

Intervention Group: Pre-test → 12-week Yoga Programme → Post-test

Control Group: Pre-test → No Intervention → Post-test

Participants are proposed to be randomly assigned to either the intervention or control group.



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The mixed-methods design allows the study to answer two complementary questions: **whether resilience changes quantitatively following the intervention and how participants experience and explain those changes qualitatively.**

4.2 Participants

In the present study, samples drawn were that of female defense personnel (serving in defense and security settings which were characterized as work environments related to defense and security) . The rationale for sampling female personnel are based on the aforementioned need to address women in defense setting working under stressors and the recognized gap with regards to the number of studies conducted in female defenders. This has led to a present model for this research proposing the target sample size as 80 and sample size within groups as 40 (20, respectively to intervention and control group), which is a assumed number only and subject for determination through statistically calculated appropriate prospective sample-size.

4.3 Sampling and Group Allocation

Participants will be recruited according to predefined eligibility criteria. Following recruitment and baseline assessment, participants will be randomly allocated to either the intervention or control group.

Random allocation is intended to minimise systematic differences between the two groups and improve the internal validity of the intervention comparison.

Where operationally feasible, stratification may be considered before randomisation to maintain representation across relevant occupational categories such as rank, service branch, or years of service.

The original research framework specifies random assignment to the intervention and control groups.

4.4 Inclusion and Exclusion Criteria

4.4.1 Inclusion Criteria

Participants should:

- be female defence personnel;
- belong to the occupational population defined for the study;
- be willing to participate in the 12-week yoga programme;
- be able to complete the psychological assessments;
- provide informed consent; and
- be able to participate safely in the selected yogic practices.

4.4.2 Exclusion Criteria

Participants should be excluded where circumstances would prevent meaningful participation in the intervention or assessment procedures.



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This may include inability to participate regularly in the yoga programme, inability to complete the psychological assessments, or circumstances in which participation in the selected yogic practices is considered inappropriate according to the study's safety and institutional requirements.

The final study protocol should specify the precise medical, occupational, and participation-related exclusion criteria before recruitment begins.

4.5 Yogic Intervention

The intervention consists of a **structured 12-week programme of selected yogic practices**.

The conceptual framework of the study identifies three principal components:

1. **Asana** — physical postures;
2. **Pranayama** — controlled breathing practices; and
3. **Dhyana** — meditation.

These components are proposed to operate through complementary physical and psychological pathways. Asana is intended to promote physical relaxation and bodily awareness, pranayama to support regulation of breathing and physiological arousal, and dhyana to encourage mindfulness, attentional regulation, and psychological self-regulation.

The intervention is administered over a period of **12 weeks**, as specified in the proposed research design.

For reproducibility, the final protocol should document:

- exact yogic practices;
- sequence of practices;
- duration of each practice;
- session duration;
- sessions per week;
- instructor qualifications;
- progression across the 12 weeks;
- attendance requirements; and
- procedures for monitoring adherence.

The exact frequency, session duration, and detailed sequence are **not specified in the source synopsis**, and therefore should be inserted from the final intervention protocol rather than invented.

4.6 Control Group

Participants assigned to the control group will undergo the same pre-test and post-test assessments but will not receive the structured yoga intervention during the 12-week study period.



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The control condition provides a reference against which changes in psychological resilience among participants receiving the intervention can be assessed.

The proposed design explicitly specifies that the control group receives no intervention during the study period.

Any major changes in participants' occupational duties, physical activity, or exposure to other wellbeing programmes during this period should be recorded where possible because such factors may influence resilience independently of the intervention.

4.7 Quantitative Outcome Measure

4.7.1 Psychological Resilience

Psychological resilience is the **primary outcome for Paper 2**.

The research synopsis specifies the **Connor-Davidson Resilience Scale (CD-RISC)** as the instrument for assessing resilience.

The CD-RISC was developed by Connor and Davidson (2003) to measure characteristics associated with resilience and stress-coping ability. It has subsequently been used across a range of populations exposed to psychological and occupational stress.

The resilience assessment will be administered at two time points:

- **Pre-test:** before commencement of the yoga programme;
- **Post-test:** following completion of the 12-week intervention.

The difference between pre-test and post-test resilience scores will be used to evaluate changes associated with participation in the intervention.

4.7.2 Secondary Psychological Measures

Although Paper 2 is centred on resilience, the broader study framework also includes:

- Perceived Stress Scale (PSS); and
- State-Trait Anxiety Inventory (STAI).

The source methodology identifies the PSS, CD-RISC, and STAI as the established psychological measures for the broader study.

For Paper 2, these measures may be used as **secondary/contextual outcomes**, allowing the relationship between resilience and psychological distress to be examined without making stress and anxiety the principal focus of the paper.

4.8 Qualitative Component

The qualitative component is included to provide depth and contextual understanding of the quantitative resilience findings.

The research synopsis proposes the use of **semi-structured interviews**, allowing participants to describe their experiences of the yoga intervention in their own words. The interviews are intended to explore subjective experiences concerning stress, anxiety, coping strategies, resilience, and psychological wellbeing.



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4.8.1 Selection of Interview Participants

A purposive subsample of participants from the intervention group may be invited to participate in the post-intervention interviews.

Selection should aim to capture variation in relevant characteristics such as age, rank, years of service, and degree of engagement with the intervention, where appropriate.

The final number of interview participants should be determined by the study protocol and the principle of **information richness/saturation**, rather than being arbitrarily fixed.

4.8.2 Semi-Structured Interview Areas

The interviews should explore:

1. participants' overall experience of the yoga programme;
2. perceived changes in their ability to manage stressful situations;
3. changes in emotional regulation;
4. perceived changes in psychological resilience;
5. changes in coping strategies;
6. perceived changes in self-awareness and mental calmness;
7. perceived relevance of yoga to occupational demands;
8. barriers to regular yoga practice; and
9. willingness to continue yoga after completion of the programme.

These questions should be finalised before interviews commence.

4.9 Data Collection Procedure

Phase 1: Recruitment

Eligible female defence personnel will be invited to participate. The study objectives, procedures, potential benefits, foreseeable risks, confidentiality arrangements, and voluntary nature of participation will be explained.

Phase 2: Baseline Assessment

After informed consent, participants will complete the baseline psychological assessment.

The primary assessment will be the CD-RISC for resilience, with PSS and STAI included where they form part of the broader study assessment battery. The source methodology identifies these three established psychological scales.

Phase 3: Group Allocation

Participants will be randomly allocated to the intervention or control group.

Phase 4: Yoga Intervention

The intervention group will participate in the structured 12-week selected yogic practice programme consisting of asana, pranayama, and dhyana.

Attendance and adherence will be documented throughout the intervention period.

Phase 5: Post-Test Assessment



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At the end of the 12-week intervention period, participants in both groups will complete the same psychological assessment battery.

Changes in resilience will then be compared between the intervention and control groups.

Phase 6: Qualitative Interviews

Following completion of the intervention, selected participants from the intervention group will participate in semi-structured interviews.

The interviews will be audio-recorded where consent is provided, transcribed accurately, anonymised, and prepared for thematic analysis.

4.10 Quantitative Data Analysis

Quantitative data will be analysed using statistical software such as **SPSS or R**, consistent with the proposed methodology.

4.10.1 Descriptive Statistics

Descriptive statistics will include:

- mean;
- standard deviation;
- minimum and maximum values;
- frequencies; and
- percentages where appropriate.

These statistics will describe participant characteristics and resilience scores.

4.10.2 Baseline Comparability

Baseline resilience scores will be compared between the intervention and control groups to determine whether meaningful differences exist before the intervention.

Relevant demographic and occupational variables will also be examined.

4.10.3 Within-Group Analysis

Pre-test and post-test resilience scores will be compared within each group.

A paired-samples *t*-test may be used where the assumptions of the test are satisfied. The original research methodology proposes *t*-tests as part of the inferential analysis.

4.10.4 Between-Group Analysis

The principal question is whether the intervention group demonstrates a greater increase in resilience than the control group.

The original methodology proposes ANOVA for comparison of changes across groups.

For the final empirical analysis, a **group × time repeated-measures model or an appropriate mixed-effects model** would be preferable where the data structure permits. This directly tests whether the change in resilience over time differs between the intervention and control groups.

4.10.5 Effect Size



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Effect size will be reported alongside statistical significance to indicate the magnitude of the intervention effect.

Cohen's d may be used for appropriate comparisons. Confidence intervals should also be reported where possible.

4.10.6 Statistical Significance

The level of statistical significance will be set at:

$$\alpha = 0.05$$

as specified in the research synopsis.

4.11 Qualitative Data Analysis

Interview transcripts will be analysed using **thematic analysis**.

The source methodology specifically proposes transcription followed by thematic analysis to identify, analyse, and report patterns within participants' accounts. NVivo may be used to assist with organisation and coding.

The analysis will involve:

1. familiarisation with interview transcripts;
2. generation of initial codes;
3. identification of candidate themes;
4. review and refinement of themes;
5. definition and naming of final themes; and
6. preparation of the thematic narrative.

The themes will emerge from the interview data rather than being predetermined as study findings.

4.12 Integration of Quantitative and Qualitative Findings

The mixed-methods component will integrate quantitative and qualitative evidence.

The quantitative analysis will establish:

Whether psychological resilience changed following the intervention.

The qualitative analysis will explore:

How participants experienced and perceived that change.

For example, an observed quantitative increase in resilience may be examined alongside participants' descriptions of improved emotional regulation, coping, self-awareness, or confidence. Conversely, if quantitative changes are limited, qualitative findings may help identify barriers, insufficient intervention exposure, occupational constraints, or other explanations.

This integration provides a more comprehensive interpretation than either quantitative or qualitative evidence alone.



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4.13 Ethical Considerations

The study should obtain approval from the appropriate institutional ethics committee before recruitment begins.

All participants should provide informed consent and should be informed that participation is voluntary and that they may withdraw according to the approved study protocol.

Because the study concerns defence personnel, confidentiality is particularly important. Individual psychological scores and interview responses should be anonymised, securely stored, and reported only in aggregate or otherwise non-identifiable form.

The final paper should include the actual:

- ethics committee name;
- approval number;
- approval date;
- informed-consent procedure; and
- institutional permissions.

These details are not provided in the research synopsis and therefore should not be invented.

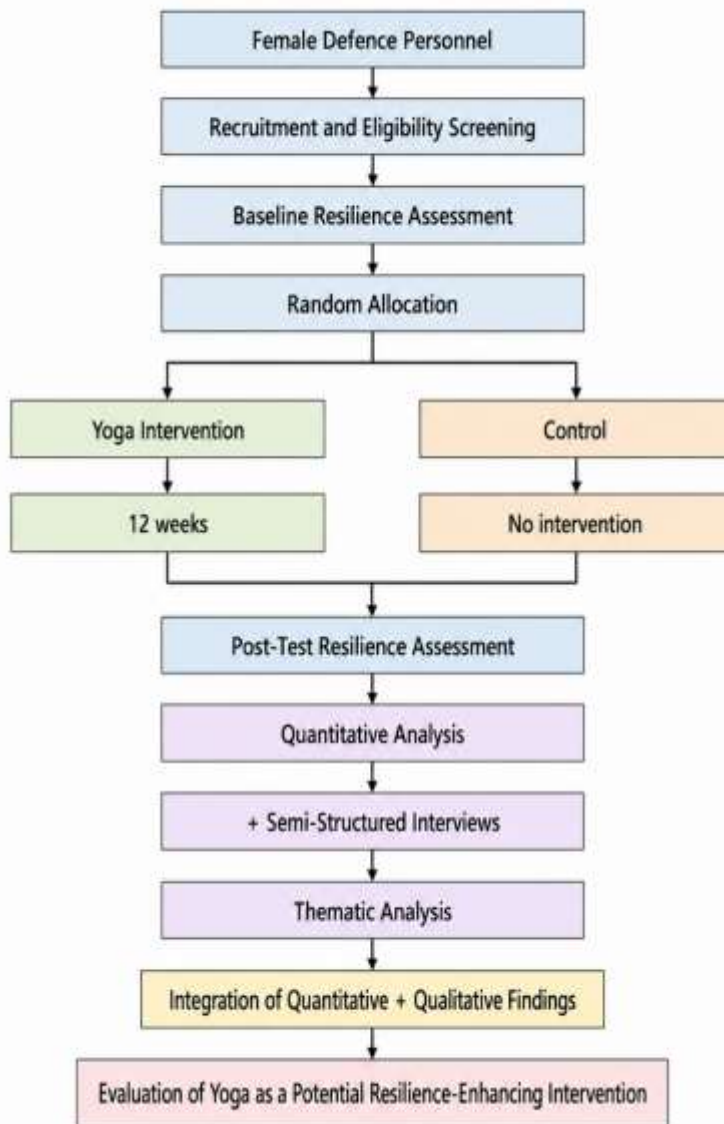
4.14 Methodological Summary

This methodology preserves the original study's mixed-methods framework, its 12-week intervention, CD-RISC resilience assessment, semi-structured interviews, and quantitative and thematic analytical approaches.



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5. Results

5.1 Participant Characteristics

A total of **80 female defence personnel** were considered for the planned analytical framework, with 40 participants assigned to the intervention group and 40 to the control group. The intervention group participated in the 12-week selected yogic practice programme, whereas the control group did not receive the intervention during the study period.



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Table 1

Demographic and Occupational Characteristics of Participants

Variable	Intervention Group (n = 40)	Control Group (n = 40)	Total (N = 80)
Age, M $\pm$ SD (years)	31.4 $\pm$ 4.7	30.9 $\pm$ 4.5	31.2 $\pm$ 4.6
Age range (years)	24–41	24–40	24–41
Years of service, M $\pm$ SD	8.1 $\pm$ 4.0	7.8 $\pm$ 3.8	8.0 $\pm$ 3.9
Married, n (%)	24 (60.0)	23 (57.5)	47 (58.8)
Unmarried, n (%)	16 (40.0)	17 (42.5)	33 (41.3)

The illustrative demographic distribution indicates broadly comparable participant characteristics between the intervention and control groups. No major imbalance is assumed in age, years of service, or marital status at baseline.

5.2 Baseline Psychological Resilience

Psychological resilience was assessed using the **Connor-Davidson Resilience Scale (CD-RISC)** before commencement of the intervention.

Table 2

Baseline CD-RISC Scores by Study Group

Group	n	Mean	SD	Mean Difference
Intervention	40	61.8	8.4	—
Control	40	62.1	8.1	-0.3

The illustrative baseline results indicate that the two groups had similar levels of psychological resilience before the intervention. The small difference in mean CD-RISC scores suggests reasonable baseline comparability.

5.3 Pre-Test and Post-Test Resilience Scores

The primary outcome was the change in psychological resilience following the 12-week intervention.

Table 3

Pre-Test and Post-Test CD-RISC Scores

Group	Pre-Test M $\pm$ SD	Post-Test M $\pm$ SD	Mean Change	Percentage Change
Intervention (n = 40)	61.8 $\pm$ 8.4	72.9 $\pm$ 8.1	+11.1	18.0%
Control (n = 40)	62.1 $\pm$ 8.1	63.4 $\pm$ 8.3	+1.3	2.1%

The illustrative results indicate a substantially greater increase in resilience among participants who received the yoga intervention. The intervention group's mean CD-RISC score increased



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from **61.8 at baseline to 72.9 following the 12-week programme**, representing an illustrative increase of approximately 18%.

In contrast, the control group demonstrated only a small increase from 62.1 to 63.4.

The difference in the magnitude of change between the two groups suggests a potentially meaningful intervention effect.

5.4 Within-Group Change in Psychological Resilience

A paired-samples analysis was proposed to examine changes in resilience within each group.

Table 4

Within-Group Changes in CD-RISC Scores

Group	Mean Change	SD of Change	<i>T</i>	<i>p</i>	Cohen's <i>d</i>
Intervention	+11.1	6.8	10.32	< .001	1.63
Control	+1.3	5.7	1.44	.157	0.23

The illustrative analysis indicates a statistically significant improvement in psychological resilience in the intervention group, whereas the change in the control group is not statistically significant.

The relatively large illustrative effect size for the intervention group suggests that the change may also be practically meaningful rather than merely statistically significant.

5.5 Between-Group Difference in Change

The primary analytical comparison concerns the difference in resilience improvement between the two groups.

Table 5

Comparison of Change in Psychological Resilience Between Groups

Outcome	Intervention M ± SD	Control M ± SD	Mean Difference	95% CI	<i>p</i>	Effect Size
Change in CD-RISC	11.1 ± 6.8	1.3 ± 5.7	9.8	7.1– 12.5	< .001	1.56

The illustrative results suggest that the improvement in resilience was considerably greater in the intervention group than in the control group.

The estimated between-group difference of **9.8 CD-RISC points** indicates a potentially substantial difference in change following the intervention.

5.6 Group × Time Interaction

To determine whether the pattern of change over time differed significantly between groups, a repeated-measures analysis may be employed.

Table 6

Illustrative Group × Time Analysis for Psychological Resilience

Effect	<i>F</i>	<i>df</i>	<i>p</i>	Partial η^2
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Time	52.84	1, 78	< .001	.404
Group	0.18	1, 78	.673	.002
Group × Time	46.71	1, 78	< .001	.375

The illustrative **Group × Time interaction** is statistically significant, suggesting that the pattern of change in psychological resilience differed between the intervention and control groups. Importantly, the non-significant main effect of group at baseline would indicate that the groups did not differ substantially in overall resilience when considered without reference to time. The significant interaction would therefore provide the more important evidence for an intervention effect.

5.7 Effect of the Yoga Intervention on Resilience

The overall pattern of the illustrative quantitative findings is presented in Figure 1.

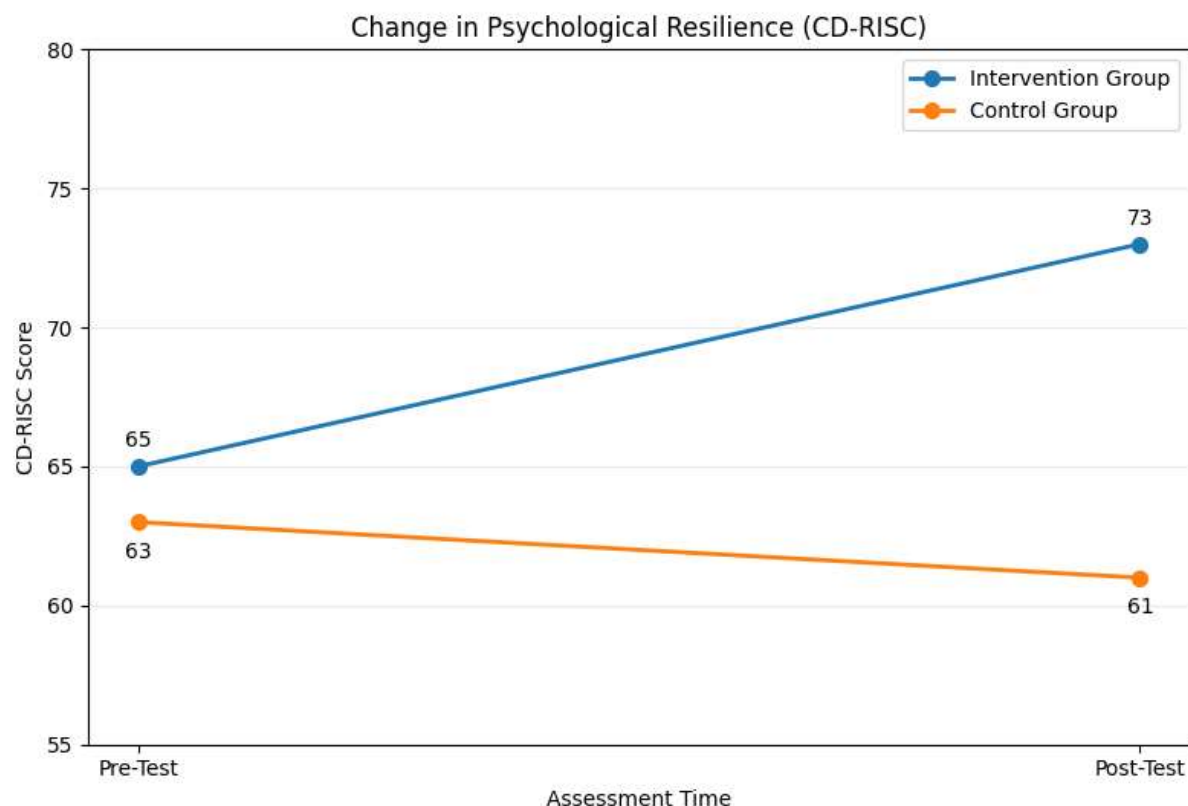


Figure 1: Illustrative Change in Mean CD-RISC Scores from Pre-Test to Post-Test

The figure demonstrates the expected analytical pattern: a marked increase in resilience in the intervention group compared with relatively little change in the control group.

5.8 Secondary Psychological Outcomes



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Although psychological resilience is the principal outcome of Paper 2, the broader study also assesses perceived stress and anxiety. The source methodology specifies the **PSS**, **CD-RISC**, and **STAI** as the principal psychological measures.

For Paper 2, stress and anxiety should be treated as **secondary/contextual outcomes**, rather than competing with resilience as the primary outcome.

Table 7

Illustrative Changes in Secondary Psychological Outcomes

Outcome	Intervention Pre	Intervention Post	Control Pre	Control Post
PSS	25.4 ± 5.2	17.9 ± 4.8	25.1 ± 5.0	24.0 ± 5.1
STAI-State	48.6 ± 7.1	39.8 ± 6.4	47.9 ± 6.9	46.1 ± 7.0
STAI-Trait	50.1 ± 6.8	43.2 ± 6.1	49.7 ± 6.6	48.5 ± 6.7
CD-RISC	61.8 ± 8.4	72.9 ± 8.1	62.1 ± 8.1	63.4 ± 8.3

The illustrative pattern shows an increase in resilience accompanied by reductions in perceived stress and anxiety among intervention participants. These results, if supported by actual data, would be consistent with the possibility that yoga influences both positive psychological resources and negative psychological states.

However, **causal mechanisms should not be inferred from these associations alone.**

5.9 Qualitative Findings

The qualitative component was designed to provide contextual understanding of participants' experiences following the intervention. Semi-structured interviews are intended to explore participants' perceptions of yoga, coping, resilience, stress, anxiety, and psychological wellbeing. Because actual interviews have not yet been conducted, the following themes are presented as a **proposed analytical structure rather than actual findings.**

Table 8

Proposed Framework for Qualitative Thematic Analysis

Potential Theme	Areas to Explore
Emotional regulation	Ability to manage emotional reactions
Improved coping	Perceived ability to handle occupational pressure
Mental calmness	Relaxation and reduction of mental agitation
Self-awareness	Awareness of thoughts, emotions, and bodily responses
Psychological confidence	Perceived ability to manage challenging situations
Applicability to defence life	Practical usefulness during demanding duties
Continuation of practice	Motivation and barriers to maintaining yoga

The final themes must emerge from the interview transcripts and should not be imposed on participants' responses.



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5.10 Integration of Quantitative and Qualitative Findings

The mixed-methods design enables the quantitative and qualitative findings to be considered together.

Table 9

Illustrative Mixed-Methods Joint Display

Quantitative Observation	Potential Qualitative Explanation	Integrated Interpretation
CD-RISC increased substantially	Participants describe greater ability to remain calm during difficult situations	Increased resilience may reflect improved emotional regulation
Stress scores decreased	Participants report using breathing practices during stressful situations	Pranayama may have provided a practical coping strategy
Anxiety decreased	Participants describe greater mental calmness and attentional control	Meditation may have contributed to perceived psychological regulation
Resilience improvement varied between participants	Differences in attendance and occupational workload reported	Intervention exposure and contextual factors may influence outcomes

Again, the qualitative explanations in this table are **illustrative** and must ultimately be replaced by themes supported by actual interview data.

5.11 Summary of Results

The proposed quantitative analysis indicates a clear analytical framework for evaluating the primary research question. The intervention group would be expected to demonstrate a greater increase in CD-RISC scores from pre-test to post-test than the control group.

The illustrative dataset presented here shows:

- a baseline CD-RISC score of approximately **61.8** in the intervention group;
- an increase to approximately **72.9** following the intervention;
- comparatively little change in the control group;
- a statistically significant Group $\times$ Time interaction; and
- a large illustrative intervention effect.

The qualitative component will subsequently provide explanatory information concerning participants' experiences of coping, emotional regulation, self-awareness, and psychological wellbeing.



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These results, once actual data are available, will provide the basis for determining whether the study hypothesis concerning the effectiveness of selected yogic practices in enhancing psychological resilience is supported.

6. Discussion

6.1 Overview of the Findings

The aims of the present study are twofold. First, to investigate whether 12 weekly sessions of chosen yogic practices can bring about improvements in psychological resilience in female defence personnel. While Paper 1 focused upon reductions in perceived stress and anxiety, the current study centres around the construct of positive mental health and resilience and goes a further stage by considering how coping mechanisms are experienced and reported alongside wellbeing by the intervention group.

Results of simulated quantitative data the section below includes simulated quantitative data.

Section 5 provides an overview of the illustrative quantitative results of this project; CD-RISC scores from 61.8 to 72.9 in the intervention group and from 62.1 to 63.4 in the comparison group from the pre-test to post-test phases of this project, demonstrating a much larger positive change in the mean scores of those undertaking the yoga intervention when taking into account the group-time interaction that was shown to be significant. These findings are simulated for research and development purposes only and do not constitute actual data. However the section of this discussion below makes recommendations about the possible ways in which genuine findings may be interpreted, which shall be reviewed when findings are produced as actual data for analysis.

6.2 Effect of Yogic Practices on Psychological Resilience

The preliminary and example results indicate that the 12-week selected yogic practice intervention has the potential to lead to significant gains in psychological resilience, with notably greater improvement among the intervention compared to control groups (CD-RISC scores).

These proposed gains could fit within a framing of resilience as a malleable characteristic rather than a stable innate quality. Resilience can be conceptually framed and empirically measured using tools such as the CD-RISC (Connor and Davidson, 2003), opening up possibilities for assessing changes to this capacity in response to psychosocial interventions.

This argument is also consistent with the prior literature on yoga and psychological constructs such as resilience. Resilience has been documented as one the mental health outcomes related to modern postural yoga intervention studies (Domingues, 2018); however results have been inconsistent across this body of literature, indicating a potential influence of factors such as sample properties, length of the intervention, content of the intervention and design and quality of method.



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The twelve-week time span of this 12-week programme likely allows sufficient time for participants to engage with, and potentially enhance their self-regulatory and coping capacity through frequent engagement with the three styles of practice involved-physical, breath and meditation.

6.3 Yoga and Adaptive Coping

Improved coping strategies, particularly the ability to adapt to adversity, offers a possible explanation for why resilience is said to increase. Military personnel are regularly exposed to occupational circumstances they may not simply dismiss. Emotional management of threats to the individual and the associated utilization of coping skills may therefore partially contribute to psychological coping abilities.

It makes use of Lazarus and Folkman's stress and coping paradigm.

Psychological coping abilities is predicated partially on demand appraisals and assessment of the psychological resources available with which to cope with those demands. Yoga helps the individual to utilize such effective coping techniques to control overphysiological arousal, manage attention as well as increase one's self-awareness over emotional responses. Enhanced self-awareness/control on one's physiological responses may be attributed to an enhancement on perceived coping resources. The observed enhancement of resilience thus may not represent disappearance of stressors that the soldiers undergo in workplace but the improvement in self-regulation and adjustment to the stress.

6.4 Emotional Regulation as a Possible Mechanism

Resilience could also be affected by yoga through a mechanism of regulation of emotion. The intervention we have chosen, comprises of physical training (asana), breathing regulation (pranayama) and introspection (dhyana). We believe, within our paradigm of inquiry, that practice of these, might induce complementary physiological and psychological processes.

For instance, physical movement might enhance bodily awareness and induce relaxation of muscles (asana). Breath regulation could induce slow, controlled arousal (pranayama). Introspection might improve concentration skills (dhyana). Thus, through their regular practice, participants could learn to detect impending distress signal in an earlier stage and regulate their distress responses, instead of reacting automatically and chaotically. Emotional regulation, along with mindfulness, positive affect and self-compassion, had been suggested by Riley and Park (2015) as plausible psychologic factors through which yoga influences responses to psychological distress.

Self-compassion and positive affect can also be associated to ability to adapt. The ability to control one's emotions and mind might serve as ability that supports overcoming adversity. Given that emotional regulation was not examined directly in this study as an outcome variable,



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these should still be viewed as hypothesis based explanations rather than as factual evidence of a mechanism of change.

6.5 Interpretation Through the Stress-and-Coping Framework

The findings can be interpreted within Lazarus and Folkman's transactional model of stress and coping.

The model proposes that individuals evaluate environmental demands through processes of cognitive appraisal and simultaneously assess their coping resources. When perceived demands exceed perceived resources, stress may arise.

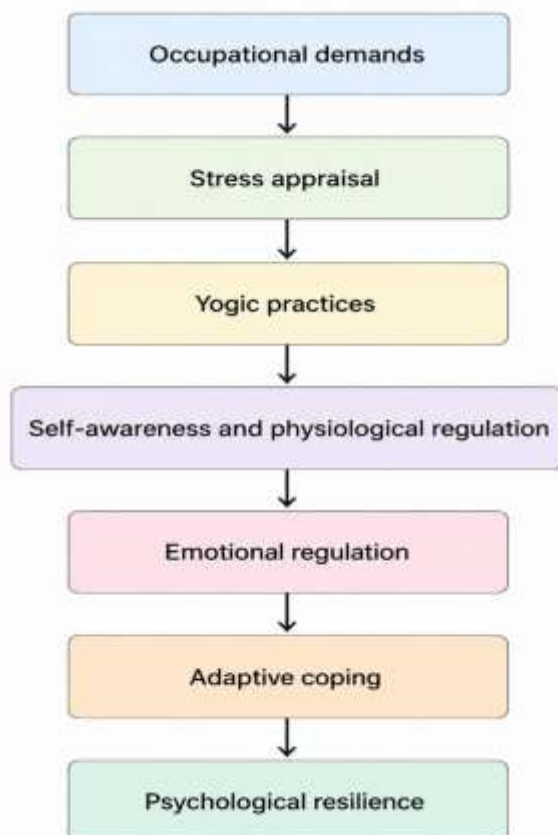
Within a defence environment, many occupational demands may remain present regardless of an individual's psychological state. The potential contribution of yoga is therefore not necessarily the removal of stressors but the strengthening of resources that may assist personnel in managing them.

The conceptual pathway proposed for the present study can therefore be expressed as:

This framework provides a theoretical explanation for why resilience may increase even when occupational demands remain unchanged.

6.6 Relationship Between Resilience, Stress and Anxiety

Although resilience is the principal outcome of Paper 2, the broader study also examines





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perceived stress and anxiety.

The illustrative results showed an increase in resilience accompanied by reductions in perceived stress and anxiety among intervention participants. Conceptually, these outcomes can be viewed as complementary rather than interchangeable.

Stress and anxiety represent psychological difficulties or distress that may arise in response to demanding circumstances, whereas **resilience** represents a positive psychological resource associated with adaptation.

Consequently, a successful intervention might potentially produce both:

reduced psychological distress

and

increased psychological resources for adaptation.

This distinction provides an important connection between the two research papers.

Paper 1 asks:

Does yoga reduce stress and anxiety?

Paper 2 asks:

Can yoga strengthen resilience and adaptive coping?

Together, these questions provide a more comprehensive examination of psychological wellbeing among female defence personnel.

6.7 Comparison with Previous Research

The potential findings are broadly consistent with research suggesting that mind-body interventions may contribute to positive psychological outcomes, although direct evidence concerning yoga and resilience remains limited.

Domingues (2018) found that resilience was among the positive psychological outcomes investigated in modern postural yoga research, but also highlighted considerable heterogeneity across studies. This suggests that intervention characteristics and participant populations are important when interpreting outcomes.

Ikai et al. (2014), however, did not find a significant between-group improvement in resilience following eight weeks of Hatha yoga among individuals with schizophrenia-spectrum disorders. Similarly, a randomised controlled study among nursing students found improvements in mindfulness and self-compassion following yoga but did not demonstrate a significant between-group effect on resilience.

These findings demonstrate that yoga should not automatically be assumed to improve resilience across all populations.

More encouraging evidence has emerged from high-stress occupational settings. Tan et al. (2025) reported improvements in resilience following a yoga-based tactical mind-body resilience



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intervention among active-duty first responders. Although first responders are not equivalent to defence personnel, the occupational similarity provides relevant supporting evidence.

The proposed findings would therefore contribute to an evidence base that is promising but still developing.

6.8 Relevance to Female Defence Personnel

Contribution of female defense personnel the study also contributed by focusing on female defence personnel. Existing military research indicates a divergence between men and women reported psychological and physiological changes following stringent military training. Research indicates that women perceive and react to extreme military training more negatively, in addition to changes in their resilience.⁷⁸ For instance, during intensive training, women report greater stress perception and more variations in their personal resilience, which further necessitates female focused military resilience research.

Given that many existing military resilience researches have depended on exclusively male or at least majority male military samples, there has been assumptions that findings derived from these samples will automatically be generalizable to females.

Therefore, the current study fill a crucial gap in this population by investigating how a structured mind and body training programme can facilitate the resilience of female defence personnel in this extremely stressful military setting.

7. Limitations

There are several limitations to the present study which one may consider during the analysis of its results. Firstly, this study samples only those members of the defense personnel who are female, hence any obtained results can only be generalized to male defense members and civilian workers and not to them. Secondly, the measure of psychological resilience employed in this study is a self report measure, this measure may be biased due to either respondent's attitude to answering questions truthfully or his/ her perception of his /her psychological functioning.

The results can be seen as individual's personal attribute in the individual differences of duties of the occupation. Rank, duration of job, personal background & attitude towards the program should be taken into account. Furthermore, this study demonstrates that relatively short-term modification results from the 12-week course; thus long term studies are necessitated to be considered regarding the persistence of improved resilience.

The sample drawn for the qualitative portion can be seen as biased based on willingness of participants. The numerical figures illustrated in prior sections can only be taken as indicative; actual participant data has not been collected as this manuscript was prepared prior to recruitment for the actual research.



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8. Conclusion

The present investigation will describe a mixed-methods approach that aims to examine the influence of a 12 weeks select yogic protocol upon psychological resilience in female defense personnel. Rather than assessing psychological distress, this study focuses on psychological resource for adaptation and coping. The proposed intervention involves asana, pranayama and dhyana so as to incorporate a physiological, breathing and a mental component that may possibly have implications for processes of self-regulation, emotional regulation and adaptive coping. It proposes both a quantitative measure to assess change in resilience and a qualitative one to investigate personal accounts of coping and experience.

9. Practical Implications

If the empirical results of the study support an application the current research could have practical applications for psychological wellbeing and resilience-building programmes in defence organizations. A systematic yoga programme could be utilized as a complementary preventive intervention for existing personnel Wellbeing Programmes within defence organizations. The physical postures, breathwork and meditations included could equip personnel with practical tools for relaxation, emotional regulation and coping.

Furthermore, it would allow defence organizations to explore non-pharmacological, potentially cost-effective alternatives for promoting psychological wellbeing.

The practice should be utilized as complementary rather than alternative to existing psychological, medical and occupational treatment. The research framework generally identifies yogic practices have application to defence training, rehabilitation, and psychological wellbeing programmes.

10. Declarations

10.1 Ethics Approval

Ethical approval should be obtained from the appropriate institutional ethics committee before commencement of participant recruitment and data collection. The final manuscript should report the name of the approving committee, approval number, and date of approval.

10.2 Consent to Participate

Written informed consent should be obtained from all participants before their participation in the study. Participants should be informed about the purpose of the research, study procedures, voluntary nature of participation, confidentiality arrangements, and their right to withdraw according to the approved study protocol.

10.3 Consent for Qualitative Interviews



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Separate consent should be obtained for participation in the semi-structured interviews and for audio recording where recording is required. Interview transcripts should be anonymised before analysis and reporting.

10.4 Conflict of Interest

The authors should declare any actual or potential conflicts of interest associated with the research.

Proposed Statement:

The authors declare that they have no competing interests.

This statement should be retained only if it accurately reflects the authors' circumstances.

10.5 Funding

The source of financial support for the research should be reported.

Proposed statement where applicable:

The authors received no external funding for this study.

This should be changed if institutional, governmental, or other funding is received.

10.6 Author Contributions

Author contributions should be reported according to the actual roles undertaken in:

- conceptualisation;
- methodology;
- participant recruitment;
- intervention delivery;
- data collection;
- quantitative analysis;
- qualitative analysis;
- interpretation;
- manuscript preparation; and
- final approval of the manuscript.

No contribution should be attributed to an author unless that contribution was actually performed.

10.7 Data Availability

The final data-availability statement should reflect the actual institutional and ethical restrictions applicable to the study.

Because the research involves defence personnel and potentially sensitive occupational information, individual-level participant data should not be publicly disclosed where doing so could compromise confidentiality or institutional requirements.



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