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Health Related Experiences of Maritime Students During their On-Board Training on Inter-Island Vessels

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ABSTRACT

Maritime students face unique health challenges during their rigorous training programs, particularly during the mandatory on-board training. This study investigates the health-related experiences of maritime students, focusing on physical, psychological, and social factors impacting their well-being. A descriptive-phenomenological approach was used to explore the health challenges faced by five maritime students from Midway Colleges Inc. during their first three months of on-board training. Data were collected through semi-structured interviews conducted over two months, from June to July 2023, examining their health experiences, adaptation strategies, and available health services. Participants reported several health issues, including hypertension, sexually transmitted diseases, and musculoskeletal disorders. Environmental factors like vibration, noise, and climate change, along with unhealthy lifestyles, contributed to these problems. Students used coping strategies, such as maintaining healthy lifestyles and seeking psychological support. Health services on-board were crucial but insufficient, prompting a call for improved health support. Maritime students encounter significant health challenges during their on-board training, which are exacerbated by environmental and lifestyle factors. Adaptation strategies and support systems play a critical role in managing these challenges. There is a pressing need for educational institutions and health workers to enhance health education, resilience training, and health services, ensuring better support for maritime students during their training. This will help prepare them for the demands of their profession and improve their long-term health outcomes.

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1. INTRODUCTION

Maritime students undergo unique and intensive training that prepares them for the demands of a seafaring career. The rigorous nature of this training, particularly the mandatory one-year on-board experience, places them in physically and psychologically challenging environments. Unlike conventional academic programs, maritime education requires extended periods at sea, where students are exposed to isolation, long working hours, and harsh environmental conditions. These factors have been shown to affect both the physical and mental health of seafarers, and maritime students are no exception. However, there is a noticeable gap in research specifically focusing on maritime students' health during their on-board training. While several studies have explored the health issues faced by professional seafarers, the experiences of students in training have

received less attention. This research seeks to address this gap by identifying the specific health challenges maritime students face during their on-board training, analyzing their coping strategies, and exploring the implications for educational institutions and health services.

1.1 Rationale and Significance of the Study

The maritime industry is essential for global trade, with seafarers playing a crucial role in ensuring the movement of goods across the world. Given the demanding nature of this profession, the health and well-being of seafarers have become a growing area of concern. Recent studies highlight the need for targeted health interventions for seafarers, given the physical and psychological risks associated with their work [12]. Maritime students, who are the future workforce of this industry, face similar challenges but often lack the experience and resources of seasoned professionals. Addressing the health needs of maritime students is critical to ensure they are well-prepared for their careers and to prevent the long-term health impacts that many professional seafarers experience.

Despite this, there is limited research specifically examining the health issues faced by maritime students during their training.[11] on maritime professionals points out the high prevalence of stress-related health problems, yet there is minimal focus on the student population undergoing the same training environments.[1, 14] have emphasized the physical strain, isolation, and inadequate health services available to seafarers, which are likely to also affect students. This study fills the gap by providing focused insights into maritime students' health issues during their formative training period.

1.2 Objectives

The general objective of this study is to explore the health challenges faced by maritime students during their on-board training. Specifically, the research aims to:

a. Identify the factors that affect the physical and psychological health of maritime students during their training.
b. Understand how maritime students adapt to these health challenges and the strategies they employ to cope.
c. Evaluate the adequacy of health services available to maritime students during on-board training.
d. Provide recommendations for educational institutions and health services to improve support for maritime students.

1.3 State of the Art

The health of maritime workers, including students, is a growing area of academic interest. Several recent studies have highlighted the physical and psychological stressors associated with life at sea. For example, [12,13] emphasize that long working hours, isolation, and hazardous environmental conditions lead to significant health problems, including mental health issues like anxiety and depression. Similarly, **(11)** found that the physical demands of maritime work contribute to high rates of musculoskeletal disorders among seafarers, a problem likely mirrored in students undergoing on-board training.[3]

Also sheds light on the coping mechanisms used by seafarers, such as social support and religious activities, to mitigate stress.[2, 14] These findings are crucial for understanding how maritime students might similarly rely on personal and social strategies to navigate their training challenges.[1] Further highlighted the inadequacy of on-board health services, stressing that many maritime workers lack access to comprehensive healthcare while at sea, a concern that this study examines from the perspective of students.

Moreover, propose the use of telemedicine and improved mental health services for seafarers, an idea that could be beneficial if extended to students.[10] The integration of modern healthcare solutions in maritime training environments could potentially mitigate the adverse health effects on students.

Finally, focus on how the lifestyle and work conditions of maritime workers lead to chronic health issues, such as hypertension and cardiovascular problems, due to irregular diets, lack of exercise, and high stress levels.[18] This study investigates whether maritime students experience similar issues and what steps can be taken to reduce these risks early in their careers.

1.4 Research Gap and Novelty

Although the existing literature highlights the significant health challenges faced by professional seafarers, there is a clear research gap regarding maritime students specifically. Most studies focus on seasoned professionals, leaving the health risks and adaptation strategies of students during their on-board training underexplored. This study provides a novel contribution by focusing on the health challenges unique to maritime students and their coping strategies. Furthermore, it addresses the specific health services available to students, an area that has received limited attention in previous research. By focusing on maritime students, this study offers valuable insights that can guide the development of better health interventions in maritime education and training programs.

1.5 Hypothesis

The study hypothesizes that:

a. Maritime students face significant physical and psychological health challenges during their on-board training, which are exacerbated by environmental factors and lifestyle habits.
b. Students employ a variety of coping mechanisms, such as social support and religious activities, to manage these health challenges.
c. The health services available on-board are insufficient to meet the needs of maritime students, particularly in terms of mental health support.

This study aims to expand the current understanding of the health challenges faced by maritime students during their on-board training, focusing on both physical and psychological well-being. By filling the research gap concerning maritime students, this study will provide valuable recommendations for improving health services and support systems, ultimately contributing to a healthier and more resilient maritime workforce. Through the findings, educational institutions and health workers can enhance their understanding of the unique health risks in maritime training and develop more effective interventions to support students throughout their careers.

2. RESEARCH METHOD

2.1 Research Design and Procedures

This study utilized a qualitative research design, employing a descriptive phenomenological approach to investigate the health-related experiences of maritime students during on-board training. This approach is ideal for capturing the lived experiences of individuals and the meanings they assign to these experiences. By focusing on participants' subjective realities, this methodology provides a comprehensive understanding of how maritime students perceive and manage health challenges during their training.

2.2 Study Population and Sample Selection

The study focused on five maritime students from Midway Colleges Inc., all of whom were in the first three months of their mandatory one-year on-board training. These students were selected using purposive sampling, a non-random technique in which participants are chosen based on specific characteristics relevant to the research. In this case, the selected students had to be in the early stages of their training and actively engaged in their on-board duties, as this period is expected to present the most significant adjustment challenges. The sample size of five was deemed sufficient for this phenomenological study, as qualitative research often focuses on smaller sample sizes to provide a detailed, in-depth exploration of experiences.

2.3 Data Collection Procedures

a. Semi-Structured Interviews

The primary data collection method was semi-structured interviews. Semi-structured interviews are a flexible qualitative method that combines predetermined questions with the freedom to explore topics as they emerge during the conversation. This approach allowed the researcher to address specific areas of interest, such as health challenges and coping strategies, while also giving participants the opportunity to share additional, relevant experiences.

Interview Guide*:* An interview guide was developed to ensure consistency across interviews while allowing for flexibility. The guide included open-ended questions focusing on three primary areas: physical and mental health challenges, adaptation strategies, and the students' perceptions of available health services on board. Example questions included:

"Can you describe any health challenges you have faced since beginning your on-board training?"

"What strategies *have* you used to cope with these challenges?"

"How do you feel about the health services available to you on board?"

Interview *Duration and Setting:* Each interview lasted approximately 45-60 minutes and was conducted either in person or via video conferencing, depending on the student's location and availability. The interviews took place in a private setting to ensure confidentiality and to allow students to speak openly about sensitive health issues.

b. Participant Observation

In addition to interviews, participant observation was employed as a secondary data collection tool. The researcher observed the daily routines and work environments of the maritime students, focusing on factors such as physical strain, social interactions, and environmental conditions aboard the vessels. These observations were conducted over a series of two weeks, allowing the researcher to better understand the context in which the students were operating and to validate the information obtained through interviews.

Observational data were recorded in field notes, which were later analyzed alongside the interview transcripts. This method was particularly useful for capturing non-verbal cues and environmental stressors that may not have been fully articulated during the interviews.

c. Document Analysis

Relevant documents, including medical records, training logs, and company health service guidelines, were reviewed to provide additional context and support for the students' accounts. These documents helped verify the availability and type of health services provided to students during their on-board training and offered insight into the health standards expected of maritime trainees.

2.4 Ethical Considerations

Given the sensitive nature of the data being collected, ethical guidelines were strictly adhered to throughout the research process:

Informed Consent: Prior to participation, all students were provided with detailed information about the study's aims, the nature of the interviews, and the use of their data. Written informed consent was obtained from each participant.

Confidentiality: To protect the privacy of the participants, all names and identifying details were anonymized. The students were assured that the information they provided would be used solely for research purposes and that they could withdraw from the study at any point without penalty.

Approval: The research received ethical approval from the Midway Colleges Inc. ethics board, ensuring compliance with institutional standards for research involving human subjects.

2.5 Data Analysis Procedures

a. Transcription and Coding

Once the interviews were conducted, they were transcribed verbatim. The researcher then performed a thematic analysis to identify recurring themes related to health challenges, coping strategies, and perceptions of health services. The analysis followed these steps:

Familiarization with Data: The researcher first read through the interview transcripts and observational notes to become familiar with the data.

Initial Coding: A coding process was then used to label specific sections of the data. Codes were assigned to different health challenges, such as "musculoskeletal disorders" or "stress-related issues," as well as coping strategies like "religious activities" and "seeking psychological support."

Identifying Themes: After coding, the researcher grouped the codes into broader themes. For example, individual codes related to "physical challenges" were grouped under a larger theme of "Physical Health Issues," and coping mechanisms were categorized under the theme of "Adaptation Strategies."

Validation: To ensure the reliability of the themes, the researcher revisited the transcripts to confirm that the themes accurately represented the participants' experiences.

b. Integration of Observational and Document Data

The themes identified from the interviews were cross-referenced with the observational data and document analysis. This triangulation helped validate the findings and provided a more holistic view of the students' health experiences. For instance, if a student mentioned experiencing back pain due to manual labor on board, this claim was corroborated by both observational data and the training logs detailing the physical tasks assigned to them.

2.6 Reproducibility and Future Work

This research procedure is designed to be replicable by other researchers who wish to explore similar phenomena. The use of semi-structured interviews, participant observation, and document analysis allows for a comprehensive understanding of the students' health-related experiences. By clearly outlining the sampling method, data collection techniques, and analysis procedures, future researchers can replicate this study in different maritime academies or extend it to larger and more diverse samples.

Moreover, the research design can be expanded to explore additional variables, such as differences in health experiences based on vessel type, training duration, or geographic region. The incorporation of a longitudinal design, following students throughout their entire on-board training period, could provide further insight into how health challenges evolve over time and how students' coping strategies develop in response.

The qualitative descriptive phenomenological design used in this study provides a robust framework for understanding the health-related experiences of maritime students during their on-board training. The combination of semi-structured interviews, participant observation, and document analysis ensures that the research captures both the students' personal narratives and the broader context of their work environment. This methodological approach allows for a comprehensive exploration of the factors affecting maritime students' health and offers valuable insights for educational institutions, health workers, and future researchers looking to improve health support systems for maritime trainees.

3. RESULTS AND DISCUSSIONS

Figure 1 depicts a conceptual framework summarizing the health-related experiences of maritime students during their on-board training on inter-island vessels. The diagram is organized into four key areas, with a central figure of a maritime student representing their lived experiences. The areas are:

3.1 Common Health Problems (Left Section)

This part outlines the typical health issues faced by maritime students:
Hypertension: High blood pressure due to stress or physical strain.
Allergic Rhinitis: Possible environmental allergies encountered on board.
Accidental Injury: Likely related to the physical nature of the job and the on-board environment.
Sexually Transmitted Diseases (STDs): An implication of limited health education or risk behaviors during their training period.

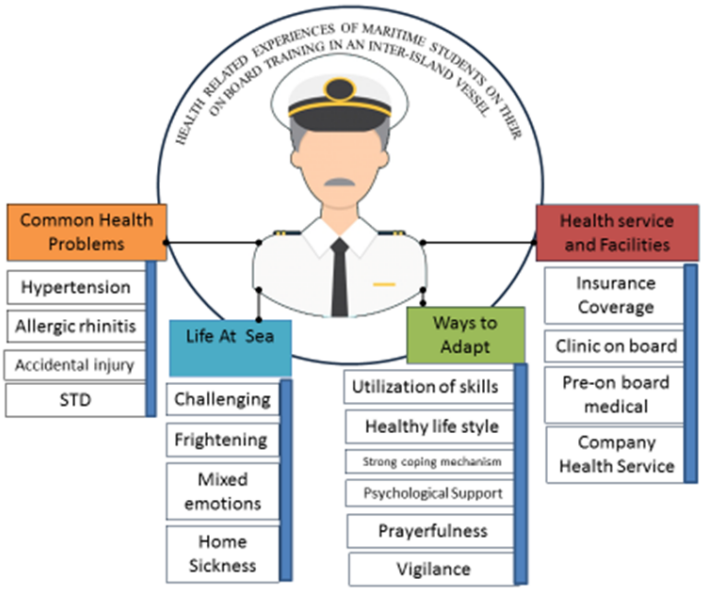

Figure 1. Conceptual Framework Summarizing The Health-Related Experiences of Maritime Students During Their On-Board Training on Inter-Island Vessels

3.2 Life at Sea (Bottom Left Section)

This section describes the emotional and psychological experiences of students while on board:
Challenging: The overall difficulty of the on-board experience.
Frightening: The fear or anxiety felt due to isolation or tough conditions.
Mixed Emotions: Varied emotional responses to their environment.
Homesickness: A natural emotional struggle due to prolonged time away from home.

3.3 Ways to Adapt (Bottom Right Section)

This section presents the adaptation strategies employed by students to cope with their challenges:
Utilization of Skills: Applying learned skills to handle physical and mental challenges.
Healthy Lifestyle: Maintaining fitness and good nutrition to manage stress and physical demands.
Strong Coping Mechanism: Psychological resilience in dealing with stressors.
Prayerfulness: Use of religious or spiritual practices as a source of comfort.
Vigilance: Staying alert and cautious in their environment to avoid accidents and health issues.

3.4 Health Services and Facilities (Right Section)

This part lists the available health support systems provided on board:
Insurance Coverage: Ensuring that students have health insurance for medical emergencies.
Clinic on Board: Access to immediate medical care.
Pre-On-Board Medical: Medical check-ups or health screenings prior to training.
Company Health Service: Additional health services provided by the training organization or shipping company.

Figure 1 illustrates a holistic view of the challenges maritime students face during their on-board training, focusing on health concerns, emotional well-being, and the resources available to them. It highlights the students' physical health risks, emotional struggles, and how they manage to adapt through practical and

psychological strategies, all while relying on available health services and facilities to maintain their well-being.

Discussions

The study titled "Health-Related Experiences of Maritime Students During their On-Board Training on Inter-Island Vessels" offers a detailed examination of the complex physical, psychological, and social health challenges that maritime students in the Philippines experience during their mandatory sea-based training. The analysis draws attention to the multifaceted health issues these students encounter and the coping mechanisms they employ to manage these challenges, while also identifying the gaps in available health services. [4] This discussion further compares the study's findings with existing literature to highlight key trends and implications for stakeholders such as educational institutions, health workers, and the cadetship programs.

4.1 Health Challenges

The study reveals that maritime students face a range of health issues, including hypertension, sexually transmitted diseases (STDs), and musculoskeletal disorders. These findings align with existing research that underscores the physical and environmental stressors inherent in maritime life. For example, similarly reported that long working hours, physical strain, and environmental challenges such as noise, vibration, and climate fluctuations exacerbate the health problems faced by maritime students and professionals. [6, 11, 12]

The prevalence of hypertension and musculoskeletal disorders in the study participants mirrors what is widely observed in seafarers worldwide. [18, 25] Also reported that the demanding physical conditions aboard vessels—often coupled with irregular exercise, unhealthy eating habits, and lifestyle disruptions—contribute significantly to the development of these conditions. The physical toll of maritime work, which often requires prolonged periods of manual labor in confined, stressful environments, is a well-documented contributor to declining physical health among maritime workers.

4.2 Adaptation Strategies

To cope with these challenges, the students employed various adaptation strategies, including maintaining healthy lifestyles, seeking psychological support, and engaging in religious activities. The use of these strategies is consistent with existing research on stress management among seafarers. For instance, found that maritime workers often turn to physical fitness and social support systems to manage the physical and mental stressors of life at sea.[14, 16]

Notably, psychological resilience emerged as a key coping mechanism in the study. The ability to adapt to stressful conditions by utilizing available support systems, both on-board and from family, plays a critical role in mitigating the negative impact of prolonged isolation and physically demanding work. The findings align with,[8] who emphasized the importance of strong familial and social networks in maintaining the mental health of workers in high-stress, isolated environments like those experienced by maritime students.

The inclusion of religious activities as a means of coping is particularly significant, indicating that spirituality serves as a stabilizing force for many maritime students. Prayerfulness and other religious practices may provide mental and emotional relief, fostering psychological resilience in challenging environments.[8] This underlines the multidimensional nature of coping strategies, encompassing not only physical but also psychological and spiritual aspects of well-being.

4.3 Health Services

The study also highlights the role of health services available on board. Maritime students expressed reliance on the health services provided, such as medical examinations, clinics, and company health services, but noted that these services were often inadequate to fully address their needs. This issue is also echoed in existing maritime health literature.[1, 17] Pointed out that while ships are often equipped with basic medical facilities, these resources frequently fall short when more serious or chronic health conditions arise.

Improving on-board health services, including the integration of telemedicine and enhanced mental health support, has been identified as a solution for these shortcomings.[10] suggested that advancements in telemedicine technology could play a pivotal role in improving healthcare access for maritime workers, particularly those who are in remote or isolated locations for extended periods.

The study indicates that while existing services play a critical role in managing immediate health concerns, there is a pressing need for more comprehensive and accessible health support systems. The gap between the healthcare needs of maritime students and the services provided highlights an area for development, especially in terms of preventive care and mental health services.

4.4 Implications for Educational Institutions and Health Workers

The findings of this study carry several practical implications for various stakeholders, including educational institutions, health workers, and cadetship programs:

For Educational Institutions: There is a clear need to incorporate health education and resilience training into the maritime curriculum. By preparing students for the physical, psychological, and social challenges they will face during on-board training, institutions can help reduce the impact of

these stressors and improve health outcomes.[5, 7] This could include specific modules on stress management, mental health awareness, and physical fitness.

For Health Workers: The study highlights the importance of developing targeted health interventions that cater to the unique needs of maritime students. Health workers should focus on creating comprehensive health programs that address both the physical and psychological aspects of maritime life.[9, 23-24] Regular health screenings and more accessible mental health services—both on and off the vessel—should be prioritized.

For the Cadetship Program: The study suggests that revisions to the current cadetship structure are necessary to ensure that students have access to robust health support systems.[15, 22] This could include better insurance coverage, more frequent medical check-ups, and enhanced on-board health services, such as telemedicine, to address the limitations of existing healthcare infrastructure.

The study provides critical insights into the health-related experiences of maritime students during their on-board training. By identifying the key health challenges—such as hypertension, musculoskeletal disorders, and STDs—and examining the adaptation strategies students use to cope, the study underscores the importance of both comprehensive health services and strong support systems. The findings emphasize the need for improvements in health education, preventive care, and resilience training in maritime programs.

Overall, addressing these health concerns through better institutional support, targeted health interventions, and enhanced on-board healthcare services will not only improve the well-being of maritime students but will also contribute to a healthier and more resilient workforce.

4. CONCLUSIONS

This study examines the health challenges faced by maritime students during on-board training, including hypertension, STDs, musculoskeletal disorders, and mental health issues, exacerbated by long hours, physical demands, environmental factors, and isolation. It highlights adaptation strategies such as healthy lifestyles, psychological support, and family networks, emphasizing resilience and social support systems. A key finding is the inadequacy of on-board health services in addressing chronic conditions, particularly mental health and preventive care. The study calls for educational institutions to include health education and stress management in curricula, health workers to provide targeted interventions, and cadetship programs to enhance health support through improved medical assessments, insurance, and telemedicine. By strengthening health systems, stakeholders can improve maritime students' well-being, ensuring a resilient workforce and better long-term health outcomes, while providing actionable insights for policy and industry improvements.

Recommendation

This study recommends enhancing maritime students' well-being during on-board training through targeted measures. Educational institutions should incorporate health education on stress management, nutrition, fitness, and STD prevention into curricula. On-board health services must be improved with preventive care, mental health support, and telemedicine. Regular health monitoring, including pre-boarding assessments and mental health evaluations, is essential. Strengthened support systems, including family communication, mentorship, and peer networks, are crucial for emotional well-being.

Cadetship programs should improve health protocols, expand insurance coverage, and promote better work-life balance. Collaboration among institutions, health professionals, and maritime organizations is vital to develop interventions, improve policies, and ensure resource access. Mental health awareness initiatives, including counseling and stress-relief activities, should reduce stigma and build resilience. These steps will better prepare students for maritime challenges, fostering a healthier and more resilient workforce.

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