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Perceived Stress and Quality of Life Among Filipino Seafarers: Basis for A Culturally Adapted Mental Health Program

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ABSTRACT: This study investigated the relationship between perceived stress and quality of life (QoL) among Filipino seafarers employed aboard international cargo vessels and explored their experiences to inform the development of a culturally adapted mental health program. Using a concurrent triangulation mixed-methods design, quantitative data were obtained from 150 Filipino seafarers, complemented by semi-structured interviews with 15 purposively selected participants. Perceived stress and QoL were measured using the Perceived Stress Scale–10 (PSS-10) and the World Health Organization Quality of Life–BREF (WHOQOL-BREF), respectively. Quantitative data were analyzed using descriptive statistics, group-comparison tests, and Pearson correlation analysis, while qualitative accounts underwent reflexive thematic analysis. Results indicated moderate perceived stress ($M = 19.38$, $SD = 4.66$), with 85.3% of respondents classified within the moderate stress category. Among the QoL domains, psychological well-being obtained the highest mean score ($M = 71.83$), whereas the environmental domain recorded the lowest ($M = 48.48$). Perceived stress demonstrated significant negative correlations with physical health ($r = -.647$, $p < .001$), psychological well-being ($r = -.586$, $p < .001$), social relationships ($r = -.266$, $p = .001$), and environmental quality of life ($r = -.491$, $p < .001$). Significant differences in perceived stress were also identified according to age, civil status, occupational rank, and years of maritime service. Eight qualitative themes captured occupational pressures, family separation, coping practices, mental health stigma, multidimensional well-being, support needs, safety responsibilities, and geopolitical uncertainty. Integration of both strands revealed that personal resilience and culturally grounded coping coexist with organizational and environmental constraints affecting seafarers' well-being. These findings informed the proposed Advancing Navigational Competence, Health, and Organizational Resilience (ANCHOR) Mental Health Program, emphasizing culturally responsive, confidential, and organizationally supported mental health care. Given the cross-sectional design and non-probability sampling, findings do not establish causality or population-wide generalizability. The proposed program requires future implementation and evaluation.

1. INTRODUCTION

The maritime industry plays a critical role in global trade and economic development, with Filipino seafarers representing an important segment of the international maritime workforce [1,12]. Serving aboard cargo vessels such as bulk carriers, container ships, and oil tankers, seafarers undertake demanding occupational responsibilities while experiencing extended voyages, restricted shore leave, and prolonged separation from their families [4,8]. Although maritime employment provides significant economic opportunities, the conditions of shipboard life may adversely affect psychological well-being and overall quality of life (QoL).

Seafaring involves interconnected occupational and psychosocial stressors, including demanding work schedules, disrupted sleep, prolonged confinement, social isolation, and limited separation between professional duties and personal life [2,10]. These stressors may be intensified by fatigue, interpersonal difficulties, operational safety responsibilities, and uncertainty surrounding maritime assignments. Previous research has highlighted the relevance of work-related stress, psychological health, and occupational conditions to seafarers' well-being [3,11]. Consequently, understanding perceived stress within the maritime environment is important for identifying factors associated with diminished QoL and potential areas for mental health support.

QoL is a multidimensional construct encompassing physical health, psychological well-being, social relationships, and environmental conditions [15]. Among seafarers, these dimensions may be shaped by occupational demands, access to healthcare, communication with family, interpersonal relationships, recreational opportunities, and the physical and organizational conditions aboard vessels [8,14]. Because occupational stress may be associated with different aspects of well-being to varying degrees, examining individual QoL domains offers a more informative perspective than relying solely on an overall measure.

The experiences of Filipino seafarers must also be considered within their sociocultural context. Family relationships, social connectedness, spirituality, and personal coping practices may influence how seafarers interpret and manage occupational pressures. Prolonged separation from home can also affect emotional well-being and efforts to maintain family relationships while at sea [16]. Furthermore, expectations concerning emotional endurance, professional responsibility, and reluctance to disclose psychological difficulties may influence help-seeking behavior. These considerations underscore the importance of examining both measurable stress–QoL relationships and the lived experiences through which seafarers understand and respond to occupational challenges.

Existing studies have examined seafarers' psychological health, occupational stressors, and well-being [3,4,10,11]. However, further context-specific evidence is needed regarding the relationships between perceived stress and distinct QoL domains among Filipino seafarers, particularly when demographic and occupational characteristics are considered alongside personal experiences. Quantitative measures can identify patterns of association and group differences, whereas qualitative inquiry can provide insight into the cultural, interpersonal, and organizational circumstances underlying those patterns. Integrating these approaches may therefore offer a more comprehensive foundation for developing contextually appropriate mental health support.

The present study employed a concurrent triangulation mixed-methods design to investigate perceived stress and QoL among Filipino seafarers who were currently deployed or had served aboard international cargo vessels during 2023–2026. Participants were recruited from selected maritime communities and seafarer gathering areas in Metro Manila, Philippines. The study focused on Filipino nationals with relevant cargo-vessel experience and excluded land-based maritime personnel, retired seafarers, and non-Filipino nationals. Accordingly, the findings are interpreted within the study's defined occupational, geographic, and temporal scope rather than generalized to the entire Filipino seafaring population.

Specifically, the study aimed to (1) assess perceived stress levels and QoL across the physical, psychological, social, and environmental domains; (2) determine the associations between perceived stress and each QoL domain; (3) examine differences in perceived stress and QoL according to selected demographic and occupational characteristics; and (4) explore seafarers' lived experiences of occupational stress, coping practices, and perceived mental health support needs. By integrating quantitative findings with qualitative accounts, the study sought to provide an empirical and culturally informed foundation for the proposed Advancing Navigational Competence, Health, and Organizational Resilience (ANCHOR) mental health program. ANCHOR is presented as a program proposal derived from the study findings; its implementation and effectiveness were not evaluated in this investigation.

2. MATERIALS AND METHODS

2.1 Study Material

This study employed a concurrent triangulation mixed-methods design to examine perceived stress and quality of life (QoL) among Filipino seafarers working aboard international cargo vessels. Quantitative and qualitative data were collected during the same general study period, analyzed separately, and integrated during interpretation to develop a comprehensive understanding of occupational stress and multidimensional well-being [7,13]. The quantitative component assessed perceived stress, QoL across four domains, and their associations with selected demographic and occupational characteristics. The qualitative

component explored participants' experiences of occupational demands, family separation, coping strategies, mental health concerns, and perceived support needs.

Data collection instruments included a researcher-developed demographic questionnaire, the 10-item Perceived Stress Scale (PSS-10), the World Health Organization Quality of Life–BREF (WHOQOL-BREF), and a semi-structured interview guide. The demographic questionnaire gathered information on participants' age, civil status, occupational rank, and years of maritime service.

The PSS-10 measured the degree to which participants perceived situations in their lives as stressful [6]. Each item was rated on a five-point scale ranging from 0 (*never*) to 4 (*very often*). Four positively worded items were reverse-scored before the item responses were summed to obtain a total score ranging from 0 to 40, with higher scores indicating greater perceived stress.

The WHOQOL-BREF is a 26-item instrument assessing four domains of quality of life: physical health, psychological well-being, social relationships, and environment [15]. Domain scores were calculated and transformed in accordance with the instrument's scoring procedures, with higher scores reflecting better perceived QoL. The semi-structured interview guide facilitated exploration of shipboard stressors, emotional and social experiences, coping practices, perceived QoL, and preferences for culturally responsive mental health support.

2.2 Sample Collection

The study was conducted in selected maritime communities and seafarer gathering areas within Metro Manila, Philippines. Recruitment sites included maritime training and review centers, maritime clinics, and boarding or waiting areas commonly frequented by seafarers between maritime contracts. These locations were selected to facilitate access to Filipino seafarers with relevant experience aboard international cargo vessels.

Eligible participants were Filipino nationals who were currently deployed or had served aboard international cargo vessels, including bulk carriers, container ships, and oil tankers, during the period 2023–2026. Land-based maritime personnel, retired seafarers, and non-Filipino nationals were excluded to maintain consistency with the study's objectives and defined target population.

The quantitative component included 150 Filipino seafarers recruited through non-probability sampling, incorporating purposive eligibility screening, convenience sampling, and participant referrals. The target sample size was determined during the research proposal stage.

The quantitative respondents represented different demographic and occupational characteristics. Participants were distributed across four age groups: 18–25 years (29.3%), 26–35 years (25.3%), 36–45 years (22.7%), and 46–55 years (22.7%). Regarding occupational rank, 52.0% were ratings and 48.0% were officers. Half of the respondents were married (50.0%), and 56.0% had more than five years of maritime service. These characteristics provided variation in the sample for examining perceived stress and quality of life across selected demographic and occupational groups.

Quantitative data were collected through face-to-face administration of structured questionnaires using Google Forms as the electronic data collection platform. The questionnaires included the demographic information form, the Perceived Stress Scale–10 (PSS-10), and the World Health Organization Quality of Life–BREF (WHOQOL-BREF). Although responses were recorded electronically, data collection was conducted in person rather than through remote online distribution. This approach facilitated direct interaction between the researcher and respondents while allowing their responses to be systematically recorded for subsequent statistical analysis.

For the qualitative component, 15 participants were purposively selected from the quantitative survey respondents to participate in individual semi-structured interviews. Selection focused on obtaining information-rich accounts of occupational stress, coping practices, perceived quality of life, and shipboard experiences, while considering variation in participants' demographic and occupational characteristics.

Qualitative interviews were conducted from July 29 to August 3, 2026, at accessible venues in Manila that provided appropriate conditions for privacy. Ms. Michelle Q. Lapaniete, Operations Manager of Laurel Carriers Philippines, Inc., assisted with participant contact and interview scheduling. Her involvement was limited to logistical coordination, while obtaining informed

consent and conducting the interviews remained the responsibility of the researcher. Participation was voluntary, and measures to protect participants' privacy and confidentiality were observed throughout data collection.

2.3 Extraction Procedure

Quantitative data were obtained from the completed demographic questionnaires, 10-item Perceived Stress Scale (PSS-10), and World Health Organization Quality of Life–BREF (WHOQOL-BREF) instruments. Survey responses were organized and coded according to the study variables to facilitate statistical analysis. Demographic and occupational characteristics were categorized in accordance with the study's analytical framework.

For the PSS-10, the four positively worded items were reverse-scored before the responses were summed to generate total perceived stress scores ranging from 0 to 40, with higher scores indicating greater perceived stress [6]. WHOQOL-BREF responses were scored and transformed into the physical health, psychological well-being, social relationships, and environment domain scores in accordance with the instrument's established scoring procedures [15]. Higher domain scores represented better perceived quality of life (QoL).

Qualitative data were obtained through individual semi-structured interviews with the 15 purposively selected participants. Audio-recorded interviews were transcribed verbatim to preserve participants' descriptions of occupational stressors, shipboard experiences, family relationships, coping practices, perceived QoL, and mental health support needs. Interview transcripts were prepared for thematic analysis, and identifying information was excluded from materials used for reporting to protect participant confidentiality.

The quantitative and qualitative datasets were prepared and analyzed independently before their findings were integrated during interpretation. This approach maintained the methodological distinction between the two components while allowing statistical patterns to be examined alongside participants' lived experiences, supporting the study's concurrent triangulation design.

2.4 Analytical Methods

The study employed complementary quantitative and qualitative analytical approaches consistent with its concurrent triangulation mixed-methods design. The quantitative component examined patterns in perceived stress and quality of life (QoL), differences across selected demographic and occupational groups, and associations between perceived stress and the four WHOQOL-BREF domains. The qualitative component explored participants' experiences of occupational challenges, coping practices, family relationships, shipboard conditions, and perceived mental health support needs. Both components were analyzed independently before their findings were integrated during interpretation.

Qualitative interview data were analyzed using reflexive thematic analysis informed by Braun and Clarke [5]. The analysis involved repeated familiarization with the verbatim interview transcripts, generation of initial codes, identification of meaningful patterns across participants' accounts, construction of candidate themes, and iterative review, refinement, definition, and naming of the final themes. Throughout this process, attention was given to both shared experiences and contextual differences in participants' descriptions of occupational pressures, family separation, coping strategies, mental health stigma, shipboard living conditions, safety responsibilities, and perceived support needs.

Consistent with the interpretive orientation of reflexive thematic analysis, themes were understood as analytical interpretations developed through sustained engagement with participants' accounts rather than as categories that emerged independently of the researcher. The analysis considered how participants understood and assigned meaning to their experiences, while recognizing the researcher's active role in coding, identifying patterns, and constructing themes. This process informed the development of eight themes representing interconnected dimensions of occupational stress, coping, multidimensional well-being, and mental health support needs among Filipino seafarers.

Integration of the quantitative and qualitative findings was undertaken during the interpretation stage through a side-by-side comparison of statistical results and qualitative themes, consistent with established mixed-methods integration principles [7,9]. The process examined convergence, complementarity, expansion, and potential divergence between the two strands. Convergence was identified when quantitative findings and qualitative accounts supported compatible interpretations, whereas complementarity was considered when participants' experiences provided additional contextual understanding of statistical patterns. Expansion occurred when qualitative findings identified experiences or concerns not directly measured by the

standardized instruments. Potential divergence was considered when the findings suggested differing or contrasting interpretations that warranted further examination.

Specifically, the significant negative associations between perceived stress and the four QoL domains were examined alongside qualitative accounts of occupational pressure, family separation, coping practices, and shipboard conditions. The comparatively low environmental QoL scores were interpreted in relation to participants' descriptions of their working and living environments, while qualitative concerns involving mental health stigma, safety-critical responsibilities, and geopolitical uncertainty extended the interpretation beyond the variables directly measured by the PSS-10 and WHOQOL-BREF. These comparisons provided contextual depth without treating qualitative accounts as statistical confirmation or evidence of causal relationships.

The integrated findings provided the empirical and contextual basis for the proposed Advancing Navigational Competence, Health, and Organizational Resilience (ANCHOR) Mental Health Program. The program was conceptualized as a culturally adapted framework addressing occupational stressors, coping resources, family relationships, confidentiality, organizational support, and mental health service needs among Filipino seafarers. ANCHOR remained a proposed intervention and was neither implemented nor evaluated for effectiveness within the present study.

2.5 Statistical Analysis

Descriptive statistics were employed to summarize participants' demographic and occupational characteristics, perceived stress levels, and quality of life (QoL) across the four WHOQOL-BREF domains. Frequencies and percentages were calculated for categorical variables, while means and standard deviations were used to summarize continuous measures, including total scores on the 10-item Perceived Stress Scale (PSS-10) and the physical health, psychological, social relationships, and environmental QoL domain scores.

To minimize missing responses, quantitative data collection was conducted through face-to-face administration using Google Forms, with the researcher personally supervising the process. Participants were given the opportunity to seek clarification regarding questionnaire instructions and item wording while independently providing their responses. The researcher monitored questionnaire completion to ensure that all items were answered before submission. This procedure was intended to promote completeness of the collected data while maintaining participants' autonomy and the voluntary nature of their responses.

Inferential statistical analyses examined differences in perceived stress and QoL according to demographic and occupational characteristics. Independent-samples t-tests compared occupational rank groups (officers and ratings). One-way analysis of variance (ANOVA) compared age groups, civil status, and years of maritime service. Tukey's honestly significant difference (HSD) procedure was applied following statistically significant conventional ANOVA results to identify adjusted pairwise differences. Group means and standard deviations were examined alongside inferential statistics.

Homogeneity of variance was evaluated using median-centered Levene tests. Most comparisons did not show evidence of unequal variances; exceptions were physical QoL by age ($p = 0.042$) and environmental QoL by age ($p = 0.046$). For these age comparisons, Welch's ANOVA was used as a sensitivity analysis. Because environmental QoL differed significantly by age, Games–Howell pairwise comparisons were additionally calculated to account for unequal variances.

Pearson's product–moment correlation coefficient (r) was used to determine the direction and strength of linear associations between perceived stress and each of the four WHOQOL-BREF domains. Statistical significance was evaluated at $p < 0.05$, with values reported as $p < 0.001$ where applicable.

Given the cross-sectional nature of the quantitative component and the use of non-probability sampling, statistical findings were interpreted as associations and differences within the investigated sample rather than evidence of causal relationships. Generalization beyond the study participants was therefore approached with caution.

3. RESULTS AND DISCUSSION

3.1 Preliminary Analysis

The quantitative analysis included 150 Filipino seafarers with experience aboard international cargo vessels. Of these respondents, 52% were ratings and 48% were officers. Approximately 56% had more than five years of maritime service, while

50% were married. These characteristics provided the demographic and occupational context for examining perceived stress and quality of life (QoL).

The respondents reported an overall mean perceived stress score of 19.38 (SD = 4.66), indicating a moderate level of perceived stress. Most participants (85.3%) were classified within the moderate stress category. These findings suggest that perceived stress was a common experience among the surveyed seafarers, although the cross-sectional design does not establish whether specific shipboard conditions caused their reported stress.

The WHOQOL-BREF results indicated variation across the four QoL domains. Psychological well-being obtained the highest mean score (M = 71.83, SD = 15.88), followed by social relationships (M = 64.83, SD = 18.11) and physical health (M = 55.95, SD = 14.07). The environmental domain recorded the lowest mean score (M = 48.48, SD = 14.06).

Table 1. Perceived Stress and Quality-of-Life Scores Among Filipino Seafarers (n = 150)

Measure	Mean	SD
Perceived stress (PSS-10)	19.38	4.66
Physical health	55.95	14.07
Psychological well-being	71.83	15.88
Social relationships	64.83	18.11
Environment	48.48	14.06

Note. Perceived stress was assessed using the 10-item Perceived Stress Scale (PSS-10), with total scores ranging from 0 to 40. The interpretation of perceived stress followed the classification criteria adopted in the study. Quality of life (QoL) was assessed using the WHOQOL-BREF, with domain scores transformed to a 0–100 scale, where higher scores indicate better perceived QoL. WHOQOL-BREF domain scores were interpreted descriptively, without assigning clinical severity classifications.

Among the four WHOQOL-BREF domains, environmental quality of life obtained the lowest mean score (M = 48.48, SD = 14.06), suggesting comparatively less favorable perceptions of environmental well-being among the respondents. This finding highlights the relevance of environmental factors to seafarers' overall quality of life. However, the environmental domain reflects participants' subjective assessments of their broader living conditions, access to resources, safety, and environmental circumstances and should not be interpreted as a direct or objective assessment of specific shipboard conditions.

3.2 Instrumental Analysis

Pearson product–moment correlation analysis was performed to examine associations between perceived stress and the four WHOQOL-BREF domains. As presented in Table 2, perceived stress was significantly and negatively correlated with all four QoL domains.

Table 2. Correlations Between Perceived Stress and Quality-of-Life Domains (n = 150)

Quality-of-life domain	Pearson's r	p-value	Direction
Physical health	−0.647	< 0.001	Negative
Psychological well-being	−0.586	< 0.001	Negative
Social relationships	−0.266	0.001	Negative
Environment	−0.491	< 0.001	Negative

Note. Pearson's *r* indicates the direction and strength of the association. All four correlations were statistically significant at the .05 level.

The strongest negative association was observed between perceived stress and physical health ($r = -.647$, $p < .001$), followed by psychological well-being ($r = -.586$, $p < .001$). A negative association was also observed for the environmental domain ($r = -.491$, $p < .001$), while the association with social relationships was comparatively weaker ($r = -.266$, $p = .001$).

These results indicate that respondents reporting higher perceived stress tended to report lower QoL across all four domains. The findings establish statistical associations but do not demonstrate causal relationships.

3.3 Demographic and Occupational Differences in Perceived Stress and Quality of Life

Inferential analyses were conducted to examine differences in perceived stress and quality of life (QoL) according to participants' age, civil status, occupational rank, and years of maritime service. Statistically significant differences in perceived stress were identified across age groups, $F(3, 146) = 3.89$, $p = 0.010$; civil status categories, $F(3, 146) = 2.97$, $p = 0.034$; occupational rank (officers and ratings), $t(148) = -3.63$, $p < 0.001$; and years of maritime service, $F(2, 147) = 14.88$, $p < 0.001$. These findings indicate that perceived stress varied across the demographic and occupational categories examined.

Differences in QoL were domain-specific, as summarized in Table 3. Physical health and psychological well-being differed significantly by occupational rank and years of maritime service, whereas social relationships differed significantly only by occupational rank. Environmental QoL showed statistically significant differences across all four demographic and occupational characteristics.

Table 3. Significance of Quality-of-Life Differences Across Demographic and Occupational Characteristics

QoL Domain	Age (p)	Civil Status (p)	Occupational Rank (p)	Years of Service (p)
Physical health	0.387	0.462	**0.016**	**0.001**
Psychological well-being	0.520	0.609	**0.001**	**0.003**
Social relationships	0.096	0.121	**0.005**	0.117
Environment	**0.018**	**0.027**	**< 0.001**	**< 0.001**

Note. Values represent p-values obtained from independent-samples t-tests for occupational rank (officers versus ratings) and one-way analysis of variance (ANOVA) for age, civil status, and years of maritime service. Bold values indicate statistical significance at $p < .05$. The reported values are from the conventional group-comparison analyses. For environmental quality of life by age, Welch's ANOVA also indicated a significant difference ($p = .013$). The environmental QoL difference by civil status was not significant under Welch's sensitivity analysis ($p = .130$).

Environmental quality of life (QoL) demonstrated statistically significant differences across age groups, $F(3, 146) = 3.44$, $p = .018$; civil status, $F(3, 146) = 3.14$, $p = .027$; occupational rank, $t(148) = 3.63$, $p < .001$; and years of maritime service, $F(2, 147) = 11.53$, $p < .001$. These findings indicate that perceptions of environmental well-being varied according to selected demographic and occupational characteristics within the study sample. However, the strength and consistency of these differences varied across the statistical analyses.

For age, the homogeneity-of-variance assumption was not satisfied; therefore, Welch's ANOVA was conducted as a sensitivity analysis. The result remained statistically significant, $F(3, 79.65) = 3.81$, $p = .013$, supporting the presence of age-related differences in environmental QoL. Subsequent Games–Howell post hoc comparisons revealed that respondents aged 18–25 years ($M = 43.54$) reported significantly lower environmental QoL than those aged 36–45 years ($M = 53.31$; adjusted $p = .007$). No other age-group comparisons reached statistical significance. This finding suggests that younger respondents perceived their environmental circumstances less favorably than respondents in the 36–45-year age group. Nevertheless, the cross-sectional design does not establish whether age itself or other unmeasured occupational and personal factors account for the observed difference.

Environmental QoL also differed significantly across civil-status categories under conventional ANOVA. Tukey's honestly significant difference (HSD) post hoc analysis identified a statistically significant difference between single respondents ($M =$

45.26) and those who were separated or annulled (M = 60.94; adjusted p = .043). However, this finding requires cautious interpretation because the separated/annulled subgroup comprised only six participants. Furthermore, Welch's ANOVA did not demonstrate a statistically significant difference across civil-status groups (p = .130), indicating that the conventional finding was not robust to the unequal-variance sensitivity analysis. Accordingly, the observed civil-status difference should be considered preliminary rather than conclusive evidence of a consistent association between civil status and environmental QoL.

Occupational rank and years of maritime service were also associated with differences in environmental QoL. Officers reported higher environmental QoL (M = 52.65) than ratings (M = 44.63), suggesting variation in perceived environmental well-being across occupational positions. Regarding maritime experience, Tukey's HSD comparisons showed that respondents with less than 12 months of service (M = 38.67) reported significantly lower environmental QoL than those with 1–5 years of service (M = 49.82; adjusted p = .002) and those with at least five years of service (M = 51.67; adjusted p < .001). These differences may reflect variations in occupational experience, familiarity with shipboard routines, or access to workplace resources; however, these potential explanations were not directly tested and should be regarded as contextual interpretations rather than established mechanisms.

Additional post hoc analyses identified statistically significant differences in perceived stress between respondents aged 18–25 and 36–45 years, between single and married respondents, and between those with less than 12 months of maritime service and both longer-service groups. For physical and psychological QoL, significant pairwise differences were also identified between respondents with less than 12 months of maritime service and those in the two longer-service categories. Although the homogeneity-of-variance assumption was not satisfied for physical QoL across age groups, Welch's ANOVA remained nonsignificant (p = .361), consistent with the original ANOVA result. Thus, the sensitivity analysis did not alter the conclusion that physical QoL did not differ significantly across age groups.

Taken together, these findings suggest that demographic and occupational characteristics were associated with variations in perceived stress and selected dimensions of QoL among the surveyed Filipino seafarers. Differences involving occupational rank and maritime experience may be particularly relevant when considering the diverse circumstances of seafarers at different career stages. Nevertheless, the findings should be interpreted within the limitations of the cross-sectional design, non-probability sampling, and unequal subgroup sizes. They provide a basis for identifying potentially relevant areas for further investigation and for informing the proposed ANCHOR Mental Health Program, rather than establishing causal relationships or definitive differences across the broader Filipino seafaring population.

3.4 Discussion

The present study identified significant negative associations between perceived stress and all four quality-of-life (QoL) domains among 150 Filipino seafarers. Most respondents (85.3%) reported moderate perceived stress, with a mean Perceived Stress Scale (PSS-10) score of 19.38 ± 4.66. Psychological well-being recorded the highest mean QoL score (71.83 ± 15.88), followed by social relationships (64.83 ± 18.11), physical health (55.95 ± 14.07), and environment (48.48 ± 14.06). These findings indicate that perceived well-being differed across domains and support the importance of examining seafarers' QoL as a multidimensional construct. Previous research has similarly identified occupational demands, psychosocial stressors, and shipboard conditions as relevant considerations in seafarers' health and well-being [3,4,10,11].

The strongest negative correlation was observed between perceived stress and physical health ($r = -0.647$, $p < 0.001$), followed by psychological well-being ($r = -0.586$, $p < 0.001$), environment ($r = -0.491$, $p < 0.001$), and social relationships ($r = -0.266$, $p = 0.001$). Thus, higher perceived stress was associated with lower perceived QoL across all four domains, although the strength of these associations varied. The particularly strong relationships involving physical and psychological well-being suggest that occupational stress should be considered alongside both physical health concerns and emotional functioning. These findings are consistent with literature emphasizing the interconnected nature of occupational stress, health, and well-being among seafarers [2,3,8]. Nevertheless, the cross-sectional design does not establish the direction or causality of these relationships.

Demographic and occupational analyses revealed significant differences in perceived stress according to age, civil status, occupational rank, and years of maritime service. QoL differences were more domain-specific. Physical health and psychological well-being differed significantly by occupational rank and years of service, social relationships differed by occupational rank, and environmental QoL differed across all four characteristics. The environmental domain also had the lowest mean score, drawing attention to the conditions in which seafarers work, live, rest, and maintain contact with others. However, these results

do not establish which individual environmental conditions accounted for the observed scores or which demographic categories experienced better or poorer outcomes. Group-level interpretations require examination of the corresponding means and post hoc comparisons.

Qualitative Findings and Their Contribution to Understanding Seafarers' Well-Being

The qualitative analysis of 15 semi-structured interviews generated eight interconnected themes describing Filipino seafarers' occupational pressures, emotional experiences, coping practices, and perceived mental health support needs. These themes contextualized the quantitative associations between perceived stress and quality of life (QoL), while identifying cultural, organizational, and security-related concerns not directly captured by the standardized instruments. Selected participant quotations are presented in English, using the translations documented in the mother thesis. Participant identifiers (S1–S15) are retained to preserve anonymity.

Theme 1: Living Under Constant Occupational Pressure

Participants characterized occupational stress as a recurring feature of shipboard employment, particularly during demanding operations and periods of inadequate rest. One participant explained:

"The work is almost continuous, especially when there are operations. Sometimes, we do not get enough rest before going on duty again." (S6)

This account illustrates how limited opportunities for recovery formed part of participants' everyday working experiences. The theme contextualizes the negative associations between perceived stress and physical health ($r = -0.647$) and psychological well-being ($r = -0.586$). Although these associations cannot establish causation, the qualitative evidence highlights the relevance of workload and rest conditions when considering maritime stress management.

Theme 2: The Emotional Cost of Family Separation

Prolonged separation from loved ones emerged as a significant emotional challenge. Participants described the limitations of remote communication in maintaining family relationships during maritime assignments:

"The hardest part is really being away from the family. Even if you video call every day, it is still different when you are not physically with them." (S4)

The quotation demonstrates that maintaining communication does not necessarily eliminate the emotional burden of physical separation. This finding adds depth to the significant negative association between perceived stress and social relationships ($r = -0.266$, $p = 0.001$). Although this was the weakest correlation among the four QoL domains, family separation remained a meaningful concern within participants' accounts.

Theme 3: Enduring Stress Through Personal, Social, and Spiritual Coping

Participants described drawing upon personal resilience, family relationships, and spiritual resources when managing the challenges of maritime employment. The importance of family communication was illustrated by one participant:

"Being able to talk to my family after work helps a lot. It makes me feel relieved." (S8)

This statement demonstrates how interpersonal connection could provide perceived emotional relief despite prolonged physical separation. Across the theme, coping involved personal, social, and spiritual dimensions, suggesting that mental health initiatives should recognize culturally meaningful sources of support. However, these accounts do not establish the effectiveness of particular coping strategies or imply that informal support can replace professional assistance.

Theme 4: Silent Strength and Mental Health Stigma at Sea

Participants' accounts revealed that expectations of emotional strength could coexist with reluctance to disclose psychological difficulties. One participant observed:

"Some are hesitant to speak up because they are afraid that others might think they are weak." (S6)

This quotation identifies perceived judgment as a potential barrier to discussing mental health concerns. Unlike the quantitative measures, which assessed stress and QoL, the interviews illuminated the interpersonal expectations that may influence help-

seeking. The theme supports consideration of confidential services, respectful communication, and stigma-sensitive mental health education. It does not establish the prevalence of stigma among Filipino seafarers generally.

Theme 5: Quality of Life Shaped by Body, Mind, Relationships, and Shipboard Environment

Participants described well-being as an interconnected experience involving physical condition, psychological functioning, relationships, and shipboard circumstances. One participant stated:

"When your body is tired, your mind is affected as well. It is difficult to work when you do not get enough rest." (S6)

This account illustrates participants' perceptions of the relationship between physical fatigue and psychological functioning. It complements the multidimensional WHOQOL-BREF findings, particularly the associations involving physical and psychological QoL. Although the environmental domain recorded the lowest mean score (48.48 ± 14.06), the interviews do not establish which particular environmental factors independently explained this result. The combined findings nevertheless support attention to both personal well-being and shipboard working and living conditions.

Theme 6: Need for Culturally Responsive Mental Health Support

Participants expressed a need for accessible mental health services that could accommodate the practical realities of maritime employment. One participant explained:

"I hope there could be a counselor who is easily accessible even while we are onboard, so that we do not have to wait until the problem becomes more serious." (S8)

The quotation highlights accessibility and timely assistance as important considerations in designing mental health support. Alongside the themes concerning coping practices and stigma, this finding suggests that culturally responsive services should address confidentiality, professional support, and the constraints associated with shipboard deployment. These are participant-informed program priorities rather than evidence that a particular intervention would be effective.

Theme 7: Safeguarding Life and Vessel Under High-Risk Conditions

Participants emphasized the continuous vigilance required when performing safety-critical maritime responsibilities. One participant stated:

"You cannot lose focus even for a moment because a single mistake could lead to an accident." (S2)

This account illustrates the perceived consequences of errors within the maritime working environment. The theme expands the interpretation of occupational stress by highlighting the psychological demands associated with safety responsibilities and operational accountability. It suggests that mental health support should complement established safety practices rather than be treated as separate from the responsibilities of shipboard employment.

Theme 8: Navigating Geopolitical Tension and Conflict-Zone Uncertainty

Participants also described uncertainty and concern associated with potentially dangerous maritime routes. One participant explained:

"When there is news about war or tensions along our route, I immediately think about my family and whether we will be able to return home safely." (S9)

This quotation connects perceived security threats with concern for personal safety and family relationships. The theme extends the qualitative interpretation beyond routine shipboard demands to encompass geopolitical uncertainty. Because conflict-zone exposure was not independently measured in the quantitative component, the findings cannot establish its statistical contribution to stress or QoL. Nevertheless, this emergent theme identifies a potentially important consideration for future research and occupational mental health planning.

Integration of Quantitative and Qualitative Findings

Integration of the quantitative and qualitative findings provided a more comprehensive understanding of perceived stress and quality of life (QoL) among Filipino seafarers. Consistent with the concurrent triangulation mixed-methods design, the two datasets were analyzed independently and subsequently compared to identify areas of convergence, complementarity, and

expansion. This process enabled the statistical patterns observed among the 150 survey respondents to be interpreted alongside the occupational, interpersonal, cultural, and environmental experiences described by the 15 interview participants.

Convergence was evident in the relationship between occupational pressure and multidimensional well-being. Quantitative analysis demonstrated significant negative associations between perceived stress and all four QoL domains, with the strongest relationships observed for physical health ($r = -0.647$, $p < 0.001$) and psychological well-being ($r = -0.586$, $p < 0.001$). These patterns corresponded with the qualitative themes of *Living Under Constant Occupational Pressure*, *Quality of Life Shaped by Body, Mind, Relationships, and Shipboard Environment*, and *Safeguarding Life and Vessel Under High-Risk Conditions*. Participants' accounts of demanding responsibilities, limited opportunities for recovery, and safety-critical duties reinforced the interpretation that occupational stress and perceived well-being are closely interconnected. However, this correspondence does not establish a causal relationship between specific working conditions and QoL outcomes.

Complementarity emerged when qualitative accounts provided contextual explanations and additional meaning for the statistical findings. Although the social relationships domain demonstrated the weakest negative correlation with perceived stress ($r = -0.266$, $p = 0.001$), the theme *The Emotional Cost of Family Separation* highlighted the personal significance of prolonged separation from loved ones. This finding suggests that the relative strength of a statistical association does not necessarily reflect the emotional importance of an experience to participants. Similarly, the themes of *Enduring Stress Through Personal, Social, and Spiritual Coping* and *Silent Strength and Mental Health Stigma at Sea* illuminated how participants managed psychological demands and navigated expectations concerning emotional endurance. These experiences provided interpretive depth beyond the standardized measures, which did not directly assess specific coping practices or perceived barriers to mental health disclosure.

Further complementarity was evident in the environmental QoL findings. The environmental domain recorded the lowest mean score (48.48 ± 14.06) and was negatively associated with perceived stress ($r = -0.491$, $p < 0.001$). Significant differences in environmental QoL were also identified across age, civil status, occupational rank, and years of maritime service. The qualitative theme concerning the interconnected dimensions of QoL, together with participants' accounts of shipboard conditions and safety responsibilities, provided context for understanding why environmental well-being warrants attention. Nevertheless, the interviews did not establish which particular environmental factors independently accounted for the domain score or the observed group differences.

Expansion occurred when the qualitative findings identified concerns that were not directly measured by the PSS-10 or WHOQOL-BREF. The themes *Silent Strength and Mental Health Stigma at Sea* and *Need for Culturally Responsive Mental Health Support* highlighted potential barriers to help-seeking and the importance of confidentiality, accessibility, and cultural relevance in psychosocial services. Likewise, *Safeguarding Life and Vessel Under High-Risk Conditions* and *Navigating Geopolitical Tension and Conflict-Zone Uncertainty* introduced additional dimensions of operational responsibility, perceived security, and uncertainty. These themes broadened the interpretation of occupational well-being beyond the measured stress and QoL scores without implying that their independent statistical effects had been established.

The integration also revealed an important distinction between measured associations and lived experiences. Quantitative findings identified the direction and strength of relationships between perceived stress and QoL, whereas qualitative findings illuminated how participants understood and navigated the circumstances surrounding those relationships. The two strands therefore contributed different but complementary forms of evidence. Rather than treating qualitative accounts as proof of the mechanisms underlying statistical associations, the integrated interpretation recognizes them as contextual insights that deepen understanding and identify priorities for further investigation. This approach is consistent with established principles of mixed-methods integration [7,9].

Collectively, the integrated findings provided the empirical and contextual basis for the proposed **Advancing Navigational Competence, Health, and Organizational Resilience (ANCHOR) Mental Health Program**. The convergence of occupational stress and multidimensional well-being supported the inclusion of stress awareness and psychosocial education. Findings concerning family separation, coping practices, and mental health stigma informed the proposed emphasis on culturally responsive support, confidential assistance, and recognition of existing social and spiritual resources. Environmental and safety-related themes further supported consideration of organizational participation and the broader conditions of maritime employment. However, these program components represent recommendations derived from the integrated findings

rather than interventions tested in the present study. The feasibility, acceptability, and effectiveness of ANCHOR require subsequent evaluation.

Implications for the Proposed ANCHOR Mental Health Program

The integration of quantitative and qualitative findings provided the empirical and contextual foundation for the proposed Advancing Navigational Competence, Health, and Organizational Resilience (ANCHOR) Mental Health Program. The significant negative associations between perceived stress and all four quality-of-life (QoL) domains highlighted the importance of addressing psychological well-being alongside physical health, social relationships, and environmental conditions. The qualitative findings further identified occupational pressure, prolonged family separation, culturally grounded coping practices, mental health stigma, safety-related responsibilities, and geopolitical uncertainty as relevant considerations for developing mental health support appropriate to Filipino seafarers.

These findings informed several proposed priorities for ANCHOR. First, mental health education and stress-management support would address the occupational and psychological demands identified in the study. Second, culturally responsive psychosocial assistance would recognize the importance of family relationships, interpersonal support, and spiritual coping practices while promoting confidential access to professional help. Third, stigma-sensitive mental health awareness would seek to encourage appropriate help-seeking without compromising seafarers' privacy or professional dignity. Finally, organizational participation would acknowledge the influence of shipboard working conditions, safety responsibilities, and environmental stressors on perceived well-being.

ANCHOR is therefore conceptualized as a proposed framework that integrates individual coping resources with interpersonal and organizational support. Its intended contribution is to translate the study's mixed-methods findings into contextually relevant priorities for maritime mental health promotion. However, the program was neither implemented nor evaluated in the present investigation. Further research is required to refine its components, assess feasibility and acceptability among seafarers and maritime stakeholders, and determine its effectiveness through appropriate evaluation designs.

Study limitations and future research

Several methodological limitations should be considered when interpreting the findings. First, the quantitative participants were recruited through non-probability sampling from selected maritime communities and seafarer gathering areas within Metro Manila. Although the sample included respondents with varying demographic and occupational characteristics, it cannot be assumed to represent the broader population of Filipino seafarers working aboard international cargo vessels. Consequently, the generalizability of the findings is limited by the sampling approach and geographic scope.

Second, the cross-sectional design limits the interpretation of the observed relationships between perceived stress and quality of life (QoL). Although significant negative correlations were identified across all four WHOQOL-BREF domains, these associations do not establish causal direction or demonstrate that perceived stress directly produces changes in QoL. Furthermore, the use of self-reported instruments may introduce recall bias, social desirability bias, and variations in participants' interpretation of questionnaire items.

Third, the qualitative findings were based on semi-structured interviews with 15 purposively selected participants. Although these accounts provided contextual insight into occupational pressures, family separation, coping practices, mental health stigma, shipboard conditions, safety responsibilities, and geopolitical uncertainty, they should not be considered representative of all Filipino seafarers. The themes reflect participants' reported experiences and the researcher's interpretive engagement with the interview data rather than independently verified occupational exposures. In particular, the findings concerning geopolitical uncertainty should be interpreted as participants' perceived experiences rather than evidence of objectively measured conflict-zone exposure or its independent statistical contribution to stress and QoL.

Finally, the proposed Advancing Navigational Competence, Health, and Organizational Resilience (ANCHOR) Mental Health Program was developed from the integrated quantitative and qualitative findings but was not implemented or evaluated in the present study. Therefore, its feasibility, acceptability, and effectiveness remain undetermined. Future research should incorporate stakeholder consultation involving seafarers, maritime employers, mental health professionals, and relevant maritime organizations to refine the program's content, delivery mechanisms, and organizational applicability. Subsequent

feasibility and pilot studies should examine implementation requirements, participant acceptability, and practical challenges before larger-scale prospective evaluations are undertaken.

Future investigations may also benefit from broader geographic recruitment, inclusion of additional vessel types and maritime employment contexts, and longitudinal designs to examine changes in perceived stress and QoL over time. Such approaches could strengthen the evidence base for culturally adapted and organizationally supported mental health interventions for Filipino seafarers.

4. CONCLUSION

This study identified significant negative associations between perceived stress and all four quality-of-life (QoL) domains—physical health, psychological well-being, social relationships, and environment—among Filipino seafarers with experience aboard international cargo vessels. Most respondents reported moderate perceived stress, while psychological well-being had the highest mean QoL score and the environmental domain the lowest. Perceived stress also differed significantly according to age, civil status, occupational rank, and years of maritime service, indicating that demographic and occupational characteristics warrant consideration when addressing seafarers' well-being.

The qualitative findings provided contextual insight into these statistical patterns, highlighting the interconnected experiences of occupational pressure, prolonged family separation, personal, social, and spiritual coping, mental health stigma, shipboard living conditions, safety responsibilities, and geopolitical uncertainty. Integration of the quantitative and qualitative findings demonstrated that perceived stress and QoL should be understood within the broader interpersonal, cultural, occupational, and environmental circumstances of maritime employment. These findings support a multidimensional approach to mental health promotion that considers both individual coping resources and organizational support.

The integrated findings informed the proposed Advancing Navigational Competence, Health, and Organizational Resilience (ANCHOR) Mental Health Program, which emphasizes culturally responsive mental health education, confidential psychosocial support, recognition of existing coping resources, and organizational participation. As ANCHOR was not implemented or evaluated in this study, its feasibility, acceptability, and effectiveness remain to be established. Future research should consider broader and more geographically diverse samples, longitudinal investigations, and systematic evaluation of culturally adapted interventions. Overall, the study provides a context-specific evidence base for strengthening mental health support within maritime occupational health practices and promoting the multidimensional well-being of Filipino seafarers.

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AUTHOR CONTRIBUTIONS

Clarissa May M. Asejo: Conceptualization, Methodology, Investigation, Data Collection, Data Curation, Formal Analysis, Writing—Original Draft, and Visualization.

Eva E. Pacayra: Supervision, Methodology, Research Guidance, Validation, and Writing—Review and Editing.

Sonia Janice Pilao: Supervision, Methodology, and Research Guidance.

CONFLICT OF INTEREST

The authors declare that they have no known financial or non-financial conflicts of interest that could have influenced the conduct, analysis, interpretation, or reporting of this study.

ETHICS STATEMENT

This study was reviewed and approved by the Centro Escolar University Institutional Ethics Review Board (CEU-IERB), under approval reference number CEU-IERB_SY25-26_1581_GS, through an expedited review process. The ethical approval was valid from July 29, 2026, to July 29, 2027.

Participation was voluntary, and informed consent was obtained from all participants before their involvement in the quantitative survey or semi-structured interviews. Participants were informed of the study's objectives, research procedures, confidentiality safeguards, and their right to withdraw without penalty. Quantitative questionnaires were administered through Google Forms during face-to-face data collection, while qualitative interviews were conducted in settings intended to protect participants' privacy.

Given the potentially sensitive nature of discussions concerning occupational stress, emotional difficulties, family separation, and mental health experiences, additional safeguards were established to protect participants' psychological well-being. A registered psychologist was available for consultation or psychological assistance if needed during the qualitative data collection process. However, the interviews proceeded without circumstances requiring psychological intervention. Post-interview debriefing was conducted immediately after each interview to provide participants with an opportunity to express concerns, clarify their experiences, and receive appropriate support following the discussion.

Participant identities were protected through confidential handling of research records and de-identification of information presented in the findings. The study was conducted in accordance with the ethical requirements established by the approving institutional review board.

DATA AVAILABILITY STATEMENT

The data supporting the findings of this study are not publicly available due to ethical and confidentiality considerations involving human participants. The datasets contain information obtained from Filipino seafarers through structured questionnaires and semi-structured interviews. De-identified data may be made available by the corresponding author upon reasonable request, subject to applicable ethical approval, participant consent provisions, and institutional data-sharing requirements.

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