



Original article

## Psychological Investigation and Mental Health Management of Ocean going Seafarers

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### Abstract

With the rapid development of economic globalization and the shipping industry, seafarers have been working at sea for a long time, facing psychological problems such as loneliness, depression, and frustration, which pose serious threats to their physical and mental health. The occurrence of psychological symptoms among crew members during their service on board and during their vacations was analyzed through psychological surveys. Research has found that crew members are prone to psychological problems such as obsessive-compulsive symptoms, interpersonal sensitivity, depression, anxiety, hostility, and paranoia during their time on board. The two stages with a relatively high probability of developing psychological problems are: one month and 3-6 months after starting working on board. In response to these issues, some onboard management measures and shore-based support measures have been proposed.

*Keywords: seafarer; mental health; Psychological intervention measures*

## 1. Introduction

Economic globalization and competition in the international market have led to rapid development of the shipping industry. Seafarers are an indispensable part of the shipping industry, with their presence spanning oceans and participating in international trade and transportation. In this special profession, seafarers live at sea for a long time, and the special working environment and pressure have a great impact on their psychology (Jezewska, 2015). Especially long-term working at sea can lead to negative emotions such as loneliness, depression, and melancholy among crew members, posing a great threat to their physical and mental health (Rozanov, 2020; Brooks, 2022). For example, during sailing at sea, ship officers repeat their duty work every day, facing the sea alone, and a sense of loneliness arises; engineers are on duty in the engine room every day to maintain the equipment amidst machine noise. The noise and repetitive work can easily become tiresome, and when it cannot be resolved in a timely manner, psychological problems can quietly arise.

The mental health issues of seafarers have always been a topic worthy of attention. Scholars have relatively more research results on the psychology of seafarers, but most of them focus on the influencing factors and types of psychological problems among seafarers (Jonglertmontree, 2022; Senbursa, 2024; Svetina, 2024). Usually, in the early stages of developing psychological problems, seafarers can be cured through appropriate self-regulation.

## 2. Survey questionnaire design

### 2.1 questionnaire

This survey questionnaire was distributed to the seafarers. When filling out the questionnaire, seafarers were distinguished into two states: working on board and on vacation at home. The content of the questionnaire includes basic information of the seafarers, their sea age, and the time spent working on board when filling out the questionnaire, whether various psychological problems have occurred, and the time period during which they occurred.

The purpose of the questionnaire is to calculate the probability and time period of various psychological problems occurring during the voyage. That is to say,

after starting working on board, focus on a certain psychological problem at a certain time. Provide a reference for the ship management.

### 2.2 Distribution and collection of questionnaires

The questionnaires were distributed to the seafarers through a WeChat mini program. 201 valid questionnaires were collected. The basic information of the surveyed seafarers is as follows:

(1) In terms of age, the largest number of seafarers are those aged 30-40, followed by those aged 40-50;

(2) In terms of sea age, the majority of seafarers have less than 5 years of sea age, while the number of other sea age groups are basically balanced;

(3) In terms of positions, “the captain” is the highest number of personnel, covering various positions on board the ship;

(4) In terms of education level, the number of college degree holders is the highest, followed by bachelor's degree holders.

## 3. Analysis of Investigation and Research Results

### 3.1 Basic data statistical analysis

The seafarers who filled out the questionnaires were divided into two parts: on-board seafarers and on vacation seafarers, and statistical analysis were conducted from six aspects: obsessive-compulsive symptoms, interpersonal sensitivity, depression, anxiety, hostility, and paranoia. The data are shown in Figures 1-6.

#### (1) Obsessive-Compulsive Symptoms

From the statistical results (Figure 1), it can be seen that there are not many differences in the statistics of vacationing seafarers and on-board seafarers. Most people (over 60%) do not experience compulsive symptoms while on board. After working on board for 6 months, seafarers are prone to developing symptoms of obsessive-compulsive disorder (17%). The occurrence of obsessive-compulsive symptoms during this period may be related to previous working on board, as repetitive daily work promotes the development of obsessive-compulsive symptoms.

In the statistics of working on-board seafarers, 61% of them did not experience compulsive symptoms. In the statistics of vacationing seafarers, 65% did not

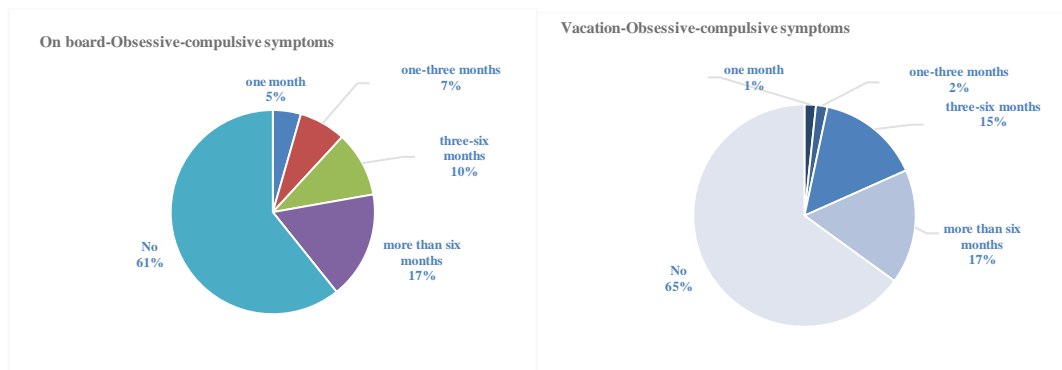
experience compulsive symptoms.

**Table 1: Basic information of crew members surveyed**

Age(years)	Number (people)	Percentage (%)	Education level	Number (people)	Percentage (%)	Sailing age (years)	Number of people	Percentage (%)
≤30	54	26.9	below college	45	22.4	≤5	57	28.4
( 30,40]	69	34.3	college	78	38.8	( 5,10]	34	16.9
( 40,50]	58	28.9	Bachelor's	73	36.3	( 10,15]	34	16.9
( 50,60]	20	9.9	Master's	5	2.5	( 15,20]	25	12.4
						>20	51	25.4

**Table 2: Crew Positions Statistics**

Position	Captain	Chief officer	Second officer	Third officer	Boatswain	Carpenter	Sailor	Chef	Server
Number (people)	35	15	26	15	8	3	26	5	3
Percentage (%)	17.5	7.5	13	7.5	4.0	1.5	13	2.5	1.5
position	chief engineer	Second engineer	Third engineer	Fourth engineer	Chief motorman	motorman	electrical engineer	coppersmith	cadet
Number (people)	19	4	7	10	4	9	3	1	7
Percentage (%)	9.5	2	3.5	5	2	4.5	1.5	0.5	3.5



**Figure 1: Statistical Analysis of the Occurrence Time Periods for Obsessive-Compulsive Symptoms**

## (2) Interpersonal sensitivity

From the statistical results (Figure 2), it can be seen that there are not much differences in the statistics of vacationing seafarers and on-board seafarers. Interpersonal sensitivity mainly occurs within one month of starting working on board (over 50%). As time passed, the seafarers became familiar with each other and their interpersonal sensitivity gradually diminished. When working on board for more than 6 months, the long-

term closed working environment on board can easily cause emotional fluctuations and increase the incidence of interpersonal sensitivity. Therefore, the key focus periods are within one month and more than six months of starting working on board.

For the statistics of working on board seafarers, 14% did not experience symptoms of interpersonal sensitivity. In the statistics of vacationing seafarers, 20% did not experience symptoms of interpersonal sensitivity.

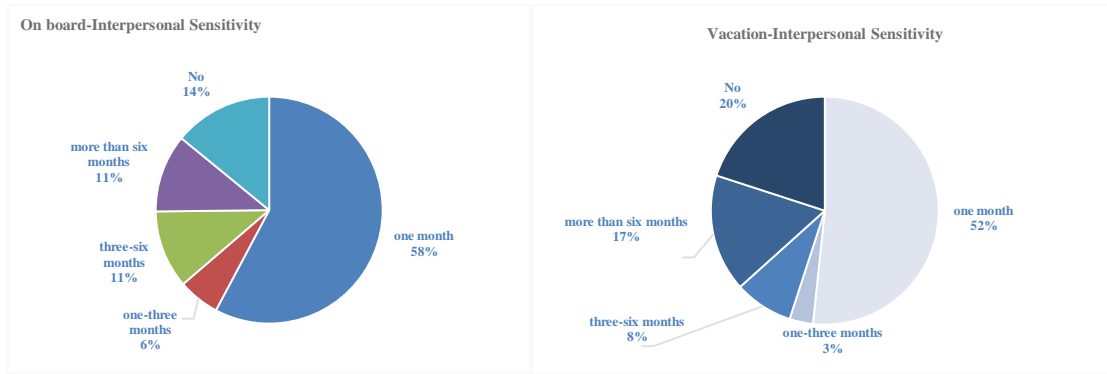


Figure 2: Statistical Analysis of the Occurrence Time Periods for Interpersonal Sensitivity

(3) Depression

From the statistical results (Figure 3), it can be seen that the trend of change is basically the same for the statistics of vacationing seafarers and on-board seafarers. The two periods that are prone to depression are within one month of starting working on board and 3-6 months. Within one month of starting working on board, it is necessary to adapt to the new work environment in a short period of time, which can generate certain psychological pressure and easily trigger the development of depression. During the period of 3-6

months, they are fully familiar with the working environment on board and may begin to feel tired. They may have already begun to look forward to the arrival of vacation. If the fatigue is not relieved in a timely manner, it can easily trigger the development of depression. Therefore, the key focus periods are within 1 month of starting working on board and 3-6 months.

In the statistics of working on board seafarers, 17% did not experience depressive symptoms. In the statistics of vacationing seafarers, 28% did not experience symptoms of depression.

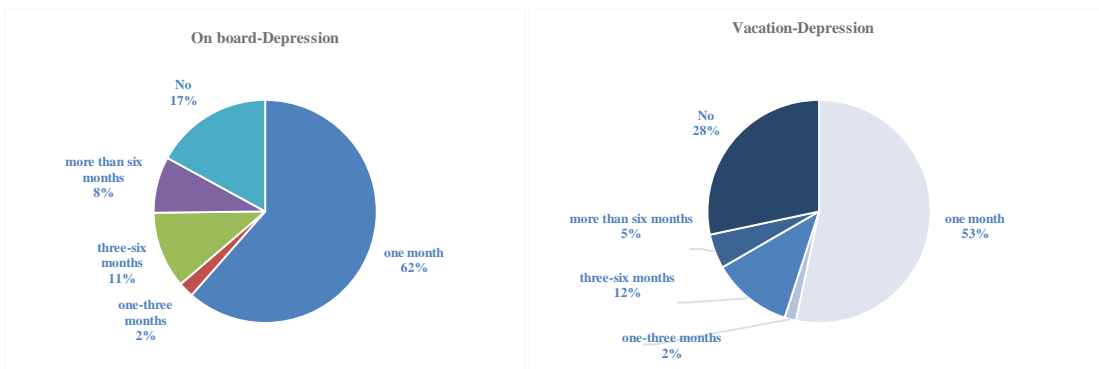


Figure 3: Statistical Analysis of the Occurrence Time Periods for Depression

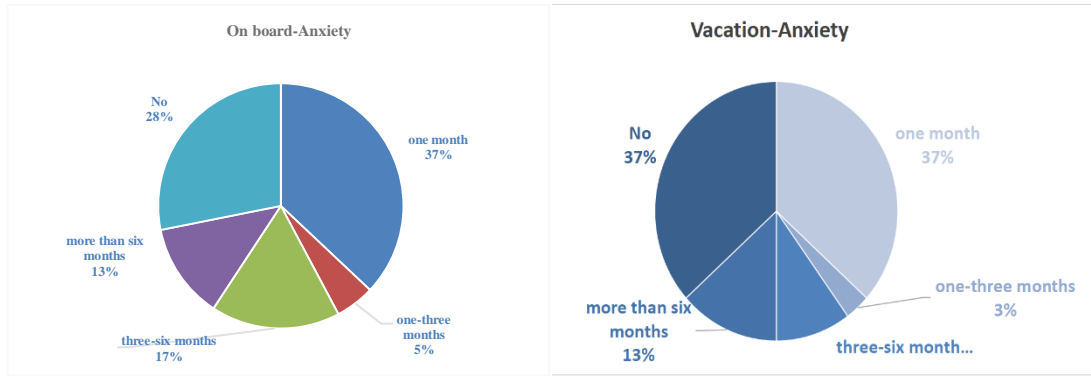
(4) Anxiety

Company system documents are constantly improving and enhancing, which puts higher demands on seafarers. Faced with enormous work intensity and pressure from company and port state inspections, it is easy to experience anxiety.

From the statistical results (Figure 4), it can be seen that the trend of change is basically the same for the statistics of vacationing seafarers and on-board seafarers. The two periods that are prone to anxiety are within one month of starting work on the ship and 3-6 months. Within one month of starting working on board, it is necessary to adapt to the new work environment in a

short period of time, which can generate certain psychological pressure and easily trigger anxiety. During the period of 3-6 months, they have become fully familiar with the working environment on board and may begin to feel tired. They may have already begun to look forward to the arrival of their vacation. If the fatigue is not relieved in a timely manner, it can easily trigger anxiety. Therefore, the key focus periods are within 1 month of starting working on board and 3-6 months.

For the statistics of working on board seafarers, 28% did not experience anxiety symptoms. In the statistics of vacationing seafarers, 37% did not experience anxiety symptoms.



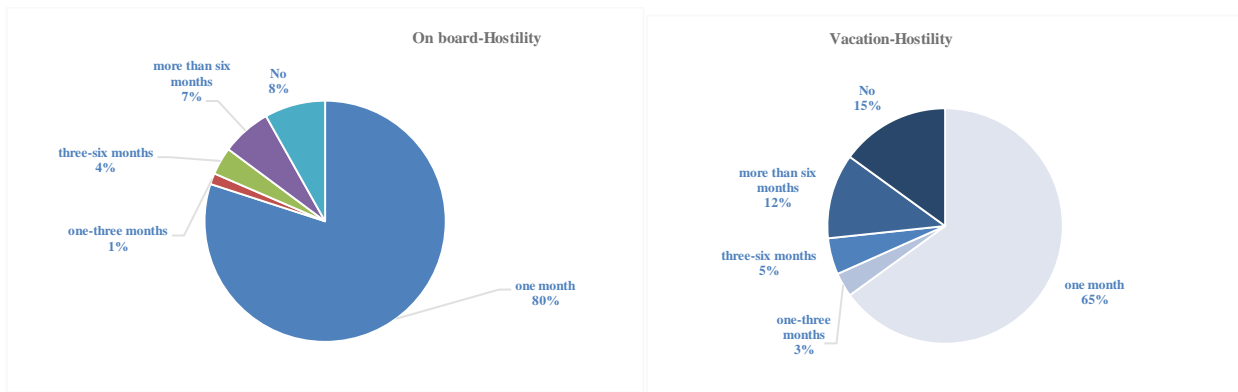
**Figure 4: Statistical Analysis of the Occurrence Time Periods for Anxiety**

(5) Hostility

From the statistical results, it can be seen that the trend of change is basically the same for the statistics of vacationing seafarers and seafarers on board. The key focus periods are within one month and more than six

months of starting work on board.

In the statistics of working on board seafarers, 8% did not experience hostile symptoms. In the statistics of vacationing seafarers, 15% did not experience hostile symptoms.

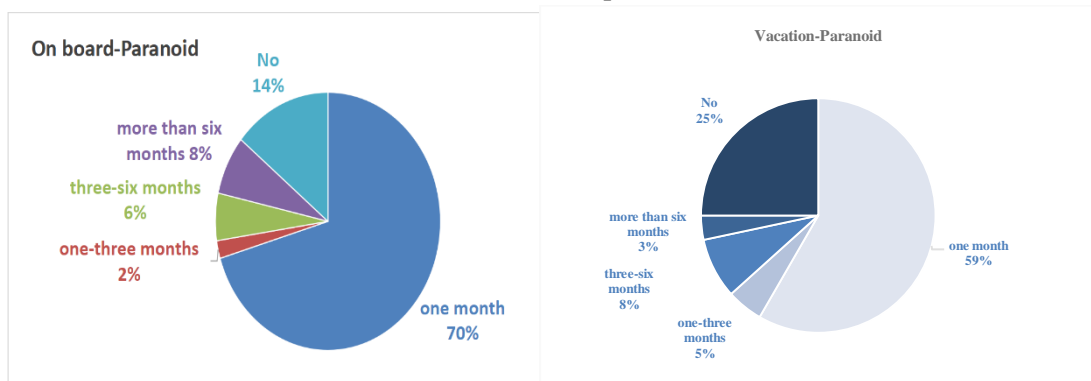


**Figure 5: Statistics of Hostility Occurrence Periods**

(6) Paranoia

For the statistics of ship crew members, 14% did not e

xperience paranoid symptoms. In the statistics of vacationing crew members, 25% did not experience paranoid symptoms.



**Figure 6: Statistics of paranoia occurrence periods**

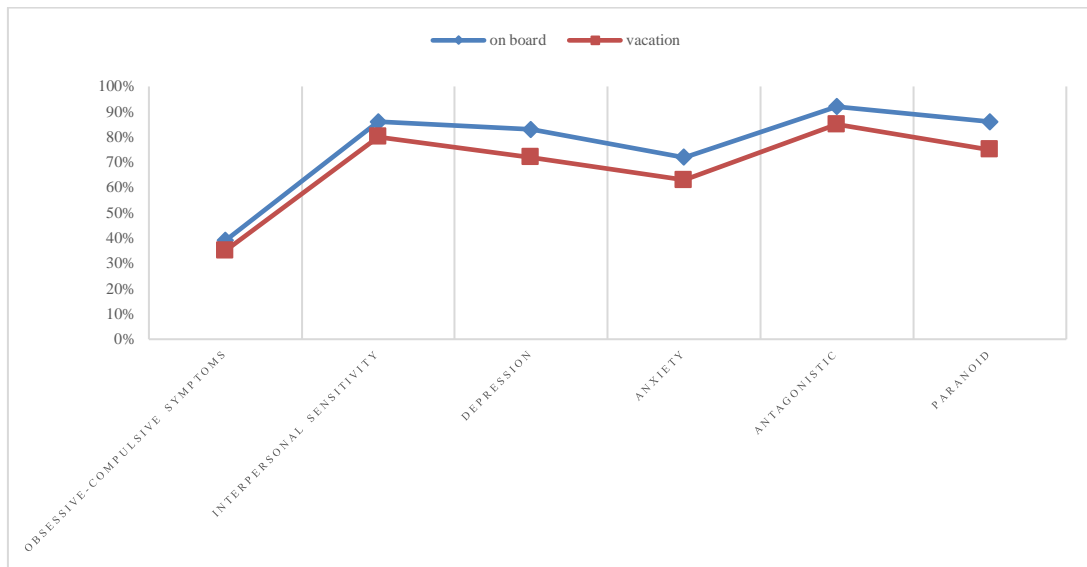
3.2 Probability analysis of various psychological symptoms

The probabilities of various psychological symptoms are shown in Table 3 and Figure 7. The statistical trends of various psychological symptoms experienced by wor

king on board seafarers and vacationing seafarers are basically the same during their time on board; the former has a higher probability of occurrence than the latter for the same psychological symptom. Among them, the occurrence of hostility is the highest, followed by interpersonal sensitivity and paranoia.

**Table 3: Statistical Analysis of the Probability of Psychological Symptom Occurrence**

Seaman	Obsessive-Compulsive Symptoms	Interpersonal Sensitivity	Depression	Anxiety	Antagonistic	Paranoid
On board	39%	86%	83%	72%	92%	86%
vacation	35%	80%	72%	63%	85%	75%

**Figure 7: Probability statistics of psychological symptoms**

### 3.3 brief summary

From the statistical results of the data, it can be seen that the statistical results for seafarers on board are higher than those for seafarers on vacation. The probabilities of developing hostility, paranoia, and interpersonal sensitivity are relatively high, while the probability of developing obsessive-compulsive symptoms is relatively low. These three symptoms are mostly generated during the process of interacting with others. Living and working on the same ship, as time goes by, the intersection increases, which can easily lead to conflicts and become the trigger for the formation of these three symptoms. These three symptoms are concentrated within one month of starting working on board. During this period, it's essential to transition from living on land to working and living on board. As colleagues become more familiar with each other, living in the relatively confined space on board contributes to the development of these three symptoms.

Paranoia is more pronounced when seafarers have been working on board for more than 6 months; Interpersonal sensitivity, depression, anxiety, hostility, and paranoia are more evident after one month on board. The overall difference between the actual experience data of the seafarers on board and the recollection data of the seafarers on vacation is not significant. However, there are relatively significant differences in the three aspects of depression, hostility, and paranoia, but the overall trend is consistent. 1-3 months is a relatively good period, and the probabilities of various psychological symptoms

occurring are relatively low. The periods of 1 month and 6 months or more after starting working on board are two sensitive periods, with a higher probability of developing psychological symptoms.

As a ship manager, closely monitor the psychological changes of new crew members within one month of starting work on board. For other crew members, psychological symptoms may occur during the period of 3-6 months when they start working on board, and they need to be given special attention. When signs of these symptoms are detected, timely guidance and treatment should be provided to reduce or eliminate their impact on the crew.

## 4. Coping methods and preventive measures for psychological problems

### 4.1 Coping methods for mental health issues of crew members during working on board

#### (1) Provide convenient communication network

A convenient communication network (Song, 2021) allows crew members to communicate with family and friends in the form of video and voice. Communication is more direct and helps alleviate anxiety. After a day of work, talk to family or friends on the phone and chat about daily life, which can relieve the frustration of living at sea.

#### (2) Timely detect the signs of psychological problems

among crew members

Respect and care for the crew, and understand their psychological state on board. Pay attention to the physical and mental condition of crew members through various channels, and provide timely guidance for emotionally unstable crew members. For crew members who have just started working on board, it is important to pay close attention to the first month of work as it is a critical period for adapting to onboard work and may also lead to psychological issues.

For introverted crew members, they may manifest as restlessness and heavy mindedness; For extroverted crew members, they may manifest as irritable temperament and difficulty controlling their emotions. These emotions are not conducive to safe navigation, and as a captain, one should promptly detect them and take corresponding measures.

(3) Building a harmonious working and living environment on board

Conflicts on board usually include conflicts between departments, conflicts between superiors and subordinates, and conflicts between individuals. These contradictions should be resolved in a timely manner to prevent them from escalating. When working on land, conflicts between colleagues can be easily resolved through the mediation of colleagues and the guidance of friends. However, the living space on the ship is limited, and the adjustment mode is limited after the conflict between the crew members occurs, so it is easy to enter into a stalemate stage, and then intensify the conflict.

Building a harmonious working and living environment includes both material and spiritual aspects. A superior material environment is the basic guarantee for the work and life of crew members, and the company provides various entertainment facilities to enrich their leisure life. On a spiritual level, promote harmonious coexistence among crew members and treat each crew member equally.

Companies should regularly organizing gatherings for crew members, providing a place for mutual communication, relieving inner repression, bringing joy to themselves, and building harmonious interpersonal relationships. Organize some entertainment projects to enrich leisure life. For example, table tennis, fitness, etc., strengthening physical exercise in spare time can also

enhance communication among colleagues, making the boring life on the boat more colourful (Moreno, 2023).

(4) Crew self-protection

Through learning, master the basic knowledge of psychology and methods to relieve psychological stress. If you feel increased psychological pressure or develop psychological symptoms, while self-counselling, you should communicate with the captain in a timely manner, seek help, and avoid more serious psychological problems (Li, 2022).

*4.2 Measures taken by companies to address the mental health of crew members*

(1) Provide psychological training for vacationing crew members (Guo, 2020)

1) For all crew members

The training content includes methods for psychological self-regulation and psychological relaxation. During the period of working on board, if psychological problems occur, self-regulation should be carried out as soon as possible to avoid the long-term accumulation of psychological problems affecting physical and mental health;

2) For crew at management level

The training content includes methods for identifying psychological problems, basic counselling techniques, etc. Pay close attention to the psychological state of the crew during working on board, and promptly provide psychological counselling if any psychological problems are detected.

(2) Provide shore-based support

Establish a remote psychological intervention mechanism and hire full-time or part-time psychological counsellors as reserve. When crew members on board have psychological problems, timely counselling or psychological counselling should be provided.

(3) Optimize the crew change system

Crew members working on board for more than 6 months are more likely to experience various psychological symptoms. Therefore, it is necessary to optimize the crew dispatch system to prevent crew members from working on board for extended periods.

## 5. Conclusions

Seafarers work at sea year-round without holidays, and when they are physically and mentally exhausted without timely relief, they are prone to psychological

problems. As the highest manager of a ship, the captain should actively learn psychology related knowledge, observe the psychological state of the crew during the ship, and promptly provide guidance or apply for shore-based support if problems are discovered. Crew management companies should pay attention to the mental health issues of crew members and provide assistance to ensure they can work on board with a healthy mental state, thus achieving the safe operation of the ship.

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