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A STUDY ON THE IMPACT OF THE COVID-19 PANDEMIC TOWARDS SEAFARERS' SIGN-ON AND SIGN-OFF PROCESS

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ABSTRACT

The Coronavirus Disease 2019 (COVID-19) pandemic has caused worldwide chaos and panic. The shipping industry was one of the first industries affected by the outbreak, with crew members reporting cases of COVID-19 on the ship. This widespread pandemic has launched a major burn for seafarers' sign-on and sign-off globally. There is no standardised procedure for the crew change process used globally. All countries have their own rules and regulations. Thus, seafarers who act as the middle person between respective authorities were severely affected by this situation. Therefore, this research article aims to study the impact of the seafarers working onboard and waiting for vessels to join during the COVID-19 pandemic. Furthermore, we will explore what changes might have occurred in seafarers' sign-on and sign-off process during the outbreak. This article reveals three main categories: Perceptions during the COVID-19 outbreak, changes that could occur in the crew manning sector during the COVID-19 outbreak, and insight into the seafarers' occupation during the COVID-19 outbreak. A qualitative approach is used in this research. Hence, the semi-structured interview method is conducted involving mariners who are working in this industry. The data were collected through online interviews and thematic analysis was conducted to identify similarities and differences between the respondents. This study will enlighten the challenges and potential solutions for improving the crew change process during the COVID-19 pandemic.

Introduction

The Coronavirus Disease 2019 (COVID-19) pandemic has begun to grow uninterrupted, destroying and impacting homes, companies, people, and economies worldwide in many respects that will forever change the environment. The shipping and maritime industries have also been key operations affected by this disease's spread. This outbreak leads to the worst situation for the shipping and maritime industry as workers in these sectors are shut down to secure and avoid the escalation of COVID-19. Other than that, this setback is due to the hold of all kinds of goods by water in this quarantine, as it may be possible to bring the virus from port to port onboard ships. In this adverse period and the emergency, the entry of containers and ships operating from other ports, particularly those transported from China was prohibited by various countries at the early stage. Such impeded operations have delayed shipping activities (Wing Shin *et al*., 2020).

The maritime industry was one of the first industries affected by the outbreak, with crew members on ships reporting cases of COVID-19

(Moriarty *et al*., 2020). This widespread pandemic has launched a significant brunt for seafarers' sign-on and sign-off from Malaysia's ports to other ports globally (Aziz *et al*., 2020). In this case, seafarers have become the unsung heroes of this pandemic, as the world depends on seafarers to transport more than 80% of trade by volume. They have also been collateral victims of the crisis, as travel restrictions have left tens of thousands of them stranded on ships or unable to join ships (International Maritime Organization, 2020a). The difficulties surrounding repatriation and crew changes have also had a major impact on the shipping industry.

Seafarers have already been on duty for much longer than the 12 months agreed by the International Labour Organization (ILO) as the seafarer contracts' maximum duration. The government is responsible for ensuring seafarers and ships can continue to move, enabling the world to overcome and recover from the pandemic and keeping the global economy afloat. However, the crisis led to seafarers' difficult working conditions, including uncertainties and problems regarding port access, re-supply, crew changeover, and repatriation (Noor Apandi Osnin, 2020).

In these difficult times, the seafarers face significant challenges. Safety measures were also enforced in maritime operations to protect the port terminals, logistics operations, operational staff, and crew sign-on and sign-off (Depellegrin *et al*., 2020). Besides that, COVID-19 accelerated the maritime industry transition to crew change in the Seafarers' Employment Agreement (SEA). COVID-19 has wide-ranging effects on seafarers, where seafarers have faced related with quarantine requirements, restrictions on border crossings with border closures, repatriation and crew changeovers, abandonment, renewals of certificates, and licensing of seafarers, re-supply, and ship surveys (Doumbia-Henry, 2020). Therefore, it is essential to ensure that crews can be changed at the appropriate intervals if shipping fulfils its vital function in sustaining the global supply chain's activity.

However, the prohibitions introduced at the national level which in some countries prohibited seafarers from disembarking to carry out crew changes, resulted in an expansion of the operation of seafarers on board ships for many months at sea or far beyond the limits set (Corinne Vargha, 2020).

Hence, ensuring effective and safe crew adjustments is essential, so seafarers can sign-on and sign-off. Approximately 150,000 each month, seafarers need to be transported to and from the ships for operation, compliance with international maritime safety, crew health, and welfare regulations, and to avoid fatigue (International Maritime Organization, 2020b). By mid-June 2020, around 300,000 seafarers had requested international flights to change crews. Furthermore, 70,000 seafarers have been awaiting repatriation onboard cruise ships. As of 10 June 2020, only 30% of governments worldwide have allowed crew changes (Doumbia-Henry, 2020). This situation is unsustainable for seafarers' safety and well-being and for the safe operation of maritime trade.

Literature Review

The spread of COVID-19 has driven an unprecedented expansion of lockdown measures in Malaysia and worldwide. Based on Depellegrin *et al*. (2020), the maritime labour force was one of the first sectors to be affected by the outbreak, with worldwide COVID-19 reported by seafarers on ships. Border closures for ports and ships are the critical problems that have plagued the international shipping industry during the pandemic. In certain countries, quarantine conditions and limitations on seafarers crossing borders affect crew exchange and repatriation of seafarers, including those working on ships. It is also essential to upgrade the registration and licensing of seafarers, ship surveys and certification, re-supply of vessels, or any repair required by the particular ship. This is because the seafarers' working contracts onboard were extended.

Note that certificates are important for the continuity of ship operations because they

are self-evidently proof of compliance with the applicable international standards and are checked regularly during different surveys, audits, and inspections. When ship and seafarer licenses expire, a ship can be defective or even seized and unable to continue functioning. It is also a condition of cover for Protection and Indemnity (P&I) that ships remain compliant with the legislative and class specifications in effect, as shown by the preservation of certificate validity (International Chamber of Shipping, 2020).

Some certificates require the renewal of surveys and audits based on conditions found on board, whereas others can be revalidated by submitting a request accompanied by supporting documentation or proof. Maintaining legitimate ship and seafarer certificates and holding them in order may be a task in normal times. Nonetheless, due to the COVID-19 pandemic, it has now become markedly more challenging and complicated for shipowners and operators. The COVID-19 pandemic presented a unique challenge to seafarer certificates, specifically resulting in situations where seafarer certificates including medical certificates expire while seafarers are either on board or at home waiting to enter their next ship due to circumstances arising from the COVID-19 pandemic without any fault of their own. Some forms of the COVID-19 pandemic have raised a challenge to preserve the validity of seafarer certificates.

The extension of duty periods on board ships discouraged seafarers from requesting to revalidate their certificates, medical exams, and qualifications by the closure of maritime training institutions and from attending and completing refresher training courses or other courses during the movement and travel restrictions. The difficulties processing applications due to reduced hours, backlogs, or closures of offices of authorities responsible for certificates have had impacts on the revalidation of certificates. Medical professionals and personnel in several countries have been redeployed to tackle the public health crisis triggered by the outbreak of COVID-19, which means there is a lack of medical practitioners available to perform seafarer medical exams.

Since seafarers face challenges in crew changeover and extension of contracts, safety and health play a vital role in these circumstances. On the other hand, exhaustion among seafarers leads to suicide at sea due to their inability and inefficiency to perform their work. Some were caused by sleepiness and lack of vigour, which could impact their safety and the safety of other seafarers. Fitness is one of the key factors that may affect the effectiveness of seafarers' fatigue. Moreover, exhaustion among seafarers impacts the safety and can contribute to a long-term precarious health problem (Firdaus *et al*., 2019).

Although ports refuse to accept seafarers and deny them shore leave, it is strange that visitors are permitted to board the same vessels without precautions or Standard Operating Procedures (SOPs) to avoid infections with COVID-19. A lack of care exposes this feature. As access to medical facilities is highly restricted, seafarers face a much higher risk of COVID-19 infections. Hence, allowing at-risk visitors to board vessels without respecting COVID-19 SOPs is unsafe. Seafarers should be admitted to ports after COVID-19 SOPs for much-needed shore leave or medical assistance.

One reason these problems have not been resolved is that the maritime industry has not successfully lobbied on behalf of the authorities for the interests of seafarers. For distressed seafarers, the industry needs to show more concern and come to their rescue. Otherwise, especially when most of the workforce is exhausted, depressed, and dissatisfied, the industry will face severe losses.

Seafarers even feel lost and consider ships to be floating prisons in every way. On the other hand, the same travel restrictions have caused rising unemployment rates among seafarers anxiously waiting to go on board. Seafarers are finding it hard to secure crew rotation visas and another grave obstacle to repatriation is the cessation of commercial flights.

Research Methodology

The Research Strategy

The research strategy for this study started, as illustrated in the Figure 1, with the discovery of information and the study of relevant information from the current issue discussing the impact of the COVID-19 pandemic on seafarers' sign-on and sign-off process. Interview questions were related to the importance of addressing the problem statement and would be specifically related to the agencies. After getting an overview of this research, the question was decided. Questions for the interviews were related to the many to resolve the matter statement and they must directly relate to the agency involved. The agencies involved were the Marine Department of Malaysia, seafarers, the Marine Department of Johor Port, an Admin Officer (AO) from MISC Berhad, and a shipping agent, Johor Ship Care Sdn. Bhd.

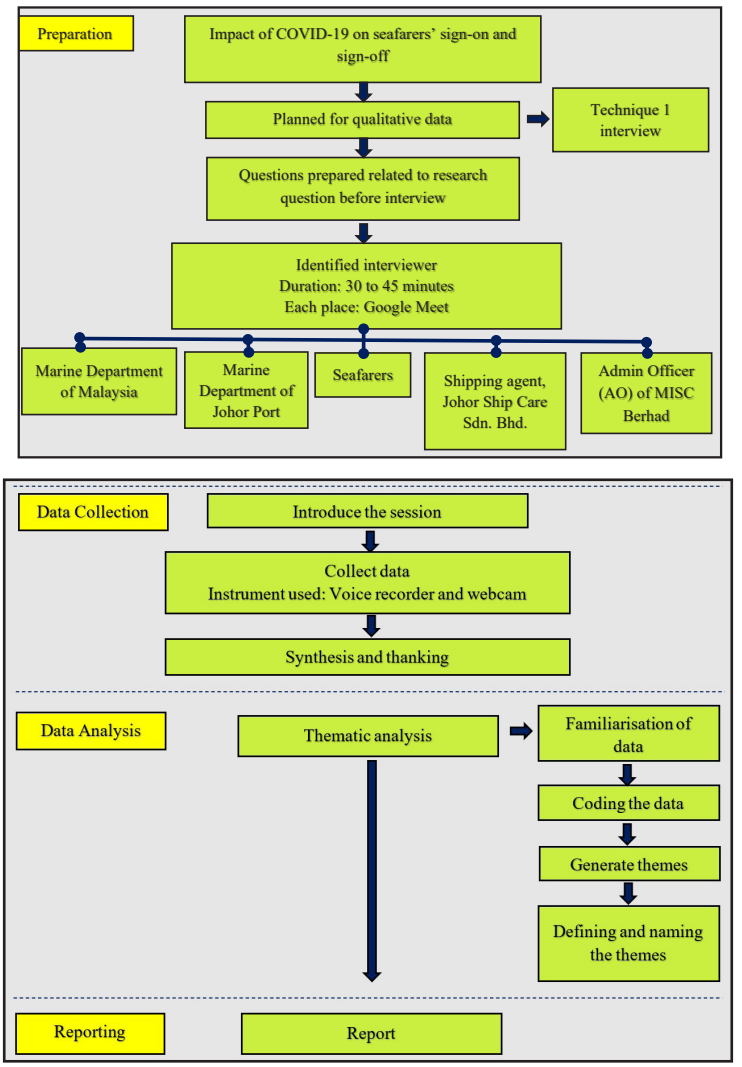

Figure 1: Research strategy

The most effective approach to be used is the qualitative method to accomplish the purpose of the analysis. Note that the primary and secondary data will be analysed and addressed to determine the most relevant findings. The inference of research methods will be drawn based on the findings. In addition, authorities need to coordinate to reduce the challenges faced by seafarers in Malaysia during the sign-on and sign-off process.

Preparing

The methodology consisted of data collection using qualitative methods. This method is used to gain contextual and specific information regarding the impact of the COVID-19 pandemic on seafarers' sign-on and sign-off processes. Here, interviews are chosen by the researcher as a method of gathering information from the respondents. In this research, the respondents are representatives from the Marine Department of Malaysia, seafarers, the Marine Department of Johor Port, an AO from MISC Berhad, and a shipping agent, Johor Ship Care Sdn. Bhd. representative. Each respondent is required to spend around 30 to 45 minutes. Questions to each interviewer will be prepared according to the objective of this research. Here, the involvement of participants' perceptions, experiences, job scopes, and reviews on seafarers' sign-on and sign-off will be conducted in the interview section.

Data Collection Method

The data collection method was one-on-one interviews with participants utilising a semi-structured interview schedule. Note that all interviews were conducted privately on Google Meet and lasted between 30 and 45 minutes, with audio recorded. The interview questions were open-ended in nature and were designed to elicit respondents' perceptions of the extension of sea service beyond the SEA. Consequently, interviews were verbatim transcribed immediately following each one and the initial transcript was evaluated to ensure that questions appropriately tapped into relevant information.

The second objective is to address the impact of COVID-19 on seafarers' sign-on and sign-off process with Johor Ship Care Sdn. Bhd., an onboard seafarers. Around 30 minutes are required. Lastly, MISC Berhad and the Marine Department of Johor Port had experience in crew changeover during COVID-19. Interviews will take around 45 minutes. Here, we will determine the status of crew exchange in Malaysia during the pandemic.

Data Analysis and Sources

The data were analysed using thematic analysis guidelines and instructions on meeting trustworthiness requirements in theme analysis were followed. The study is phenomenological, but incorporating how larger culture influences experience and meaning maintains a contextualist viewpoint. Given the scarcity of existing research in the area and the exploratory character of the study topic, an inductive thematic analysis was adopted, in which coding and theme creation were guided by the data's content.

Phase one of data analysis involves initial immersion in the data set and re-reading each transcript. Phase two was devoted to creating initial codes by participating in systematic and comprehensive coding for each data item, documenting as many data-driven and researcher-generated codes, as possible relevant to the research question. Subsequently, the analytical attention was switched to reviewing and refining early codes, confirming their relevance to the study issue, minimising overlap, and ensuring distinct notions and ideas.

Phase three was devoted to identifying and developing themes that encapsulated the data's most salient and significant features in connection to the research topic. The cutting and sorting approach outlined by visual diagramming with image boards aided in developing themes. At this point, the data was condensed into a manageable set of major themes that served as a text summary. The topics were evaluated to ensure that data with comparable themes had been appropriately grouped with distinct

distinctions. Correspondingly, the legitimacy of themes was determined by reverting to the raw data to guarantee that they were firmly rooted in the data. At this step, discussions with the second author were held to ensure the authenticity and coherence of the themes.

The fourth phase was devoted to defining and naming the topics. Overarching themes were presented to a broader group of research team members along with justification for their development and their relationship to the transcripts.

Reporting

In this research, a qualitative method will be used to determine the impact of COVID-19 on seafarers' sign-on and sign-off processes. This method refers to the real concepts in the current situation, and the post-COVID-19 outbreak is focused on seafarers' sign-on and sign-off. This method will answer the question of how the situation is based on the respondents' experience, reactions, and studies they made on the challenges and COVID-19 towards Malaysian seafarers. Not only is that being to compare the efficiency of sign-on and sign-off process during COVID-19. In addition, the conduction of the research will be taken into question by the experts to get the information based on thematic analysis. This research will be conducted in April 2021. Secondary data is the additional information that data is accumulated from studies. Journals, books, websites, and news will be the sources for this research. Other than that, all information regarding the seafarers and COVID-19 that the researcher needed was obtained from secondary resources. The previous studies have become the researcher's reference for analysing the effectiveness of the objectives of this research.

Results

This research has its results and a discussion extracted from the research questions and objectives. The information and details in this section are also analysed from selected journals and prime sources, which explain each research question accurately. This shows that the COVID-19 pandemic has greatly impacted seafarers' sign-on and sign-off, leading to the extension of the sea contract. The seafarers have been involved in the maritime sector, or most importantly, in shipping, maritime-related companies, and ports.

The impact of the COVID-19 pandemic on seafarers' sign-on and sign-off process is the subject of this study. Data was analysed based on interviews with five important parties in the maritime field and seafarers. Before coding, an adaptation and adoption of each statement was recorded and transcribed. Five candidate themes emerged from the analysis based on perceptions during the COVID-19 outbreak, changes that could occur in the crew manning sector during the COVID-19 outbreak, and insight into the seafarers' occupation post-COVID-19 outbreak.

General Opinion after the COVID-19 Outbreak

Different perspectives on the future are created in humans due to an experience or disaster. These points of view can be classified as optimists or pessimists in general. The optimistic viewpoint holds that good things will happen following a crisis or disaster. On the other hand, the pessimistic viewpoint is the reverse of the optimistic viewpoint. The positive and pessimistic viewpoints were found in the subcategory "General Thoughts on Post-COVID-19", the first primary category established as a consequence of the research. It is observed that pessimistic applicants outnumber optimistic candidates. Pessimistic candidates believe that COVID-19 will result in the layoff of seafarers in the crew manning sector. The belief that layoffs will begin as a result of the instability of the economy caused by the COVID-19 epidemic in the crew manning sector is also among the often-stated answers, as are the following:

C2: "*I don't think that it will be the same as before. There is no restriction, and you can join anytime and sign off anytime.*"

C3: "*Yes, for sure. It will affect my occupation. Unemployment will increase. Like there are still some crews waiting for the vessel to sign-on their contract.*"

C5: "*The hardest time, especially with the crew sign-off, not for the signing on the crew but for the sign-off crew which is the extension of the period more than their contract.*"

As a result of the potential for unemployment, the belief that candidates who can continue working will work harder, take on more stress, and assume greater responsibility is also reinforced. Having this perspective, C4: "*Yes, mentally affected means in terms of the stress level. So, they expect, let's say, their contract is six months. During this pandemic, the contract was extended, not extend, but they cannot sign off from the vessel, and maybe some ports do not allow them for sign-off.*"

Pessimistic candidates believe that the COVID-19 pandemic will reduce income and labour opportunities in the crew manning sector and that seafarers will become unemployed due to increased competition. Consequently, another difficult problem states that extensions of contracts will rapidly increase.

Candidates with hopeful viewpoints assume that the COVID-19 outbreak will have a similar effect to earlier crises. COVID-19's impact on seafarers' sign-on and sign-off will last only two to three years. Another common concern of the optimistic candidate is the COVID-19 outbreak which will expose the true nature of the difficulties faced by the onboard ship. The following are related responses from candidates. C5: "*Yeah, because of the crew change delays, what is happening is people are expecting to go back. After the completion of the contracts, nobody wants to stay even when you're giving extra money. The company will say we will provide you with extra allowances and everything, but once you complete your contract, it will automatically include so-called mental health. Something they call mental awareness.*"

Pessimistic candidates believe the COVID-19 pandemic will have a much different impact than earlier crises. It is widely believed that 2020 will be regarded as a lost year due to COVID-19. Therefore, they think that the crew manning sector will not remain stable in 2021. Pessimistic candidates think the COVID-19 pandemic will become more demanding, requiring them to compete for job opportunities again.

The Changes that Could Occur in Seafarers' Sign-on and Sign-off after COVID-19

Based on candidate responses, the second major category is "Changes in seafarers' sign-on and sign-off after COVID-19". There are subcategories within this major category, including "Changes to SEA", "Autonomous vessel", "Revalidation of certificates", "Seafarers safety", and "COVID-19 as a milestone". Due to the lack of standardised procedures, the crew manning sector is most impacted by rules and regulations. Certain improvements may occur within the crew manning sector to comply with rules and regulations. Seafarers' sign-on and sign-off procedures which the COVID-19 pandemic has significantly impacted will undergo certain post-outbreak alterations. The most significant change candidates wish to see in the crew changeover sector is the standardisation of the procedures for joining and signing off from the vessel. The following are some of the candidates' connected responses:

C4: "*I mentioned last time that we have a restriction for the vessel call from China, so we have a restriction for them. Now for the vessel from India, we have a restriction for that. So, it keeps on changing according to the number of cases. So, all the requirements that come up. Recently, we have been up to the standard. Let's say the case is going higher. Maybe they tightened the security and for the sign-on or sign-off crew, cases are coming down, giving exemptions for some parts of the sign-on and sign-off crews. Maybe they reduce the number of the quarantine, they reduce the number of port stays, I meant the short stay for the crew that signing-off.*"

C5: "*So, on our side for the shore base, we still maintain our standard procedures for the rest of the port, especially the vessel calls from the high-risk area.*"

The candidate underlined the importance of adopting and making permanent safety procedures such as social distancing, sanitising vessels, and wearing complete personal protective equipment (PPE). A few further relevant responses are shown below:

C1: "*In my point of view, especially when we are in a crowded place. For example, we are going to the hospital and all that, so we are supposed to wear masks for hygiene purposes. Sanitise our hand, this thing.*"

C2: "*We have all the standard operating procedures by the company. We have the specific manuals, so what are the procedures to be done on arrival at the port and departure? After the departure, everything there, including sanitisation, so it's already prepared.*"

Candidates believe that introducing autonomous vessels will increase unemployment in the marine industry after the COVID-19 outbreak. However, candidates believe autonomous vessels will worsen unemployment and accelerate the transition to Industrial Revolution 4.0 (IR 4.0) The following are related responses from candidates:

C1: "*Yes, of course, it will be affecting the occupations. Whenever the autonomous takes place, and what about where we are all going to work? Who's going to be replaced? How do we say we still need that manpower to be entered into the vessel? For now, we have the manpower needed to be appointed to carry out any job in shipping and so on. But once autonomous vessels are taken over. What about us? So, I don't encourage. Yes, unemployment will take place. When unemployment takes place, there will be another issue for the country which our country economically will be dropped.*"

C3: "*Yes, for sure. It will affect my occupation. Unemployment will increase. There are still some crews waiting for the vessel to sign their contract. It will be the same during the pandemic or after autonomous vessels are launched.*"

C4: "*But I, as a mariner, if you ask me, all the missionaries have defects. So, from my point of view, I think, in terms of safety, it is better handled by the crew for the observations and to operation.*"

Revalidation of certificates is one of the changes foreseen by candidates in the crew manning sector after the COVID-19 outbreak. Certificate validation is a procedure that has evolved due to various reasons. The critical aspect affecting this process is the expiration of the certificate. Consequently, the COVID-19 pandemic resulted in the closure of a mariner training institution causing chaos in the global maritime academic. As a result of these factors, it is projected that the renewing time for certificates utilised onboard will be extended, and the invalidation rate will increase. The seafarers who participated in the research claimed that they would prioritise crew validation certificates in crew manning processes since they believed the certificate expiration term would be longer than for other seafarers even after COVID-19. Additionally, the candidate indicated that after the COVID-19 pandemic, they would expand the scope of certificate validation in preparation for another disaster. The following are some examples of responses to this question:

C2: "*So, in case your certificates are expiring, just say 31st December or recently, now they are giving an extension and to 31st May, the last one, they gave until 31st May. So that the seafarers that stuck on board due to the COVID and for the crew extension…*"

C3: "*Yes, I've been on board for around nine months and some of my certificates have already expired but we got an extension of three months for our certificates only under*

the marine department. Also, I have another two months left for my certificates which is going to exceed the limit."

C4: "*Basically, before the signing on to the ships or the shipping companies or agencies, they must make sure the crews have validations, if I'm not mistaken, more than six months. So, if, let's say, their certificate or for skipping expired. So, maybe they give extensions for that kind of crew to stay onboard until coming to the next port of call which they can sign-off.*"

C5: "*No, the certification must be renewed on our own. Because some of the certificates need the seafarers to be physically present to attend the training and so on.*"

Seafarers' safety and health is a subcategory of the major topic of changes in the seafarers' sign-on and sign-off process after COVID-19. Safety and health are always top priorities in the crew manning sector, not only during this pandemic. Moreover, safety and health are key to the maritime industry's success. The achievable level of safety and health for seafarers exposed to COVID-19 was determined to be critical in this research. Candidates regularly emphasised the significance of enhancing the practical level of seafarers' safety and health, particularly in light of the COVID-19 pandemic. The majority of candidates expressed opinions similar to this one. The following are some of the candidate's connected responses:

C1: "*We will arrange for the doctor to be on board. If, let's say, a crew wants to sign-off from the vessel. So, what we will do, we will ask the doctor to go on board to check and take the PCR test. Once back to the shore. Then, we will finalise whether he tested negative or positive. And then, that's how we did determine whether they were affected by the COVID-19 virus or not.*"

C2: "*So, you are manually set that you're going to sign-off within that duration, but due to the extension, what to say like, fatigue, plays the main role mental illnesses, and mainly on the OSHA (Occupational Health and Safety). So, your concentration will be, it will start to lose your concentration automatically after your contract period of a certain period. These are the effects of COVID-19 and you can't do anything about that.*"

C3: "*Avoid close contact within six feet for a total of 15 minutes or more over 24 hours with people who are visibly sick and practice physical distancing with co-workers and especially public. I prefer that every crew do a full PCR test before joining the vessel and 14 days of quarantine. It's for onboard crew safety.*"

C4: "*We still maintain our safety for ourselves until there is a final clear cut as a black and white from the government. So, on our side for the shore base, we still maintain our standard procedures for the rest of calls to the port, especially the vessel calls from the high-risk area.*"

The COVID-19 outbreak as a milestone is the final subcategory of the changes that could occur in seafarers' sign-on and sign-off process after COVID-19. After the COVID-19 pandemic, most respondents believe it to be a new norm. Studies in the literature reflect this viewpoint, stating that life will never be the same again due to the impacts of the COVID-19 outbreak. Nepal (2020) noted that the COVID-19 outbreak allowed the crew manning sector to restart. Alternatively, Brouder (2020) stressed that after the COVID-19 outbreak, the crew manning sector should evaluate new terms and conditions. If all relevant circumstances are met, a new hiring technique for the maritime industry can be created. The participating candidates hold ideas consistent with those expressed in the literature. Almost all candidates endorse modifying the sign-on and sign-off procedures for all seafarers after the COVID-19 outbreak. The following are some examples of responses to this question:

C1: "*Apart from this, I will say, we just go on the flow with what is happening with the current situation with the current SOP, and*

we see what we need, we can do improve where we can meet, we improved, and we will improve it there."

C2: "*Now, it's no more like that. They will give you sufficient notice, and there is no rush on normal last minute preparations for anything. They will give you sufficient notice, and you will be mentally ill, mainly for seafaring and mental illnesses, mostly related. So, you'll be mentally ready for that.*"

C3: "*They are stressed because they are unable to manage their life in terms of finance. Therefore, COVID-19 can be taken or considered as a significant stage of development in the crew manning sector.*"

C4: "*So I think for the crew change is a big milestone for their management when they're making a sudden change of the procedures amend. According to the global operation requirements.*"

Thoughts for the Future of Seafarers after COVID-19 Pandemic

The final major category developed from the data collected during the research is "Thoughts for the future of seafarers after the COVID-19 pandemic". Under the final category are subcategories for vessel safety certification and motivational loss. In the maritime industry, certificates certifying the safety of vessels under Safety of Life at Sea (SOLAS) are issued to shipping companies. These documents confirm the maritime industry's adherence to establish standards and provide assurance. Thus, the marine industry is attempting to mend the wounds left by the outbreak globally. The shipping companies strive to adhere to the International Maritime Organization's (IMO) SOLAS rules to ensure a safe voyage to other ports. The candidate's comments make it obvious that this certification of vessel safety in light of current circumstances will help seafarers who begin to sail safely. The following are related responses from candidates:

C3: "*Because some of the management won't feel the need to pay well or offer good benefits, as the company will already have taken so many folks competing for a job. So, need to face high competition to get work offers.*"

According to the applicants' responses, certifications should be granted to shipping companies and seafarers in the crew manning sector. Candidates believe that by doing so, the quality of their occupation will improve. Additionally, candidates regularly emphasised the need not to hire seafarers who do not meet certification requirements. The following are some of the related responses from candidates:

C2: "*It might open a new job scope for those who have navigation officers such as me. I'm doing navigation officer, so it might need some extra certificates, you need to do some extra courses, and you might handle the autonomous vessels because somebody needs to monitor their vessels.*"

Another subcategory of "Thoughts for the future of seafarers after COVID-19 pandemic" is loss of motivation. The COVID-19 pandemic had a mental and financial impact on the candidates. Individuals' mental health is impacted by factors such as lockdowns, business closures, and travel limitations. Additionally, because the outbreak has profoundly affected seafarers' sea contracts, the maritime business worldwide is in disorder and junior cadets remain jobless. According to their responses, this uncertain process exacerbated by the COVID-19 pandemic, impacted seafarers' sign-on and sign-off processes in the crew manning sector. The COVID-19 pandemic deprived the majority of seafarers of their motivation to continue their employment as before. A few further relevant responses are shown below:

C2: "*Before, there was no restriction. You can join anytime you signed off. In case of emergency, there is no quarantine in your arrival countries. And what is happening now, even though you are signing off? You must be in quarantine for 14 days in Malaysia, right?*"

C3: "*They are stressed because they are unable to manage their life in terms of finance. Therefore, COVID-19 can be taken or considered as a significant stage of development in the crew manning sector.*"

Conclusions

This study aimed to identify seafarers' perceptions of the sign-on and sign-off processes in the crew manning sector, as well as any changes that may have occurred in their occupation and crew manning sector after the COVID-19 pandemic. The thematic analysis of the material gathered during the interviews identified three major categories and nine subcategories. The data analysis reveals three major categories: General perceptions after the COVID-19 pandemic, potential changes in seafarer sign-on and sign-off after COVID-19, and thoughts on the future of seafarers after COVID-19. Additionally, each major category has subcategories. General opinions after COVID-19 include subcategories such as optimist and pessimist perspectives. Changes in the crew manning sector after COVID-19 are classified into subcategories such as changes to seafarers' employment contracts, certificate revalidation, seafarers' safety and health, and COVID-19 as a milestone. The final major category, "Thoughts about the future of seafarers after COVID-19" includes subcategories such as vessel safety certification and motivation loss. Since the first study provides seafarers' perspectives on possible changes in seafarers' sign-on and sign-off after the COVID-19 pandemic and because no comparable study exists in the existing literature, these findings are original.

To begin with, the majority of mariners view the future as pessimistic after the COVID-19 outbreak. The primary reason for this pessimistic outlook is that the issue of sign-on and sign-off will not be resolved until the government standardises the rules and regulations affecting pandemic prevention. One could argue that pessimistic viewpoints are affecting seafaring. It can be eradicated only if a viable means of eradicating the outbreak is available. Unemployment, reduced career possibilities, and deteriorating working conditions are the issues that seafarers are concerned about in the future. In contrast to the pessimistic outlook, some seafarers view the future optimistically in the aftermath of the COVID-19 outbreak. Optimistic seafarers feel that after the COVID-19 outbreak, seafarers who truly desire to work in the maritime industry will continue to do so. Thus, the belief that the maritime industry will reclaim its rightful place in society is strong among hopeful seafarers.

Another outcome of the research is that changes in seafarers' sign-on and sign-off procedures may occur after the implementation of COVID-19. According to the responses of seafarers, it is apparent that seafarers wish to alter the process of sign-on and sign-off after the COVID-19 pandemic. Seafarers believe the maritime industry will evolve to produce independently of these systems. Another issue that seafarers must address in the crew manning sector is the post-outbreak process for sea employment contracts. The findings indicate that seafarers' contract processes will be based on safety and health after the outbreak. The seafarers were again reminded of the importance of the COVID-19 outbreak to the marine industry. Each global crisis brings with it certain changes. According to the candidate, the COVID-19 pandemic marks a watershed moment for the maritime industry's transition away from an all-inclusive approach. As indicated by the responses of seafarers, by eliminating the all-inclusive approach, it is possible to make seafarers' sign-on and sign-off processes more sustainable.

The study's conclusions include reflections on the future of mariners after COVID-19. The maritime industry emphasises the importance of seafarers who lack a COVID-19 certificate and are not working in the sector. The candidate's remarks make it obvious that this validation certification will assist in recruiting the team. As indicated by the candidate's responses, the most significant shift in their occupation is a

loss of motivation. The majority of seafarers have claimed that they will have difficulty maintaining their occupation at its current level. On this basis, it can be concluded that COVID-19 has the potential to have a detrimental effect on the employment motivation of seafarers. It is obvious from the testimony of seafarers that the COVID-19 outbreak imposed financial and moral costs on seafarers. According to the candidate's comments, seafarers' sign-on and sign-off will have a favourable effect on the future of the crew manning industry.

Many crises affecting the marine industry occur at a specific time and location and last a specified amount of time. This is not the case with the emergence of COVID-19. Numerous questions remain unanswered. How long will the global COVID-19 outbreak last? COVID-19 will have a greater impact (Rivera, 2020). Additionally, scientists commonly state that after COVID-19, everyday life and work will alter and will no longer be as normal as they were previously. Seafarers signing on and off is also thought to have aided in the rapid spread of the COVID-19 pandemic throughout the world (Nicola *et al*., 2020). As a result, the crew manning sector which is inextricably linked to the maritime industry will also be impacted by this change. This study which attempts to ascertain seafarers' opinions on sign-on and sign-off in the crew manning sector following the COVID-19 epidemic is likely to contribute to the literature.

Due to the qualitative approach of the research and the theme analysis method utilised in this study, it is impossible to generalise the findings. This study has some limitations as a result of its methodology. Due to time constraints, only a restricted number of seafarers were questioned. Within the scope of the investigation, only the mariner's opinions were gathered. More research can be conducted to expand the analysis by including additional groups of seafarers in the crew manning industry. Thus, the findings gained may be more applicable to the literature and seafarers' sign-on and sign-off processes.

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Conflict of Interest Statement

The author have no conflict of interest.

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