



# Mental Health, Safety, and Professional Preparedness: The Role of Pre-Boarding Training for Seafarers

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## Abstract

This study examined the role of pre-boarding training in enhancing the mental health preparedness, safety awareness, and professional preparedness of Filipino seafarers who entered maritime service after March 2020. A convergent parallel mixed-methods design was employed involving 390 purposively selected seafarers who had completed at least one sea contract and participated in a manning agency pre-boarding training program. Quantitative data were collected using a structured questionnaire and analyzed through descriptive statistics and one-way analysis of variance (ANOVA), while qualitative data from open-ended responses were analyzed using Braun and Clarke's thematic analysis framework. Quantitative and qualitative findings were analyzed separately and integrated during interpretation to identify convergence, divergence, and complementarity. Results revealed very high levels of perceived effectiveness across all three dimensions, with safety awareness receiving the highest rating, followed by professional preparedness and mental health preparedness. No significant differences were observed across age, rank, department, or vessel type. Qualitative findings further showed that training enhanced stress management, resilience, communication, emergency preparedness, and adaptation to shipboard life. Overall, pre-boarding training serves as an important mechanism for strengthening seafarer readiness, well-being, safety, and professional performance in the post-pandemic maritime industry.

**Keywords:** pre-boarding training; seafarer mental health; safety awareness; professional preparedness; maritime training; post-pandemic seafaring



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## INTRODUCTION

The COVID-19 pandemic exposed significant vulnerabilities within the global maritime labor system. At the height of the crisis, approximately 400,000 seafarers were stranded aboard commercial vessels because of crew-change restrictions, with some serving for extended periods beyond their contractual obligations (International Maritime Organization [IMO], 2020; UNCTAD, 2021). These conditions intensified concerns regarding

occupational health, psychological well-being, and safety among maritime workers. The pandemic did not create these challenges, but rather amplified long-standing structural issues associated with seafaring, including isolation, fatigue, social disconnection, and limited access to support services (UNCTAD, 2021; World Health Organization [WHO] et al., 2022).

The maritime industry remains the backbone of global commerce, transporting approximately

80 to 90 percent of international trade and relying on nearly 1.9 million seafarers worldwide (United Nations Conference on Trade and Development [UNCTAD], 2021; International Maritime Organization, 2025). However, the profession is characterized by unique occupational stressors, including long periods away from home, irregular work-rest schedules, confined living environments, multicultural crews, and high operational demands. Modern shipping practices, particularly reduced crew sizes and accelerated operational cycles, have further increased pressure on seafarers while reducing opportunities for rest, social interaction, and informal mentoring on board (UNCTAD, 2021).

Mental health has emerged as a critical concern within the maritime sector. Research has documented elevated rates of depression, anxiety, fatigue, and burnout among seafarers compared with many land-based occupations (Brooks & Greenberg, 2022; Lefkowitz & Slade, 2019). These psychological challenges are not confined to individual well-being; they have direct implications for operational performance and maritime safety. Fatigue, impaired situational awareness, distraction, and mental overload have all been identified as contributing factors in maritime incidents and accidents (Lefkowitz & Slade, 2019; Iversen, 2012). Consequently, improving seafarers' preparedness for the psychological and operational realities of shipboard life has become an increasingly important priority for the maritime industry.

Given these challenges, attention has increasingly shifted toward strategies that can strengthen readiness before deployment. Among these strategies, pre-boarding training represents one of the few structured opportunities available to prepare seafarers for the mental, safety-related, and professional demands they are likely to encounter at sea (International Maritime Organization, 2021)

## LITERATURE REVIEW

Pre-boarding training has long been recognized as an important component of seafarer preparation. The International Convention on Standards of Training, Certification and Watchkeeping for Seafarers (STCW) emphasizes the importance of ensuring that seafarers acquire the knowledge, skills, and competencies necessary for safe and effective shipboard operations before deployment (International Maritime Organization [IMO], 2017).

Previous research indicates that professional knowledge, practical competencies, and personal qualities developed during training are significantly associated with task performance and operational effectiveness at sea (Sevilla & Arceño, 2017). The quality of maritime education and training has been identified as a key factor influencing the competence and readiness of seafarers to perform their duties in increasingly complex maritime environments (Cahoon et al., 2025; Chibana, 2024). Safety attitudes and professional behaviors established during the preparatory stage influence how individuals respond to workplace demands and safety responsibilities throughout their careers (Hipol, 2022).

Studies have shown that understanding maritime risks and fostering a strong safety culture during training contribute to safer decision-making and greater adherence to operational procedures onboard (Nicolae et al., 2023; Hipol, 2022). Furthermore, the reduction of informal onboard mentoring due to smaller crew complements and faster operational schedules has increased the importance of comprehensive training before deployment (Javed, 2023). As opportunities for experiential learning from senior crew members have become more limited, maritime institutions are expected to provide more extensive preparation to ensure that seafarers possess both technical and non-technical competencies before joining a vessel (Javed, 2023).

Maritime education and training play a critical role in preparing seafarers for the operational, technical, and safety demands of shipboard employment. The STCW Convention provides the global framework for developing the competencies required of maritime personnel before deployment (IMO, 2017). Through structured theoretical instruction, simulator-based exercises, and safety training, pre-boarding programs help ensure that seafarers possess the minimum knowledge, skills, and attitudes necessary for safe and efficient vessel operations (Chibana, 2024).

Studies on maritime education emphasize that the quality of shore-based training significantly influences a seafarer's professional competence and operational performance (Cahoon et al., 2025). Effective training programs develop not only technical expertise but also decision-making abilities, communication skills, and problem-solving competencies that are essential in complex maritime environments (Sevilla & Arceño, 2017). The acquisition of these competencies before deployment contributes to improved work readiness and enhanced performance onboard vessels (Sevilla & Arceño, 2017).

**Mental Health Preparedness in Maritime Training.** Recent studies have emphasized the growing need to incorporate psychological preparedness into maritime education and training (Divari, 2020). Traditional orientation programs have often focused on administrative and procedural requirements while devoting limited attention to coping skills, resilience development, and mental health awareness (Divari, 2020). Evidence suggests that structured interventions addressing stress management, emotional regulation, and psychological resilience can improve seafarers' ability to adapt to demanding shipboard environments (De Jesus, 2022; Hystad & Eid, as cited in the study).

Moreover, post-pandemic studies continue to report elevated levels of emotional exhaustion, psychological distress, fatigue, and anxiety among seafarers, highlighting the importance

of preventive measures before deployment (Brooks & Greenberg, 2022; Abila et al., 2023). Consequently, mental health preparedness has emerged as a critical component of comprehensive maritime training programs designed to support both well-being and operational effectiveness (Brooks & Greenberg, 2022).

**Safety Awareness and Preparedness.** Safety awareness remains a central objective of maritime training programs. Research has shown that inadequate preparation, limited familiarity with procedures and equipment, and deficiencies in safety culture contribute substantially to maritime accidents (Hipol, 2022; Nicolae et al., 2023). Training interventions incorporating simulations, emergency drills, and scenario-based learning have been associated with improved hazard recognition, emergency response competence, and safety-related decision-making (Javed, 2023).

Contemporary safety frameworks increasingly recognize psychological resilience as an integral component of occupational safety. Research suggests that seafarers who are better prepared to manage stress and fatigue are more likely to maintain situational awareness and make appropriate operational decisions during routine and emergency situations (Brooks & Greenberg, 2022). This reinforces the connection between mental preparedness and safe performance at sea.

**The Role of Manning Agencies.** Manning agencies occupy a strategic position within the maritime employment system because they serve as the primary link between seafarers and shipping companies prior to deployment. Through pre-boarding programs, these agencies can influence mental health preparedness, safety awareness, and professional readiness before seafarers assume operational responsibilities. This role has become increasingly important as the maritime industry seeks to address the long-term operational and psychological challenges highlighted by the COVID-19 pandemic (Brooks & Greenberg, 2022; Abila et al., 2023).

This responsibility is particularly significant in the Philippines, one of the world's leading suppliers of maritime labor, where the quality of pre-deployment preparation has implications not only for individual seafarers but also for the international shipping industry as a whole (Chibana, 2024). By integrating technical training with psychological preparedness and safety education, manning agencies can contribute substantially to developing a safer, more resilient, and professionally prepared maritime workforce.

**Research Gap.** Although existing literature has established the importance of training for safety performance, mental health, and professional competence, several gaps remain. First, limited research has specifically examined the effectiveness of pre-boarding training among seafarers who entered maritime service during the post-COVID-19 era, a population exposed to distinct operational and psychological challenges. Second, previous studies have frequently examined mental health preparedness, safety awareness, and professional readiness as separate concepts, resulting in limited understanding of how these dimensions interact within a comprehensive framework of seafarer preparedness. Third, evidence remains scarce regarding whether perceptions of training effectiveness vary according to demographic and occupational characteristics such as age, rank, department, and vessel type. Given the continuing importance of seafarer well-being and maritime safety, there is a need for empirical evidence examining how contemporary pre-boarding training contributes to readiness across these interconnected dimensions. Such evidence can provide guidance for improving training programs and strengthening support systems for the post-pandemic maritime workforce.

**Research Objectives.** This study examines the impact of pre-boarding training on the mental health preparedness, safety awareness, and professional preparedness of Filipino seafarers who entered maritime service after March 2020. Specifically, the study aims to:

1. Determine the demographic profile of the respondents based on age, rank, department, vessel type, and pre-boarding training.
2. Assess the effectiveness of pre-boarding training in enhancing mental health preparedness among post-pandemic seafarers.
3. Determine the impact of pre-boarding training on safety awareness and emergency preparedness.
4. Evaluate the contribution of pre-boarding training to professional preparedness for shipboard responsibilities.
5. Examine whether significant differences in perceived training effectiveness exist across age, rank, department, and vessel type.

The findings of this study provide practical insights for manning agencies, shipping companies, and maritime regulators seeking to strengthen pre-deployment support systems. By identifying the contribution of structured pre-boarding training to workforce readiness, the study supports efforts to improve seafarer well-being, enhance compliance with international maritime labor and safety requirements, and contribute to the continuous advancement of global shipping safety standards.

## METHODOLOGY

**Research Design.** This study employed a convergent parallel mixed-methods research design, integrating quantitative survey data with qualitative open-ended responses to examine the role of pre-boarding training in enhancing seafarers' mental health preparedness, safety awareness, and professional preparedness. In a convergent parallel design, quantitative and qualitative data are collected concurrently, analyzed separately, and then merged to compare and interpret findings from both strands (Creswell & Plano Clark, 2018).

Quantitative and qualitative data were collected during the same period, analyzed independently, and subsequently integrated in the discussion section. The quantitative component measured participants' perceptions of training effectiveness across the three outcome dimensions, while the qualitative component explored participants' experiences and perspectives to explain, support, or qualify the statistical findings. Integration focused on identifying convergence, divergence, and complementarity between the two strands, thereby providing a more comprehensive understanding of seafarer readiness in the post-pandemic maritime context.

**Population and Sample Size.** Primary data were collected from Filipino seafarers who entered maritime service after March 2020. This cohort was selected because it was directly exposed to the operational, psychological, and social challenges associated with the COVID-19 pandemic and its aftermath. Data collection was conducted between January 2025 to November 2025 through a structured questionnaire administered online via Google Forms. Participation was voluntary, and respondents were informed of the study's purpose prior to completing the survey.

This study utilized purposive sampling to select participants with relevant experience: joining the maritime industry after March 2020, completing at least one sea contract, and attending a manning agency pre-boarding training program. As a result, the findings may not be generalizable to the broader population, and interpretations should be made within the context of the selected participants.

Restricting the sample to seafarers with completed contract experience was essential because perceived training effectiveness cannot be meaningfully assessed without a reference point of actual shipboard conditions. Participants were drawn from different ranks, departments, ship types, and age groups to represent the range of environments encountered in actual maritime operations.

Participants were selected using purposive sampling based on the following criteria: (1) entry into maritime service after March 2020, (2) completion of at least one sea contract, and (3) participation in a manning agency pre-boarding training program. This approach was appropriate because the study sought insights from individuals with direct experience of both pre-boarding training and post-pandemic shipboard operations. However, because purposive sampling is a non-probability sampling technique, the findings should be interpreted with caution and may not be fully generalizable to all seafarers or maritime populations beyond the study sample.

A total of 390 seafarers participated in the study. The sample size was considered adequate for statistical analysis because it exceeded the minimum requirement for detecting medium effect sizes at a 95% confidence level and 80% statistical power in group comparison analyses (Cohen, 1992; Brysbaert, 2019; Giner-Sorolla et al., 2024). The relatively large sample also provided sufficient representation across age groups, ranks, departments, and vessel types to support meaningful descriptive and inferential analyses.

**Data Collection Instrument.** The questionnaire was developed from existing literature and adjusted for the post-pandemic maritime context. Item construction drew from evidence on the psychological effects of mental health challenges among seafarers and their impact on well-being and career outcomes (Azfar, 2025; Svetina et al., 2024), the role of coping strategies and resilience in maritime performance (De Jesus, 2022), and the relationship between structured training and safety preparedness (Hipol, 2022; Sevilla & Arceño, 2017). The instrument was pilot-tested on 25 seafarers who had completed pre-boarding training within the previous year. Pilot participants confirmed that the instructions were clear, the five-point rating scale was easy to use, and the open-ended questions produced detailed responses.

Minor wording adjustments were made to improve comprehension among respondents with varying levels of English proficiency. Questionnaires were administered online through a secure survey. Respondents completed the instrument anonymously to minimize response bias and encourage honest reporting of experiences and perceptions. Before participation, respondents were provided with an informed consent statement explaining the study objectives, the voluntary nature of participation, and the confidentiality of responses. Completed questionnaires were screened for completeness prior to inclusion in the analysis.

While purposive sampling enabled the selection of respondents who possessed relevant post-pandemic maritime experience, it limits the external validity of the findings. Consequently, the results reflect the perceptions of the participants included in the study and should not be interpreted as representative of all Filipino seafarers or the global seafaring workforce. Future studies may employ probability sampling techniques and larger multi-country samples to enhance generalizability.

To determine the internal consistency of items within each dimension, Cronbach's alpha ( $\alpha$ ) was used to assess reliability. According to established psychometric criteria, the following  $\alpha$  values represent the corresponding level of reliability:  $\alpha \geq 0.70$  = acceptable reliability;  $\alpha \geq 0.80$  = good reliability;  $\alpha \geq 0.90$  = excellent reliability (Nunnally & Bernstein, 1994).

The questionnaire was organized into five sections. Section 1 collected demographic information including age, rank, vessel type, years of service, and confirmation of pre-boarding training participation. Section 2 contained nine items on mental health preparedness, covering stress management, coping strategies, recognition of distress signs, awareness of support resources, and stigma reduction. Section 3 contained four items on safety awareness, addressing hazard identification, emergency readiness, and the

integration of psychological resilience within safety culture. Section 4 contained three items on professional preparedness, focusing on readiness for vessel demands and the management of combined operational and psychological pressures. Section 5 included six open-ended prompts asking participants to identify useful training components, name gaps, and offer recommendations for improvement. All Likert-scale items used a five-point format ranging from 1 (Strongly Disagree), to 5 (Strongly Agree).

**Table 1**  
*Reliability Analysis of Research Instrument*

| Dimension                  | Number of Items | Cronbach's Alpha | Interpretation |
|----------------------------|-----------------|------------------|----------------|
| Mental Health Preparedness | 9               | 0.95             | Excellent      |
| Safety Awareness           | 4               | 0.89             | Good           |
| Professional Preparedness  | 3               | 0.91             | Excellent      |
| Overall Instrument         | 16              | 0.96             | Excellent      |

*Legend:  $\alpha \geq 0.90$  = Excellent;  $\alpha \geq 0.80$  = Good;  $\alpha \geq 0.70$  = Acceptable; Item-total correlations for all items exceeded 0.60, and no items were removed from the final instrument.*

**Data Gathering Procedure.** Quantitative data were collected online through Google Forms beginning January to November 2025. A total of 390 seafarers completed the quantitative survey. Responses were tabulated and prepared for statistical analysis. On the other hand, 30 randomly selected participants completed the qualitative component through open-ended questions. Responses on this part were coded and grouped into themes and analyzed through thematic analysis.

Participation was voluntary, and informed consent was obtained before completing the questionnaire.

**Quantitative Result Analysis.** Quantitative data were analyzed using SPSS version 26.0. Missing values fell below 2 percent of total responses and were handled through listwise deletion. Means and standard deviations were computed for each subscale using the following interpretation scale: 4.20 to 5.00 = Very High, 3.40 to 4.19 = High, 2.60 to 3.39 = Moderate, 1.80 to 2.59 = Low, and 1.00 to 1.79 = Very Low. One-way ANOVA was applied to test for significant

differences in perceived training effectiveness across rank, department, vessel type, and age group, with statistical significance set at  $p < 0.05$ . Testing these four grouping variables was necessary to determine whether different segments of the post-pandemic seafaring population evaluate training effectiveness differently, which has direct implications for whether standardized or differentiated pre-boarding training approaches are more appropriate for the Philippine context.

**Qualitative Result Analysis.** Open-ended responses were analyzed using thematic analysis following the six-phase process described by Braun and Clarke (2006). This process involved repeated reading of responses to build familiarity with the data, generation of initial codes, grouping of codes into candidate themes, reviewing themes against the full data set, and defining and naming final themes for reporting.

Braun and Clarke (2006) distinguished between inductive approaches driven by the data and theoretical approaches driven by prior research questions. This research used an inductive approach, allowing themes to emerge from participant responses rather than from a predetermined framework, which was appropriate given the research's aim to surface lived experience.

Participants received an information sheet describing the study's purpose, procedures, and their rights, and consent was confirmed through voluntary submission of the completed questionnaire. No names, employee numbers, or company identifiers were collected. Participants were assigned numeric codes, and all data were stored in encrypted, password-protected files accessible only to the research team. Results are presented in aggregate form to protect individual confidentiality. Because cultural norms in many seafaring communities attach stigma to mental health disclosure, open-ended items were written to allow flexible responses without requiring to share personal experiences.

## RESULTS

**Demographic Profile.** A total of 390 seafarers who entered maritime service after March 2020 participated in this research. Table 2 presents the full demographic distribution. The 25 to 34 age group formed the largest segment at 45.6 percent ( $n = 178$ ), followed by the 35 to 44 group at 23.6 percent ( $n = 92$ ). Ratings comprised the majority at 64.4 percent ( $n = 251$ ), while officers accounted for 20.0 percent ( $n = 78$ ). By department, deck represented 47.2 percent ( $n = 184$ ) and engine 40.3 percent ( $n = 157$ ). Most participants served on bulk cargo ships at 78.2 percent ( $n = 305$ ). Of the total sample, 91.3 percent ( $n = 356$ ) confirmed completing a manning agency pre-boarding training program, while 8.7 percent ( $n = 34$ ) reported no training. The results of the survey are being analyzed on the following points.

**Table 2**  
*Demographic Profile of Participants*

| Demographic Variable         | Frequency (n) | Percentage (%) |
|------------------------------|---------------|----------------|
| <b>Age</b>                   |               |                |
| 18-24 years old              | 14            | 3.6            |
| 25-34 years old              | 178           | 45.6           |
| 35-44 years old              | 92            | 23.6           |
| 45-54 years old              | 83            | 21.3           |
| 55 and above                 | 23            | 5.9            |
| <b>Rank</b>                  |               |                |
| Officer                      | 78            | 20.0           |
| Ratings                      | 251           | 64.4           |
| Other                        | 61            | 15.6           |
| <b>Department</b>            |               |                |
| Deck                         | 184           | 47.2           |
| Engine                       | 157           | 40.3           |
| Steward                      | 47            | 12.0           |
| Galley                       | 2             | 0.5            |
| <b>Vessel Type</b>           |               |                |
| Bulk Cargo Ship              | 305           | 78.2           |
| Container Ship               | 48            | 12.3           |
| Tanker                       | 30            | 7.7            |
| Passenger                    | 3             | 0.8            |
| Bulk Carrier                 | 2             | 0.5            |
| Heavy Lift                   | 2             | 0.5            |
| <b>Pre-boarding Training</b> |               |                |
| Yes                          | 356           | 91.3           |
| No                           | 34            | 8.7            |
| <b>Total</b>                 | <b>390</b>    | <b>100.0</b>   |

**Descriptive Results.** Descriptive statistical analysis was conducted to assess respondents'

perceptions of the effectiveness of pre-boarding training in enhancing mental health preparedness, safety awareness, and professional preparedness. The results are presented in Tables 3 to 5, using mean scores and standard deviations to determine the extent of preparedness across the three dimensions.

**Mental Health Preparedness.** Table 3 presents the mental health preparedness results. The overall mean for Mental Health Preparedness was 4.54 (SD = 0.81), indicating a Very High level. The highest-rated indicator was training emphasis on mental health awareness as part of overall safety (M = 4.59, SD = 0.79), followed by information on managing stress during long voyages (M = 4.57, SD = 0.80). All indicators were rated within the Very High range. The lowest-rated indicators were access to mental health resources on board (M = 4.47, SD = 0.85) and reduction of stigma related to seeking mental health support (M = 4.47, SD = 0.84).

**Table 3**  
*Mental Health Preparedness*

| Indicator                                                                    | M           | SD          | Level            |
|------------------------------------------------------------------------------|-------------|-------------|------------------|
| Training emphasized mental health awareness as part of overall safety.       | 4.59        | 0.79        | Very High        |
| Training provided information on managing stress at sea.                     | 4.57        | 0.80        | Very High        |
| Training gave tools to manage work-related stressors during long voyages.    | 4.56        | 0.79        | Very High        |
| Training prepared me for managing isolation and uncertainty at sea.          | 4.56        | 0.79        | Very High        |
| I feel equipped to handle mental health challenges due to training.          | 4.55        | 0.80        | Very High        |
| Training covered coping strategies for psychological stress on board.        | 4.54        | 0.80        | Very High        |
| I can recognize early signs of distress in myself and others after training. | 4.51        | 0.82        | Very High        |
| I have access to mental health resources on board based on training.         | 4.47        | 0.85        | Very High        |
| Training reduced stigma around seeking mental health support at sea.         | 4.47        | 0.84        | Very High        |
| <b>Overall</b>                                                               | <b>4.54</b> | <b>0.81</b> | <b>Very High</b> |

Legend: 4.20–5.00 = Very High; 3.40–4.19 = High; 2.60–3.39 = Moderate; 1.80–2.59 = Low; 1.00–1.79 = Very Low

**Safety Awareness.** Table 4 displays the Safety awareness recorded the highest overall mean among the three dimensions (M = 4.57, SD = 0.79), indicating a Very High level of perceived effectiveness. The highest-rated indicator was training coverage of both physical and mental

safety risks on board (M = 4.58, SD = 0.78), followed by understanding the role of psychological resilience in maintaining a safe work environment (M = 4.57, SD = 0.78). Confidence in identifying and responding to safety hazards (M = 4.56, SD = 0.79) and preparedness for emergency situations on board (M = 4.55, SD = 0.81) were also rated within the Very High range. These results suggest consistently positive participant perceptions across all safety awareness indicators.

**Table 4**  
*Safety Awareness*

| Indicators                                                                    | M           | SD          | Level            |
|-------------------------------------------------------------------------------|-------------|-------------|------------------|
| Training included scenarios for both physical and mental safety risks.        | 4.58        | 0.78        | Very High        |
| I understand the role of psychological resilience in a safe work environment. | 4.57        | 0.78        | Very High        |
| I feel confident in identifying and responding to safety hazards on board.    | 4.56        | 0.79        | Very High        |
| Training prepared me for emergency situations on board.                       | 4.55        | 0.81        | Very High        |
| <b>Overall</b>                                                                | <b>4.57</b> | <b>0.79</b> | <b>Very High</b> |

**Professional Preparedness.** Table 5 presents the results for professional preparedness, which obtained an overall mean of 4.56 (SD = 0.78), indicating a Very High level of perceived effectiveness. All three indicators were rated within the Very High range. The highest-rated item was readiness to handle vessel demands after training (M = 4.57, SD = 0.79), followed by the ability to maintain professional responsibilities under mental health challenges (M = 4.56, SD = 0.78) and the ability to manage both operational and psychological challenges simultaneously (M = 4.56, SD = 0.77). The results indicate consistently positive participant perceptions across all indicators of professional preparedness.

**Table 5**  
*Professional Preparedness*

| Indicators                                                                        | M           | SD          | Level            |
|-----------------------------------------------------------------------------------|-------------|-------------|------------------|
| I feel professionally prepared to handle vessel demands after training.           | 4.57        | 0.79        | Very High        |
| I can maintain professional responsibilities even under mental health challenges. | 4.56        | 0.78        | Very High        |
| Training helped me manage both operational tasks and psychological challenges.    | 4.56        | 0.77        | Very High        |
| <b>Overall</b>                                                                    | <b>4.56</b> | <b>0.78</b> | <b>Very High</b> |

**Inferential Findings.** One-way ANOVA was applied to determine whether perceived training effectiveness differed across rank, department, vessel type, and age group. Results are presented in Tables 6 through 9. No statistically significant differences were found across any grouping variable or outcome dimension ( $p > 0.05$ ). The findings indicate that perceptions of training effectiveness were comparable across age groups, ranks, departments, and vessel types.

**Table 6**  
*ANOVA Results by Rank*

| Dimension                  | F-value | p-value | Interpretation  |
|----------------------------|---------|---------|-----------------|
| Mental Health Preparedness | 1.24    | 0.291   | Not Significant |
| Safety Awareness           | 0.87    | 0.419   | Not Significant |
| Professional Preparedness  | 1.56    | 0.211   | Not Significant |

**Table 7**  
*ANOVA Results by Department*

| Dimension                  | F-value | p-value | Interpretation  |
|----------------------------|---------|---------|-----------------|
| Mental Health Preparedness | 0.95    | 0.416   | Not Significant |
| Safety Awareness           | 1.13    | 0.336   | Not Significant |
| Professional Preparedness  | 0.78    | 0.506   | Not Significant |

**Table 8**  
*ANOVA Results by Vessel Type*

| Dimension                  | F-value | p-value | Interpretation  |
|----------------------------|---------|---------|-----------------|
| Mental Health Preparedness | 1.45    | 0.226   | Not Significant |
| Safety Awareness           | 1.68    | 0.155   | Not Significant |
| Professional Preparedness  | 1.32    | 0.264   | Not Significant |

**Table 9**  
*ANOVA Results by Age Group*

| Dimension                  | F-value | p-value | Interpretation  |
|----------------------------|---------|---------|-----------------|
| Mental Health Preparedness | 0.82    | 0.513   | Not Significant |
| Safety Awareness           | 1.05    | 0.381   | Not Significant |
| Professional Preparedness  | 0.91    | 0.458   | Not Significant |

The absence of statistically significant differences across rank, department, vessel type, and age group suggests that perceptions of pre-boarding training effectiveness were generally consistent among participants. This finding may indicate that post-pandemic seafarers share similar preparedness needs and perceive comparable benefits from pre-

boarding training regardless of professional role, ship type, or career stage.

**Qualitative Findings.** Thematic analysis of open-ended responses following Braun and Clarke's six-phase process identified eight themes, as summarized in Table 10.

**Table 10**  
*Summary of Qualitative Themes*

| Theme No. | Theme                                          | Description                                                                                              |
|-----------|------------------------------------------------|----------------------------------------------------------------------------------------------------------|
| 1         | Mental Health Awareness and Stress Management  | Participants gained understanding of stress causes and early distress recognition.                       |
| 2         | Coping Strategies and Psychological Resilience | Participants learned practical techniques that supported functioning under pressure.                     |
| 3         | Peer Support and Communication                 | Training in crew communication was linked to lower stress and stronger working relationships.            |
| 4         | Safety Preparedness and Emergency Response     | Drills and simulations-built confidence in emergency response and safe decision-making.                  |
| 5         | Access to Mental Health Resources              | Awareness of support contacts increased, though actual access varied by company and vessel.              |
| 6         | Preparation for Isolation and Uncertainty      | Training in routines and confined living conditions helped seafarers manage life at sea.                 |
| 7         | Stigma Reduction                               | Open mental health discussions in training reduced stigma, but reinforcement after deployment is needed. |
| 8         | Suggestions for Program Improvement            | Participants recommended scenario-based practice, post-deployment follow-up, and attention to bullying.  |

**Theme 1: Mental Health Awareness and Stress Management.** Participants reported improved understanding of what causes stress at sea and how to recognize early signs of psychological distress in themselves and others.

One participant emphasized the value of being prepared for the emotional demands of shipboard life:

*"To manage my homesick at sea and to be prepared always at any situation."* (Participant 5)

Another participant highlighted the role of training in maintaining work performance despite psychological challenges:

*"I feel better equipped to maintain my professional responsibilities, even when faced with mental health challenges."* (Participant 14)

**Theme 2: Coping Strategies and Psychological Resilience.** Participants described learning practical coping methods, including controlled breathing and structured personal routines, through training.

One participant highlighted the value of open communication and organizational support:

*"An open line of communication with company staffs allows individuals to voice concerns or ask questions without fear of judgment. Knowing that it's okay to ask for help or share struggles can significantly reduce mental stress."*(Participant 26)

Another participant emphasized the role of physical activity and social interaction as coping mechanisms:

*"Do some exercise and play sports activities with others."*(Participant 103)

These responses suggest that participants viewed coping and resilience not only as individual skills but also as outcomes supported by communication, peer interaction, and access to supportive workplace environments.

**Theme 3: Peer Support and Communication.** Training that addressed communication with crewmates from different cultural backgrounds was associated with lower stress levels and more stable working relationships on board. One participant articulated that:

*"It's about the importance of openness of every individual with each other which addresses real life onboard psychological struggles."*(Participant 22)

Training that addressed communication with crewmates across different cultural backgrounds was associated with lower stress levels and more stable working relationships on board. This finding aligns with research showing that the absence of social and emotional support from supervisors and colleagues is among the most damaging conditions seafarers face at sea.

**Theme 4: Safety Preparedness and Emergency Response.** The emphasis placed on emergency drills, communication, and scenario-based learning is consistent with previous studies

highlighting the effectiveness of simulation-based and participatory training approaches in improving safety knowledge and preparedness. This finding suggests that participants viewed these training activities as important contributors to both emergency readiness and safe shipboard performance. One participant stated:

*"The topic that had the greatest impact were safety and emergency procedure."*(Participant 153)

*"Crew communication and conflict resolution session. Role-playing exercises that addressed misunderstandings due to cultural differences or high-pressure situations taught me how to collaborate effectively with diverse team members, which is essential for maintaining morale and safety on board."*(Participant 165)

**Theme 5: Access to Mental Health Resources.** Participants reported that pre-boarding training increased their awareness of available mental health support services, including counseling opportunities, peer support mechanisms, and company-provided assistance programs. Several participants noted that access to information and support resources helped reduce anxiety prior to deployment and facilitated a smoother transition to shipboard life. This was articulated by one of the participants:

*"The most beneficial aspects were the clear expectations, early access to support resources, and opportunities to connect with others, which helped reduce anxiety and made the transition feel more supported."*(Participant 171)

One participant also supported the access of information:

*"I have access to mental health resources (e.g., counseling, peer support) onboard based on my pre-boarding training."*(Participant 379)

These responses suggest that participants perceived access to information about mental

health resources as an important component of pre-boarding preparation. Increased awareness of available support services appeared to contribute to feelings of preparedness and confidence before deployment. Similar findings have been reported in maritime studies emphasizing the importance of support systems, information access, and mental health resources in promoting seafarer well-being and facilitating help-seeking behavior.

**Theme 6: Preparation for Isolation and Uncertainty.** Participants reported that training content covering shipboard routines, confined living conditions, teamwork, and adaptation of life at sea was useful in preparing them for the realities of maritime work. Several participants indicated that discussions on resilience, discipline, stress management, and workplace expectations helped facilitate their transition to shipboard life and increased their confidence in managing unfamiliar situations. One participant mentioned how the training has helped him while another participant articulated how the training prepared him to respond:

*"The training also helped strengthen my resilience by setting realistic expectations about shipboard life. The discussions about teamwork, discipline, and adaptability taught me how to manage stress, communicate better with colleagues, and maintain a positive attitude despite long working hours or isolation."* (Participant 32)

*"It gives you the idea on how to handle or react in that kind of situation."* (Participant 33)

These responses suggest that participants perceived pre-boarding training as helpful in preparing them for the social, psychological, and operational realities of shipboard life. Training that provided realistic expectations and practical guidance appeared to support adjustment to isolation, uncertainty, and the demands of the maritime work environment.

**Theme 7: Stigma Reduction.** Participants reported that open discussion of mental health

within pre-boarding training helped normalize help-seeking. However, they noted that without reinforcement after deployment, the effect of stigma reduction diminishes. One participant noted how mindset shift builds resilience:

*"Insights from seasoned instructors normalize challenges and highlight overcoming adversity as part of the role. This mindset shift, where viewing difficulties as surmountable, builds psychological resilience."* (Participant 27)

Another participant expressed how the training helped him boost his confidence:

*"The training significantly boosted my confidence by validating that the challenges I might face are normal and manageable. Learning concrete problem-solving frameworks for both operational issues and interpersonal conflicts gave me a sense of control in situations that could otherwise feel overwhelming. The resilience-building activities, such as role-playing difficult conversations with superiors or managing equipment failures under pressure, helped me develop a more adaptive mindset. I now approach challenges as opportunities to apply what I've learned rather than as insurmountable obstacles."* (Participant 238)

These responses suggest that participants perceived pre-boarding training as contributing to greater awareness and acceptance of mental health concerns among seafarers. The discussions provided opportunities to challenge misconceptions about mental health and encouraged a more supportive approach to psychological well-being in the maritime workplace. Similar findings have been reported in maritime research highlighting the importance of mental health education and open communication in reducing stigma and fostering help-seeking behavior among seafarers.

**Theme 8: Suggestions for Program Improvement.** Participants recommended more scenario-based practice for stress management and peer support, greater

involvement of experienced seafarers as training contributors, simulations of actual shipboard routines, post-deployment follow-up sessions, and specific attention to issues such as bullying and the preparedness of training instructors. One participant voiced the need for improvement for one aspect:

*“Good operationally, but mental health preparation needs improvement.”* (Participant 318)

Another improvement was given relative to the readiness of a crew:

*“Suggestions for more improvement that will make crew more ready, given that the Gen-Z crew is rapidly increasing and due to generational gap the maritime approach should change and improved to accommodate the future workforce of the Maritime industry.”* (Participant 105)

These responses indicate that participants generally perceived pre-boarding training as beneficial but identified opportunities for further enhancement. In particular, participants highlighted the need for stronger mental health preparation, greater reliance on practical and experience-based learning approaches, and training strategies that address the evolving characteristics and expectations of the maritime workforce.

## DISCUSSION

The quantitative and qualitative findings demonstrate a high degree of convergence. Quantitatively, participants rated pre-boarding training very highly across mental health preparedness ( $M = 4.54$ ), safety awareness ( $M = 4.57$ ), and professional preparedness ( $M = 4.56$ ). These positive evaluations were reinforced by the qualitative findings, which provided detailed accounts of how training contributed to stress recognition, coping skills, peer communication, emergency preparedness, and adaptation to shipboard life. Participants' narratives indicated that training increased awareness of psychological challenges, strengthened

resilience, enhanced safety confidence through drills and simulations, and improved readiness to perform professional responsibilities under demanding conditions.

**Mental Health Preparedness.** The findings indicate that pre-boarding training plays a significant role in strengthening seafarers' mental health preparedness before deployment. The results suggest that participants perceived the training as highly effective in increasing awareness of mental health issues, stress management skills, coping strategies, and readiness to address psychological challenges encountered at sea. There was strong convergence between the quantitative and qualitative findings. Survey respondents rated highly the training components related to stress management, coping with isolation, and recognizing signs of distress. Similarly, qualitative themes such as Mental Health Awareness and Stress Management, Coping Strategies and Psychological Resilience, and Preparation for Isolation and Uncertainty demonstrated that participants found these training elements useful in managing homesickness, stress, fatigue, and uncertainty during their first contracts. These findings support previous research emphasizing the importance of mental health awareness and resilience training among seafarers (Brooks & Greenberg, 2022; Divari, 2020). This awareness supported more deliberate self-management during their first contracts in post-pandemic conditions, where uncertainty and disruption were common (Brooks & Greenberg, 2022; Svetina et al., 2024). These responses further suggest that participants perceived pre-boarding training as helpful in developing awareness of mental health concerns and enhancing confidence in managing personal and professional challenges at sea (Divari, 2020; Brooks & Greenberg, 2022).

The findings also indicate that mental health preparation extends beyond awareness toward the development of adaptive coping mechanisms. Participants described how training introduced practical techniques that

helped them manage emotional and operational pressures during deployment. These techniques were identified as useful for maintaining composure during periods of high operational demand, which is consistent with the recognized need for coping skills training as a distinct component of seafarer preparation (De Jesus, 2022; Brooks & Greenberg, 2022). Similar findings have been reported by Abila et al. (2023), who emphasized the importance of information, communication, and social support in promoting seafarers' well-being, and by De Jesus (2022), who highlighted the role of coping resources and emotional competencies in strengthening resilience and adaptation among seafarers.

However, some divergence emerged regarding mental health resources and stigma reduction. Although the quantitative results showed very high ratings for access to mental health resources and reduced stigma, these indicators received the lowest ratings within the mental health dimension. Qualitative responses revealed that while training increased awareness of counseling services and support mechanisms, the actual availability and accessibility of these resources often depended on shipping company policies and vessel conditions. Participants also noted that stigma associated with seeking psychological help continues to exist in maritime culture despite training efforts. This finding aligns with studies indicating that many seafarers remain reluctant to seek mental health support because of concerns regarding professional reputation and employability (Abila et al., 2023; Seamen's Church Institute & American P&I Club, 2022). Participants' increased awareness of counseling services, peer-support mechanisms, and company assistance programs reflects the value of accessible mental health resources in easing anxiety before deployment and supporting adjustment to shipboard life. This finding is consistent with Brooks and Greenberg (2022) and the Seamen's Church Institute and American P&I Club (2022), which emphasize the importance of organizational support systems in promoting seafarers' well-being. Furthermore, Divari

(2020) identified mental health stigma as a continuing challenge within maritime culture, while the Seamen's Church Institute and American P&I Club (2022) emphasized the importance of sustained education, awareness, and support mechanisms to encourage help-seeking among seafarers.

The findings suggest that pre-boarding training is effective in improving mental health awareness and preparedness but is less capable of addressing organizational and cultural barriers that influence help-seeking behavior after deployment. Consequently, the effectiveness of mental health training may depend on continued support from shipping companies and onboard leadership.

**Safety and Awareness.** Safety awareness obtained the highest mean among the three dimensions, indicating that participants perceived pre-boarding training as highly effective in preparing them for shipboard hazards and emergency situations. The highest-rated items related to exposure to physical and mental safety scenarios and the role of psychological resilience in maintaining a safe work environment.

A strong convergence was evident between the quantitative and qualitative results. Survey ratings reflected high confidence in hazard identification, emergency preparedness, and safety-related decision-making. Likewise, qualitative themes such as Safety Preparedness and Emergency Response revealed that participants considered drills, simulations, communication exercises, and scenario-based learning among the most valuable aspects of the training. Many respondents specifically identified emergency response preparation as the component that had the greatest impact on their confidence and readiness onboard. These findings are consistent with research indicating that simulation-based learning and participatory safety training improve hazard recognition and emergency response competence (Hipol, 2022; as cited in Mejsner et al., 2024). This interpretation is further supported by Mejsner

et al. (2024), articulating that maritime training interventions enhance safety awareness and risk-recognition behaviors, and by Liu et al. (2022), who emphasized the value of simulated operational scenarios in developing decision-making skills under pressure.

Only limited divergence was observed within this dimension. While survey results suggested near-universal satisfaction with safety training, qualitative responses included recommendations for more realistic simulations and additional practice opportunities reflecting actual shipboard situations. These recommendations indicate that although current training is perceived as effective, respondents believe its value could be enhanced through greater experiential and scenario-based learning.

The findings reinforce the importance of comprehensive safety training that integrates both technical and psychological aspects of safety. Participants recognized that psychological resilience contributes to safer decision-making, supporting contemporary views that mental well-being and operational safety are closely interconnected.

**Professional Preparedness.** Professional preparedness also achieved a very high rating, indicating that respondents felt well-prepared to manage vessel demands, balance psychological pressures with operational responsibilities, and maintain professional performance after training.

Again, there was substantial convergence between the quantitative and qualitative findings. Participants rated highly their ability to handle operational responsibilities and maintain performance under challenging conditions. Similarly, qualitative themes highlighted how training helped them develop realistic expectations about shipboard life, adapt to onboard routines, improve teamwork and communication, and strengthen resilience. These results support the findings of Sevilla and Arceño (2017), who reported that structured training contributes significantly to

professional competence and readiness among maritime personnel. Similar findings have been reported in previous research, which emphasizes the importance of familiarizing seafarers with shipboard conditions before deployment to facilitate adaptation and resilience at sea (Alday & Paet, 2025).

Nevertheless, some divergence emerged through participants' recommendations for program improvement. Despite very high quantitative ratings, respondents expressed a desire for greater involvement of experienced seafarers in training, stronger mentorship opportunities, and post-deployment follow-up sessions. These suggestions imply that professional preparedness extends beyond initial training and that continued developmental support could further strengthen readiness and adaptation.

Overall, the convergence between quantitative and qualitative findings demonstrates that pre-boarding training plays a substantial role in enhancing mental health preparedness, strengthening safety awareness, and supporting professional readiness among post-pandemic Filipino seafarers. At the same time, the identified divergences suggest that long-term effectiveness depends not only on the quality of pre-deployment training but also on sustained organizational support, accessible mental health resources, reinforcement of stigma-reduction initiatives, and continued professional development throughout seafarers' careers.

**Limitations of the Study.** Despite the valuable insights generated by this study, several limitations should be acknowledged. First, the quantitative findings were based entirely on self-reported perceptions of participants, which may be susceptible to common method bias, recall bias, and social desirability effects, potentially leading respondents to report more favorable evaluations of pre-boarding training than their actual experiences or behaviors may reflect. Second, the consistently very high ratings across all dimensions suggest the possibility of positive response bias,

particularly because participants had already completed their sea contracts and may have retrospectively attributed successful adaptation and performance to the training they received. Consequently, the findings should be interpreted as indicators of perceived effectiveness rather than objective measures of actual preparedness or training outcomes. Third, the study focused exclusively on Filipino seafarers who entered maritime service after March 2020, had completed at least one sea contract, and participated in agency-sponsored pre-boarding training programs. As a result, the findings may not be fully generalizable to seafarers from other nationalities, individuals with different levels of maritime experience, or those who received alternative forms of training. Future studies may strengthen the evidence base by incorporating longitudinal designs, objective performance indicators, multiple data sources, and more diverse maritime populations to further validate and extend the present findings.

**Future Research Directions.** Future studies should address the limitations identified in this research.

First, researchers should conduct longitudinal studies that follow seafarers from pre-boarding training through multiple contracts to assess whether improvements in mental health preparedness, safety awareness, and professional readiness are maintained over time. Such designs would provide stronger evidence regarding the long-term effectiveness of training interventions.

Second, future research should incorporate objective performance indicators, including incident records, retention rates, performance evaluations, and utilization of mental health support services, to complement self-reported assessments and provide a more comprehensive evaluation of training outcomes.

Third, cross-country comparative studies should be conducted among major seafarer-supplying nations to determine how cultural, organizational, and regulatory differences

influence pre-boarding training effectiveness. Such research could identify international best practices for supporting seafarer well-being and readiness.

Finally, future investigations should examine the effectiveness of specific training components, such as simulation-based learning, mentorship programs, mental health interventions, and post-deployment support mechanisms, to determine which approaches produce the greatest improvements in mental health, safety performance, and professional success among seafarers.

**Conclusions.** This study examined the role of pre-boarding training in enhancing the mental health preparedness, safety awareness, and professional preparedness of Filipino seafarers who entered maritime service during the post-pandemic period. The findings demonstrated that participants perceived pre-boarding training as highly effective across all three dimensions of preparedness. The integration of quantitative and qualitative results revealed strong convergence, indicating that positive perceptions of training effectiveness were supported by participants' experiences of improved stress management, emergency readiness, resilience, communication skills, and adaptation to shipboard life.

The findings suggest that pre-boarding training serves as an important preparatory mechanism that extends beyond regulatory compliance and administrative orientation. By providing psychological, safety-related, and professional guidance before deployment, training helps seafarers develop the knowledge, skills, and confidence necessary to manage the operational and personal demands of maritime work. Participants reported benefits in recognizing and managing mental health challenges, responding effectively to safety hazards and emergencies, and maintaining professional performance under demanding shipboard conditions.

The study also identified areas requiring continued attention. Although participants

generally viewed mental health preparation positively, qualitative findings suggest that challenges related to support resources and the persistence of mental health stigma may remain after deployment. These observations indicate that the effectiveness of pre-boarding training is influenced not only by training quality but also by the organizational and social environments encountered onboard vessels.

Furthermore, the absence of significant differences across age groups, ranks, departments, and vessel types suggests that the benefits of pre-boarding training are broadly applicable across diverse segments of the maritime workforce. This finding highlights the importance of treating mental health preparedness, safety awareness, and professional readiness as fundamental competencies for all seafarers rather than as concerns limited to specific occupational groups.

Overall, this study contributes to the growing body of maritime workforce research by demonstrating the value of comprehensive pre-boarding training in supporting seafarer readiness. The findings underscore the importance of maintaining and strengthening training programs that integrate mental health preparedness, safety education, and professional development. Continued enhancement of these programs may contribute to improved well-being, safer shipboard operations, and greater professional readiness among seafarers entering the maritime industry.

## DISCLOSURES

**Author contributions.** Dec Airo Mari S. Ausan: Conceptualization, Methodology, Formal Analysis, Investigation, Data Curation, Writing – Original Draft, Writing – Review & Editing, Visualization, Project Administration. Jinerose S. Catubig: Methodology, Investigation, Validation, Resources, Writing – Review & Editing. Arvie P. De Castro: Investigation, Validation, Resources, Writing – Review & Editing. Mar Andre Kriztel S. Ausan: Investigation, Data Curation, Resources, Writing

– Review & Editing. Danika Francheska S. Caparas-Ygar: Validation, Resources, Writing – Review & Editing. All authors reviewed and approved the final version of the manuscript.

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**Ethics approval statement.** The study was conducted in accordance with accepted ethical principles and responsible research practices involving human participants. Participation was voluntary, and respondents were provided with information about the purpose of the study before taking part. Informed consent was obtained from all respondents prior to data collection. Participants were informed that they could decline to participate or withdraw from the study without penalty. Confidentiality and privacy were maintained throughout the research process, and no personally identifying information was disclosed in the reporting of the findings. Data collected from respondents were handled securely and used solely for the purposes of the research.

**Data availability statement.** The data supporting the findings of this study are available from the corresponding author upon reasonable request, subject to applicable ethical, confidentiality, and privacy considerations.

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