RESEARCH PAPER

Impacts Of Yogic Practices With Medication On Seasickness And Motion Sickness On Dizziness And Job Satisfaction Of Naval Personnel

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Abstract
Seasickness and motion sickness are frequent physiological challenges faced by naval personnel, often leading to dizziness, nausea, reduced morale, and impaired operational performance during sea deployment. This study evaluated the effectiveness of integrating yogic practices with conventional medication in reducing motion sickness symptoms and enhancing job satisfaction among naval officers and sailors. The intervention focused on two key variables: dizziness, measured using a standardized vestibular scale, and job satisfaction, assessed through a Likert-based feedback index. A total of 320 participants were randomly assigned into two groups: one received medication alone, and the other received a structured yoga program alongside prescribed medication. After 12 weeks of intervention, the yoga and medication group demonstrated a 60.4% reduction in dizziness scores and a 72.0% improvement in job satisfaction scores. In comparison, the medication-only group showed a 23.4% reduction in dizziness and a 29.2% improvement in job satisfaction. The results indicate that combining yoga with pharmacological treatment significantly enhances symptom relief and boosts occupational well-being. This study recommends the integration of yoga-based wellness modules into naval health management systems for sustained motion adaptation, improved balance, and enhanced overall functional performance at sea.

Keywords: Seasickness, Motion Sickness, Naval Personnel, Yoga, Job Satisfaction

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1. Introduction

Seasickness, a prevalent and disruptive condition among naval personnel, poses a critical challenge to performance and operational efficiency. It arises when the body's sensory systems, particularly the vestibular, visual, and proprioceptive, receive conflicting signals during movement, leading to nausea, dizziness, fatigue, and cognitive impairment. These symptoms are especially common during deployments on naval ships exposed to unpredictable and often harsh marine conditions. As highlighted in studies of civilian and military maritime personnel, motion sickness is not just a physiological concern but a significant operational limitation, reducing alertness, impairing focus, and potentially endangering mission outcomes (Gupta et al., 2021; Leung & Hon, 2019).The prevalence of seasickness among naval forces has been consistently documented in global research. For instance, Le Cloirec et al. (2024) observed that a significant proportion of French civilian sailors experienced seasickness during long voyages. Similarly, Arnardottir et al. (2022) found a high incidence among Icelandic seamen, especially during the initial days at sea. In Indian naval contexts, the challenge is equally pronounced. Gupta et al. (2021) report that 25–60% of sailors are affected, depending on sea state and duration of exposure. These statistics emphasize the need for effective and scalable interventions that can enhance sea-readiness and resilience among naval professionals.Physiologically, seasickness originates from vestibular conflict, a mismatch between what the body senses and what the eyes perceive. The inner ear's semicircular canals detect changes in acceleration and rotation, and when these signals are inconsistent with visual cues, the brain interprets it as disorientation. This confusion often manifests as dizziness, vertigo, nausea, and, in severe cases, vomiting (Huppert et al., 2019; Reuten et al., 2021). Dizziness, in particular, is a hallmark symptom of vestibular imbalance and is commonly the first indication of motion sickness onset. It impairs spatial orientation and concentration, increasing risk in high-demand operational environments.To assess these symptoms and their broader psychological implications, clinicians and researchers have developed tools such as the Vestibular Screening Tool (VST-4) for dizziness and standardized instruments to evaluate occupational and emotional well-being. One such important construct is job satisfaction, a multidimensional psychological outcome influenced by environmental conditions, stress levels, and perceived fulfilment in work roles. Among

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naval personnel, who face prolonged deployment, confined conditions, and operational stressors, job satisfaction can significantly influence mental health, motivation, and overall mission effectiveness (Park et al., 2022).While pharmacological interventions remain the first line of treatment, they primarily target physical symptoms. Historically, motion sickness has been treated using antihistamines and anticholinergic drugs, including Scopolamine, Promethazine, Dimenhydrinate, and Zofran. These medications function by suppressing the neural transmission of vestibular signals or blocking emetic pathways, providing symptomatic relief (Karrim et al., 2022). However, their use is not without drawbacks. Common side effects include drowsiness, impaired cognitive function, and reduced physical stamina, factors that can compromise performance in high-stakes naval environments. Pharmacological approaches tend to offer short-term relief rather than long-term physiological or emotional adaptation to shipboard motion (Rahimzadeh et al., 2023; Lucas et al., 2020).

In contrast, integrative approaches such as yoga have emerged as promising adjunct therapies. Yoga, an ancient Indian discipline combining physical postures (asanas), breath control (pranayama), meditative techniques, and neuromuscular locks (bandhas), is increasingly recognized for its benefits in managing stress-related, vestibular, and neurological disorders. Several modern studies support its use in enhancing autonomic regulation, improving equilibrium, and mitigating somatic symptoms like dizziness (Khajuria et al., 2023). By strengthening the body's inner balance mechanisms and calming the nervous system, yoga cultivates both physiological and psychological resilience.Of particular relevance to naval settings is yoga's potential to reduce the frequency and severity of vestibular disturbances while also positively influencing job-related morale. Practices such as Nadi Shodhana pranayama help regulate breathing and promote inner calm, while asanas like Trikonasana and Vajrasana improve posture and vestibular stability. Meditation and guided relaxation (e.g., Yoga Nidra) further assist in modulating stress responses, which are often exacerbated during rough sea conditions. These benefits align well with the demands of naval personnel, who must maintain composure and functionality despite high-pressure environments and erratic motion exposure.The combination of yoga with medication represents a holistic strategy bridging the immediate relief provided by pharmacotherapy with the long-term resilience cultivated by yogic practice. While medication can quickly suppress acute symptoms, yoga offers a sustainable and non-invasive way to condition the nervous and vestibular systems and support mental well-being. This integrative approach may also help reduce dependence on drugs, lower the risk of side effects, and enhance overall quality of life and job satisfaction during deployment. Considering the physical and psychological toll of prolonged seasickness, this dual-modality intervention holds significant promise.Although several studies have examined either medication or yoga independently in the context of motion sickness, limited research has explored their combined efficacy, particularly with respect to occupational outcomes such as job satisfaction among naval personnel. There is a need to validate such integrative strategies through controlled assessments, focusing on quantifiable indicators such as VST-4 and standardized job satisfaction metrics. Doing so would provide critical insights into how yoga can be embedded within naval wellness protocols, potentially transforming standard approaches to motion sickness and morale management.

Objectives of the Study

1. To evaluate the combined effect of yogic practices and medication on dizziness (measured using VST-4) and job satisfaction (measured using a standardized job satisfaction scale) among naval personnel
2. To assess the feasibility of incorporating integrated yoga-based interventions into routine health and morale enhancement protocols onboard naval vessels

2. Methodology

2.1 Research Design

This study adopted an experimental comparative design to investigate the combined effect of yogic practices and medication on motion sickness symptoms and occupational well-being, specifically dizziness and job satisfaction, among naval personnel. Participants were randomly assigned to two distinct groups. Group A (experimental group) received a structured yoga intervention in addition to routine medication, while Group B (control group) received only prescribed medication without any yoga involvement. The intervention lasted 12 weeks, and assessments were conducted at both the pre-test and post-test stages.

2.2 Participants

The study sample included 320 participants (160 in each group), comprising naval officers and sailors aged between 25 and 40 years, drawn from a large naval base located along India's western coast. Inclusion criteria mandated that all participants be actively serving onboard ships, certified physically fit for moderate physical activity by the ship's medical officer, and willing to provide informed consent. Personnel with known vestibular or neurological disorders unrelated to motion sickness, chronic medical conditions that would limit yoga practice, or severe psychiatric issues were excluded.

2.3 Intervention Protocol

2.3.1 Yoga Module (12 Weeks)

Participants in Group A engaged in a structured yoga program, delivered five days per week for 60 minutes per session over 12 weeks. Sessions were conducted onboard naval vessels by certified yoga trainers under the supervision of the ship's medical officer. Each

session began with an opening prayer, followed by warm-up exercises (Sthula and Sukshma Vyayama), and progressed into core yoga practices such as Surya Namaskar and selected asanas, including Trikonasana, Vajrasana, Mandukasana, Supta Vajrasana, Badha Konasana, Pawanmuktasana, and Setu Bandhasana. The session concluded with Shavasana or Yoga Nidra. Pranayama techniques included Nadi Shodhana, Bhramari, and Chandra Bhedana. Kunjal Kriya was offered once weekly as an optional practice based on individual readiness.

2.3.2 Medication Protocol

Both groups received routine anti-seasickness medication as prescribed by the naval medical officer. Medications included Scopolamine (transdermal), Promethazine and Dimenhydrinate (oral), and Ondansetron (Zofran), tailored to symptom severity and individual medical history. These were administered both as preventive and reactive strategies, aligned with real-time naval deployment scenarios.

2.4 Primary Outcome Measures

Two dependent variables were selected to assess the effectiveness of the intervention:

- Dizziness, measured using the Vestibular Screening Tool (VST-4), a standardized scale that evaluates vestibular-related disorientation on a 0–6 scale.
- Job Satisfaction, assessed using a single-item 5-point Likert scale (1 = Very Dissatisfied to 5 = Very Satisfied), capturing overall contentment with operational duties, environment, and morale.

2.5 Tools and Measurement

The VST-4 scores provided a quantitative evaluation of dizziness severity, ranging from 0 (no dizziness) to 6 (severe dizziness). The job satisfaction scale, adapted for defence personnel, used a 1 to 5 Likert format to reflect subjective occupational well-being, where higher scores indicated greater satisfaction. Both instruments were administered before and after the 12-week intervention period. Data were collected under the supervision of the ship's medical officer to ensure accuracy and consistency.

3. Results

This section presents a detailed comparative analysis of the effects of a 12-week integrated yoga and medication intervention (Group A) versus a medication-only intervention (Group B) on dizziness and job satisfaction among naval personnel. Two primary outcome measures were employed: the Vestibular Screening Tool (VST-4) for dizziness and a 5-point Likert scale for job satisfaction. A total of 320 participants (160 per group) completed both pre- and post-intervention assessments.

3.1 Dizziness Reduction (VST-4)

At baseline, dizziness levels were comparable across the two groups, with Group A recording a mean VST-4 score of 4.80 ± 0.40, and Group B at 4.70 ± 0.40. Following the 12-week intervention, Group A exhibited a significant reduction to 1.90 ± 0.40, representing a 60.4% decrease in dizziness. In contrast, Group B's VST-4 scores decreased more modestly to 3.60 ± 0.40, a 23.4% reduction from baseline.

This differential improvement in vestibular symptoms ($\Delta = -2.90$ in Group A vs $\Delta = -1.10$ in Group B) suggests that the inclusion of yogic practices contributed meaningfully to enhanced sensory integration, postural control, and vestibular stability. The comparative pre- and post-test VST-4 scores are summarized in Table 1, which clearly demonstrates a greater reduction in dizziness severity in the experimental group than in the control group.

Table 1: Pre- and Post-Intervention VST-4 Scores (Mean ± SD)

Group	Pre-Test Score	Post-Test Score	Mean Change	% Improvement
Group A	4.80 ± 0.40	1.90 ± 0.40	–2.90	60.4%
Group B	4.70 ± 0.40	3.60 ± 0.40	–1.10	23.4%

Figure 1 illustrates this contrast, highlighting a sharper decline in mean dizziness scores among participants who received yoga in addition to medication. The visual gap between pre- and post-intervention scores underscores the magnitude of vestibular adaptation achieved through the integrative approach.

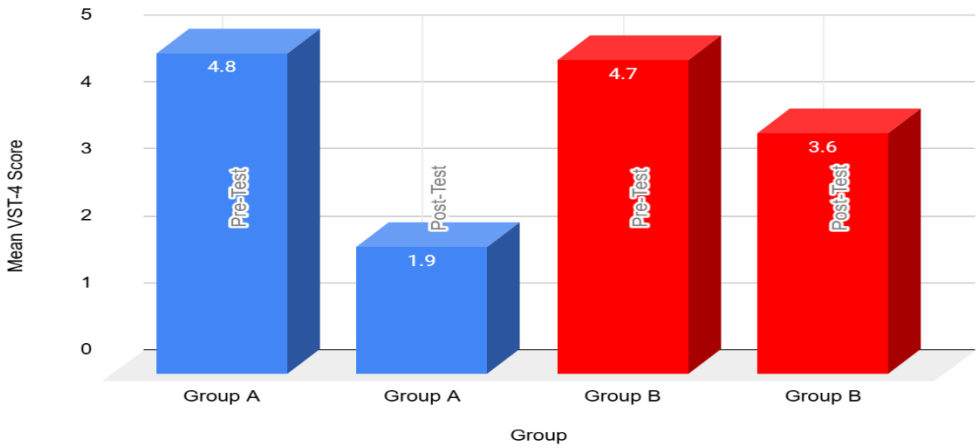

Figure 1. Comparison of VST-4 Dizziness Scores Pre- and Post-Intervention

3.2 Job Satisfaction Enhancement

Job satisfaction, assessed on a 5-point Likert scale, showed substantial divergence in post-intervention outcomes between the two groups. Group A reported an increase from a mean baseline score of 2.50 ± 0.60 to 4.30 ± 0.40, translating to a 72.0% improvement. In contrast, Group B improved from 2.40 ± 0.60 to 3.10 ± 0.50, a more modest 29.2% gain.

The mean gain in job satisfaction for Group A was +1.80, more than double the improvement seen in Group B (+0.70). These findings suggest that the psychosomatic benefits of yoga through mechanisms such as stress modulation, emotional regulation, and mindfulness may have significantly influenced perceptions of workplace satisfaction. As presented in Table 2, job satisfaction scores improved more significantly in Group A, suggesting a stronger psychosocial benefit associated with the combined yoga and medication intervention.

Table 2: Pre- and Post-Intervention Job Satisfaction Scores (Mean ± SD)

Group	Pre-Test Score	Post-Test Score	Mean Change	% Improvement
Group A	2.50 ± 0.60	4.30 ± 0.40	+1.80	72.0%
Group B	2.40 ± 0.60	3.10 ± 0.50	+0.70	29.2%

As shown in Figure 2, the elevation in job satisfaction scores is visibly more pronounced in Group A, further affirming the holistic impact of yoga on both physical and occupational well-being.

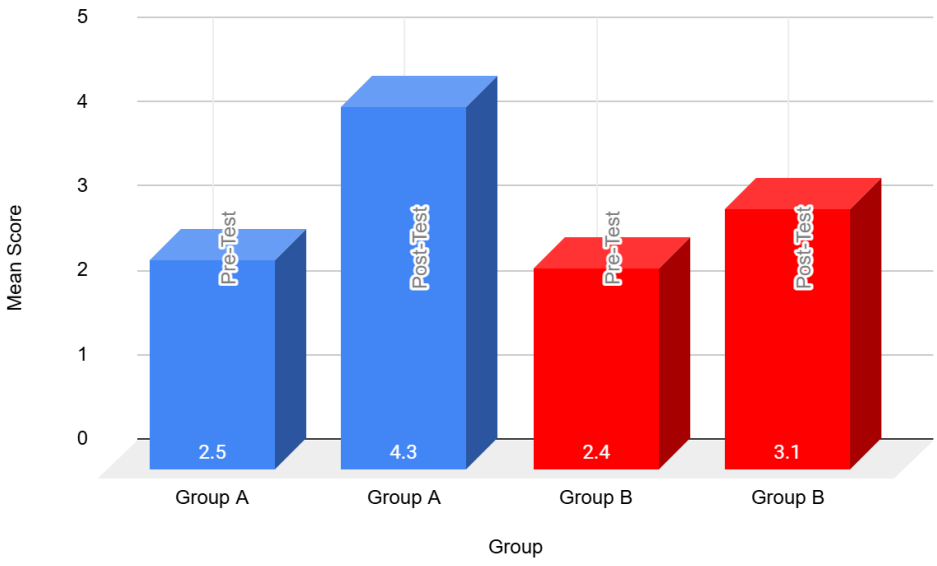

Figure 2. Pre- and post-intervention job satisfaction scores

3.3 Integrated Outcome Comparison

A side-by-side comparison of both outcome variables reveals a consistent pattern: Group A outperformed Group B on both physiological and psychological domains. The magnitude of improvement was notably higher when yoga was incorporated, suggesting a synergistic effect between physical postures, breathwork, and pharmacological intervention. A consolidated comparison of both outcome variables is provided in Table 3, which highlights the superior percentage improvements in dizziness and job satisfaction achieved by the yoga-integrated group.

Table 3: Summary of Improvements Across Outcome Variables

Variable	Group A Change (%)	Group B Change (%)	Advantage (Group A)
Dizziness (VST-4)	–60.4%	–23.4%	+37.0%
Job Satisfaction	+72.0%	+29.2%	+42.8%

This cross-variable enhancement further strengthens the case for integrating yoga into naval health and wellness programs, especially for personnel routinely exposed to vestibular and psychological stressors during deployment.

4. Discussion

The findings of this study reveal that integrating yogic practices with conventional medication significantly improves dizziness and job satisfaction among naval personnel experiencing motion sickness. These results align with a growing body of literature supporting yoga as a complementary therapy capable of enhancing vestibular stability, neurological regulation, and overall psychological well-being. Group A participants, who practiced yoga alongside their prescribed medications, demonstrated greater reductions in VST-4 dizziness scores and substantial gains in job satisfaction, underscoring the value of a multidimensional therapeutic strategy.Dizziness, a cardinal feature of motion sickness, originates from sensory mismatch and impaired vestibular processing. Yoga interventions, particularly those involving balance-oriented asanas and slow, controlled breathing exercises, may enhance proprioceptive sensitivity and central vestibular adaptation. As demonstrated in clinical trials, yoga-based movement therapies improve postural control and stimulate vestibular rehabilitation mechanisms, leading to superior balance and reduced disorientation (Vaishali et al., 2024; Apeksha et al., 2024). These mechanisms are particularly crucial for naval personnel, who operate in dynamically unstable maritime environments where visual and somatosensory feedback frequently conflict.The observed improvement in job satisfaction further highlights the psychological and functional benefits of the yoga-integrated approach. Job satisfaction in naval personnel is influenced by physical health, mental clarity, stress levels, and performance consistency. The incorporation of pranayama (such as Nadi Shodhana and Bhramari) promotes parasympathetic activation, regulates emotional responses, and reduces physiological arousal. These outcomes foster a sense of control and well-being, which is essential for job engagement and morale (Saoji et al., 2019; Kumar et al., 2020). Meditative techniques like Yoga Nidra contribute to emotional centring and cognitive relaxation, which are known to reduce stress-induced dissatisfaction and burnout symptoms (Nayar et al., 2022).These physiological and psychological changes have direct implications for naval functioning. With reduced dizziness and enhanced job satisfaction, personnel are more likely to maintain focus, alertness, and emotional balance under operational pressure. This is particularly valuable during sea deployments, where mission execution often demands sustained attention and rapid response in physically and mentally challenging conditions. Motion sickness symptoms can impair decision-making, diminish reflex precision, and increase frustration, all of which detract from job fulfilment and performance reliability. The yoga-based intervention thus not only supports clinical symptom management but also addresses the broader determinants of occupational satisfaction and mission readiness.Additionally, this integrative approach represents a shift from purely reactive treatment toward proactive wellness cultivation. While conventional medications provide immediate symptomatic relief, they do not facilitate long-term physiological or psychological adaptation. Yoga, conversely, enhances vestibular resilience and psychological flexibility over time. The combined intervention ensures both acute comfort and sustainable health outcomes, a balance critical for personnel undergoing repeated maritime deployment (Schleinzer et al., 2024; Palekar & Panse, 2024). Furthermore, the approach may help reduce dependence on pharmacological solutions that carry side effects such as sedation and impaired cognitive function, which are counterproductive in operational settings.From a practical standpoint, yoga's scalability and low-resource demands make it an ideal addition to naval wellness strategies. Sessions can be conducted with minimal space and equipment and are suitable for personnel across various ranks and physical conditions. With proper guidance, yoga practices can be seamlessly integrated into onboard routines without interfering with duty schedules. Such feasibility enhances the potential for sustained implementation. As demonstrated in other occupational contexts, the integration of yoga into daily work life supports improved emotional regulation, cognitive sharpness, and stress mitigation (Khalsa et al., 2024; Singh, 2018).In conclusion, this study affirms the significant dual benefit of yoga in reducing physical symptoms like dizziness and improving job satisfaction. These dual outcomes offer a strong case for embedding yoga-based interventions into standard naval health and performance protocols. By enhancing both physiological

balance and occupational contentment, the approach offers a holistic framework for optimizing mission effectiveness and personnel well-being. Future research could extend this analysis across different ship types, duty categories, and longer deployment periods to further evaluate the long-term benefits of integrative practices in naval settings.

5. Conclusion

This study provides compelling evidence that a combined intervention of yogic practices and standard medication offers significantly better relief from the symptoms of seasickness and motion sickness among naval personnel than medication alone. The integration of structured yoga routines alongside prescribed pharmacological therapy resulted in a marked reduction in dizziness as measured by the Vestibular Screening Tool (VST-4), along with a notable enhancement in job satisfaction levels. Participants who followed the yoga-enhanced protocol not only showed superior vestibular stability but also demonstrated improved psychological well-being and occupational engagement during naval deployments. These outcomes reflect yoga's therapeutic impact on both the vestibular and nervous systems through practices that improve proprioceptive alignment, modulate autonomic responses, and enhance emotional regulation. In operational environments where naval personnel routinely face physiological disequilibrium and psychological strain, an approach that reinforces both domains proves highly beneficial. The significantly greater percentage improvement observed in the experimental group validates the yoga-integrated model as both effective and sustainable for maritime service conditions. Importantly, yoga requires minimal logistical support, can be delivered in confined onboard spaces, and complements existing medication protocols without adverse interactions. These characteristics make it an ideal candidate for routine inclusion in naval wellness strategies. Incorporating yoga into naval training and deployment readiness modules could meaningfully reduce the frequency and severity of motion sickness episodes, improve job satisfaction, and elevate mission readiness. In light of these findings, it is strongly recommended that formalized yoga programs be embedded into naval health and performance protocols to promote resilience, reduce medication dependence, and support the long-term well-being of personnel at sea.

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