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Maritime Labour Convention 2006 compliance on working conditions on board: The case of Greek shipping industry

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Maritime Labour Convention 2006 compliance on working conditions on board:

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Abstract

Under the regulations of the Maritime Labour Convention (MLC), the occupational setting for those at sea is notably different compared to usual employment conditions. The scarcity of social engagement and long-term distance from loved ones can diminish job contentment among seafarers.

The study aims to answer critical questions about the impact of environmental factors, stress and work dependency on seafarers' job satisfaction. A structured questionnaire using the Likert scale was used. The results were collected through the Google Forms platform and the data were processed using the SPSS statistical program.

The survey showed high levels of seafarers' satisfaction regarding three main factors: the work team on board, the working conditions on board, and the company they work for. Additionally, it found a clear and statistically significant inverse relationship between negative emotions and various measures of job satisfaction.

Findings suggest that the workplace significantly influences employee job satisfaction. It appears that job satisfaction is intimately connected with the physical setting, the efficiency of the workplace, and the conditions under which work is performed.

The results of the study may provide valuable information for improving seafarers' working conditions and increasing job satisfaction. This approach is suitable for developing coherent policies and practices aimed at improving the working experience of seafarers.

Keywords: Seafarers, Job satisfaction, Working conditions, Well-being

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1. Introduction

Under the Maritime Labour Convention (MLC), the work environment for seafarers is markedly distinct from typical work experiences. Limited social interactions and extended separation from family and friends can result in a reduced level of job satisfaction for those working at sea. At the same time, referring to research questions about the factors that influence and can improve satisfaction shows that there is concern for the well-being of seafarers. Likely, factors such as living conditions on board, communication with colleagues and support from the company are critical factors affecting seafarers' job satisfaction.

To improve the situation emphasis must be placed on measures that improve working conditions and promote social cohesion on board Also, the company may consider initiatives for psychological support and connecting seafarers with their loved ones during their missions (Webster, Beehr, and Christiansen 2010).

The literature in the field of human resources is an important prerequisite knowledge and has examined several factors of job satisfaction. However, the limited application of theories in various contexts highlights the need for the reproduction of studies (Allan et al. 2018). In shipping, the uniqueness of the environment requires an approach that takes into account its specific characteristics. The lack of an overall model of job satisfaction for seafarers, based on approved theories, creates a gap in the understanding of the factors that affect their job satisfaction.

Therefore, future research in the field should seek to develop an integrated framework that takes into account the specific needs and limitations of seafarers. In this way, it will be possible to understand better the factors linked to their job satisfaction and propose effective interventions to improve their working conditions and well-being.

Highlighting previous studies that have examined various factors of seafarers' satisfaction highlights the importance of ambient elements such as light, adequate space, ventilation, and direct window views (Ashkanasy, Ayoko, and Jehn 2014), However, the lack of adoption of a specific theoretical framework may make it difficult to understand the findings and correlations fully.

Also, a lack of understanding about how stress affects the effects of job satisfaction factors on various dimensions of job satisfaction highlights a gap in understanding

seafarers' overall work experience (Fan et al. 2019). It is important to integrate the stress dimension into the work context, as shipping is known to involve high levels of stress.

Therefore, future research may focus on developing theoretical frameworks that integrate both environmental elements and stress to provide a more comprehensive and in-depth understanding of the effect of these factors on seafarers' job satisfaction.

The model proposed in this paper is based on three theories – behavioural environment theory, attachment work theory and dependency theory – being an innovative approach to understanding the factors that influence seafarers' job satisfaction. The integration of aspects of environment, stress and work dependency seems to give a more complete picture of their work experience.

About research questions, the study aims to answer critical questions about the impact of environmental factors, stress and work dependency on seafarers' job satisfaction. Linking these theoretical approaches to empirical data can reveal the relationships and potential interactions between these factors.

The research questions are:

1. What are the factors affecting seafarers' job satisfaction?

According to behavioural environmental theory, the natural environment plays a crucial role in shaping satisfaction. Physical characteristics such as light, space and ventilation are considered important factors affecting the psychological and physical well-being of seafarers (Barker 1978).

Attachment theory emphasizes the importance of human relationships and emotional ties in the context of work. According to this theory, seafarers develop strong bonds with those around them to satisfy their personal needs. Thus, annexation, binding nature and integration into groups and companies emerge as critical factors (Yip et al. 2018). Factors relating to cultural reality, support on board, social inclusion, autonomy and unheard-of are therefore determining factors affecting seafarers' level of job satisfaction, reminding them how important the human dimension is in their workplace.

2. The relationship between workplace stress, unmet work demands, and how satisfaction factors influence job satisfaction.?

According to dependency theory, (Feldman 1976) the stability of satisfaction factors is not universal, as there are occasional events that can have a profound impact on employee well-being.

Workplace stress and unheard-of work can be factors that compromise job satisfaction. In particular, accidents and occasional events during socialization, such as conflicts and intimidation, can significantly affect how employees perceive their work and their degree of satisfaction. It is important to recognize that these incidents can have long-term effects on job satisfaction as they shape a person's work experience. Therefore, stress management and prevention of unheard-of work is vital to ensure a high level of job satisfaction in the shipping industry.

This study categorises the factors influencing job satisfaction and stress into two main categories, consistent with two distinctive theoretical frameworks. Initially, they are subdivided into factors related to the ship's environment or workplace, including aspects such as light, space and ventilation, in correspondence with ambient behavioural theory. Secondly, behavioural factors emerging from attachment theory are examined, including aspects such as attachment, binding, and integration into groups and companies.

Stress is then analyzed based on addictiveness theory, which holds that circumstantial events, such as accidents and social conflicts, can profoundly affect job satisfaction. Finally, job satisfaction is measured in three dimensions: total, reciprocal and exhaustion, as various aspects of job well-being are considered.

In this research, a proposed model is developed and applied to assess the factors that influence seafarers' stress and job satisfaction. The research was conducted in early 2024. Seafarers highlight four key dimensions of the workplace environment: physical, connected, healthy, and functional, as well as two distinct attachment styles (secure and avoidant). Furthermore, the study emphasizes inclusion factors that contribute to job satisfaction, such as corporate emotional culture and social integration. This study presents a single theoretical and research framework for assessing seafarers' job satisfaction. The model developed incorporates both the factors of the work environment and the psycho-emotional dimensions related to job satisfaction and stress. This model offers a more holistic understanding of the factors that contribute to the well-being of seafarers in their work environment.

More specifically, this paper presents the following:

In the introduction of the thesis, the central thematic subject on which the study will focus is presented. Research questions are introduced that are intended to guide scientific analysis and provide clarity in defining research objectives. In addition, the methodology that intends to be followed is presented, emphasizing on methodological approaches, data collection techniques and analytical procedures that will be adopted to achieve the research objectives. The overall structure of the paper and its approach reflect a coherent and systematic sequence towards solving research questions and achieving the objectives of the study.

As part of the literature review, a detailed analysis of behavioural regulation theory and occupational attachment theory is conducted through several studies. First, the critical variables that determine the dynamics of behavioural regulation and work connectedness are examined, from where two initial hypotheses are developed. Next, an in-depth examination of dependency theory is presented, aiming at consolidating the hypothesis concerning the mitigating effects of stress on the work environment. The chapter concludes with the presentation of the last hypothesis, which concerns the durability of the proposed theoretical model under various conditions and environments.

In the Research Methodology section, we delineate the selection of a quantitative approach to address our research objectives. This encompasses an outline of the research instrument employed to gather data, a description of the participant demographic, and the methodologies implemented for data analysis. Additionally, this section addresses ethical considerations, alongside strategies employed to ensure the validity and reliability of the research findings.

In the Research Results section, we systematically expound upon the findings of our study, which include an analysis of negative emotions experienced during work, an evaluation of satisfaction levels with compensation, an assessment of satisfaction regarding the working conditions onboard, the aggregate satisfaction index, and the interrelations observed among these variables.

In the section Conclusions, we provide a comprehensive review of the research findings, synthesizing the insights derived from the literature review. Furthermore, this

section delineates the limitations encountered during the study and proposes recommendations for future research endeavours.

2. Literature review

This chapter offers an in-depth exploration of both the theory of behavioural regulation and the attachment theory as they apply in workplace settings, using various studies for analysis. Initially, it introduces and scrutinizes two primary hypotheses. These hypotheses pertain to the factors that could influence employee behaviour and their sense of attachment in the workplace. The chapter then shifts focus to dependency theory, aiming to corroborate the hypothesis that posits a buffering effect of this theory on work-related stress. Furthermore, it evaluates the last hypothesis, which concerns the longevity and applicability of the proposed theoretical model. This assessment includes identifying potential areas for future research and practical implementation in the field of labour.

2.1. Maritime Work Environment Study: Theoretical Framework and Key Elements in Managing Stress Dynamics

Barker's behavioural regulation theory, proposed in 1978, suggests that the natural environment significantly influences the behaviour that emerges within it. Numerous studies, detailed in Table 2.1, have explored how different characteristics of the work environment affect job satisfaction. These studies focus on various workplace elements and their effects on employees, including seafarers. Notably, the link between the work environment and employee behaviour has been underscored in research by Twenge, Macky, and Campbell (2008), as well as Nguyen, Dang, and Nguyen (2014). These studies demonstrate that the conditions in which employees work can empower them, thereby enhancing their job satisfaction, a point also supported by Beehr and Christiansen's 2010 research.

Table 1. Interconnections between Work Environment characteristics and Job satisfaction

Researcher	Study	Results
Twenge, Macky, and Campbell (2008)	Links between work environment and employee behaviour	The workplace can empower employees by improving job satisfaction
Nguyen, Dang, and Nguyen (2014)	Links between work environment and employee behaviour	The workplace can empower employees by improving job satisfaction
Webster, Beehr, and Christiansen (2010)	Influence of the physical work environment on job satisfaction	Physical characteristics like light, space, and ventilation can positively influence work performance and satisfaction
Ashkanasy, Ayoko, and Jehn (2014)	Links between physical characteristics of the workplace and work performance	Physical aspects like light, space, and ventilation significantly impact work performance and satisfaction.
Adriaenssens and Hendrickx (2019)	Effect of noise, heat, lighting and space on work performance	Poor conditions can negatively affect work performance
Mallam and Lundh (2016)	Impact of technology and modernization on seafarers' working conditions	Technology can improve seafarers' working and living conditions
Matsangas and Shattuck (2021)	Examination of seafarers' habitability and well-being	Physical factors such as noise, temperature, poor sleep conditions and light affect sleep quality and mood
Sampson and Ellis (2020)	Creating a functional environment for seafarers' well-being	Workplace proactive methods can improve job satisfaction
Krystosik-Gromadzinska (2018)	Evaluation of ergonomic characteristics of a merchant ship	Designing space onboard ships with careful consideration can significantly enhance the working and living conditions of sailors.
Baştuğ, Asyali and Battal (2020)	Examination of safety on board	Specific measures like effective communication and a robust safety management system are crucial for the successful implementation of safety protocols.

Source: Author

Within the framework of Barker's (1978) behavioural regulation theory, research has delved into various characteristics of workplaces, categorizing them into three primary

types: (i) physical dimensions of the workspace, (ii) functional attributes of the space, encompassing productivity-enhancing tools, safety and health measures, and social interaction spaces that foster leisure or participation, and (iii) constraints that might disrupt the harmony between the individual and the environment.

The impact of a workplace's physical conditions, such as proper lighting, adequate space, effective ventilation, the inclusion of plants, and unobstructed window views (Ashkanasy, Ayoko, and Jehn 2014), on enhancing work performance and satisfaction is widely acknowledged. On the other hand, negative factors like noise, high temperatures, poor lighting, and cramped spaces can diminish work performance (Adriaenssens and Hendrickx 2019). Therefore, the design and reorganization of space, architectural considerations, and the incorporation of art can boost job satisfaction. Modern work environments are increasingly designed to maximize productivity and job satisfaction (Rajapakse et al. 2019). For seafarers, job satisfaction is often closely linked to the conditions on the ship, where they live and work for long periods. Research by Mallam and Lundh (2016) has identified certain deficiencies in ship areas, such as the engine room, underscoring the need for technological improvements to enhance both the working and living conditions of seafarers.

Matsangas and Shattuck's 2021 study emphasizes the crucial role of habitability and well-being for seafarers, identifying factors like noise, temperature, poor sleeping conditions, and brightness as significant determinants of seafarers' sleep quality and overall mood. Furthermore, they acknowledge that the functionality of the workplace, including the availability and quality of equipment, work processes, and the nature of social interactions, is essential for facilitating efficient work and communication among employees.

Job satisfaction is also influenced by various constraints, including living conditions, social interactions, working hours, and opportunities for leisure. Researchers such as de Silva, Stanton, and Stanton (2011) have noted that these constraints can pose considerable obstacles to employee satisfaction. In the maritime sector, Sampson and Ellis (2020) advise that shipping companies adopt proactive measures to enhance seafarers' job satisfaction. These measures could include providing free and unlimited internet access, leisure activities such as swimming and basketball, as well as improvements in cabin living conditions and the quality of food offered. By

implementing such strategies, shipping companies can significantly improve the work and living environment for seafarers, thereby boosting their job satisfaction and overall well-being.

Ergonomic assessment plays a crucial role in workplace design, given the significant impact of both physical and psychological stress on employees. Krystosik-Gromadzinska (2018) underscores the necessity of enhancing working and living conditions aboard merchant ships to mitigate the physical and psychological stressors faced by seafarers.

The research conducted by Baştuğ, Asyali, and Battal (2020) highlights that, while the Safety Management Code outlines key procedures for maritime safety and the preservation of human life, effective communication and robust safety management systems are essential for the successful implementation of these regulations. This underscores the importance of operational factors, such as proficient communication and adept management, in fostering job satisfaction among seafarers.

In summary, the job satisfaction of seafarers hinges not only on the physical aspects of their working environment but also on the quality of functional and social elements, coupled with effective management and communication strategies. The overall experience of seafarers on board, encompassing living conditions, health and safety provisions, and opportunities for social interaction and recreation, is a critical factor in sustaining their satisfaction and well-being in their profession. We can therefore conclude that:

Hypothesis 1: The ship/workplace environment positively affects seafarers' job satisfaction (overall, pay, burnout)

2.2. Employee Communication: Theoretical Analysis and Factors Influencing Stress

The studies referenced in Table 2.1 indicate that relevance in the workplace positively impacts various aspects of professional life. Firstly, it significantly boosts job satisfaction, team productivity, and individual employee performance. Moreover, relevance plays a key role in diminishing feelings of insecurity and pressures commonly experienced in the workplace. This, in turn, fosters greater organizational engagement and paves the way for professional success.

Furthermore, the concept of relevance is instrumental in reducing employee turnover rates. By making their roles and contributions feel meaningful and relevant, employees are more likely to feel a stronger connection to their company or the ship they work on, leading to lower rates of job resignation. This highlights the importance of ensuring that employees perceive their work as relevant and valuable, not only for their personal satisfaction and performance but also for the overall retention and stability of the workforce.

Relevance in the workplace is achieved through various factors, such as the supportive culture of the company or ship, the professional identity of employees, relationships between colleagues, and the social dynamics developed during work.

Table 2. Factors affecting stress

Researcher	Study	Results
Yip et al. (2018)	Theory of relevance and how it affects relationships with people and people's lives.	People develop strong bonds with specific people because these relationships bring meaning and satisfaction.
Ainsworth et al. (2015)	Research individual affinity styles and how they influence behavior in close relationships.	Individual attachment styles (restless, avoidant, erratic and secure) influence behavior in close relationships.
Yip et al. (2018)	Extension of relevance theory to explain the connection of employees to the work environment.	Employee relevance affects their job satisfaction and performance, reducing insecurity and risks.
Nelson and Quick (1991)	How the introduction/training of seafarers at work creates a sense of relevance.	The introduction/training of seafarers creates a sense of relevance and enhances their job satisfaction.
Ronen and Mikulincer (2009)	Influence of company/ship culture on seafarers' professional identity.	The culture of the company/ship influences the professional identity of seafarers and their job satisfaction.
Tokar et al. (2003)	How team cohesion and professional identity affect employee relevance.	Team cohesion and professional identity affect employee relevance and job satisfaction.
Helm (2013)	How relevance affects team productivity and work performance.	Relevance enhances team productivity and employee performance by reducing insecurity and pressures in the workplace.
Hassan (2012)	How relevance reduces insecurity in the workplace.	Relevance reduces insecurity in the workplace and helps maintain job satisfaction.

Researcher	Study	Results
Ilies et al. (2018)	How relevance mitigates occupational risks and pressures in the workplace.	Relevance mitigates occupational risks and pressures, thereby promoting organizational engagement.
Allen and Shanock (2013)	How relevance encourages organizational employee engagement.	Relevance encourages organizational engagement of employees in the company.
Stumpf (2014)	How relevance promotes professional success.	Relevance promotes employee professional success.
Jiang et al. (2012)	How relevance reduces job resignation.	Relevance reduces the rate of employee quitting.

Source: Author

Relevance Theory, as outlined by Yip et al. (2018), suggests that deep connections with others provide essential meaning and fulfilment in individuals' lives. This concept initially focused on how different attachment styles—restless, avoidant, irregular, and secure—affect personal relationships, a topic thoroughly analyzed by Ainsworth et al. (2015). The theory's application has expanded into the workplace, examining how employees' relationships with colleagues, teams, and the organization contribute to job satisfaction and performance enhancements (Yip et al., 2018).

The incorporation and orientation of new staff are pivotal in establishing a workplace atmosphere where employees feel their roles are significant (Nelson and Quick, 1991). This perceived relevance is amplified by the organizational culture (Ronen and Mikulincer, 2009; Lavy, Bareli, and Ein-Dor, 2014), and is further supported by strong team cohesion and the cultivation of professional identities (Tokar et al., 2003). Helm (2013) identifies this sense of relevance as crucial for achieving high job satisfaction, team productivity, and superior overall performance. Moreover, a strong sense of relevance in the workplace has been linked to reduced job insecurity (Hassan, 2012), diminished occupational stress and hazards (Ilies et al., 2018), increased organizational commitment (Allen and Shanock, 2013), enhanced career success (Stumpf, 2014), and a lower turnover rate (Jiang et al., 2012).

Therefore, relevance in the workplace emerges as a critical element for the effective operation and growth of businesses. It plays a pivotal role in enhancing the relationships

between employees and their organizations, as well as in improving the overall well-being of the workforce.

The development of seafarers' sense of relevance to their ships is significantly influenced by the presence of a supportive culture, which is closely tied to their professional identity. The literature indicates that a supportive culture within companies and ships is crucial for the socialization of young workers and the enhancement of their professional knowledge (Acevedo and Yancey, 2011). This kind of culture fosters an environment where honesty and kindness towards employees are prioritized, as highlighted by Kristof-Brown, Zimmerman, and Johnson (2005). Such an environment builds trust and commitment among employees (Mohiuddin Babu et al., 2019).

A supportive culture also plays a pivotal role in motivating employees to engage, connect, and identify with the company. As Eisenberger et al. (1997) suggest, when employees perceive their organization as caring and supportive, they are more likely to develop a strong attachment to it. This attachment is particularly important for seafarers, who often face unique challenges due to the nature of their work environment. In such settings, feeling valued and supported by the organization can greatly impact their sense of belonging, job satisfaction, and overall well-being. Therefore, cultivating a supportive culture is essential for maritime companies aiming to maintain a committed and productive workforce.

Professional identity within the maritime sector is notably distinct from other professions, largely shaped by its unique traditions and practices (BIMCO, 2021). The customs and traditions associated with life at sea not only influence the culture of shipping companies but also profoundly affect the identities of seafarers themselves (Wu, Gu, and Carter, 2021). Tsai and Liou (2017) found that seafarers often seek employment with companies that offer comprehensive packages, including effective communication and opportunities for personal development.

The research by Ozdemir, Senbursa, and Tehci (2022) highlights how a sense of professional relevance, stemming from perceived fairness within an organization, can significantly impact seafarers' job satisfaction. Yuen, Bai, and Wang (2020) stress the importance of cultivating a safety culture aboard ships and call for further research into organizational culture in the maritime industry. They recognize the role of a supportive culture in enhancing seafarers' sense of identification and connection with their

colleagues, viewing it as part of a long-term cycle that involves social categorization, identification, and comparison. This understanding underlines the importance of reducing staff turnover in the industry.

During the COVID-19 pandemic, the International Labour Organisation (ILO, 2020) issued recommendations for shipping companies to take precautionary measures to support the welfare of seafarers on board. These measures included provisions for maintaining contact with family and loved ones, recognizing the vital role that such support plays in the overall well-being of seafarers. The pandemic brought to light the essential need for holistic support systems within the maritime industry, not only for operational efficiency but also for the mental and emotional well-being of the seafaring workforce.

The research by Rodrigues, Butler, and Guest (2019) emphasizes that long-term collaboration with the same group of people fosters the formation of strong bonds, which are instrumental in shaping both personal and professional identities. Such enduring relationships within a team context enhance the sense of belonging and identity for the individuals involved.

Progoulaki and Theotokas (2016) highlight that social interactions, particularly when they are frequent and consistent, deepen employees' engagement with their teams. This engagement not only shapes their behaviour but also reinforces their individual and collective work identities. These interactions play a crucial role in how employees perceive their role within the team and the larger organization.

Collinson (2016) discusses how professional identity is not only about personal and professional achievements but is also intertwined with social and ethnic loyalties. Narratives of success, professionalism, and networking, shared during everyday interactions, become key components of one's work identity. These stories and experiences shared among colleagues contribute significantly to how individuals view their roles and their contributions to the organization.

Mitchell et al. (2001) further suggest that an employee's identification with their company plays a crucial role in job satisfaction. This identification decides to leave the company a more challenging one, as the employee would be severing ties not just with a job but with a part of their identity. This connection underscores the importance of fostering a work environment where employees feel a strong sense of belonging and

identification, as it directly influences their job satisfaction and loyalty to the organization.

The exploration of professional identity among seafarers in the shipping industry presents intriguing insights, though research in this area remains somewhat limited. Wu, Gu, and Carter (2021) discovered that many Chinese seafarers working for foreign shipping companies often feel disconnected from their employers. However, there's an aspiration among these seafarers to cultivate stronger ties in the future, which they believe could enhance their career satisfaction.

In contrast, the study by Yuen, Bai, and Wang (2020) reveals that social support from colleagues contributes positively to the psychological well-being of seafarers. This support is amplified through mutual exchange, assistance in challenging situations, and efforts to reduce feelings of isolation from family (Jonglertmontree et al., 2022; Sharma, 2021). Jensen and Oldenburg (2021) also note that a significant portion of the psychosocial challenges faced by seafarers stems from social differences encountered in multicultural environments onboard ships.

From these findings, it can be inferred that professional identity, particularly in the shipping industry, plays a vital role in employee satisfaction. The relevance of one's work, the bonds developed with colleagues, and a sense of community and belonging can significantly counterbalance the negative aspects that certain work factors may impose on job satisfaction. Recognizing and understanding these elements are crucial for more effective human resource management in the shipping sector. Companies that prioritize fostering a strong sense of professional identity and community among their seafarers are likely to see benefits in terms of increased job satisfaction and overall employee well-being.

Hypothesis 2: An employee's sense of relevance positively affects seafarer's job satisfaction (overall, pay, fatigue)

2.3. Approach to Factors Influencing Dependency

The contingency theory, as proposed by Feldman in 1976, posits that emotional dissatisfaction in the workplace can arise from a mismatch among personal, organizational, and social factors. This theory underscores the significance of achieving harmony between individuals and their work environment to enhance job satisfaction

and performance. This perspective differs from the more traditional workplace theory, which suggests that the work environment directly influences employee satisfaction. In contrast, the addict theory proposes that an individual's integration into their environment and its structures is what primarily determines their job satisfaction and performance.

Shankar and Ellis (2021) argue that the addict theory can be used in conjunction with other theories to yield a more comprehensive understanding of workplace dynamics. Barsky et al. (2004) apply the addict theory specifically to workplace stressors, concluding that these stressors act as mediators in the relationship between negative experiences and job satisfaction, as well as overall life satisfaction.

In the context of maritime employment, various studies (referenced in Table 2.3) emphasize the critical importance of the work environment and living conditions aboard ships for the psychological and physical health of seafarers. These findings are crucial for improving working conditions and overall well-being in the shipping industry. Addressing the unique stressors and psychosocial challenges faced by seafarers is essential. This implies not only focusing on the physical aspects of their work environment but also considering how they integrate and find satisfaction within the unique structures and dynamics of life at sea. Understanding and addressing these factors can lead to enhanced job satisfaction, performance, and overall quality of life for seafarers.

Table 3. Factors Influencing Dependency

Researcher	Study	Results
Liu et al. (2021)	Relationship between stress and job satisfaction among seafarers	The statement indicates that a significant negative correlation exists between stress and job satisfaction, as evidenced by the correlation coefficient (r = -0.486).
Sliskovic and Penezic (2017)	Impact of the ship's environment on seafarers' stress	The study indicates that the lifestyle aboard ships leads to a range of health issues, including insufficient sleep, poor dietary habits, and various other health concerns.
Jonglertmontree et al. (2022)	Stressors in the work environment of seafarers	Categories of stressors include job requirements and labour resources in the ship's environment.

Researcher	Study	Results
Song et al. (2021)	Impact of the ship's environment on job satisfaction and seafarers' well-being	Environmental stress, isolation and other factors were found to negatively affect job satisfaction and well-being.
Oldenburg, Hogan, and Jensen (2013)	Impact of leisure time on board bonding and mental health of seafarers	The emphasis on the impact of leisure time aboard ships highlights its critical role in fostering camaraderie among seafarers and supporting their mental health.
Jensen and Oldenburg (2021)	Psychosocial burdens of seafarers and social differences in a multicultural environment	The finding suggests that 65% of the psychosocial challenges faced by sailors can be traced back to social differences within a multicultural environment on board ships

Source: Author

The reports by BIMCO (2021) highlight that seafarers experience higher levels of occupational stress compared to many other professional groups. This elevated stress level is particularly significant given the unique challenges of the maritime industry. Liu et al. (2021) surveyed 337 male seafarers and found a notable negative relationship between stress and job satisfaction, as evidenced by a correlation coefficient of r = −0.486. This finding underscores the profound impact that stress can have on the well-being and job satisfaction of individuals in this sector.

Despite the importance of this issue, research focusing on the anxiety experienced by seafarers is relatively scarce. Out of 6211 articles dealing with anxiety, only about 2.18% address this issue within the context of seafaring. This gap in research indicates a need for more focused studies on the mental health challenges faced by those in the maritime industry.

Jepsen, Zhao, and van Leeuwen (2015) point out that physical and social fatigue is often considered normal in certain sectors, including shipping. This normalization of fatigue can potentially overlook the serious implications it has for the health and safety of seafarers. Additionally, Oldenburg, Hogan, and Jensen (2013) identify specific stressors related to the ship's environment, such as noise, vibration, and ship movement. These factors are prevalent both during day and night shifts, further contributing to the stress experienced by seafarers.

The combined impact of these environmental stressors, along with the physical and social fatigue that is often deemed a normal part of the job, highlights the need for

comprehensive strategies to address occupational stress in the maritime industry. Improving working conditions, providing mental health support, and conducting further research into the unique challenges faced by seafarers are essential steps towards ensuring their well-being and job satisfaction.

Recent research has indeed shed light on how the conditions of life on a ship can significantly impact the stress levels of seafarers. The study by Sliskovic and Penezic (2017), which focused on 530 Croatian seafarers, vividly illustrates how life abroad differs markedly from everyday life on land. The study identified several issues such as lack of sleep, poor diet, insufficient physical activity, and excessive smoking, all of which have substantial effects on both physical and mental health. This research reflects a broader trend where the unique living conditions at sea are closely linked to the well-being of seafarers.

Jonglertmontree et al. (2022) contribute to this field by categorizing stress factors in the maritime work environment into two main groups: (i) work requirements, encompassing aspects like schedules, ship sections, noise, and vibrations, and (ii) work resources, including team cohesion, support on board, and the balance between reward and effort. This categorization helps in understanding how different aspects of a seafarer's job and work environment contribute to their overall stress levels.

Furthermore, the study by Song and colleagues (2021) involving 668 Chinese seafarers reveals that the working conditions, well-being, and occupational health on board are adversely affected by environmental stressors, feelings of isolation, limited leisure time, and restricted access to medical care. These factors collectively have a detrimental effect on the job satisfaction and overall well-being of seafarers.

The accumulated research demonstrates the intricate relationship between the conditions on ships and the mental health of seafarers. It underscores the urgency for shipping companies and regulatory bodies to give more attention to various aspects of seafarers' lives on board. Factors such as work schedules, the physical environment of the ship, the availability of social support systems, and access to healthcare are all crucial elements that, if improved, could significantly enhance the job satisfaction, overall well-being, and health of seafarers. This, in turn, is not only beneficial for the individuals involved but is also critical for ensuring their safety and the overall efficiency of maritime operations.

The shipping industry is often perceived as a high-stress profession, with potential negative impacts on the mental health and well-being of seafarers (Jonglertmontree et al., 2022; Sharma, 2021). This perception necessitates the implementation of strategies aimed at mitigating these stressors. One such strategy, as highlighted in the systematic review by Oldenburg, Hogan, and Jensen (2013), is the importance of leisure time on board. Providing opportunities for seafarers to bond and socialize is an essential protective factor against the isolation and separation from their families they often experience.

Furthermore, Jensen and Oldenburg (2021) point out that about 65% of the psychosocial problems faced by seafarers are related to the social differences inherent in a ship's multicultural environment. This finding suggests that addressing issues related to diversity, inclusion, and cross-cultural communication on board is essential for improving the psychological well-being of seafarers. It highlights the need for training programs and policies that foster mutual respect and understanding among crew members from diverse cultural backgrounds.

Overall, these insights call for a comprehensive approach to improve the work and living conditions on ships, with a focus on enhancing social cohesion, leisure opportunities, and multicultural understanding, alongside addressing the physical aspects of the maritime work environment.

Hypothesis 3: Workplace and work relevance will mitigate the effect of work factors on job satisfaction (total, pay, fatigue).

The research into the maritime industry reveals that the working environment for seafarers is fraught with unique challenges that significantly contribute to professional stress. Factors such as inadequate sleep, unfavourable living conditions, and the high demands of maritime work converge to create a strenuous environment that can have detrimental effects on the health and well-being of seafarers.

The analysis of stress factors in this context underscores not only the demanding nature of the job but also the importance of the resources available to the seafarers. This highlights an urgent need for better support systems and resources on board ships. Improving these aspects could play a crucial role in enhancing the overall well-being and job satisfaction of seafarers. Therefore we assume:

Hypothesis 4: The combined effect of seafarers' work factors (workplace, job relevance) and work stress explains job satisfaction better than each factor alone.

The current study aims to construct an extensive theoretical framework that melds elements from several theories - physical and social environmental theory, affinity theory, and dependency theory - to gain a deeper understanding of seafarers' job satisfaction. This integrated approach is designed to provide a more holistic view of the factors influencing job satisfaction among seafarers. Here's a brief overview of how these theories interplay in the context of this study:

1. **Physical and Social Environmental Theory**: This theory focuses on how the physical conditions of the workplace (like space, noise levels, and work equipment) and the social environment (such as relationships with colleagues, team dynamics, and company culture) impact an employee's job satisfaction. In the context of seafaring, this includes the living conditions on the ship, work schedules, and the camaraderie among crew members.

2. **Affinity Theory**: This theory suggests that individuals are more satisfied and productive when they feel a sense of belonging or affinity with their workplace. For seafarers, this could involve their identification with the ship they work on, their feeling of being part of a team, and their connection to the maritime community as a whole.

3. **Dependency Theory**: This theory examines how dependence on certain job aspects (like salary, job security, and career development opportunities) affects an individual's job satisfaction. In the seafaring profession, this could be related to the reliance on the job for financial stability, career progression, and the provision of basic needs while at sea.

By integrating these theories, the study aims to capture the multifaceted nature of job satisfaction in the unique context of seafaring. It acknowledges that seafarers' job satisfaction is influenced not just by their immediate work environment, but also by their emotional and psychological connection to their work and the broader maritime community, as well as their dependence on their jobs for various aspects of their lives. This comprehensive framework can provide valuable insights for shipping companies, policymakers, and maritime welfare organizations in developing strategies to enhance the job satisfaction and overall well-being of seafarers.

This work will address the gap in the literature. Research papers that refer to the Maritime Labor Convention and working conditions on ships examine a wide range of issues, including labour rights, safety and health, as well as the influence of maritime policy on working conditions.

In the context of Greek shipping, the gap in the literature may be multifaceted. Few studies may have examined in detail how the MLC is applied in practice in Greek shipping, including the compliance of ships and seafarers. There is a lack of a comprehensive analysis of the overall impact of the MLC on Greek seafarers, including aspects of work, health, and social life.

To fill this gap, we can choose a research approach that combines innovative methods with traditional analyses.

3. Research Methodology

The Research Methodology chapter outlines our quantitative approach, detailing the research tool used, participant demographics, and data analysis methods. It also covers ethical considerations and measures for ensuring the study's validity and reliability.

3.1. Choice of quantitative approach

Quantitative research is selected due to its particular strengths and suitability for certain types of studies and research questions. Key factors influencing this choice include (Creswell, 2014):

- ✓ Theory and Hypothesis Testing: This approach is excellent for systematically testing hypotheses or established theories using statistical methods. It's about quantifying variables and employing statistical tests to evaluate if the findings align with or challenge specific theories.

- ✓ Generalizability of Findings: Quantitative methods, with their focus on larger, often random samples, enable findings to be extended to a broader population. This is especially important when the aim is to apply insights from the sample to a wider group.

- ✓ Objective Approach: The reliance on numerical data and statistical analysis in quantitative research is seen as more objective, reducing the risk of the researcher's biases affecting the outcomes.

- ✓ Determining Statistical Significance: Quantitative research provides tools to assess if results are statistically significant, helping determine whether observed effects are likely due to the variables being studied or merely by chance.

- ✓ Measuring Differences and Relationships: This type of research is adept at quantifying variations between groups or the strength of correlations between variables, which is vital for comparative studies or correlation analyses.

- ✓ Ease of Replication: The structured format of quantitative studies allows for easier replication, which is crucial in the scientific process for verifying and affirming research findings.

- ✓ Handling Large Data Sets: Quantitative methods are particularly efficient at processing and analyzing large amounts of data, making them ideal for data-intensive studies.

- ✓ Informing Decisions and Policies: In areas like business, healthcare, or public policy, where decisions often rely on empirical data and observable trends, quantitative research offers the necessary data-driven foundation for these decisions.

- ✓ Clear and Precise Results: The use of numbers and statistics in quantitative research enables the presentation of findings in a clear, concise, and precise manner. This clarity is essential in fields requiring data-based decision-making.

In essence, quantitative research is chosen for its ability to provide precise, unbiased, and broadly applicable data, making it ideal for confirming theories, drawing comparisons, and supporting decision-making across various disciplines.

3.2. Research Tool

A structured questionnaire based on Vlachos et al. (2022) research was used. The questionnaire consists of two parts: The first part is the demographic characteristics, namely nationality, age and grade. The second part concerns the investigation of the participants' job satisfaction. In particular, the emotions felt during the work, the degree of satisfaction with the remuneration, the degree of satisfaction with the working conditions on the ship and the overall degree of satisfaction of the participants are investigated.

3.3. Participants

50 people of Greek nationality participated in the research. The questionnaire was created in a Google form:

https://docs.google.com/forms/d/e/1FAIpQLSc3EjxR8rg3N6vxrs9rcN2Hb01FSuEnk O4ZPXt_dwqNrGC87Q/viewform The largest percentage of participants are between

36-45 years old (N=24, 48%). Next, in descending order, they are over 45 years old (N=22, 44%) and finally, only 4 people belong to the 25-35 age group (8%). Regarding the rank of the participants, the majority is the 2nd Engineer (N=15, 30%). Then, in descending order, they stated that they were Cadet master (N=9, 18%), the first mate (16%), bosun, electrician and chef, each (N=4, 8%) and finally they stated that they are liable, 1st Chief Engineer and Higher Education Institution, each (N=2, 4%).

Figure 1: Age
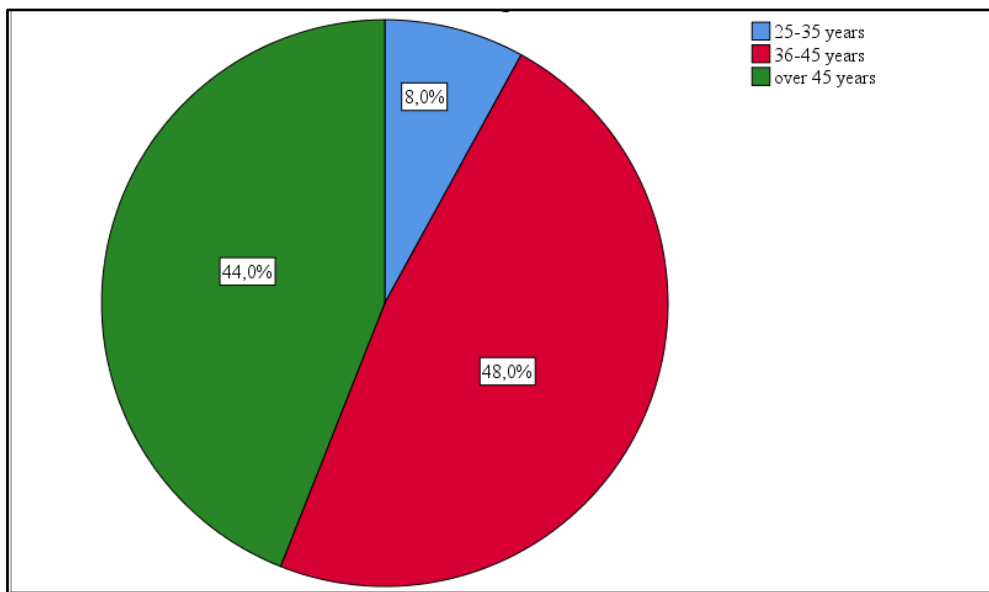
Source: Author

Diagram 2. Rank
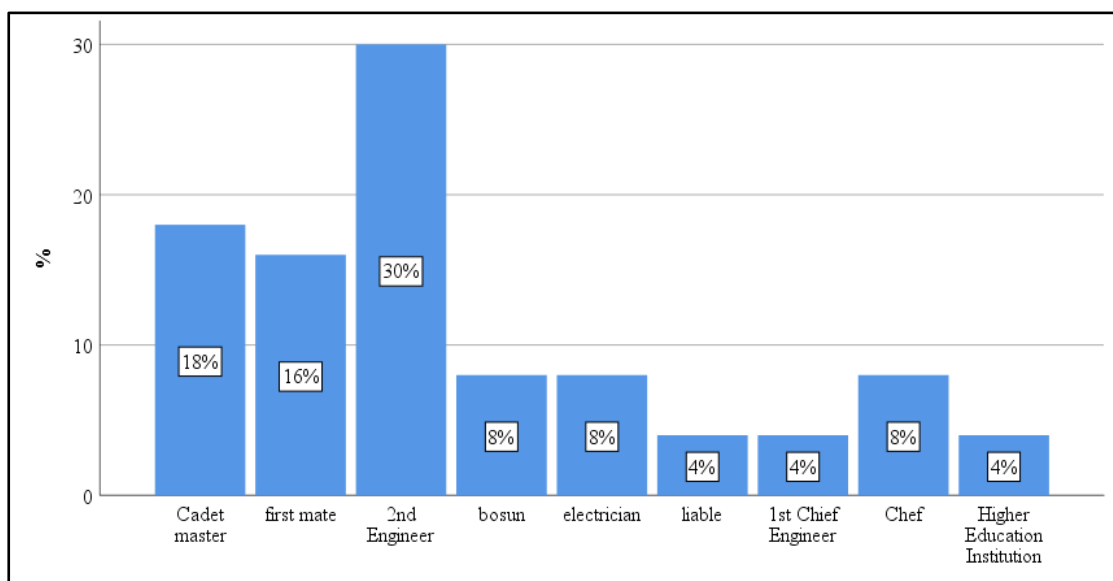
Source: Author

3.4. Data Analysis

The SPSS statistical program was used for data processing. Initially, a reliability test of the questionnaire was carried out using the Cronbach index. Descriptive statistical analysis was then used using frequencies, percentages mean and standard deviations. Finally, an inductive statistical analysis was performed using the correlation coefficient to make a comparison between workplace stress and the satisfaction factors that affect job satisfaction as well as the t-test to see the variation in the responses of the participants about the demographic characteristics.

3.5. Ethical, Validity, and Reliability Issues

Research ethics is a critical area, ensuring that studies are conducted in a way that respects participants and maintains the integrity of the scientific process (Resnik, 2015). In the present study, the participants were informed about the nature and purpose of the study and stated whether or not they agreed with their participation in it. This was followed by an assurance of privacy protection and assurance that their data would be kept secure.

Validity and reliability are foundational concepts in research methodology, ensuring that the study is accurately measuring what it's supposed to and that the measurements are consistent (Cronbach & Meehl, 1955). Using statistical tests (like Cronbach's alpha for internal consistency) helps in quantitatively assessing reliability. The results of the validity test for the questionnaire scales showed high validity since the Cronbach index is >0.7.

Table 4. Cronbach a test

Scale	Cronbach a
Negative feelings during work	0,935
Degree of satisfaction with pay	0,981
Degree of Satisfaction with working conditions on board	0,993
Overall Satisfaction Score	0,881

Source: Author

4. Research Results

In the Research Results section, we systematically present the findings of our study, which include an analysis of negative emotions experienced during work, an evaluation of satisfaction levels with pay, an assessment of satisfaction with the working conditions onboard, the overall satisfaction index, and the correlations identified among these variables.

4.1. Negative feelings during work

The results of the statistical analysis regarding job satisfaction, especially in the first part of the questions that examine the participants' negative feelings during their work, reveal a particularly positive finding. Using a 7-point Likert scale, where 7 means "strongly agree" and 1 "strongly disagree", workers seem to strongly disagree with experiencing negative emotions at the start of their shifts.

Specifically, participants strongly disagree (mean 1.60, standard deviation 1.267) regarding feeling irritated at the start of their work, showing little initial discomfort. Correspondingly, frustration appears to be significantly absent (mean 1.46, standard deviation 0.646). Feeling hopeless registers even lower values (mean 1.36, standard deviation 0.563), suggesting an unwavering sense of optimism and purpose as workers begin work. Boredom is also recorded at extremely low levels (mean 1.28, standard deviation 0.454), reflecting a high level of engagement and interest in the tasks undertaken. The emotion of sadness follows this trend (mean 1.40, standard deviation 0.571), indicating a positive emotional state. Stress, although recorded slightly higher, still shows strong disagreement (mean 1.56, standard deviation 1.072), suggesting that workers feel relatively calm and focused. Finally, sleepiness at the start of the shift is not a frequent problem, as shown by the mean of 1.50 and standard deviation of 0.763. Taken together, these scores reveal a positive and enthusiastic start to work shifts, free of significant levels of irritation, frustration, hopelessness, boredom, sadness, stress, and sleepiness.

Table 5. Negative feelings during work

		N	%	Mean	Standard Deviation
When I start my shift I feel Irritation	strongly disagree	31	64,6%	1,60	1,267
	disagree	13	27,1%		
	probably disagree	2	4,2%		
	strongly agree	2	4,2%		
When I start my shift I feel Disappointment	strongly disagree	31	62,0%	1,46	0,646
	disagree	15	30,0%		
	probably disagree	4	8,0%		
When I start my shift I feel Despair	strongly disagree	34	68,0%	1,36	0,563
	disagree	14	28,0%		
	probably disagree	2	4,0%		
When I start my shift, I feel Boredom	strongly disagree	36	72,0%	1,28	0,454
	disagree	14	28,0%		
When I start my shift I feel Sadness	strongly disagree	32	64,0%	1,40	0,571
	disagree	16	32,0%		
	probably disagree	2	4,0%		
When I start my shift I feel Stress	strongly disagree	32	64,0%	1,56	1,072
	disagree	14	28,0%		
	probably disagree	2	4,0%		
	agree	2	4,0%		
When I start my shift I feel Sleepiness	strongly disagree	31	62,0%	1,50	0,763
	disagree	15	30,0%		
	probably disagree	2	4,0%		
	neither agree nor disagree	2	4,0%		

Source: Author

4.2. Degree of satisfaction with pay

The first section of the job satisfaction questions explores the degree of satisfaction with pay. A 7-point Likert scale was used from 7=very much satisfactory, 6=very satisfactory, 5=satisfactory, 4=neither satisfactory nor inadequate, 3=inadequate, 2=very inadequate and 1=very much inadequate. According to the results of the statistical analysis, the largest percentage of participants: `

Employees have expressed a high level of satisfaction with their compensation over the years they have been with the company, indicating a strong positive sentiment towards their remuneration packages. With a mean score of 5.72 and a standard deviation of 1.011, it is clear that the pay over the years aligns well with their expectations and perceptions of fairness. Similarly, their overall satisfaction with pay maintains this high level of contentment, as evidenced by a mean score of 5.71 and a standard deviation of 1.031. Satisfaction with pay about their qualifications also ranks highly, with a mean of 5.54 and a standard deviation of 1.147, suggesting that employees feel their skills and educational background are adequately compensated.

Comparatively, when considering pay for peers in different occupations but with similar qualifications and years of service, the satisfaction level remains strong, with a mean score of 5.60 and a standard deviation of 1.143. This indicates that employees perceive their pay as competitive within the wider job market. Furthermore, employees feel very much satisfied with the pay for the amount of work they put in, reflected by a mean of 5.76 and a standard deviation of 1.041. This suggests that they perceive a fair balance between their effort and their earnings, underscoring a sense of equity and recognition for their work. Overall, these responses underscore a notable satisfaction with compensation aspects, reflecting well on the company's pay structure and its alignment with employee expectations and market standards.

Table 6. Degree of satisfaction with pay

		N	%	Mean	Standard Deviation
For the number of years I have worked in this company my pay is …	very inadequate	2	4,0%	5,72	1,011
	satisfactory	14	28,0%		
	very satisfactory	26	52,0%		
	very much satisfactory	8	16,0%		
Overall my pay is…	very inadequate	2	4,2%	5,71	1,031
	satisfactory	14	29,2%		
	very satisfactory	24	50,0%		
	very much satisfactory	8	16,7%		
With my qualifications my pay is…	very inadequate	2	4,0%	5,54	1,147
	inadequate	2	4,0%		
	satisfactory	17	34,0%		
	very satisfactory	21	42,0%		
	very much satisfactory	8	16,0%		
Compared with those in different professions but with similar qualifications and years of service, my pay is…	very inadequate	2	4,0%	5,60	1,143
	inadequate	2	4,0%		
	satisfactory	14	28,0%		
	very satisfactory	24	48,0%		
	very much satisfactory	8	16,0%		
With the amount of work I put in my pay is …	very inadequate	2	4,0%	5,76	1,041
	neither satisfactory nor insufficient,	2	4,0%		
	satisfactory	8	16,0%		
	very satisfactory	30	60,0%		
	very much satisfactory	8	16,0%		

Source: Author

4.3. Degree of Satisfaction with working conditions on board

The third section of the job satisfaction questions explores the degree of Satisfaction with working conditions on board. A 7-point Likert scale was used from 7=strongly agree, 6=agree, 5=probably agree, 4=neither agree nor disagree, 3=probably disagree, 2=disagree and 1=strongly disagree. According to the results of the statistical analysis, the largest percentage of participants even completely agree that: On the ships where they work, crew members report satisfactory conditions across various aspects of their living and working environment. The ventilation in both

accommodation areas and cabins is deemed adequate, with means of 6.36 (SD=0.942) and 6.44 (SD=0.705), respectively. The temperature in these areas is also pleasant, receiving similar ratings. Hygiene and restroom facilities meet crew expectations, scoring a mean of 6.46 (SD=0.874), while the air quality and cleanliness of crew cabins and accommodation areas are well-regarded, both scoring a mean of 6.40. The dimensions of the cabin and accommodation rooms are comfortable for the crew, with a mean score of 6.28 (SD=0.927).

The food variety and quality onboard satisfy the crew's needs, with ratings around 6.40 for variety and 6.36 for taste and freshness. Accommodation areas are not only clean and well-maintained but also nicely decorated, reflecting a mean score of 6.36 (SD=0.898). Recreational areas and provisions are appreciated, with a score of 6.32 (SD=0.891), and the variety of beverages provided is satisfactory, scoring 6.28 (SD=0.882).

Other aspects such as lighting in various spaces and the ambient temperature receive positive feedback, with scores around 6.32 and 6.40, respectively. Noise levels from routine shipboard maintenance and machinery are considered normal, although vibrations caused by engines are noted as disturbing, both scoring 6.36 (SD=0.693). Drinking water quality is high, and connectivity via Skype, unrestricted internet access, satellite TV, and email capabilities are frequently available to crew members, enhancing their overall satisfaction on board.

Table 7. Degree of Satisfaction with working conditions on board

		N	%	Mean	Standard Deviation
In this ship, the ventilation of accommodation areas is adequate.	probably disagree	2	4,0%	6,36	0,942
	probably agree	4	8,0%		
	agree	16	32,0%		
	strongly agree	28	56,0%		
On this ship, the temperature in the accommodation areas is pleasant.	neither agree nor disagree	2	4,0%	6,36	0,802
	probably agree	4	8,0%		
	agree	18	36,0%		
	strongly agree	26	52,0%		
In this ship, the ventilation of cabins is adequate	neither agree nor disagree	2	4,0%	6,44	0,705
	agree	22	44,0%		

	strongly agree	26	52,0%		
In this ship, the hygiene and restroom facilities are satisfactory.	probably disagree	2	4,2%	6,46	0,874
	agree	18	37,5%		
	strongly agree	28	58,3%		
In this ship, the quality of the air is good.	neither agree nor disagree	2	4,0%	6,40	0,756
	probably agree	2	4,0%		
	agree	20	40,0%		
	strongly agree	26	52,0%		
In this ship, crew cabins and accommodation areas are clean and well-maintained.	probably agree	4	8,0%	6,40	0,639
	agree	22	44,0%		
	strongly agree	24	48,0%		
In this ship, the cabin and accommodation rooms' dimensions (i.e. height, area in square feet) make me feel comfortable.	probably disagree	2	4,0%	6,28	0,927
	probably agree	4	8,0%		
	agree	20	40,0%		
	strongly agree	24	48,0%		
The temperature in my cabin is pleasant	probably agree	4	8,0%	6,44	0,644
	agree	20	40,0%		
	strongly agree	26	52,0%		
The variety of food types provided onboard is satisfactory.	neither agree nor disagree	2	4,0%	6,40	0,756
	probably agree	2	4,0%		
	agree	20	40,0%		
	strongly agree	26	52,0%		
The taste and freshness of the food on this ship is satisfactory.	neither agree nor disagree	2	4,0%	6,36	0,749
	probably agree	2	4,0%		
	agree	22	44,0%		
	strongly agree	24	48,0%		
In this ship, crew cabins and accommodation areas are well decorated.	probably disagree	2	4,0%	6,36	0,898
	probably agree	2	4,0%		
	agree	20	40,0%		
	strongly agree	26	52,0%		
In this ship, the crew's recreational areas and provisions are nice.	probably disagree	2	4,0%	6,32	0,891
	probably agree	2	4,0%		
	agree	22	44,0%		
	strongly agree	24	48,0%		
	neither agree nor disagree	4	8,0%	6,28	0,882

The variety of beverages provided onboard is satisfactory.	probably agree	2	4,0%		
	agree	20	40,0%		
	strongly agree	24	48,0%		
In this ship, the lighting in other spaces (i.e., other than cabins and accommodation areas) is good.	neither agree nor disagree	2	4,0%	6,32	0,794
	probably agree	4	8,0%		
	agree	20	40,0%		
	strongly agree	24	48,0%		
The temperature in other ship's spaces is pleasant.	probably agree	4	8,0%	6,40	0,639
	agree	22	44,0%		
	strongly agree	24	48,0%		
In this ship, the noise levels from handling tools in the courses of routine shipboard maintenance are normal.	probably disagree	2	4,2%	6,29	1,031
	neither agree nor disagree	2	4,2%		
	probably agree	2	4,2%		
	agree	16	33,3%		
	strongly agree	26	54,2%		
Drinking water provided on this ship is plenty and of good quality.	probably agree	6	12,0%	6,40	0,700
	agree	18	36,0%		
	strongly agree	26	52,0%		
When working on this ship, I can make use of Skype often.	neither agree nor disagree	2	4,0%	6,32	0,794
	probably agree	4	8,0%		
	agree	20	40,0%		
	strongly agree	24	48,0%		
When working on this ship, I can have unrestricted access to the Internet often.	neither agree nor disagree	2	4,0%	6,32	0,794
	probably agree	4	8,0%		
	agree	20	40,0%		
	strongly agree	24	48,0%		
When working on this ship, I have access to a TV satellite connection often	neither agree nor disagree	4	8,0%	6,28	0,927
	probably agree	4	8,0%		
	agree	16	32,0%		
	strongly agree	26	52,0%		
When working on this ship, I can send emails often.	neither agree nor disagree	4	8,0%	6,28	0,882
	probably agree	2	4,0%		
	agree	20	40,0%		
	strongly agree	24	48,0%		
	probably agree	6	12,0%	6,36	0,693

In this ship, the noise levels caused by engines and other machinery are normal.	agree	20	40,0%		
	strongly agree	24	48,0%		
In this ship, vibrations caused by engines are disturbing.	probably agree	6	12,0%	6,36	0,693
	agree	20	40,0%		
	strongly agree	24	48,0%		

Source: Author

4.4. Overall Satisfaction Score

The final section of the job satisfaction questions explores the Overall Satisfaction Score. A 7-point Likert scale was used from 7=strongly agree, 6=agree, 5=probably agree, 4=neither agree nor disagree, 3=probably disagree, 2=disagree and 1=strongly disagree. According to the results of the statistical analysis, the largest percentage of participants:

Crew members express a high level of satisfaction with various aspects of their employment on board, indicating strong positive sentiments towards their team, working conditions, and the company they work for. Specifically, they completely agree that they are overall satisfied with their team on board, as reflected in a mean score of 6.50 with a standard deviation of 0.505. This sentiment extends to their general satisfaction with the working conditions on board, which scores slightly higher at 6.54 with a standard deviation of 0.579. The same level of satisfaction is reported towards the company they are employed by, also scoring 6.54 but with a slightly narrower standard deviation of 0.503. These ratings underscore a comprehensive sense of contentment among crew members regarding their work environment, their colleagues, and their employers.

Table 8. Overall Satisfaction Score

		N	%	Mean	Standard Deviation
Overall, I am satisfied with my team onboard	agree	25	50,0%	6,50	0,505
	strongly agree	25	50,0%		
Overall, I am satisfied with the working conditions onboard	probably agree	2	4,0%	6,54	0,579
	agree	19	38,0%		
	strongly agree	29	58,0%		
Overall, I am satisfied with the company I am working for	agree	23	46,0%	6,54	0,503
	strongly agree	27	54,0%		

Source: Author

4.5. Correlations

To correlate negative emotions during work and Degree of satisfaction with pay, Degree of Satisfaction with working conditions on board and Overall Satisfaction Score, the Pearson r correlation coefficient was used. According to the results, it appears that there is a statistically significant negative correlation between almost all negative emotions and job satisfaction scales. That is, as negative emotions increase, the degree of satisfaction decreases and vice versa.

In particular, a statistically significant negative correlation was found between:

The study reveals significant negative correlations between various negative emotions and aspects of job satisfaction among employees. Specifically, irritation shows a strong negative relationship with satisfaction with pay (r= -0.651, p<0.05), satisfaction with working conditions (r= -0.465, p<0.05), and the overall satisfaction score (r= -0.363, p<0.05). Similarly, disappointment is negatively correlated with satisfaction with pay (r= -0.342, p<0.05) and working conditions (r= -0.498, p<0.05). Despair correlates negatively with satisfaction regarding pay (r= -0.489, p<0.05), working conditions (r= -0.411, p<0.05), and the overall satisfaction score (r= -0.468, p<0.05). Boredom negatively affects satisfaction with working conditions (r= -0.373, p<0.05), while sadness impacts satisfaction with pay (r= -0.458, p<0.05), working conditions (r= -0.450, p<0.05), and the overall satisfaction score (r= -0.390, p<0.05). Stress is also a significant negative factor, correlating with satisfaction with pay (r= -0.607, p<0.05), satisfaction with working conditions (r= -0.480, p<0.05), and the overall satisfaction score (r= -0.429, p<0.05). Lastly, sleepiness impacts satisfaction with pay (r= -0.481, p<0.05), working conditions (r= -0.499, p<0.05), and the overall satisfaction score (r= -0.309, p<0.05). Therefore, it is evident that as negative emotions such as irritation, disappointment, despair, boredom, sadness, stress, and sleepiness increase, employee satisfaction with their job, including pay and working conditions, decreases.

Table 9. Correlations

		Degree of ...on with pay	Degree of Satisfaction with working conditions on board	Overall Satisfaction Score
When I start my shift I feel Irritation	r	-,651	-,465	-,363
	p-value	,000	,001	,011
When I start my shift I feel Disappointment	r	-,342	-,498	-,251
	p-value	,017	,000	,079
When I start my shift I feel Despair	r	-,489	-,411	-,468
	p-value	,000	,005	,001
When I start my shift, I feel Boredom	r	,037	-,373	-,067
	p-value	,803	,011	,645
When I start my shift I feel Sadness	r	-,458	-,450	-,390
	p-value	,001	,002	,005
When I start my shift I feel Stress	r	-,607	-,480	-,429
	p-value	,000	,001	,002
When I start my shift I feel Sleepiness	r	-,481	-,499	-,309
	p-value	,001	,000	,029

4.6. Comparison with Demographic Characteristics

To investigate the differentiation of the responses to the individual scales about the demographic characteristics, the t-test was used in particular the Kruskal-Wallis test. The results of the comparison about age are shown in Table 7. As it becomes clear, the only statistically significant difference is observed between age and the overall satisfaction scale (p-value=0.014<0.05). In particular, a greater degree of satisfaction is observed for the over-45 age group.

Table 10. Comparison with age

	2. Age	N	Mean Rank	Kruskal-Wallis H	p-value
Emotions I feel during work	25-35 years	4	14,00	3,135	,209
	36-45 years	22	24,77		
	over 45 years	22	26,14		
	Total	48			
Degree of satisfaction with pay	25-35 years	2	3,50	5,397	,067
	36-45 years	24	24,04		
	over 45 years	22	26,91		
	Total	48			
Degree of Satisfaction with working conditions on board	25-35 years	4	28,00	,907	,635
	36-45 years	22	22,05		
	over 45 years	20	24,20		
	Total	46			
Overall Satisfaction Score	25-35 years	4	32,75	8,566	,014
	36-45 years	24	19,67		
	over 45 years	22	30,55		
	Total	50			

Source: Author

Regarding the comparison between rank and scales of work conditions, a statistically significant difference is observed between rank and the emotions felt during work (p-value=0.002<0.05), the Degree of satisfaction with pay (p-value=0.017<0.05), the Degree of Satisfaction with working conditions on board (p-value=0.031<0.05) and with the overall satisfaction. In particular, electricians, 1st Chief Engineers and students in Higher Education Institutions have lower levels of negative emotions. Also, Bosuns and electricians have a higher degree of satisfaction with pay, Cadet masters and first mates have a higher Degree of Satisfaction with working conditions on board and finally first mate and liable have a higher Degree of Overall Satisfaction.

Table 11. Comparison with rank

	3. Rank	N	Mean Rank	Kruskal-Wallis H	p-value
Emotions I feel during work	Cadet master	9	14,00	25,028	0,002
	first mate	8	24,25		
	2nd Engineer	13	25,77		
	bosun	4	14,00		
	electrician	*4*	*38,00*		
	liable	2	14,00		
	1st Chief Engineer	*2*	*40,50*		
	Chef	4	27,25		
	Higher Education Institution	*2*	*47,50*		
	Total	48			
Degree of satisfaction with pay	Cadet master	9	22,22	19,979	0,010
	first mate	6	27,33		
	2nd Engineer	15	21,07		
	bosun	*4*	*42,50*		
	electrician	*4*	*38,25*		
	liable	2	31,00		
	1st Chief Engineer	2	14,50		
	Chef	4	19,75		
	Higher Education Institution	2	1,50		
	Total	48			
Degree of Satisfaction with working conditions on board	*Cadet master*	*5*	*34,50*	17,840	0,022
	first mate	*8*	*31,25*		
	2nd Engineer	15	24,23		
	bosun	4	23,50		
	electrician	4	12,50		
	liable	2	19,50		
	1st Chief Engineer	2	12,50		
	Chef	4	20,00		
	Higher Education Institution	2	3,50		
	Total	46			
Overall Satisfaction Score	Cadet master	9	29,33	15,541	0,049
	first mate	*8*	*31,50*		
	2nd Engineer	15	21,20		
	bosun	4	24,50		
	electrician	4	30,25		

liable	*2*	*39,00*		
1st Chief Engineer	2	10,00		
Chef	4	30,25		
Higher Education Institution	2	1,50		
Total	50			

Source: Author

5. Conclusions

Within the present chapter, the Conclusions segment meticulously articulates a thorough examination of the research outcomes, integrating the knowledge gleaned from the review of pertinent literature. Additionally, this segment identifies the constraints experienced throughout the investigative process and outlines prospective directions for subsequent scholarly inquiries.

5.1. Review of Research Findings

Seafarers play a critical role in the global shipping industry, working in demanding environments with a multitude of challenges. Several factors can affect seafarers' job satisfaction. These include working conditions on board such as living arrangements, facilities and safety measures, relationships with supervisors and colleagues, and fair and competitive compensation, including wages, benefits and benefits, which may contribute to the job satisfaction of seafarers (Vlachos et al., 2022).

From the presentation of the findings of your work, it appears that the survey showed high levels of seafarers' satisfaction regarding three main factors: the work team on board, the working conditions on board, and the company they work for. These findings provide important insight into the factors that contribute to job satisfaction in the shipping sector and can have important implications for the management and policy of shipping companies. Particularly:

✓ Shipboard Work Team Satisfaction: Seafarers' satisfaction with their team indicates a strong sense of cooperation and cohesion on board, which are critical elements for efficient operation and a good working atmosphere.

✓ Satisfaction with Working Conditions on the Ship: This may reflect seafarers' assessment of the ship's physical safety, amenities and general equipment, as well as working time and pace of work activity.

✓ Satisfaction with the Company: This indicates that employees value the company's management policies and practices, including issues such as pay, career opportunities, training and overall organizational culture.

These findings offer indicative insights that can help shipping companies better understand the needs and preferences of their seafarers, and implement strategies that will improve job satisfaction and overall performance.

The findings from the study indicate a clear and statistically significant inverse relationship between negative emotions and various measures of job satisfaction. Essentially, this means that as seafarers experience more negative emotions — such as stress, unhappiness, or dissatisfaction — their levels of job satisfaction in different areas tend to decrease. Conversely, when there's a reduction in negative emotions, there's typically an increase in job satisfaction. This pattern was observed across most aspects of job satisfaction evaluated in the study, highlighting the strong impact that emotional well-being has on how satisfied seafarers are with their jobs.

✓ Negative Correlation with Pay Satisfaction: This suggests that as negative emotions increase (such as stress, frustration, or dissatisfaction), satisfaction with pay decreases. It implies that emotional states might influence how seafarers perceive the adequacy or fairness of their compensation.

✓ Negative Correlation with Satisfaction with Working Conditions: The finding indicates that worsening negative emotions are associated with lower satisfaction regarding working conditions onboard. This might reflect how emotional experiences can affect perceptions of the physical and social work environment.

✓ Negative Correlation with Overall Job Satisfaction: A significant negative correlation here shows that higher levels of negative emotions are linked to lower overall job satisfaction. This highlights the broad impact of emotional well-being on general work attitudes.

5.2. Conclusions from the Literature Review

Research findings consistently highlight the significant influence of the workplace on employee job satisfaction. It's become evident that job satisfaction is intricately connected to several key factors: the physical aspects of the workplace, its functionalities, and the conditions under which people work. This relationship is particularly pronounced in the maritime industry, where the unique environment of a ship directly affects the well-being and performance of its crew. In addition, the analysis

highlights the importance of functional parameters, such as possibilities for interaction and communication, as well as stress and fatigue management. In the case of seafarers, improving living and working conditions on board, such as the quality of sleep and the provision of recreational activities, has a positive effect on job satisfaction.

Finally, the hypothesis that the ship or workplace environment positively affects seafarers' job satisfaction is consistent with the findings of the studies. These studies suggest that factors such as adequate lighting, good ventilation, availability of recreational activities and comfortable living conditions contribute to increased job satisfaction among seafarers. Improving living conditions positively affects psychological well-being and productivity, reducing burnout and acceptance.

Studies also highlight the importance of communication and social interaction in the workplace. The ability of seafarers to communicate easily with each other and with the outside world, such as through the provision of free and unlimited internet, improves their job satisfaction. Also, offering recreational facilities and activities, such as swimming and basketball, helps reduce stress and promote the mental health of seafarers.

In summary, the hypothesis that the workplace environment, especially in such a specialized and demanding area as the ship, has a direct and positive effect on the job satisfaction of seafarers, finds confirmation in the above studies. The researchers conclude that improved workplace conditions, such as adequate temperature, good lighting, comfortable space and ergonomic amenities, are important factors for employee well-being. Especially in the ship's environment, where seafarers spend long periods isolated, the importance of living and working conditions is even more critical.

The studies also highlight the need for integrated approaches to workplace design, which must take into account not only the physical environment but also the psychological and social needs of workers. This means creating an environment that promotes interaction, social cohesion and personal development, all of which are especially important in an environment like the ship, where employees face unique challenges.

Overall, the hypothesis presented finds broad support in the relevant literature. The work environment, especially in a demanding and unique field such as seafaring, has a direct and significant impact on the job satisfaction and well-being of employees. The

perception that physical, functional and psychological aspects of the workplace affect seafarers' satisfaction and productivity is an important point in the development of policies and practices aimed at improving working conditions on board ships.

Highlighting the importance of seafarers' well-being and recognising the specific challenges they face in the ship's environment are important elements in approaching job satisfaction in this sector. The provision of adequate facilities, the improvement of living and working conditions, as well as ensuring the safety and well-being of seafarers, are central issues that need to be addressed.

In summary, studies and hypotheses highlight the importance of the workplace as a determinant of job satisfaction and well-being, especially in such a limited and demanding space as ships. The recognition and application of this knowledge can lead to greater satisfaction of seafarers, improved productivity and, by extension, better performance in the maritime sector.

Also, relevance theory seems to have significant application in the workplace, especially in environments such as ships where relationships and relevance between employees are critical to job satisfaction and performance. Job relevance plays a central role in encouraging team productivity and reducing insecurity and job pressures.

Seafarers, in particular, derive satisfaction and meaning from the sense of relevance they develop on board, whether through professional identity or engagement with the team and the company. Supportive culture on board and integration into corporate culture play a critical role in shaping this relevance. In addition, social support, mutual trust and recognition within the team are important elements that strengthen the connection and identity of seafarers with the company and the ship.

The biggest challenge seems to be managing multiculturalism and the need for a supportive culture that encourages seafarers' professional and personal development. The continuous social process, which includes social categorization, identification and comparison, is a crucial factor in shaping the work identity of seafarers. A strong professional identity can lead to increased job satisfaction and reduce the likelihood of resignation.

Seafarers' job satisfaction is also affected by the way shipping company executives identify and respond to their needs, including internal communication, personal and

professional development, and work-life balance. Measures such as strengthening contact with family and providing psychological support, especially during times such as the COVID-19 pandemic, are critical for seafarers' well-being.

In addition, the study of peer social support and the need for mutual exchange and support during difficult situations is essential to avoid isolation and disconnection from family. These elements help strengthen professional identity and create strong bonds between seafarers, fostering a sense of community and collaboration in the work environment.

The development and maintenance of a multicultural environment is also an important issue, as differences in social parameters can lead to psychosocial burdens. Managing these differences requires the active involvement of shipping companies to promote a culture of mutual respect and tolerance.

Finally, research shows that the creation and enhancement of professional identity is a continuous and multilevel procedural cycle. The integration of seafarers into this cycle, through strengthening bonds of connection and developing their identity with the company and their colleagues, is crucial for increased job satisfaction and reducing the risk of resignation. The need for a dynamic approach to managing the professional identity of seafarers is therefore an important element for the successful operation of shipping companies in the modern working environment.

From the results of the studies, it is clear that seafarers experience a high level of occupational stress, which significantly affects their job satisfaction and well-being. Stress is associated with a variety of factors, including working conditions, working hours, noise, vibration, isolation and limited entertainment and medical care.

The studies also highlight the need to better manage the psychosocial burdens that arise in a multicultural environment and the need to strengthen bonds and socialization on board as a protection measure against isolation and separation from the family. Leisure time and activities that enhance team cohesion seem to play an important role in coping with stress and improving seafarers' well-being.

Overall, recognising and addressing the factors that cause stress to seafarers is crucial to enhancing mental health and overall well-being in this professional sector. The development of support programs and strategies aimed at enhancing socialization,

entertainment, and team cohesion can be important steps toward reducing work-related stress. In addition, providing better medical care and improving living conditions on board, such as ensuring adequate sleep and healthy nutrition, are also important.

Understanding the specific needs and challenges of seafarers is fundamental to creating a more supportive work environment. This includes recognising the importance of mental health and wellbeing in shipping, as well as developing policies and practices that promote seafarers' wellbeing.

Finally, the need for further research in the field of seafarers' mental health is imperative, as a more comprehensive understanding of the factors that contribute to seafarers' stress and mental burden is required. The systematic review and classification of stress factors in the work environment, as well as the development of appropriate interventions, could be important tools in addressing psychosocial challenges in shipping.

5.3. Limitations and recommendations

Various limitations present themselves when conducting a survey. They may refer to the nature of the study and the high demands of the research, the research process to be followed, which is a very stressful situation for the researcher, the method used to collect the data, the type of data, the sample and the participants, especially when the information collected is very personal and finally the publication of the data (Cohen, et.al., 2007).

The main limitation of the present research concerns the fact that the research was carried out exclusively on Greek seafarers. Therefore, no data has been collected from other countries or seafarers of other nationalities. Also, the limitations of the research include the sample size.

The present research highlights several critical issues that can be a reason for future research. It is suggested to investigate seafarers' satisfaction with larger-scale surveys. Such research will provide more stable results as larger populations are studied. It is also proposed to carry out a new survey among seafarers from different countries to compare opinions. Also, it is proposed to conduct a seafarers' satisfaction survey in which other research tools (e.g. interviews) are used to compare the findings and derive safer results.

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