Mental Health and COVID-19 Among Seafarers Working in Maritime Industry Residing in India: A Pilot Study

Anand Gurleen Kaur[1] and Teena Mary Joy[1]

Abstract

Background: To combat the spread of Coronavirus (COVID-19), most countries implemented measures such as travel restrictions, prohibitions on leaving shore at ports, and restrictions on crew change. During the COVID-19 first lockdown, seafarers were subjected to excessive stress.

Methods: A cross-sectional study was carried out among 77 seafarers working in the maritime industry and residing in India. The questionnaire was distributed online using a Google form. The self-rating depression scale, Depression, Anxiety & Stress scale (DASS-21) was used to evaluate the mental health status among the seafarers.

Results: The mean age of study population was 35.39 years with standard deviation of 7.09. According to the results obtained from DASS 21 scale, 16.9% showed moderate depression, 15.6% showed moderate anxiety, and 5.2% were having severe stress. The present health condition of the seafarers, and change in the household income of family due to COVID-19 showed statistically significant association with depression. The extension of contract period during COVID 19, change in the overall household income, and inability to meet their expenses showed statistically significant association with anxiety. The seafarers who had to take part time job for earning and seafarers who were not covered by insurance showed statistically significant association with stress.

Conclusion: This pilot study showed that 16.9% Indian seafarers were having moderate depression during the first lockdown of COVID-19 times.

Keywords

Mental health, COVID 19, seafarers, depression, anxiety, DASS 21 Scale

Introduction

The outbreak of COVID-19 pandemic has caused chaos and panic all over the world. The pandemic has had a significant negative impact on the world economy and supply chain, particularly international shipping. About 90% of world trade is conducted by water. Two million sailors work worldwide to supply the world's daily demands for products.[1] According to the Maritime Labour Convention 2006, 'Seafarer' means any person who is employed or engaged or works in any capacity on board a ship to which this convention applies. This coverage is broad and includes not only seafarers in merchant marine but also those working in cruise industry. The only exceptions are ships engaged exclusively in inland waters, fishing, traditional ships.[2]

The pandemic had led to a standstill of all kind of cargos via water or air during quarantine. The WHO declared COVID-19 a pandemic on March 11, 2020.[2] During this adverse time, taking into consideration the urgency of the situation, bans were imposed by various countries on the arrival of containers and ships that are being run out of other ports, particularly those coming from China. The logistics and operations of these sectors have been hampered by such

[1] Department of Community Medicine and Public Health, Amrita Institute of Medical Sciences, Kochi, Kerala, India

Corresponding Author:
Teena Mary Joy, Department of Community Medicine and Public Health, Amrita Institute of Medical Sciences, Kochi, Kerala 682041, India.
E-mail: teenatixon@gmail.com

hindered operations. Many workers and staff were being trapped on board in the ships due to either being in quarantine or for other prescribed safety issues. So, the sea farers have unique working conditions which can put them under a lot of stress, with fewer opportunities for relief than they would be likely to find on land. The pandemic's consequences have been especially devastating for seafarers, who had lost their jobs and were unsure when they will be able to leave their vessel to meet their family.

The World Health Organization estimates that 264 million people are affected by depression globally and states that "The burden of mental disorders continues to grow with significant impacts on health and major social, human rights and economic consequences in all countries of the world."[1] The effects of COVID-19 on the psychosocial distress of various populations have been the subject of numerous investigations. According to a survey, nearly half (17.9 million) of the 38.8 million workdays missed in 2019/2020 due to work-related illness and non-fatal workplace injuries were caused by mental health conditions such stress, depression, and anxiety.

In relation to seafarers, well-known job requirements include profession-specific traits (such as isolation, loneliness, separation from family, and lack of shore leave), industry-specific traits (such as job insecurity, extended periods spent at sea), and work-design traits (such as physical demands, shift work, and workload). As was already mentioned, the COVID-19 pandemic and the actions taken to limit it might be expected to make their jobs more demanding or even add additional expectations, which could have a detrimental effect on their mental health.

Thus, the seafarers, who spend many months away from home working in challenging conditions, may be more vulnerable to mental health issues than the wider population. Currently, little is known about the type of assistance given to seafarers and the difficulties they encounter while aboard. Therefore, this cross-sectional study was designed to shed light on and to better understand how the COVID-19 pandemic is affecting seafarers in India and to identify factors that may help crew in the future.

Materials and Methods

Design and population: This cross-sectional pilot study was conducted from October 15–November 30, 2021 among 77 seafarers working in Maritime industry and residing in India. Convenient sampling technique was used. A minimum sample size of 50 was taken, but we received 77 responses. All of them were included.

Inclusion criteria:

- Seafarers who were sailing during lockdown time for any private company.
- Seafarers who were at home due to lockdown.

A sailing job is on contract basis but due to travel restriction there were issues in continuing the contract.

Exclusion criteria:

- Seafarers who are having a shore job.
- Seafarers working in cruise because a cruise is for passenger transportation while container ship is for cargo transportation and the number of working staff varies for both.

Data Collection

Semi-structured questionnaire prepared in Google form was circulated through online platform. Questionnaire included socio-demographic and work-related characteristics such as age, marital status, job rank, the problems faced by seafarers due to COVID-19 restrictions—like contract extension, any change in income, interactions done at port. The Depression–Anxiety–Stress Scale-21 (DASS 21) was used to measure the level of psychiatric discomfort. It has 21 items and is used to assess depression, anxiety and stress. There are four options for each item, from which the participants can choose any one. Each question receives a score between 0 and 3 depending on the selected option. A higher score indicates a more severe mental illness, and the overall score on each scale, which is the sum of all the scores from the questions, indicates degrees of depression, anxiety, or stress. A DASS-21 score of higher than 14, 7 or 9 was deemed to indicate stress, anxiety, and depression, respectively, according to this questionnaire.

Statistical Analysis

Data were coded and entered in Microsoft Excel for Windows 7 and analysed using the IBM SPSS Statistics for Windows, version 20 (IBM Corp., Armonk, NY, USA). Categorical data were expressed in percentages and frequencies. Continuous data were expressed as mean and standard deviation. Chi-square test of association was done to determine the factors associated with mental health among seafarers working in maritime industry. The participants who had a score of 0 and 1 were considered as part of no depression/anxiety/stress (Group 1) and those with scores of 2 and 3 were grouped in depression/anxiety/stress (Group 2) for applying the chi-square test. Variables with $p < .05$ were considered to be statistically significant.

Results

Table 1 represents the social and demographic characteristics of the study population. The mean age of study population was 35.39 years with standard deviation of 7.09; 83.1% were graduate, 29.9% were having master's rank and 29.9% were married. Of the studied participants, 13% had more than

Table 1. Distribution of the Study Population Based on Socio-demographic Characteristics.

Sl. No.	Socio-demographic Characteristics		Frequency n (77)	Percentage (%)
1	Age	18–24	0	0
		25–34	45	58.4
		35–44	23	29.9
		45–54	5	6.5
		55–64	2	2.6
		65+	0	0
2	Education	12th pass	8	10.4
		Graduate	64	83.1
		Post graduate	5	6.5
3	Rank	Master	23	29.9
		Chief officer	18	23.4
		Chief engineer	4	5.2
		Second engineer	2	2.6
		Officer in charge of navigational watch	13	16.9
		Officer in charge of engineering watch	11	14.3
		Electro technical officer	4	5.2
		Able deck rating	1	1.3
		Able engine rating	0	0
		Others	0	0
4	Marital status	Single	6	7.8
	n = 47	Married	23	29.9
		Prefer not to say	1	1.3
5	How many members are there	1	0	0
	in your family?	2	2	2.6
	n = 47	3	4	5.2
		4	10	13
		5	4	5.2
		5+	10	13
6	How often do you smoke?	I do not smoke	3	3.9
	n = 50	Rarely	9	11.7
		1–10 times a day	11	14.3
		11–20 times a day	4	5.2
7	Do you consume alcohol?	Yes	15	19.5
	n = 40	No	20	28.6

5 members in their family, 14.3% participants smoked 1–10 cigarettes per day, and 19.5% study participants consumed alcohol.

Figure 1 represents the prevalence of the mental health aspect which was assessed using DASS-21 scale. Among the seafarers, 16.9% showed moderate depression, 15.6% showed moderate anxiety, and 5.2% were having severe stress. Table 2 shows the univariate analysis for association between socio-demographic factors and depression, anxiety and stress. The present health condition of the seafarers and change in the household income of family due to COVID-19 had statistically significant association with depression ($X^2 = 8.717$, $p = .020$), ($X^2 = 4.727$, $p = .030$). The extension of contract period during COVID-19, change in the overall household income, inability of the seafarers to meet their expenses showed statistically significant association with anxiety ($X^2 = 8.405$ p value 0.014), ($X^2 = 6.693$, $p = .010$), (X^2 9.705, $p = 0.002$). The seafarers who had to take part time job for earning and those who were not covered by insurance showed statistically significant association with stress ($X^2 = 8.718$, $p = .003$), ($X^2 = 7.85$, $p = .005$).

Discussion

Many seafarers were stranded at sea for more than a year during the current COVID-19 pandemic.[3] In an article from 2012 on stress and burnout syndromes found that "compared with majority of on-shore occupations the burnout risk in seafarers seems to be moderate although seafaring is a demanding occupation". The International Transport Workers' Federation (ITF) Seafarers' Trust survey found that the number of seafarers who knew colleagues that had considered suicide varied from 6% to 35% of respondents, depending on their home country. Additionally, half of the sample of respondents reported often or sometimes feeling anxious, depressed and hopeless while at sea.[4]
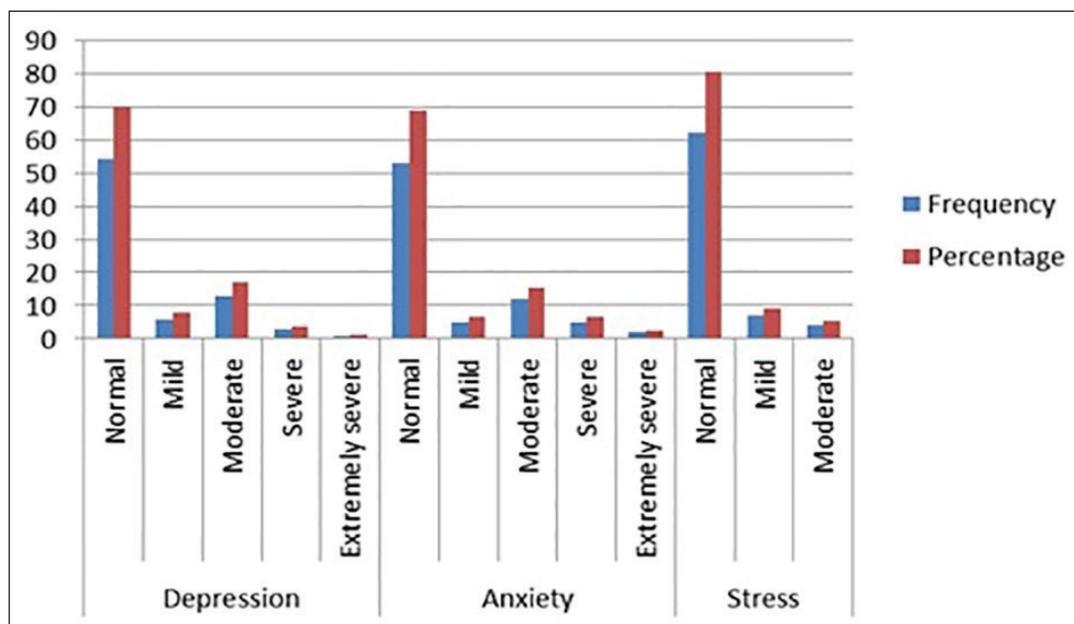
Figure 1. Prevalence of Depression, Anxiety and Stress According to DASS-21 Scale. (For colour, please refer to the web version of this article.)

Table 2. Association of Socio-demographic Variables with Depression, Anxiety, Stress.

Sl. No.	Variables		Variable 1**	Variable 2**	Chi Square Value	p Value
1	Depression					
A	What is your health at present?	Excellent 8–10	27 84.4%	5 15.6%	8.717	0.020
		Very good 6–8	29 82.9%	6 17.1%		
		Good 4–6	3* 37.5%	5 62.5%		
		Fair 2–4	1* 50.0%	1* 50.0%		
		Poor 0–2	0*	0*		
B	Was there any change in your overall household income?	Yes	26 63.4%	15 36.6%	4.727	0.030
		No	32 88.9%	4* 11.1%		
2	Anxiety					
A	Did you exceed your contract?	Yes	37 84.1%	7 15.9%	8.405	0.014
		No	8 47.1%	9 52.9%		
B	Were you able to meet your expenses during the COVID-19?	Yes	52 82.5%	11 17.5%	9.705	0.002
		No	6 42.9%	8 57.1%		
		Maybe	0*	0*		
C	Was there any change in your overall household income?	Yes	26 63.4%	15 36.6%	6.693	0.010
		No	32 88.9%	4* 11.1%		

(Table 2 continued)

(Table 2 continued)

Sl. No.	Variables		Variable		Chi Square	
			I**	2**	Value	*p* Value
3	Stress					
A	If you were not sailing, did you take up a part time job or work to earn a living?	Yes	5 62.5%	3* 37.5%	8.718	0.003
		No	65 95.2%	4* 4.8%		
B	Are you covered by any form of insurance?	Yes	10 71.4%	4* 28.6%	7.857	0.005
		No	60 95.2%	3* 4.8%		

Note: *Fisher exact test; ** no depression/anxiety/stress (Group 1); having depression/anxiety/stress (Group 2).

During the COVID-19 pandemic, a study conducted in China found a high prevalence of depression among seafarers (40.72%), which was higher than the general Chinese population (41.72% vs 27.9% and 41.72% vs 36.5%, respectively).[1] Previous studies have shown increase in depression symptoms in the general population following the COVID-19 pandemic. The study from the US showed 8.5% participants had depression symptoms before COVID-19, and 27.8% participants had depression symptoms during COVID-19.[1,3]

According to the study, which was published in 2019, 25% and 17% of seafarers who completed the questionnaire had scores indicating depression and anxiety, respectively.[5] Another study found that the COVID-19 pandemic increased the frequency of seafarers' self-reported depression and anxiety symptoms.[6] A study found that officers with a higher level of education had higher GHQ-12 scores than non-officers. This study did not demonstrate such significance.

Overtime work, lack of workplace safety, and lack of career opportunities all have an impact on the mental health of seafarers, according to a study conducted in China. This study showed that exceeding contract length was linked to anxiety.

When compared to previous study this study showed less prevalence of depression but since this is a pilot study further studies are needed to assess the level of prevalence of depression.

Limitations and Strengths

This current study is a pilot study done to see the effect of COVID-19 on the mental health of seafarers working in maritime industry and residing in India. The study is based on self-reported scale for depression rather than clinical diagnosis. Since this is a pilot study, sample size was small. Convenient sampling technique, employed as this population is difficult to access, may result in selection bias. As the questionnaire was send through online platform, there were some non-responders. Prior to COVID-19, the mental health of seafarers was not assessed. So to bring out the factors associated with mental health among the seafarers a higher study design is essential.

The current study findings provided a glimpse of the mental health issues faced by seafarers during the COVID-19 outbreak. As a result, it will pave the way for additional research in this area and the implementation of measures to improve their mental health.

Conclusion

This cross-sectional study done using DASS-21 questionnaire was done to assess the relation between mental health and COVID-19 among seafarers residing in India. The results obtained showed, for DASS-21 scale, 16.9% with moderate depression, 15.6% with moderate anxiety, and 5.2% were having severe stress.

The study also identifies the factors that must be taken into account to safeguard the mental health of sailors. It is recommended that more research should be done to assess COVID-19's impact on mental health of seafarers. It is important to do a qualitative study to explore the predictors and patterns of the underlying processes that result in the mental health suffering of seafarers.

Ethical statement

Institutional ethical clearance was obtained (ECASM-AIMS-2021-398) and informed consent was obtained from the participants.

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