

Statistical Analysis of Acculturative Stress on Seafarers, Causes, Effects on Mental Health and Remedies

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Abstract

Stress is a common experience in many professions requiring extended working hours and high performance demands. Among seafarers, prolonged time at sea, multicultural environments, and demanding workloads contribute to acculturative stress. This study investigated the existence, causes, and mental health effects of acculturative stress among seafarers, as well as coping strategies adopted onboard. A total of 200 questionnaires were distributed to multinational crews across different ship types and companies, with 97 completed responses returned. Data were collected using self-administered questionnaires assessing stress levels, mental health impact, and coping mechanisms. Results showed that 69.1% of respondents had sailed more than twice, indicating an experienced sample. Additionally, 69.1% reported waking up feeling unwilling to work due to stress. Statistical analysis using a chi-square test revealed a significant association between stress and mental health (Pearson $\chi^2 = 5.445$, $p = 0.020$; Likelihood ratio $\chi^2 = 5.622$, $p = 0.018$), demonstrating that stress significantly affects seafarers' mental health at the 0.05 level of significance. Furthermore, 81.4% reported adopting coping strategies, including communication with family and colleagues, entertainment, exercise, religious activities, proper nutrition, and adequate sleep. The findings confirm that acculturative stress exists among seafarers and significantly impacts their mental well-being.

Keywords: Stress, Acculturative stress, Seafarers, Mental Health

Introduction

The issue of stress on humans has always been a concern, not when it poses tremendous health effects that could lead to one's demise if it is above limit. In engineering, it is seen to be a magnitude of forces having its effect on an area. This goes on in tandem with WHO [17], referring to it as the response by humans to threats and challenges in their lives. This however, does not rule out the fact that everything and everyone experiences stress to a level, but the response to it determines its effect to one's total well-being. According to United Nations Conference on Trade and Development (UNCTAD, [16]), over 80 percent in volume of the world's trade and over 70 percent of its value is transported on ships, this shows the level of activeness of the marine industry. The

graph fig. 1 below shows Between 1990 and 2021, the volume of global seaborne trade will more than double. Global seaborne trade is projected to reach 11 billion tons in 2021, compared to only four billion tons of cargo shipped into ports throughout the world in 1990.

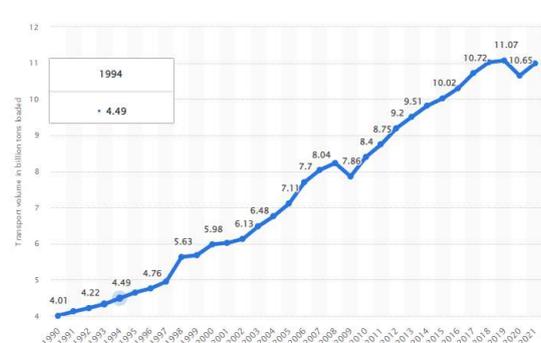


Fig. 1. Global Transport Volume of Maritime Trade (Statista, 2022)

This demand has increased the working hours and demands of those manning this ship, the crew directly by the ship owners whose first motivation is to make profit. To make ends meet, the crews are left with no large choice than adjusting to the job demands. Short term stays at ports, frequent emergencies, limited shore leave, difficult work environment and most times harsh weather, are some of the factors makes the job a difficult one. This mostly has left a number of the seafarers with no choice at fear of unemployment to stay on despite difficulties. However, nationality discrimination in the shipping industry is endemically at a high level, where owners of ships purposely slash cost on crews from low and middle-income countries (LMIC) in the quest of achieving competitive rate. MacLachlan [9] proposed that it is quite unfortunate that seafarers from LMIC are usually given disadvantageous contract, most times beyond the International Maritime Organization (IMO) labour law and mostly exposed to poor working conditions compared to crews from high-income countries. Babylon & Santos [2] proposed that inequities are a sort of neo-colonialism where rich countries exploit ones with lesser economic power. The termed sweat-ship has made itself a name from this, with the free rolling market structure opening gates for cheap labour; hence, hindering wage increments and favourable working conditions. These have resultantly contributed to the stresses encountered by seafarers.

Proceeding from an epidemiological investigation on behavioral and mental disorders occurring amongst commercial seafarers by Pallota et al [10]. It was observed that from diagnostic of behavioral and mental disorders for 9 years (from year 2012 to 2020), about 376 cases were discovered. It was noted that the most predominant of the mental disorder was that of anxious syndrome with about 119 cases, then 103 cases of depression disorder, 51 cases of insomnia and 35 cases of panic attacks. This shows the level of mental and behavioral disorder encountered by seafarers.

According to a survey on health, stress, and fatigue of Australian Seafarers published by the Australian Maritime Safety Authority (AMSA) it was observed that the deck crew and engine crew undergo different

stresses which is majorly due to their work routine (Parker et al [1]).

One of the biggest causes of stress on ships has been long and unpredictable work hours. Due to an irregular schedule of work and rest hours, this causes an imbalance in the biological clock of seafarers. In order to cope with several stressors most seafarers to resort to smoking and alcoholism just to sooth themselves despite company's policy on this act. Prolong stress can result to decrease in the efficiency of the crews (Raunek [11]).

Every seafarer is often faced with the problem of having to deal with the multi-cultural diversity upon resumption of duty on board a ship. This can include worries about the people you'll meet on board as well as the cultures and social mores you'll have to adapt to. The majority of shipping companies have a global workforce of multinational crew, which has its own set of challenges like formation of groups and language barriers. These elements have been a major contributor the main causes of the rise in physical and psychological stress on board ships added to the decreasing number of crew members (Raunek [11]).

Individuals' mental wellbeing adjusts to adapt to a new cultural situation, according to the psychological acculturation theory (Graves [4]). The crew member may face a variety of challenges, including poor communication skills, language barriers, class/rank-ergo, racial discrimination, ethnic and cultural differences. All of these stressors have tendencies of jeopardizing the mental well-being of a crew member. These stressors can affect the mental stability and health of seafarers. While some these stressors can be addressed, some of them cannot, due to company's logistic reasons.

This work is aimed at finding out the existence of acculturative stress on seafarers, the mostly causes and how it could be remedied. Its effects on mental health and suggested remedies.

It has already established that acculturative stress poses as a factor of risk towards an individual's mental well-being (Jiang & Dong [6], Liu, Zhao, & Shen [8], Hwang & Ting [5], Bogic M. [3]). This often induces and distorts seafarers' mood with anxiety and depression according to a research work by

Lefkowitz and Martin [7], and it was observed that these happened to more prevalent on them.

This research tends to answer the following questions;

- What is acculturative stress on seafarers?
- Does it exist? If yes, what are the causes and how can it be remedied?
- Are there stress effects on mental health?
- How can these be remedied?

Materials and Methods

In this study, about 200 personnel surveys was sent out covering multinational crews in different

types of ships and companies. About 97 personnels successfully submitted the assessment.

Data collection was done by self-administered questionnaires. From the forms gotten from the 100 persons, Stress and Acculturative stress were assessed. A segment was left for the crews to fill in how they were able to handle the stresses.

Results and Discussion

A few questions were accessed to ascertain if there exists acculturative stress on the fearers. It is pertinent to state that 69.1% of the respondents have been on the ship more than twice. This high rate of experienced seafarers as our respondents makes our results and conclusion reliable.

This means that even if stress exists, one could naturally adapt to it and deal with it without being queried at activeness and dedication to assigned duties. Difficulty in communication, getting socially involved with other seafarers and getting racially discriminated would have been causes of stress, but there was easy communication such that 68% of those who were on board for the first time had no difficulty in spite of their newness onboard, 83.5% of the respondents got socially involved with others seafarers, and only 17.5% of the respondents were racially discriminated. The aforementioned were the remedial factors that seafarers could adopt to ease or eradicate stress, naturally. In spite of racial discrimination, language barrier, different values, different cultures and ethics, 75.3% could still socialize with other seafarers with 66% of them taking only 1-2 weeks to socialize. This made the stress naturally dealt with.

TABLE 1
FREQUENCY ONBOARD a VESSEL

Was this your first time onboard a vessel?			
		Frequency	Percent
Valid	First time	19	19.6
	Second time	11	11.3
	More than twice	67	69.1
	Total	97	100

Source: SPSS Analysis, 2023

From the analysis of the results, it was found that 35% of the respondents felt stressed while changing or adjusting to the socio-cultural ways of the ship. From the analysis, 16.5% of the respondents reported that they woke up every day and not felt like going to work; 13.4%, 4 days only; 14.4%, 3 days only, 15.5%, 2 days only; 35.1%, 1 day only; while 69.1% reported that such feeling took place as a result of stress. The analyses show that stress exists.

A greater number of respondents of 81.4% found a way to deal with stress.

TABLE 2
DEALING WITH STRESS

Did you find a way to deal with the stress?			
	Fre- quency	Percent	Cumulative Percent
NO	18	18.6	18.6
YES	79	81.4	100
Total	97	100	

Source: SPSS Analysis, 2023

Did you find a way to deal with stress?

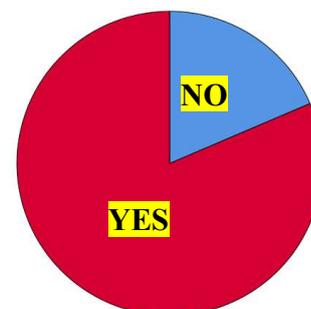


Fig. 2: A way to deal with stress

In the case of stress effect on their mental health, the figure below shows the pictorial representation of the response

Did stress affect your mental health?
i.e emotional, psychological and social well being

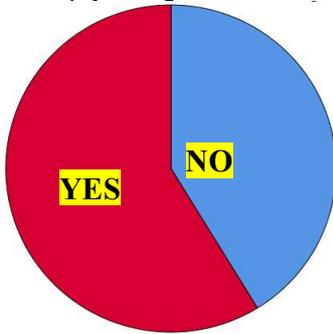


Fig. 3: Effect of stress on mental health

To further ascertain the authenticity of the results; a statistical test was carried out, a chi-square test for association. The cross tabulation shown below in table 3 shows that even those that were not stressed accepted that stress affected seafarers' mental health.

TABLE 3
CROSS TABULATION

		Did it affect your mental health? i.e., emotional, psychological and social-well-being.		Total
		NO	YES	
Did you feel stressed changing or adjusting to the	NO	31	31	62
	YES	9	26	35

From table 4 above, the Pearson chi-square statistic is 5.445 (p-value = 0.020) and the likelihood chi-square statistic is 5.622 (p-value = .018). Therefore, at 0.05 level of significance, we conclude that there is an association between stress and mental health. Hence, stress has an effect on the mental health of seafarers.

These has answered the research question that acculturative stress exists on seafarers and it resultantly affect their mental health; and if the stress could be reduced or diminished totally, then its resultant effect of mental duress could be handled.

From the results obtained, 76% of the seafarers responded on how they handle acculturative stresses. These responds were similar; hence, it was grouped into the following:

socio-cultural ways of the ship?			
Total	40	57	97

Source: SPSS Analysis, 2023

From the result above, 74% of the seafarers that felt stressed attested that it affected their mental health.

TABLE 4
CHI-SQUARE TESTS OF ASSOCIATION

	Value	Df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)
Pearson Chi-Square	5.445	1	.020	
Continuity Correction	4.489	1	.034	
Likelihood Ratio	5.622	1	.018	
Fisher's Exact Test				.031
Linear-by-Linear Association	5.389	1	.020	
N of Valid Cases	97			
Computed only for a 2x2 table				

Source: SPSS Analysis, 2023

- 1. Communicating with families, friends and fellow Seafarers:** Communication helps reduce anxiety and stress. According to Sesh [13], when they are at their best, relationships—romantic, loved ones, and platonic—can be one of the most potent sources of satisfaction and stress relief. They may bring happy moments, lift our emotions, and act as a support system when times are tough. Most often, when one communicates his or her problems or issues to someone else properly, there tend to be some sort of relieve.
- 2. Entertainment:** This was associated to the likes of movie sessions, jokes/ comedies, listening to music and dancing. The happens to be one of the most effective ways of handling stress by the

seafarers. This takes one mind off the present situations which may be difficult, reconditioning their state of mind to be happy Reese [12].

3. **Exercise:** Few of the seafarers selected this to be one of their ways of easing off stress. However, it was observed that this was only predominant in the deck crews. The engine crew who most times are often faced with several emergencies may not have the energy leftover for such rounds of body movement.
4. **Religious Activities:** Religious forms of activities like prayers, meditation(yoga). An extensive amount of scientific research indicates that mindful meditation can reduce psychological stress and anxiety—even short-term mindfulness meditation programs are effective. To begin, lay aside five minutes during your breaks, in a peaceful location to sit and breathe Thorn [15].
5. **Eat well:** Stress and a healthy diet are inextricably linked. When we are stressed, we frequently forget to eat wisely and turn to sugary, greasy food for a pick-me-up.

Avoid sugary foods and plan ahead of time. Vegetables and fruits are always beneficial, and fish high in omega-3 fatty acids have been demonstrated to alleviate stress symptoms. According to Reese [12], a tuna sandwich is truly brain food.

When exposed to a stressor, the central nervous system produces adrenaline and cortisol, which affects the digestive tract and causes other physiological changes. This may result in a decline of appetite that can lead to sugar and fat cravings due to the production of the hormone cortisol. Owing to studies, higher levels of cortisol combined with excessive sugar intake may cause accumulation of fat around our internal organs Thorn [15].

6. **Sleep Well:** Day stress has an effect on night sleep depending on your hours of watch. Getting circumstances more severe, the absence of sleep can have an impact on both memory and emotions. To sleep well, maintain a consistent sleep regimen that includes time to unwind before turning out the lights, making the most of your rest hours.

However, it should be noted that these are just suggestions by seafarers which are in line with several researches on stress management. Nevertheless, it should be noted that if stress persist one should seek appropriate medicals attention.

Conclusion

This study sought to investigate the acculturative stress on seafarers, its existence, causes, its effect on mental health and the remedial measures. 200 personnel surveys were sent out covering multinational crews in different types of ships and companies. About 97 personnels successfully submitted the assessment. Data collection was done by self-administered questionnaires. From the forms gotten from the 100 persons, stress and acculturative stress were assessed. A segment was left for the crews to fill in how they were able to handle the stresses. 69.1% of the respondents have been on the ship more than twice. This high rate of experienced seafarers as our respondents makes our results and conclusion reliable. 69.1% reported that they woke up every day and not felt like going to work as a result of stress. The analyses showed that stress exists. In the case of stress effect on their mental health, a statistical test was carried out, a chi-square test for association; the cross tabulation showed that 74% of the seafarers that felt stressed attested that it affected their mental health. The Pearson chi-square statistic was 5.445 (p -value = 0.020) and the likelihood chi-square statistic was 5.622 (p -value = .018). Therefore, at 0.05 level of significance, it was concluded that there is an association between stress and mental health; hence, stress has an effect on the mental health of seafarers. From the analyses, 81.4% of the respondents found a way to deal with stress. Their responds were similar; hence, it was grouped into the following: Communicating with families, friends and follow Seafarers, Entertainment, Exercise, Engaging in religious Activities, Eating well or Sleeping well.

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