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# dissertation final

*by* Hayeong JIN

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**WORLD MARITIME UNIVERSITY**

Malmö, Sweden

**INTERNET BASED MENTAL HEALTH  
INTERVENTION FOR SEAFARERS  
ONBOARD**

By

**HAYEONG JIN**  
**Republic of Korea**

A dissertation submitted to the World Maritime University in partial  
fulfilment of the requirements for the reward of the degree of

**MASTER OF SCIENCE**  
**in**  
**MARITIME AFFAIRS**

**MSEA**

2020

## Declaration

I certify that all the material in this dissertation that is not my own work has been identified, and that no material is included for which a degree has previously been conferred on me.

The contents of this dissertation reflect my own personal views, and are not necessarily endorsed by the University.

(Signature):



(Date):

**22<sup>nd</sup> Sep 2020**

Supervised by: **Dr. Momoko Kitada**

Supervisor's affiliation.....

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## Abstract

Title of Dissertation: **Internet based mental health intervention for seafarers onboard**

Degree: **Master of Science**

Seafarers are considered vulnerable to mental issues. Ship's distinctive characteristic, isolation from family and friend, shift work, lack of sleep, busy turn around, confined living place, and so on, many factors affect seafarers easily struggle with mental problems.

Maritime stake holders, flag states, shipping company, labour union and NGOs are understanding importance of caring seafarer's mental health and many efforts are provided to improve seafarer's mental health.

Research about seafarer's satisfaction of those supports and evaluations are not much carried out. Many organizations provide variety of methods to support seafarers' mental health however, seafarers are not familiar with multiplex supporting of many organizations. Further, seafarers not have many barriers that make reluctant to open mental issues. Stigma of the shipping industry that mental issued seafarers are weak and it cause fear that mental issued seafarer may lose job. Also ship's hierarchy system, generation gap and multinational crew consist also make difficult to seafarers open their mental problem. Therefore, seafarers need additional supports for mental health.

As IT technology developed, ship's connectivity with shore has been improving. Due to increased connectivity with shore, direct intervention to the seafarer onboard by mental experts has been possible. For populations who live in rural area or limited medical access group of people, telehealth methods are developed and used often. Especially after the Covid-19 demand of telemedicine is exponentially increased. Mental health care by the remote intervention through internet is also increased. For the seafarer's mental health, intervention through internet is also provided by several organization and intervention by the mental experts can be an effective method for seafarers onboard suffering severe mental problems. Also seafarer's living and working condition is very unexceptional from normal life on shore. Therefore, experts intervene seafarer's mental issues through internet should understand basic knowledge of seafarers' work and life.

**KEYWORDS:** Mental health, Internet, Telehealth, Seafarer.

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## List of Abbreviations

ASIST	Applied Suicide Intervention Skills Training
CBCI	Commercial Building and Construction Industry
EAP	Employ Assistance Program
FAA	Federal Aviation Administration
GAT	General Awareness Training
ILO	International Labour Organization
IMO	International Maritime Organization
MLC	Maritime Labour Convention
OCD	Obsessive Compulsive Disorder
OSH	Occupational Safety and Health
PSP	Peer Support Program
PTSD	Post Traumatic Stress Disorder
ICT	Information, Communication, and Technology
ICSW	International Committee on Seafarers' Welfare
ITF	International Transportation Federation Union

## Chapter 1 Introduction

### 1.1 Background

Life of the seafarers is always considered tough and uneasy. Working on the ship is a very unique characteristic. Seafarers live far from their family and home for months, even over a year. Working on the ships mostly requires hard physical activity and many seafarers are suffering from lack of sleep that causes serious fatigue (Oldenburg, Baur, & Schlaich, 2010). Confined living environments are also distinctive characteristics from other industry jobs. After embark on ship, most of the time seafarers should stay in the ship and only restricted time are allowed to go out to land. Such working and life style on ships often cause difficulties for many seafarers. Decent working and living condition for seafarers has been an ongoing discussion and various efforts were introduced to improve it. The Maritime Labour Convention (hereafter MLC) established in 2006 is one of the major developments for improving seafarer's life. It is considered the fourth pillar of maritime conventions. MLC, 2006 has improved basic rights of seafarer such as elimination of forced labor, discrimination and enhance right of medical care (Aguda, 2017). Since the implementation of MLC conventions, the life of seafarers has changed in a positive way (Exarchopoulos, Zhang, Pryce-Roberts, & Zhao, 2018). Although MLC, 2006 contributes to the development of seafarer's welfare, it is not explicitly related with seafarer's psychological health (MacLachlan, 2017). Mental health is an important part contributing to a healthy life. Seafarer's unique work environment makes them vulnerable to depression and anxiety (Sau & Bhakta, 2019). On the ship, there are many elements that can cause psychological problems, such as shift work, busy turn around, and threat of piracy. Seafarer's distinctive life styles above mentioned, longing family, hard work and lack of sleep and also moving ships specific characteristics, constant moving motion and noise causes seafarer's psychological unhealthiness (MacLachlan, 2017). Seafarer's mental health should be considered as equally important as other seafarer's welfare issues, such as physical health, salary, shore leave. In spite of none mandatory regulations for caring seafarer's mental health, taking care of psychological matters are dependent on shipping company's voluntary actions. However, by the recent research from Cardiff university, 55 percent of shipping company employers admitted that nothing has been taken for their employee's mental health for 10 years (Sampson & Ellis, 2019). Psychological health is also related to working performance. Eighty percents of accidents on the ships are caused by human error (O'Neil, 2003). Therefore, mental health of seafarer can affect ship's accident. Also, the outcome of mental problem without proper treatment often conclude to suicide. Suicide on the ship should be considered seriously. In 2017, UK P&I Club pronounced suicide is the top reason for the ship's casualty (Hand, 2017). According to the UK P&I Club, 15 percent of death on the ships are caused by suicide (Hand, 2017). More and more shipping industries are understanding the importance of maritime psychology and emerged some

efforts to help seafarer's mental issues. The Rotary Club of Melbourne South's project The Mental Health of Seafarers provides booklet and leaflets that guide for handling ship crews anxiety and depression(Iversen, 2012). Moreover, this project supports mental issues of seafarers with offering psychological counseling. Despite new efforts for helping ship working mental issues, seafarer's perception of mental problems makes it difficult to improve. Seafarer's are reluctant to open their mental issues. Since the job market of seafarer's is highly competitive, workers on ships worry about losing their jobs if they open their problem(Oldenburg et al., 2010) . Mental issues can happen to everyone, no matter how he or she was healthy before. Although many therapies for mental problems are invented and developed, the ship's specific condition makes it difficult to apply. For example, onboard ship's crew could not get counseling from shore experts. However, as more and more IT technology is developed, new technology allows ships to connect with shore more closely. International Maritime Organization(IMO) also considers the use of new IT and named "e-navigation" that leads improvements of ship's safety, security, preventing marine environment and helping seafarers(Wingrove Martyn, 2019). As IMO consider IT are able to reduce the burden of seafarer, remote medical care for seafarers by online can be one of the ways to achieve e-navigation goals. Further adapting IT can potentially improve seafarer's mental issues.

## 1.2 Objective and Research questions

This research will examine current effort for seafarers' mental health improvement and evaluate effectiveness of help to seafarers. Then, further investigate the necessity of additional methods for the seafarers' mental health. Also this research will examine the possibility of methods for improving seafarers' mental health. Since development of IT technology, ships are more readily connected with shore and it makes possible for shore psychological experts to intervene seafarers onboard. Research questions are described as below.

- What kinds of support seafarers are provided for mental health?
- Support and guideline for mental health, are there any difficulties to adopt?
- Additional supports are required?
- Psychological experts' intervention by the internet, how would it be effective?
- Considerations for internet interventions.

## 1.3 Methodology

For this research which deals with sensitive topics, qualitative methods, namely interviews were chosen(Dempsey, Dowling, Larkin, & Murphy, 2016). Research questions for this research can be divided into two groups. First group is questions of mental health supports seafarers receive, any difficulties to access supports, and any needs of additional support. To answer these questions, interviews were conducted with a group of seafarers. This group consisted of 10 different seafarers from different ranks.

To understand the current mental health solutions for seafarers and potentials of telemedicine on board, a group consisting of 6 psychological experts carried out interview. These psychology experts are from different specialties, counselors, psychologists, and psychiatrists.

#### 1.4 Scope of the study

This research is compromised with 5 chapters. Chapter 1 describes background, objective and research questions, methodology and scope of this research.

Chapter 2 of this research is literature review. In this chapter first, investigate other industries efforts for the employees' mental health. Then, examine types of support for mental health in the maritime sector. Last, inspect current internet uses of shipping industry and prospect.

Chapter 3 is findings from interviews with seafarers. Based on analysis of interview response, support of seafarers recived, evaluation of the support and additional support requirements are described

Chapter 4 is findings from interviews with psychological experts. The effectiveness of internet based mental health intervention is discussed. Then considerations require for experts to intervene telehealth and additional suggestion for seafarers' mental health are described.

Then the last section, chapter 5 explains the summary of the research and limitations. Then gives future recommendations.

## Chapter 2 Literature review

### 2.1 Mental health for other industry

The importance of the mental health of employees is growing and a variety of methods for improvement are developing. This is particularly important for safety-critical industries, such as aviation, construction, and fire fighting. Safety-critical industries are defined as industries that cause loss of life, injuries, and severe damage to environments so that safety should be considered the most important factor (Gale & Sherry, 2013). Since these industries' accidents result in victims and serious damage, high mental health conditions of employees are required. This chapter will investigate the efforts of the three industries (i.e., aviation, construction, and fire fighting) with regard to mental health improvement for workers.

#### 2.1.1 Aviation industry

The aviation industry is regarded as a well-established safety prevention system. Regarding the employee's mental health improvement, aviation is considered the best example (Liston et al., 2017). The accident of Germanwings flight 9525 in 2015 shows how critical the crew's mental health is to ensure safety. The accident resulted in 144 passengers casualties and the co-pilot's mental issue was regarded



as direct responsibility for the disaster. Following the Germanwings accident, the aviation industry is more emphasizing the flight crew's mental health and wellbeing.

For the flight crew who are suffering from mental issues, many services are provided to seek help. For example, Peer Support Program (PSP) existed numerous years in Europe, the US, Canada, and other countries. PSP is normally operated by independent foundations that cooperate with airlines to support the pilot's mental issues such as work, personal related stress, and substance abuse. PSP encourages pilots to seek medical and psychological experts themselves and also report concerns of colleagues. Also, the Employee Assistance Program(EAP) provides services for the flight crew's mental health. EAP services are confidential and aviation employees can seek help for any kind of problem including mental issues. The counseling services by the trained experts are available for any time the flight crew needs help. Likewise, for the flight workers who need mental support, 24/7 based hotline services are available.

Also for the pilot to fly, a psychological assessment is required to prove that the pilot is mentally healthy. U.S airline pilots must hold a Federal Aviation Administration(FAA) medical certificate. This certificate includes not only physical examination but also mental health. After the first medical assessment, pilots are required to re-evaluate the certification every 6 to 12months depending on their ages. In case the FAA receives information related to a specific pilot's mental issue, during the medical assessment, further psychological tests are carried out. The pilot experienced incidents are also required for further psychological tests.

#### 2.1.2 MATES – Australia's construction industry

In Australia, the suicide rate of construction workers is higher than the average suicide rate of male adults. According to a research suicide rate of Queensland's Commercial Building and Construction Industry(CBCI), their workers shows 46% higher suicide rate than the one of Australian males in average(Heller, Hawgood, & Leo, 2007). Young people(aged 19 to 24) take their lives two times more than other Australians young males(Heller et al., 2007). In CBCI, the casualty by suicide is 6 times higher than caused by accidents. Considered the main causes of the high rate of suicide are first, excessive workload due to time sensitivity. The construction is a masculine industry, 97 percent of workers are male. The masculine industry often shows bullying culture and also workers are not willing to open their problems(Henry, Dooley, Lester, Tudor-Owen, & Halilovic, 2012). After several types of research that show a high rate of suicide of construction workers, the necessity of help for construction workers is emphasized, and then the MATES organization was established with funding by the Australian government.

The "MATES" program's main intervention for the construction workers to prevent suicide and mental health uses different types of educations. First, the MATES program delivers General Awareness Training(GAT). It is a one-hour presentation about mental health that is mainly related to suicide prevention. After completion of GAT training, workers get a white hardhat sticker that shows they are provided the training. MATES program's second education is Connector training. This training is for volunteer workers who completed GAT training. The training is 4 hours session, about to activate participants' alertness around the risk of suicide and to encourage



colleagues to talk openly around their mental issues and seek help. Also, participants are educated about role descriptions, boundaries, self-care, and the use of other support systems. The Connector training completed workers get green color green stickers. The last MATES program is Applied Suicide Intervention Skills Training(ASIST). This training takes 2 full days, based on practical skills training that enables the person at risk of suicide to feel noticed and the risk of suicide to be discussed openly. The ASIST program often provides caring role employees such as nurses, paramedics, safety representatives, supervisors, or union delegates. Workers who complete the ASIST program get white stickers.

The MATES program started in 2008 and provided over 25,000 workers until 2018. According to a presentation by Professor Graham Martin on the 2nd Annual Mental Health Conference held in Sydney in 2015, after the MATES program, the suicide rate in the Queensland construction industry dropped from 28.9 to 26.7 per 100,000 for 5 year period, 15 fewer suicides even though the suicide rate of Australian adult male is increased(Doran, Adams, Meurk, Wittenhagen, & Heffernan, 2019). Also, the MATES program contributes to an increased likelihood of help-seeking and knowledge about suicide and suicide prevention.

### 2.1.3 Firefighter

Firefighters face many distressing incidents not only fire but also, suicide, abuse, shootings, and car accidents. These accidents often cause a traumatic experience for firefighters (Farnsworth & Sewell, 2011). Also, in the culture of firefighters, most of the workers try to ignore their mental issues. High possibility of experiencing traumatic situations and inclination not to admit the mental problems, resulting in many firefighters suffered from Post-Traumatic Stress Disorder(PTSD), anxiety, and suicidal thoughts. According to a research, in 2017 US, 103 firefighters died as the result of suicide but 93 died on duty works(Heyman, Dill, & Douglas, 2018). To prevent the suicide of firefighters and improve mental health, a variety of efforts are carrying out.

For example, departments in the US like Houston Fire hire psychologists to support mental health. The role of the psychologist is first to respond to firefighter's mental issues. They meet firefighters when they need psychological supports. Also, organizations such as the Firefighter Behavioral Health Alliance and Code Green Campaign, they provide workshops to increase mental health awareness. These organizations effort to educate about suicide prevention and promoting resources available for mental issues. Further, another purpose of the workshop is to eliminate the stigma of firefighter's culture about mental issues. The International Association of Fire Fighters is a labor union established in 1918. This labor union provides different types of program, support mental health and well-being, training for build-up resilience, and treat mental disorders such as addiction, PTSD, and other co-occurring disorders.

## 2.2 Mental health for shipping

Seafarers are regarded as vulnerable groups to mental issues. More and more importance of seafarer's mental health is emphasized. In this chapter different

efforts for seafarers' mental health improvement, maritime convention, states, and organizations, and shipping companies are described.

#### 2.2.1 Convention and regulation for seafarer's mental issues

Occupational Safety and Health(OSH) is defined as "anticipation, recognition, evaluation, and control of hazards arising in or from the workplace that could impair the health and well-being of workers, taking into account the possible impact on the surrounding communities and the general environment."(Kumar, Goud, & Joseph, 2014). For the OSH of all kinds of workers, the International Labour Organization(ILO) was established. ILO also works for seafarers' decent working conditions and their OSH. In 2006 ILO established Maritime Labor Convention 2006 to achieve and improve seafarers' rights in the workplace. According to the definition of Health by the WHO, not only physical state also mental and social well-being should be considered(Callahan, 1973). Therefore, regulations related to seafarers' health on the MLC, mental health also should be considered.

Living conditions are an important factor that affects a worker's mental health. Regulation 3.1 of MLC is about accommodation and recreational facilities. This regulation is required to provide decent living conditions for seafarers such as the size of room & accommodation space, heating and ventilation, noise, vibration, sanitary facilities, lighting, and hospital arrangement on the ship. The other regulation directly related to mental health is regulation 4.4, access to shore-based welfare facilities. This regulation requires member states to allow seafarers to access their shore facilities and develop cultural, recreational, and informational services. The guidelines of this regulation recommend providing recreational materials such as films, books, newspapers, and sports equipment. Furthermore, providing personal counseling as a port service is encouraged.

Other maritime convention that regards seafarers' OSH is International Safety Management(ISM) Code. ISM code provides an international standard for safety and pollution prevention. The purpose of this convention is to promote a form of self-regulation so that make ship managers get more responsibility to ensure OSH efficiently(Bhattacharya, 2009).

#### 2.2.2 Efforts of flag state and other organizations

To improve seafarers' mental health and well-being many organizations, flag states, labor unions, shipping company associations, among others carry a variety of projects. In this chapter, three organizations work Korea states, International Transportation Union(ITF), and The mission to seafarers.

##### 2.2.2.1 Korean Ministry of Oceans and Fisheries

According to the 2020 Korean Seafarer's Statistical Year Book, 34,123 Koreans work as seafarers (Korean Seafarer's Welfare & Employment Center, 2020). For Korean seafarers, the ministry offers several projects to support health and well-being. In 2015, the ministry launched a project of Ocean remote medical treatment. The project is cooperating with the hospital of Pusan national university. Through satellite video calls, provide seafarers with a diagnosis of disease, prescription, and

guide for emergency accidents. In the ship, using medical equipment, seafarers measure biological information such as blood pressure, blood sugar, urine test, electrocardiogram, and so on. This information is sent to the shore hospital center, analyzed then feedback to the ship. The project also provides medical support to seafarers. The first year of the project started with 6 ships and increased the number of ships each year. 60 ships participated in 2018, now 100 ships are participating in remote medical projects.

For the seafarers' mental health improvement, the ministry operates Seafarer's mental health center. In the center, full-time hired psychologists wait for help to seafarers' mental health. The center provides tests and counseling services to any seafarers requested. For the seafarers who can not visit the center especially seafarers onboard, provide text counseling services via a chat application. Also, educations about managing work-related stress, awareness of mental problems are provided to seafarers.

#### **2.2.2.2 The International Transport Workers' Federation**

The International Transport Workers' Federation (ITF) represents 700 unions, 18 million transport workers from 147 countries, working for trade union and human rights. Shipping is a major transport industry and ITF has been helping seafarers since 1896. Their activities for seafarers are a variety of range and mental health-related activities are also included.

ITF supports their union members to develop seafarers' mental health intervention program. For example, the Indian seafarers' unions provide online counseling services for Indian seafarers. Seafarers anytime, 24/7 when they need help, they can touch the counselor via video call, voice call, and chat messenger. The counselors are psychological experts and also trained about seafarers' characteristics.

ITF developed a mobile application for union workers' health and wellbeing. Basic information about diseases like HIV, Zika virus, Malaria, and so on are provided and guide to manage and treatment methods. Mental health is also included. Users who need more help can reach ITF workers through application and they can get more detailed help.

Also, ITF makes many campaigns to increase awareness of seafarers' mental health, encourage them to ask help and guide to reach get support. Further, made a booklet for seafarers that they can easily use on the ship, information about psychological symptoms, and management onboard.

#### **2.2.2.3 The mission to seafarers**

The mission to seafarers is a port-based welfare organization. This organization works around 200 ports in 50 different countries. To support seafarer well-being, especially mental health, workers of this organization visit ships in the ports. Visitors are trained professionally in mental care and post-traumatic experience counseling. All seafarers regardless of their nationality, gender, and religion, can reach the organization and ask help. In 2018, the mission to seafarers visited 70,660 ships over the world port and encountered 353,000 seafarers. Not only visiting ship, as they are the port-based organization so they also operate seafarer's center that

providing welfare facilities and provide Simcard, wifi to connect seafarer to their family. Also, provide seafarers transportation service in the port.

Since 2015, this organization launched the seafarers' happiness index report. This index shows the thoughts and feelings of seafarers all over the world. They conducted questionnaires related to general moods. The collected data analyzed and published every quarter. By comparing each report, the seafarer's happiness index is used to evaluate seafarers' average mental health and also used by other organizations to intervene in seafarer's mental health.

## 2.3 Internet on ships and E-navigation

### 2.3.1 Connectivity of the Ship

On the shore, people are possible to be connected with others all the time through mobile devices. However, unlike life on the shore, seafarers are limited to connect with their family and friends. Connectivity is more and more becoming an important factor for human life. In 2017, the UK's Department for Digital, Culture, Media & Sport declared internet access is a 'legal right' like water and electricity(UK Policy paper, 2017). The MLC, 2006 also recommends ship operators provide crews to have reasonable crew communication service.

For the seafarer's communication service, 4 different methods are representatively used. First ships are providing internet access for the crew to use. By using satellites such as VSAT, two-way satellite communication technology, seafarers can access the internet on the ship. Second, the crew onboard can use a satellite phone call to communicate with people on shore. And seafarers can use email as a communication way. Lastly, some ship operators provide onboard SMS messages to seafarers.

According to a survey conducted by Futureonautics(2018), 61 percent of seafarers can access any type of communication services either almost or most of the time. By the response, the internet is the most accessible service crew can use and then the satellite phone call, Email, and SMS messages in order. Based on the survey 520,000 seafarers can use the internet onboard, 20,000 can access free of charge. However, using the internet and satellite call many ships causes seafarer costs. In the case of free provide, Email is the most common communication method.

### 2.3.2 Prospect internet access on the ship

Historically, ships' communication is regarded as an important technology to call alert signals in case of an accident that need help. After several maritime disasters, from Titanic in 1912 to Costa Concordia in 2012, maritime conventions require ships to establish a mandated way of communication methods like GMDSS. Nowadays communication of the ship to shore becomes an important factor as not only for the emergency but also for the well-being of seafarers. Several surveys show that internet access on the ship is a major factor for seafarers to choose a company to work and seafarers consider moving other companies to get better quality of internet

access(Connectivity, 2018; Nautilus, 2017). Ship operators always try to secure well-qualified seafarers, therefore more and more companies should consider providing internet services.

Regarding the rate of internet access available for seafarers in recent years a million seafarers can use the internet now. However, still over a million seafarers can not use the internet, and 40 percent of total seafarers do not be provided any communication service onboard.(Connectivity, 2018) One of the main reasons that hinder the company to establish internet services to its employees is cost. According to a survey by Nautilus(2017), 83 percent of the company which does not provide internet services to their employee, responded additional expenses as a reason. However, internet technology is a fast developing area and also for the use of ships. And recent developments allow lower cost to use the internet services of ships. The cost of satellite communication is 0.3 percent of the ship's total operation cost. Due to continuous development, the cost keeps decreasing.

Under the 4th industrial revolution, industries are developing in automation and data exchange technology. Internet of Things(IoT), a technology that connects and exchange data with other devices and system over the internet accelerate the change of industries. The maritime industry is also experiencing this change. To adopt rapid technological change, IMO developed a strategy, e-navigation. E-navigation is defined as "the harmonized collection, integration, exchange, presentation and analysis of marine information on board and ashore by electronic means to enhance berth to berth navigation and related services for safety and security at sea and protection of the marine environment"(MSC, 2008). To achieve the goal of e-navigation, the strategy is dependent on the technology of the internet (Wang & Peng, 2015).

Providing decent living conditions for seafarers is more and more becoming emphasized. And the development of ship internet technology allows lower cost for ship operators. Furthermore, safe navigation by the IT technology, e-navigation requires the enlargement of communication between ship to ship or shore. Considering these factors, the use of the ship's internet will be increasing.

Supports for the seafarers mental health is providing through many different organization such as states, labour union, and NGOs. However, research about use of these services by seafarers and their satisfaction is not widely known.

Telehealth is commonly used for rural area that restricted access for medical help. Due to the Covid-19, telehealth become more common things. Mental health care also used with telehealth, and recently Canadian government invest fund to provide free telemental health care. Many researches about effectiveness of telemental health are conducted. Several form of telemental health services for the seafarers are providing however, study of seafarer's telemental health service is not actively carried out.



## Chapter 3 Mental health issues of seafarers

As mentioned in the previous introduction chapter, MLC, 2006 or other international maritime conventions do not impose mandatory provisions on seafarer's mental health. Therefore, the support for seafarer's mental health is provided by shipping company's voluntary effort or other organizations that work for seafarer's rights and benefit. Internationally more and more seafarer's mental health is emphasized and efforts for improvement of mental health onboard are increasing. However, still this kind of effort does not seem to be sufficient and this chapter presents several key challenges associated with this issue.

### 3.1 Mental health support from company or other organization

Support of seafarer's mental issues by the shipping company is totally voluntary. Thus, the ways of support create a great variation in each company's policy. In addition to a different level of support by companies, quite a few companies still do not spend any efforts for their employees' mental health. From the interviews with seafarers, 8 out of 10 responded that their company does not have a policy for mental health nor provide any support. An interviewee who responded company provided mental health related policy explained support he received for mental health as "No violence and insulting onboard", "Encourage to shore leave" and supply movie and TV series onboard. Only one interviewee responded that the company provided a manual for mental health onboard. Most of the companies have a policy for reporting the seafarer's dissatisfaction onboard. Many interviewees regard this policy is related to mental health. Also three interviewees responded they were provided guidelines about the conflict with colleagues onboard. However, 8 out of 10 interviewed seafarers did not receive any guidelines about prevention of stress that could happen onboard or treatment methods in case of mental issues onboard.

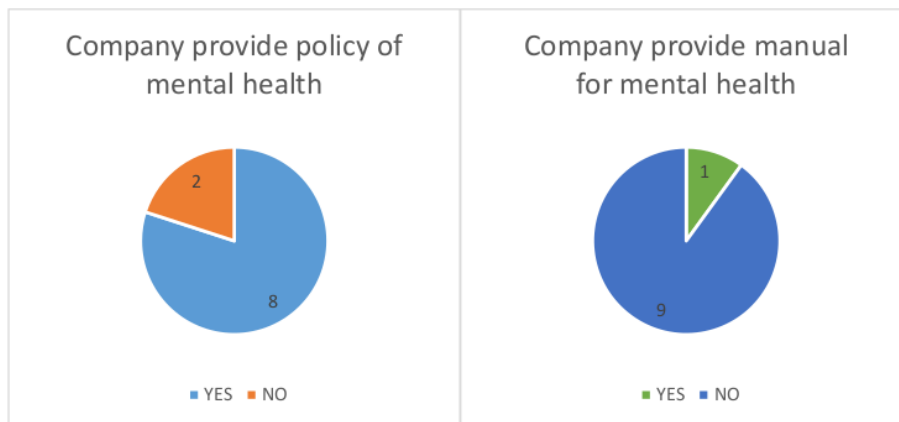


Fig1.

Fig2.

#### Mental health support from external organizations

Seafarers are not familiar with the help of external organization support for mental health. The previous literature review chapter shows many organization's variety of support for seafarers' mental health. However, this organization's effort seems not well promoted. Five interviewees responded they did not hear of an external organization that helps mental issues for the seafarers. The other five respondents know about external organizations that work for improvement of seafarers' mental health but three out of 5 respondents do not know what kind of service they provide.

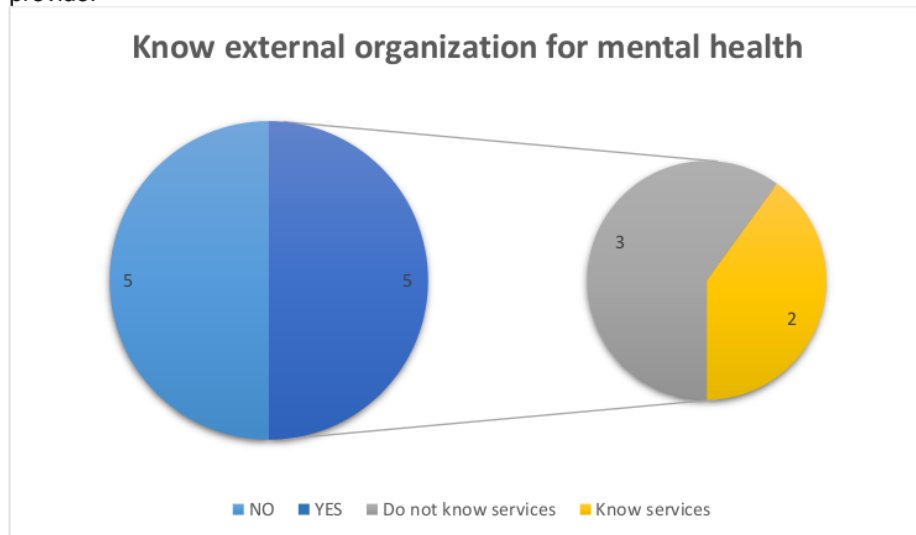


Fig.3

Seafarers are provided guidelines for mental health from a variety of sources. These guidelines include ways of reducing stress onboard. However, the

effectiveness of these guidelines is questionable. One of the interviewees is provided guidelines from the company to handle mental issues onboard. But the interviewee explained none of the crew onboard read the guideline and try to implement their life while onboard ships. Also other interviewees expressed the guidelines provided was not helpful to improve mental health.

"I can not remember detaily. The guideline introduced several ways to handle stress onboard... It was like 'Do not get stressed as much as you can'. I did not think it was helpful and also practical... So when I got the guideline, I thought it was nonsense information." (Seafarer [No.6])

### 3.2 Barriers of reporting mental issues to the company

As most of the time the ship is remote from the shore, when seafarers have individual problems only limited help is available onboard. Also modern ships have less time to stay at port. This tendency reduces more support from shore. Therefore, when seafarers have a serious health problem, including mental health issues, it is not easy to solve on the ship. The case of mental issues of seafarers, if it is not a severe problem it can be settled onboard. However, in a serious situation shore aids are required. Unlike the physical problem of seafarers onboard, it seems that there is a barrier to report mental issues to the company. Eight out of 10 seafarer interviewee responded it is difficult to report mental issues to company.

Male dominant industry workers are more reluctant to open their mental issues than other industry employees. Mental weakness is connotated as feminine which often conflict against the cultural norm projected by the maritime industry(Kitada, 2013). This type of industry has a stigma and discrimination to the workers who are suffering by mental problems(Page et al., 2013). Shipping is a representative male dominant industry. According to IMO statistics, 98 percent of seafarers are male(IMO, 2019). Thus, among the seafarers also stigma that 'mental issued seafarers are weak person' is prevail. An interviewee explained this kind of stigma makes it difficult to inform others about mental issues. Furthermore, in the male dominant industry, discrimination for example, employment issues exist(Page et al., 2013). Shipping is also not free from this kind of discrimination. All of the seafarers interviewed for this research responded that there is a disadvantage for the seafarers to report their mental problem to the company. Contract worker seafarers responded mental issue will affect re-employment.

"If a seafarer suffers serious depression then company would recommend medical treatment. Then medical record will remain, company would not prefer re-employment mental problem experienced seafarer. Because ship is isolated place, so company seems to think it is dangerous." (Seafarer [2])

Even an experience of an interviewee shows possibility of mental issue stigma seafarers not only have a difficult to re-employed but also difficult to find a seafaring job in the industry.



"That seafarer expressed unfair treatment of the company and even claimed a suit... After that he could not work on the ship anymore. Since the rumor about him was spreaded to all of the shipping companies, he could not find other companies too... Shipping companies' offices are located in the same place also they established their own community, so private information of the seafarer passes very quickly and easily." (Seafarer [8])

Full-time seafarers responded that they will not lose their job if they inform their mental issues to the company. However, also they mentioned possibility of disadvantage of assigning the ships. The information of mental problem experienced crew spread to seafarers working in the same company, and then some ship's crew may resist working together. Furthermore, interviewees mentioned that mental issued seafarers would get disadvantage for promotion.

The system of reporting to the company also hinders informing of onboard seafarers their mental issues. Most of the ships have a procedure of informing the seafarer's individual problem to the company. The procedure of reporting to a company is different from each company's policy. However, most seafarers in the sample (n=7) stated that they should inform their own problem to the designated person onboard. The ship's designated person to liaise with the company is mainly the master of the ship. The master is responsible for almost every situation that happens onboard. Management onboard crew is also a master's important responsibility. If a seafarer onboard has mental issues, it can be regarded as the master's managing skill is improper and further, it may affect the reputation of the master's capability. Thus, some masters may not be willing to report their managing crew's mental problems. An interviewees showed his experience about master's reporting to the company.

"I think reporting crew's mental issues are difficult. Basically reporting should be done through the captain. But the captain is not willing to report to the company and settle the issues within the ship. My company has a policy about dissatisfaction. This procedure must report to the captain then report to the company. However, captains do not report to the company... The problem onboard is responsible for the captain. Therefore, captains do not want to be involved in the issues, so they prefer to settle within the ship." (Seafarer [1])

### 3.3 Barriers of talk with colleagues about mental issues

As explained in the previous literature review part, there are many kinds of guidelines to improve seafarers' mental health. Each guideline includes different contents, however, most of the guidelines commonly emphasized talking with other colleagues onboard. Despite the fact that talking with colleagues is one of the most important way to settle mentally-illed seafarers, there are barriers that make it difficult for seafarers to open their mental issues to other colleagues.

#### 3.3.1 Hierarchy system of the ship

Ships are compromised as a strict hierarchy system. The hierarchy system is differ by ships, but mostly the master is regarded as the top manager position of the ship then officers and engineers are divided three to four levels. The ratings are regarded as subordinate to officers and engineers, also rating crew divided three to four different levels. Most of the interview respondents (n=9) said they do not have difficulty opening their mental issues to the same hierarchy level colleague. The distinctive modern ship's characteristic, reduced number of crew onboard, result in less number of same hierarchy level colleagues on a ship. Nowadays the number of crew on a merchant ship is twenty and seafarers can meet one or two same hierarchical level colleagues onboard. Therefore, on the ship, seafarers mostly interact with advanced or subordinate colleagues.

The hierarchy system of the ship brings hurdles for seafarers to talk freely across the hierarchal order of crew structure on board. First, to senior colleagues, seafarers feel it is difficult to talk about their mental issues. Seafarers tended to consider senior colleagues as an uncomfortable person. Nine out of 10 interviewees responded that reporting about mental issues to the advanced colleagues is difficult.

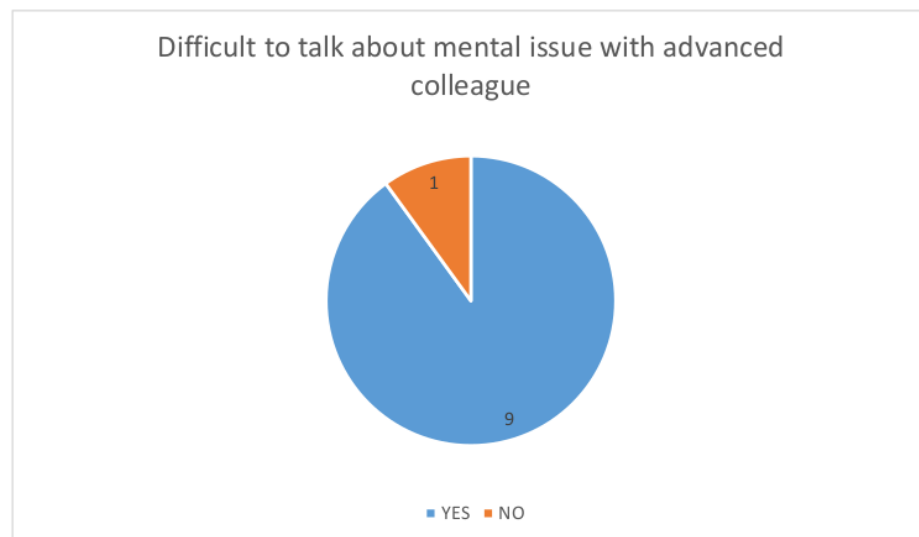


Fig.4

Several interviewees mentioned especially informing the captain is more difficult. They referred to the culture of the ship, role of the senior crew, discipline to subordinate, and the anticipation that senior colleagues would not feel the same way as they do.

Furthermore, seafarers are evaluated by their senior officers. It is different by each shipping company's own policy, however, commonly captain and chief engineer evaluate their crews onboard. This evaluation can affect seafarer's future employment and promotion. As the previous chapter mentioned, stigma to the seafarer who have mental issues may affect bad evaluation. Some interviewees

responded they think opening their mental issues to the captain, chief engineer, and senior officers would be difficult. Since they evaluate on job performance, interviewees wanted to be seen as psychologically healthy seafarers to their senior officers. In addition, an interviewee mentioned the possibility of managerial level on ship, captain and chief engineer, are responsible for reporting to the company. As previous chapter 3.2 showed seafarer's worries in case of their mental problem is reported to and known by the company. The managerial level of the ship is obliged to report the ship's status to the company. This makes seafarers more difficult to speak about their mental issues to their senior officers.

On the other hand, seafarers have difficulties to open their mental issues to their junior colleagues. In the hierarchy structure on the ship, seafarers seem that there is a perception that they should not show their weakness to their subordinate colleagues. Interviewees who responded that there are some difficulties to talk about their mental issues to their subordinates, explained its reasons as cultural. They are not willing to open to subordinates. Also for the seafarers they consider mental issues can affect the hierarchy structure. One seafarer responded that he experienced the loss of respect after talking about his mental issues to his junior colleagues.

"I used to talk with subordinated crew a lot onboard. So I talked to them about my mental issues many times. Some of them thought it was the meaning of close relationships but to the others, I lost majesty to them. This effect hierarchy structure of ship in bad ways and I think it may cause other mental problems." (Seafarer [10])

### 3.3.2 Worries to become a rumor

Above mentioned, mental issued seafarers are stigmatized as unfit to work on the ship. In the shipping sector, seafarer's mental issues are in many cases considered as weakness. Mental issues are sensitive information for workers. Therefore, it is reasonable that seafarers often do not want to open for everyone. Even if a person talks to their closest colleague on a ship, it can become a rumor that spread to the entire ship. This kind of rumor can make a bad impression about the seafarer. It can cause other issues that worsen his/her mental health. Also as previous chapter shows, reporting to the company may bring the disadvantage to a seafarer's career. Information that is delivered to a colleague on board also can be delivered to the shore company. Stigmatized as being a vulnerable mentally-illed person can affect someone's career. The below interviewee's response shows his concerns of being a stigmatized person.

"If we have a colleague who can share all sensitive and confidential information then it would be easier, If not it can cause a lot of rumors in a ship and further company can know about it. Thus, before talking about my own problem to colleagues I took a long time to contemplate." (Seafarer [7])

### 3.3.3 Generation gap

Generally, working ages keep expanding. This makes all industry worker's age gaps wider. Different age groups in a workplace contribute to the generation gap in a company. Generation gaps make it difficult to interact between workers. Shipping industry is not an exception to this generation gap tendency. According to a Korean seafarer and ship statistics(2020), 36 percent of seafarers are over age 60. Seafarers who first work on the ship normally are in their early twenties. Also as characteristic of life on a ship, seafarers usually work and live in the same place with limited persons. Therefore, for the seafarers they may meet many situations that are related to a generation gap. It may impact interaction between colleagues badly.

Age	Total	Under 25	25~29	30~39	40~49	50~59	Over 60
Total seafarers	34,751	1,201	2,566	3,131	4,640	10,380	12,833
Officer & Engineer	21,643	1,118	2,413	2,338	2,503	5,572	7,699
Rating	13,108	83	153	793	2,137	4,808	5,134

Table 1. Number of Korean seafarers (source: 2020 Korean seafarers and ship statistics in the second quarter of 2020)

This generation gap makes seafarers more difficult to talk about mental issues. Compared with past shipping, many things are changed now. Mental health perception has also changed a lot as time passed. Considering seafarer's mental health is a relatively recent movement in the shipping sector. An interviewee responded that senior seafarers do not think mental issues as a serious problem. Furthermore, young seafarers aged 18 to 35 are more vulnerable to depression(Slišković, 2017). Thus in case young seafarers who want to talk about mental issues to their senior colleagues, they might not be properly supported. An interviewee responded he is reluctant to talk about mental issues to the senior seafarers.

"Young seafarers just talk about their difficulties onboard. However, veteran seafarers would compare it with past experience and consider it minor issues. Therefore, young seafarers would feel a wall that even if they talk they will not understand." (Seafarer [4])

Also this generation gap potentially makes senior seafarers difficult to talk to younger seafarers. As a result, older seafarers may find it difficult to understand younger seafarer's thoughts and their lifestyle. An interviewee mentioned that younger seafarers tend to get old and experienced seafarers' advice as another source of stress. Therefore, it makes senior seafarers less talk to younger crew.

### 3.3.4 Multinational crew

One of the characteristics of modern merchant ships is multinational crews. Approximately 65 percent of the world's merchant ships are comprised with multi nationalities(Tasiran, 2002). Most of the ship's working language is english. For the efficient work on the ship, seafarers are required to get proper capacity of english



communication. However, ships with multi nationalities often observed conversation difficulties and it caused isolation of seafarers(Sampson & Thomas, 2003).

All of the interviewees for this research have an experience work on the multi-national crewed ship. They responded when they work with foreigner colleagues have difficulties in conversation with them. First, they explained language difference. For the working, most of them does not have difficulties to communicate. However, most of them said talking private stories, both interviewees and their foreign colleagues English capacity was not enough. Further, interviewees mentioned difference of culture and religion. These language and cultural differences make seafarers difficult to talk about their mental issues to foreigner colleagues. In addition, talking to a foreigner colleague would not reduce mental stress as much as talking with native colleagues. An interviewees said his experience talking with foreigner colleagues.

"When I was a third engineer, only I and the chief engineer were Korean and all other crews were from the Philippines. That period I felt lonely a lot. The culture was different. We were close, but even if we stayed together, I felt lonely. At that time, I had my home problem and there's no internet so I talked with Phillipino crews. Of course I received comfort from them, but because of barriers of language and culture, the comfort did not really touch me." (Seafarer [6])

### 3.4 Necessity of additional measure

As the above chapter shows seafarers do not get support for mental health or regard the support is not properly helpful. Also stigma to the mentally-illed seafarers make them more reluctant to open to the company. Many barriers above mentioned make seafarers reluctant to talk about their mental issues to their colleagues onboard. From the interviewees this research shows ship's structure that tends to make seafarers hesitant. Furthermore, the ship's working system and environment restrict not only talking about mental issues, also general interacting times onboard. Especially interviewees who work on the deck part said that since they work 3 shift watches and most of watch time work alone, they have only limited time to talk with their colleagues.

Personal electronic devices change seafarer's break time. All of the interviewees responded they prefer to spend break time watching movies or TV series in their room. Two seafarers mentioned that more and more ships are changing as they spend break time alone rather than interact with others.

Due to the development of Information, Communication, and Technology (ICT), more and more seafarers are able to contact family or friends though the internet connection is not always available on board. Many mental health guidelines suggest talking about their worries to the family or friends. However, talking to their close persons about mental problems is also challenging. First, seafaring is an exceptional job. Most of the people do not understand the life of seafarers so that makes it difficult to deliver their difficulties properly. Also seafarers would not be willing to make their family worry. On the other hand, the development of ICT brings another stress to the seafarer. Basically through the internet on the ship seafarers can connect with family and friends and it gives huge comfort. However, it may potentially make seafarers feel more isolated as an opposite effect(Nightingale,

2020). An interviewees explained concerns that can happen on the ship by contacting their family.

"In case we talk to family about problems on the ship, as a side effect, there were several cases where the family overly interpreted the situation and did not investigate more, they report to police or external organizations directly." (Seafarer [4])

Thus, some seafarers, who need help for mental issues, cannot contact anyone, company, colleagues, and even family. All the seafarers who interviewed for this research responded that they think additional support for the mental issues are required.

## Chapter 4 Intervention by experts

As the previous section (3) shows, additional support for the seafarers' mental health is required. For the improvement of seafarers' mental health, this section discusses how interventions by the experts, including psychologists and counselors, would be helpful.

The guideline for seafarers' mental health published by International Committee on Seafarers' Welfare (ICSW) explains that seafarers who are suffering from severe psychotic mental problems or chronic stress should be helped by professional psychologists (ICSW, 2016). Also the guideline recommends that counselling for the seafarers with stress and anxiety onboard can be helpful. The literature review chapter showed other industries' efforts for employees' mental health. These industry efforts are often combined with psychology.

The shipping sector also has various types of support for seafarer's mental issues, however interviewees for this research are not familiar with those supports and even felt it is useless. Also the number of psychologists available in the maritime sector is generally smaller than other sectors. The psychologist Bengt Scharger known as an expert for the maritime sector argued that compared with the aviation and space sector, psychologists employed in the maritime industry are less ([www.profilschager.com](http://www.profilschager.com)). Therefore, to improve the seafarers' mental health more efforts with psychologists in the maritime sector is required.

Counselling by mental experts can be considered as one of the most effective interventions. All the experts interviewed for this research responded that intervention of the external help can be helpful for seafarers' mental health. Firstly, interventions can prevent the emergency situation of seafarers caused by mental problems. Suicide is reported as the main reason of casualties on ships. Through interventions by the experts, seafarer's mental crisis situations can be relieved. An interviewee explained how mental experts help seafarers suffering from mental problems.

"Mental problems would be depression, anxiety, and addiction; these are mainly occurring mental issues. In addition, trauma can be occurred... On shore there are hotlines for 24/7 so that in case of urgent situations they can reach them. By chatting with experts, depression, desire of suicide can be relieved. Chatting with

experts itself can reduce psychological crises in emergency cases. Therefore, to the mental issued seafarers, provide therapeutic approaches.” (Expert [1])

Not only reduce emergency cases on ship, interventions also can reduce accidents on ship. In the study of industrial psychology, mental ability is a personal factor that causes accidents. Many studies show a relationship of mental ability and accidents(Blank, Diderichsen, & Andersson, 1996; Xue & Fu, 2018). A psychologist interviewed for this research mentioned that seafarers' mental health affects safety accidents on the ships. Also many studies prove that mental health of the worker is important factor of efficiency of the work (Meijman, 1997; Singh, Tiwari, & Singh, 2010). An interviewee responded that seafarers' possibility of burnout and possible result.

“Longer time working on a ship may cause seafarers burnout, status that has none of psychological energy. The purpose of vacation is to prevent burnout. However, if seafarers work onboard almost a year, there is no concept of vacation and repeat of daily work then no matter how much education for efficiency of working performance is done, the efficiency would be decreased.”(Expert [1])

Accidents of the ships result in high cost for damage. In many cases, marine accidents result in lost of life and damage to the environment. According to many statistics (O'Neil, 2003), accidents of the ship are caused by human error. Therefore, improvement of the mental health for seafarers can prevent accidents on ships. Expert's intervention would be helpful to improve mental health of seafarers as well as preventing accidents.

#### 4.1 Intervention with internet communication

Historically ships have been considered disconnected with the shore. Therefore, seafarers are usually able to access services only when ships are in ports or after signoff. An interviewee warned that waiting seafarers come to shore and do a counselling would be too late. However, through internet technology development more and more ships are connected to shore. This technology makes possible mental experts directly engage with seafarers onboard.

##### 4.1.1 Intervention with video conferencing

The effectiveness of intervention through video conferencing would be substantial. All of the interviewees responded that video conferencing counselling was useful. An expert interviewee mentioned video conferencing counselling is beneficial but still challenging compare with counselling in a same place. On the other hand, other experts responded that virtual counselling can produce the same effectiveness as normal counselling.

“I think video conferencing is very effective. For example, the Zoom application, it is the best way. Specially, mental health, counselling does not require physical



contact. Doctor and nurse need physical contact. Counselling is carried out via conversation. So video conferencing counselling and counselling in the same place are almost the same.”(Experts [2])

Even some research (Hilty et al., 2013) shows that considering specific conditions, such as interaction, direction of the technology, psychological and physical gap, and reliability of family, some populations may be more effective to use telepsychiatry.

After the pandemic of Covid-19, the demand for counselling by the video conferencing has increased (Webster, 2020). Virtual counselling is becoming a more and more common way of therapy in general public. An interviewee who works for counselling service through video conference, explained the benefit by the virtual works.

“Some people(experts) are having a hard time. They prefer to be in-person. But what they found is that video is not only convenient. So they don't have to travel. If someone struggle Obsessive-compulsive disorder(OCD) and there's no one in community or locally that knows much about OCD then they connect with me and I can provide treatment same way I would in person. Also research that talks about how video conference reduce increased longibility potential. Because there's a screen between you and me although we can see each other and hear each other there is sense of safety. Because there is physical distance we are more likely share things that would not share quickly in session. So you can see on the internet people in comment intense accusations that bold statements are kind like 'trolls' on social media. People in person would not say another person's face. Because they have anonymity and physically protecting them and they can be brazen with their opinions and more critical as well.” (Expert [4])

Like this, video conferencing counselling have almost the same effect as in-person therapy. Also the physical distance can help more easily open to experts. Those seafarers who are suffering severely from mental problems need to help by experts. However, direct interventions by the experts to a seafarer onboard take time, only available when ships are in port or seafarers are repatriated to their home. Even though ships are in port, not all the ports are available for mental service by the experts. Therefore, considering the limitations of ship's environment in general, video conferencing experts' intervention of the mental issue for the seafarer would be greatly helpful.

#### 4.1.2 Intervention by voice call or text message.

To help seafarers who are suffering mental issues, experts' intervention with face to face would be an effective way to support. However, to use video conferencing counselling, secured internet speed and equipment are required. For the effective telehealth service, a minimum speed 384 kilobits per sec is suggested(Burke & Hall, 2015). However, not all the ship's internet speed is fast enough to use video conferencing. Although ship's internet through saterlite can reach required internet speed for video conferencing, still some reasons, saterlite cannot cover or provide unstable internet connection(Ho et al., 2018). According to a survey, only 6 percent of seafarers can access internet that can use video conferencing(Nautilus, 2017).

Also, numerous factors can interrupt fluent internet connection such as specific region speed of internet is too slow or even disconnected. Compared with video conferencing technology, voice only call and text message are more easily accessible and less disturbed for fluent connection. Counselling by the voice only call and text message are included in the cyber counselling (Barak & Grohol, 2011). Therefore, to support seafarers' mental well-being, voice call and text message also can be used.

With regard to the effectiveness of voice call and text message to use for mental health intervention tools, all of the interviewee responded that it is helpful. Commonly experts mentioned that for live intervention, video conferencing is the best and voice call is the second effective method, then text messages. To improve the seafarer's mental health, it is essential to find more effective methods in order to intervene seafarers' health risks. In addition, providing any support to seafarers that they can use freely is also important. A psychiatrist interviewed for this research explained the importance of available support.

"Talk with someone is helpful. Also the feeling that I can get support is helpful. There is no one to talk to, and nothing that I can ask for help, these are the most dangerous." (Expert [2])

Providing any type of support and providing nothing is a big difference. Also for mental health interventions, expressing their emotion itself can be helpful. Through voice calls, we can deliver our emotion such as the urgency of our voice. Text messages are a very common way of communication nowadays. Young people get used to communicating by texting with others. The use of emoticons on text messages make it possible to express emotion more easily (Barak & Grohol, 2011). Thus, counselling support through text message can be a powerful tool to improve mental health for especially young seafarers.

Also a variety of available options can be a benefit for seafarers. A psychologist interviewed for this research explained that people have different preferences of communication methods. And the preference of communication methods can be different in a situation. Sometimes people prefer to chat with someone online without voice conversation and sometimes want to video call. Therefore providing a variety of options to seafarers can be more effective to improve mental health issues.

#### 4.1.3 Asynchronous intervention.

Video conferencing, Voice call and even text message is real time interaction. Real time interaction is commonly used for psychological therapy however, asynchronous therapy is also regarded as effective therapy. Many studies show the effectiveness of asynchronous therapy for mental health. Compared with real-time intervention, asynchronous has its own benefit, low cost and required infra, so that is more available for wider populations (Yellowlees et al., 2013).

On the ship, email can be a considered method for asynchronous communication. Email is a representative communication tool for ships. Most of the ships are using email services to communicate with shore companies and other organizations to work. Therefore, the availability of using emails is much higher than use of internet

service or voice call of seafarers onboard. Using emails is also beneficial in terms of the cost.

An E-mail intervention has certain benefits, however the effectiveness is controversial. The responses from the experts varied. An interviewee responded that email methods would not be useful methods for mental health intervention. The other experts said that e-mails can be used, however less desirable methods; and also they have experience using email, it has limitations. Another interviewee mentioned about the issue of confidentiality. If seafarers carry out intervention through email, then the writing could be viewed by others.

Benefits of email intervention is that it allows more time to think. An interviewee mentioned that many times the therapist reacts automatically. On the other hand, to reply to an email needs more time to reflect on the questions. Also email gives time to think and reflect to the client. A psychological doctor explained his experience of having advantages to use emails for his client.

"Email is helpful to some people who have difficulties in communication, such as expressing themselves and are introspective. To teenage students, I give my email address and ask to write mail. Some people want to organize their thoughts and send them .... Generally video conferencing is a better method, but rarely to specific people, email can be a better option." (Experts [2])

Considering the accessibility of using emails on ships and other benefits of email intervention, emails can be used as a way to improve seafarer's mental health.

#### 4.1.4 Self-guided intervention.

Above-mentioned sections show the possibility and effectiveness of interventions through mental experts. However, there are many ways to improve the mental health of seafarers without experts. A self-guided intervention is a representative method that helps seafarers with mental problems without engaging with experts. Most of the self-guided intervention is based on websites where it makes users interact with structured self-guided programs and gives self-help guides. Many types of self-guided interventions are developed and used for a variety of mental issues. A lot of research has been carried out and the result shows the effectiveness to help patients with mental problems. The existing self-guided intervention tools can be used for seafarers. All of the interviewees responded that self-guided intervention tools can be implemented for seafarers and it will be helpful. A psychologist interviewee mentioned that the environment of seafarers is quite different from life on shore however, general mental health problems are similar regardless of the environments, either onboard or shore. Therefore, all of the principles are effective on ships.

Through using self-mental health programs, users can understand their mental status. Many cases that result in serious problems due to mental problem, do not happen suddenly. Many people do not notice their level of stress and accumulated burden cause accidents such as suicide. An interviewee explained the importance of understanding individual's mental status.

"I think it's very important to tell them how to diagnose when they are having stress. Sometimes we say 'I am sad, I am not talking to someone, I am not eating well but I am okay'. It is very important for all of us to recognise signs and symptoms of stress, if we recognise the signs and symptoms of stress early. Then we will manage it better." (Expert [6])

By using a self-guided program, seafarers understand more precisely their mental health and they can be encouraged to request help.

Self mental check up programs can be also helpful tools for shore-based company's management for seafarers. By making a regular document of seafarer's mental status assessment, companies can consider vacation plans for seafarers. Giving early leave to a high stressed level seafarers can prevent burnout from seafarers and prevent accidents caused by mental issues. Also documented assessment of mental health can make seafarers pay attention to other colleagues. The previous chapter showed the possibility of being isolated onboard. Master or manager level of seafarers can better understand the difficulties of mental health issues by interacting within the ships in order to reduce the stress onboard.

Also self-guided intervention has benefits compared with experts' interventions. A psychologist explained that self-program can reduce the rate of relapse.

"A study shows after using a computer program, the relapse rate is lower. One of the ideas is that if we have a therapy session over a number of weeks and you feel better then, you might feel this is the therapist that made me feel better. If you are doing it with a computer and you feel better then, it is yourself as well as knowledge of the computer but it removes some idea that a powerful other person needs to solve your problem." (Expert [4])

Furthermore, self-guided intervention is less regarded as therapy compared with experts' interventions. Since many seafarers worried about being stigmatized as having mental issues. Therefore, self-guided intervention could easily encourage its use than in person therapy.

#### 4.2 Consideration of intervention

In the interventions for the seafarer's mental health, many things should be considered. First, the environment of the ship is quite exceptional. Most of the therapists are not familiar with seafarer's life onboard. Interviews for this research, 5 out of 6 interviewees responded that a good understanding of working on ship is required in order to intervene seafarer's mental health. Interviewees mentioned the basic knowledge of the work, relationship of seafarers, and communication issues onboard. Without understanding of seafarer's life, possible intervention would be limited. However, an interviewee responded that understanding of seafarers' characteristics is desirable, but not required. Since shared experience can make a frame and it can narrow the perception. Therefore, for the intervention, experts should understand the characteristics or seafarers' work but also not conceive each seafarer in a same frame

Another important issue is confidentiality. All of the mental expert interviewees for this research responded that confidentiality is an important factor that should be



considered. If the confidentiality is not secured, then the effectiveness of intervention would be reduced. Not only experts regard confidentiality as important, but also seafarers believe the same. Among the seafarers interviewed for this research, 8 out of 10 responded in case they have a chance to get intervention support for mental health if they are willing to participate. However, 2 interviewees responded only when confidentiality is secured then they will participate.

Confidentiality can be considered within the ship and to the shore company. First, confidentiality in the ship, in the previous chapter showed barriers that hinder seafarers open their mental problem to colleagues. To encourage seafarers to request help for mental health, confidentiality should be secured. Also a conflict between colleagues onboard, such as bullying, harassment, is one of the main reasons for seafarer's mental health issues. A psychiatrist interviewee warned in case of conflicts with the master who causes mental problems, seafarers would be more difficult to talk about mental issues. Chapter 3.2 explained the ship's reporting system and most of the seafarers report individual problems through a master.

Also the confidentiality should be secured within the company. A potential risk of generating a black list of mentally-illed seafarers is mentioned in the previous chapters. An interviewee insisted mental intervention service should be provided by an external organization to keep confidentiality.

"This service should not be provided by the company themselves. Because some companies already have their own program. We are saying that this service should be provided by an independent expert organization, not by the employers. All the specially I know the cruise line has an in-house counselling telephone service but the workers are very afraid to call those services." (Experts [6])

Therefore, to encourage the seafarers more request help and to get better results, the confidentiality should be protected.

Another consideration for mental health intervention is when seafarers explain their difficulties they should be provided actual help. An interviewee demonstrates the risk of intervention without substantial support.

"If a seafarer appealed his difficulties by counselling with experts but could not solve the problem then it is very dangerous. That seafarer is suffering a great stress, even beaten, no matter experts tell 'I understand you, you must be painful, cheer up' but not provide any help then it is very dangerous... if not provide any help, then can result in deeper hopelessness than before counselling." (Expert [2])

Therefore, companies should consider ways to solve seafarers' difficulties. For example, a master gives rest days onboard or the company can give early leave for the mentally-illed seafarers. In case of severe conflict within the colleagues, managers on the ship or company should arbitrate and settle the matter.

However, giving actual help is controversial with confidentiality. To give substantial support, the onboard crew or company should know the identity of mentally suffering seafarer. Thus the judgement, to keep confidentiality or report to company, by the experts who intervene with seafarers' health problems is important. Also, before informing the company, experts should discuss with seafarers who would need actual help.

#### 4.3 Additional suggestion

From the interviews with experts for this research, many suggestions to improve the seafarer's mental health were proposed. First, an interviewee emphasized education for the seafarer before they board on the ship. By giving psychological first aid, in case of depression, anxiety, and others, seafarers can handle their mental issues onboard. Also, designating a crew onboard as a mental health counsellor onboard can be considered. According to the STCW convention, ships are required to work as a seafarer with a medical manager certificate. Therefore, by educating psychological first aids and basic counselling techniques, designated medical managers onboard can manage not only physical problems but also psychological cases.

The other interviewee suggested screening tests for the seafarers who are vulnerable to mental issues. Many industries, for example aviation, military, and nursing facilities require mental screening tests such as Minnesota Multiphasic Personality Inventory(MMPI). Working on the ship is a very exceptional environment. Even a person who does not have any mental problem history before may suffer psychological issues after onboard. For those people whose screening test shows suspected of having mental health issues would be better not to work on the ship.

Carrying psychological medicine onboard is suggested by a psychiatry interviewee. After the Covid pandemic, telemedicine became more popular and doctors can prescribe medicine by remote medical service. In the case of seafarers suffering by depression, anxiety and insomnia, using psychological medicine onboard after approval by psychiatry onshore through telemedicine diagnosis.

The previous chapter shows the possibility of self-guided interventions for the seafarers. All the expert interviewees agreed that developing intervention programs specially used for seafarers would be more effective to improve seafarers' mental health. An interviewee recommended combining self-guide programs with development programs such as teamwork skills, and dealing with bullying.

## Chapter 5. Conclusion

### 5.1 Summary

This research explored telemedicine as an alternative support to mental health issues for seafarers. As described in the literature review chapter, many safety-critical industries consider worker's mental health as an important factor to prevent accidents and invest in various interventions. In the maritime sector, various organizations also provide support to improve seafarers' mental health. Such support includes the provision of counseling services to seafarers for 24/7 as well as guidelines in a booklet form on how to manage stress and mental issues for seafarers. However, from the interviews of this research, seafarers responded that they do not feel that they have proper supports for mental health or they do not know about external helps. Also, seafarers responded those guidelines could not help efficiently. To access mental health support, seafarers are obliged to report to their company or colleagues. However, it was commonly observed that seafarers have several barriers to disclose mental issues to their company or colleagues. This extra hardship can create a vicious cycle for mentally ill seafarers. Seafarers interviewed for this research responded that additional support for mental health is required.

The development of IT enabled ships to be closely connected to shore. The technology for greater connectivity, especially the use of ship's internet continues to grow. As explained in the literature review, the number of ships that uses internet will be increasing. Increased connectivity between ship and shore will enable mental experts to directly intervene seafarers' mental issues onboard. Such internet-based support methods on board can take different formats, including counseling therapies, video conferencing, voice calls, text messages, and emails. Psychological experts interviewed for this research responded that each method's effectiveness is different, however, the intervention can be a good solution for seafarers who are suffering from mental problems. Also, by using internet, self-guided remedies without experts can be used to manage mental health of seafarers. Considerations that experts should contemplate for mental interventions, first thing is understanding of seafarers distinctive working and living conditions. More understanding would bring better quality interventions, however experts should not frame every seafarers in a same case. Also confidentiality should be ensured during the interventions. Lastly, when seafarers request help, actual support should be provided.

## 5.2 Limitation

This research used qualitative methods, i.e., interviews to find answers for research questions. To examine the mental health supports that seafarers receive and how they feel, consisted of 10 seafarers as interviewees, all are different ranks on ships, however they are all South Korean nationality. Therefore, findings from chapter 3 could be affected by Korean culture or environment which determines how things get done and it may be difficult to apply for seafarers in a global context.

Also, among the psychological experts as interviewees, 2 out of 6 worked with seafarers and participated projects related to seafarer's mental health. However, others are not familiar with seafarers' work and life style. Therefore, some interviewees' responses might not properly reflect seafarers' characteristics and work environment.

## 5.3 Future recommendations

During the interviews for this research, many seafarers expressed a fear of being stigmatized as mentally ill seafarer. This fear of being stigmatized is the main reason that many seafarers are hesitant to ask for help. Seafarers generally consider that mentally ill seafarers would be disadvantaged for contract or promotion. Further research on the correlation of mental issues of seafarers and substantial results of disadvantage after reporting will help more understanding and help seafarers more easily approach supports.

From the experts' interviews, they emphasized talking with colleagues. However, many seafarers responded they spend most of their rest time being alone with electronic devices. The more supply of internet access can lead to spend more time with electronic devices and that can result in less interaction between colleagues onboard. Therefore, how internet impact on social activities onboard may be an interesting topic to study.



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## Appendices