

Contributing Factors and Strategies Applied Onboard Ship: Basis for Development of Booklet to Enhance Seafarers' Mental Health

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ABSTRACT: In order to help and save the lives of seafarers, the researchers conducted a developmental research to formally create a booklet in e-copy that is a simple, situational, and handy source of knowledge. This study aimed to identify the component of the booklet based on the study of Sarinas et al. [1] in terms of the factors affecting the seafarers' mental health and strategies they applied to counteract these issues. The ADDIE (Analysis, Design, Development, Implementation, and Evaluation) model was utilized to develop a booklet. A content validated researcher-made instruments were used to measure the satisfaction of seafarers over the booklet and the acceptability of the experts on the booklet with a reliability index of 0.91 using Cronbach alpha. The content analysis was employed to determine the factors affecting seafarers' mental health and the strategies to counteract these factors. Meanwhile, frequency, percentage, rank, mean, and standard deviation were used as the statistical tools. Results revealed that, there are 30 factors included in the booklet in the Analysis phase with various situational strategies to combat the factors affecting the mental health of seafarers. Moreover, in the Design phase, there were 10 factors added with corresponding strategies emanated from instructors who were seafarers previously and from experts in mental health. In the Development phase, the booklet made use of the 4 E (Engage, Explore, Explain, and Evaluation) while for the Implementation phase, the e-copy of booklets were given to seafarers as well as the evaluation form for them to assess the booklet and indicate their level of satisfaction. In the Evaluation phase, it shows that seafarers' level of satisfaction towards the booklet is "Very High" which means that seafarers find the overall appearance and content of the supplemental learning material excellent.

1 INTRODUCTION

Issues of mental health [2, 3] at sea were reported for Asian crew on international fleets [4]. Sliskovic and Penezic [5] emphasized that mortality among seafarers was never a joke and can be attributed to three factors – accidents [6], lifestyle-related diseases [7, 8] and suicide [5, 9, 10, 11, 12].

Suicide was rather widespread among seafarers [5, 9, 10, 11, 12]. It is prevalent among seafarers suffering from rank discrimination and criminalization [5, 10, 13], voyage durations [5,14,15], gender discrimination

and work abuse [5, 10, 13], age gap [5], nationality and cultural differences [5, 9, 10, 14]. Some declare disappearing seafarers as suicide attempts [10].

Many people take for granted that seafarers are heavily tolled on mental health during a single tenure of the contract. The ship is an isolated environment where the crew has a tolling demand for communication and welfare [16]. Some consider it a prison rather than a workplace [17]. Jobs are lucrative, very stressful [18, 19] and very dangerous [10, 20]. Safety4Sea [21] stated that stress onboard has a prevalent impact among seafarers. Stress directly

affects a person's mental well-being [9, 22]. The effects were highlighted as lack of interest, lack of motivation, strained temper, carelessness, taking shortcuts, frustration, diminished seriousness, blaming, workplace absences, and committing personal mistakes [23, 24, 25 26]. Rengamani and Murugan [27] suggest that major stressors root on psychological and social issues related to both work and personal lives, respectively. Mental health stressors are agitated by the course of time in conjunction with fatigue and surrounding forces [9, 17, 28, 29], family separation [5], and negative companionship with potential assaults of piracy [10, 13, 30]. According to The Sea [31], International Maritime Bureau has tallied 75 incidents of piracy and armed robbery in the first half of 2019 compared to the 107 incidents in 2018 of the same period. If left unchecked, this may create long-term repercussions on business and strain the market in the long run [10].

Many efforts were taken over time to address the growing concerns of the local and international shipping market regarding the mental health of seafarers [32, 33]. The Sea [31] outlined this matters' silver linings as international initiatives were launched to address mental health awareness. The International Chamber of Shipping [34] has also disseminated information regarding the implementation of the updates of the MLC Guidelines which includes, compensation to seafarers, employment arrangement relating to piracy, measures for the prevention of harassment and bullying, new ICS/ ITF welfare guidelines as well as the implementation of health and safety provisions.

Carotenuto et al. (2012) and Sliskovic and Penezic [9, 5] suggest, cutting tenure time and prolonged vacation periods, reduced working hours, reliable telecommunications and internet connectivity, recreational opportunities, and social gatherings that support team-building help improve mental health issues at sea. Jones [35] cites that Nautilus and ITF are fighting for better minimum wages for all seafarers. Seafarers must be compensated properly for their efforts and sacrifices at sea.

Barker [32] suggests a training program for seafarers to remove the stigma of mental health and suggest targeting the very roots of the cause. Hayward [36] agrees and suggests conducting activities to increase mental health awareness and prevent violence onboard. Some small efforts were made, such as taking information campaigns, booklet and leaflet publications [10, 32, 33], promotional of physical fitness and psychological support [32]. Fields [37] highlighted charitable deeds to seafarer welfare as a form of human healing and outreach.

Most studies focus on mental and physical issues and root causes, which then other studies draw conclusive solutions for the said reason. However, developmental studies that concentrate on seafarer psychological well-being are limited, less exploited and somehow ignored. Efforts of both local and international support are everywhere. However, the support can only reach a limited number at high times throughout the entire ship and crew population. Thus, with the initiative of coping with the worsening mental health crisis at sea and having a booklet either in

printed or e-copy could be a handy source of knowledge, this study was conceptualized.

This developmental research aimed to produce a booklet or supplemental learning material in enhancing seafarers' mental health.

2 MATERIALS AND METHODS

2.1 Research Design

This study employed a developmental research design specifically on product design and development. This study falls under the Type 1 developmental research since it focused on designing and developing a booklet [38].

This study followed the ADDIE (Analysis, Design, Development, Implementation, and Evaluation) Model to develop the booklet. The offshoot of this study is to provide reading material on mental health for seafarers' onboard ships.

2.2 Participants

The respondents of this study were the 30 seafarers selected through convenience and snowball sampling. They were asked to determine their satisfaction with the booklet. Three Instructors were also chosen through convenience sampling to determine what factors are lacking, and strategies can be gleaned from the study of Sarinas et al. [1].

Meanwhile, three experts in the field of mental health and three writers of instructional material were chosen through purposive sampling. They determined the acceptability of the booklet. Table 1 shows the distribution of the respondents.

Table 1 Distribution of Respondents (N=39)

Category	f	%
Entire Group	39	100
A. Seafarers	30	76
B. Instructors (Previously as seafarers)	3	8
C. Experts		
C.1. Instructional Material	3	8
C.2. Mental Health	3	8

2.3 Instrument

The instruments used in the study were the matrix for content analysis, seafarers' acceptability survey form, and experts' acceptability survey form. These were validated by experts in research and instructional material.

Furthermore, both the seafarers' satisfaction survey form and experts' evaluation form underwent reliability-testing using Cronbach alpha. The reliability test shows that the instrument has 0.91 reliability coefficient.

2.4 Data Collection

Based on the ADDIE Model [39], the data gathering procedure can be best illustrated in Figure 1.

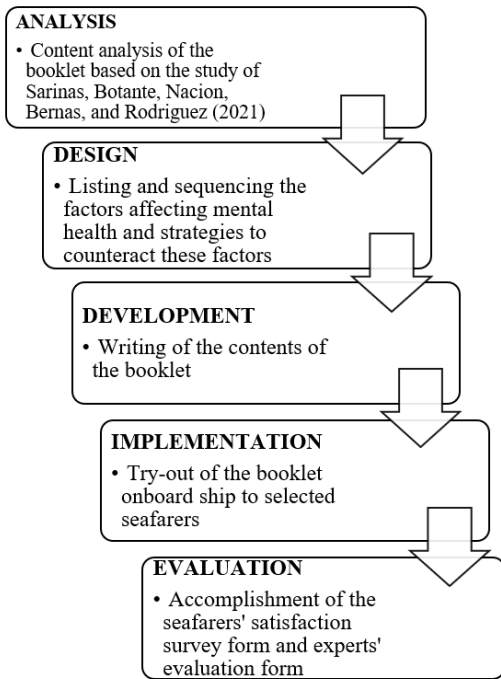


Figure 1.

In the Analysis phase, the researchers verified the study of Sarinas et al. [1] using the matrix of content analysis to determine the factors affecting mental health and the strategies to counteract these factors. These topics were included in the booklet.

In the Design phase, the researchers consulted three Professional Instructors or seafarers before, psychologists or experts in mental health, and a psychiatrist to review the list of factors affecting mental health and the strategies to counteract these factors of the booklet. This was done through an informal interview. They suggested other factors and strategies that the researchers have not included based on the study of Sarinas et al. [1].

In the Development phase, factors affecting mental health and the strategies to counteract these factors were written in the booklet. These were validated in terms of acceptability by two psychologists and a psychiatrist. The booklet was patterned with the 4 E Instructional model from Bodzin [40]. Four E stands for Engage, Explore, Explain, and Evaluate.

In the Engage stage, the seafarer's interests were involved, and the topic will be connected on a personal level. This phase of the learning cycle helps seafarers answer questions such as: Why is this topic important to me?

In the Explore stage, seafarers reinforced their understanding of concepts, applied the concepts, and practiced the process onboard ships. In this learning phase, seafarers begin to construct for themselves the meaning from the exploration activities.

In the Explain stage, seafarers read the text per factor and strategies, developing a context for important concepts. This strengthens the seafarers' personal understanding of key concepts generated in the Engage and Explore phases. The Explain phase is supported by practical examples which contain discussions so that seafarers can study independently.

In the Evaluation stage, seafarers find self-assessment based on the Engage, Explore, and Explain phases. These self-assessments may contain self-reflection on the strategies they must apply appropriately depending on the factors that affect their mental health.

In the Implementation phase, the e-copy of the booklet was given to seafarers for their perusal. A copy of the e-booklet was provided to the seafarer through convenience sampling to fully go through the material.

In the Evaluation phase, the booklet was evaluated by the conveniently selected 30 seafarers in terms of satisfaction, three experts in mental health, and three experts in instructional materials. It is in this phase where satisfaction and acceptability level were determined.

2.5 Data Analysis

Both qualitative and quantitative techniques were used in the conduct of this study. The qualitative analysis technique employed content analysis. It determined the factors affecting mental health and the strategies to counteract these factors. Meanwhile, frequency, percentage, rank, mean, and standard deviation were used as the statistical tools. The mean was used to determine the seafarers' satisfaction and experts' acceptability levels of the developed booklet. The mean scale, descriptive rating, and indicators for the levels of satisfaction and acceptability in the booklet to enhance seafarers' mental health is found in Table 2.

Table 2 Levels of Satisfaction and Acceptability in the Booklet to Enhance Seafarers' Mental Health

Mean Scale	Descriptive Rating	Indicators Satisfaction	Acceptability
3.51-4.00	Very High	Seafarers find the overall appearance and content of the supplemental learning material excellent.	Experts think that the overall aspects of the supplemental learning material are excellent and have minimal revisions
2.51-3.50	High	Seafarers find most parts and content of the supplemental learning material sufficient.	Experts think that the overall aspects of the supplemental learning material are very good but still have several revisions.
1.51-2.50	Low	Seafarers find most parts and content of the supplemental learning material insufficient.	Experts think that the overall aspects of the supplemental learning material are good but need a lot of revisions.
1.00-1.50	Very Low	Seafarers find the overall appearance & content of the supplemental learning material not usable.	Experts think that the overall aspects of the supplemental learning material should all be revised or scratched.

Standard deviation was used to determine the spread of the responses obtained in the seafarers' satisfaction and experts' evaluation.

3 RESULTS AND DISCUSSION

Mental health is an alarming topic in the maritime industry. It is underrated or less explored as to be one of the biggest factors that seafarers face every day at sea [5]. There are lots of contributory factors or causes of mental health problems that can lead to anxiety and depression [10, 11]. If untreated will result to suicide [5, 10, 11].

Sarinas et al. [1] pointed out that the top three factors affecting seafarers' mental health are stress, fatigue or temporary loss of power to respond, and separation from families and friends. With this result

and alarming cases of suicidal attempts, the researchers arrived at working on a booklet to help seafarers enhance their mental health onboard ships. This will serve as their guide in case they face various factors onboard ship affecting their mental health.

3.1 Seafarers' Booklet based on the ADDIE Model

3.1.1 Analysis Phase

In this counteract these factors. These two variables were included in the booklet. Table 3 shows the results. phase, the researchers reviewed the study of Sarinas et al. [1] on the contributory factors that affect seafarers' mental health and the strategies used by seafarers' onboard ship to.

Table 3 Contributory Factors that Affect the Mental Health of Seafarers and the Strategies Used by Seafarers' Onboard Ship to Counteract these Factors

Factors	Strategies
Stress	Pamper one's self; Socialize with crewmates; Take a break; Stay positive; Communicate with family; Enjoy while working; Write a journal
Fatigue (temporary loss of power to respond)	Pamper one's self; Take a break; Talk to someone; Check one's health
Separation from families and friends	Communicate with family; Stay positive; Think of my family as an inspiration
Not enough sleep	Pamper one's self; Manage time wisely; Drink coffee
Prolonged period of time at sea or long voyages	Stay positive; Pamper one's self; Socialize with crewmates; Communicate with family
Long working hours	Take a rest; Enjoy while onboard ship; Manage time wisely; Think of one's family as inspiration; Stay focus; Communicate with crewmates; Drink lots of water
Loneliness	Socialize with crewmates; Communicate with family; Pamper one's self; Stay positive
Increased pressure	Stay positive; Manage time wisely; Take a rest; Learn to say 'no'
Confined in the same environment	Socialize with other crew; Keep one's self busy; Refresh one's self; Adapt to the situation; Take short shore leave
Social isolation or far from home	Communicate with family; Socialize with other crew; Pamper one's self; Think of one's family as inspiration; Enjoy while onboard; Stay focus
Family problems	Communicate with family; Talk to someone onboard ship; Keep one's self busy; Pray; Be patient; Ask advice from relatives
Lack of shore leave	Enjoy while onboard ship; Pamper one's self; Communicate with family; Talk to stevedores; Be patient
High workload	Be organized; Time management; Seek help from officers; Work with compassion; Pray
Little contact with family and friends	Communicate with family; Enjoy crewmates' company; Read books; Stay positive
Bullying	Keep distant; Stay positive
Ship motion	Ignore and get used to it; Take medicine and rest; Breath fresh air
Cultural problems	Understand the situation; Observe and adapt; Be with fellow Filipino crew
Harassment	Report to officers; Be respectful; Talk personally
Poor working conditions	Keep one's self healthy; Observe and adapt; Stay positive
Threat to piracy attack	Be alert and prepared; Pray; Educate one's self; Adhere to company protocols; Ask senior officers
Lack of crew cohesion	Understand the situation; Stay humble; Socialize with other crew
Noise	Adapt with the environment; Put on the earphones and turn on the music; Refresh one's self
Low salary	Work harder for promotion; Appreciate the value of money
Limited medical aid onboard ship	Bring one's own medicine; Safety first
Short ship turnaround times	Manage time wisely; Take a rest; Cooperate with crewmates; Stay positive
Physical abuse	Be respectful; Report to senior officer
Criminalization	Calm down; Be friendly
Work-role conflict	Seek assistance from superior; Know one's work and responsibility
Vibration	Adapt with the environment; Put on the earphones and turn on the music
Job security	Perform a job well done; Do one's best

3.1.2 Design Phase

On this phase, the researchers consulted three Professional Instructors or seafarers before, two psychologists or experts in mental health, and a psychiatrist to review the list of factors affecting mental

health and the strategies to counteract these factors of the booklet. This was done through an informal interview. They suggested other factors and strategies that the researchers have not included based on the study of Sarinas et al. [1].

Table 4 shows the results.

Table 4 Other Factors and Strategies from Experts Added in the Booklet

Factors	Strategies
Existing medical condition	Medicine/maintenance, exercise, and diet
Lack of recreational facilities	Request from company, improvise activities/facilities
Poor living conditions	Request from company, adjust to what is available, improvise
Personal fears/perceptions/attitude	Talk to other crew, read books, join recreational activities
Food quality/quantity	Talk to onboard food committee or appropriate supervisor, cook own food
Boredom due to routine activities	Learn new skills and hobbies Read the Bible and other inspiring books; Pray/meditate Interact with crewmates
Conflict with Officers or fellow crew members	Learn to understand their behaviors Be patient; Show humility and respect; Have time to talk to them
Verbal or sexual abuse	Talk to company
Death of a loved one	Talk to family Interact with crew members
Financial loss of investment	Access Godly power such as reading scriptures in the Bible Listen to music

3.1.3 Development Phase

The contributory factors affecting seafarers' mental health and the strategies to counteract these factors were written in the booklet. The lay-out of the booklets is a two column, tabular format – on the left are the contributory factors, while on the right are the strategies to counteract these factors. For the Engage stage, the seafarers' interests were involved and the mental health topic was connected personally. For the Explore stage, seafarers reinforced their understanding of concepts, applied the concepts, and practiced the process onboard ships. In the Explain stage, seafarers read the text per factor and strategies developing a context for important concepts. This strengthens the seafarers' personal understanding of key concepts generated in the Engage and Explore phases. The Explain phase is supported by practical examples which contain discussions so that seafarers can study independently. In Evaluation stage, seafarers find self-assessment based on the Engage, Explore, and Explain phases. These self-assessments contained self-reflection on the strategies they must apply appropriately depending on the factors that affect their mental health.

3.1.4 Implementation Phase

The e-copy of the Seafarers' Mental Health booklet was evaluated by both the conveniently selected 30 seafarers in terms of satisfaction, three experts in mental health, and three experts in instructional materials. It is in this phase where satisfaction and acceptability level were determined. 3.2 Posttest Score Performance of the Experimental and Control Groups

Table 5 shows the satisfaction level of the seafarer respondents on the developed booklet in enhancing seafarers' mental health. The grand mean is 3.52, and the level of seafarers' satisfaction is described as "Very High," which means that seafarers find the overall

appearance and content of the supplemental learning material excellent.

In terms of physical aspects, the composite mean is 3.49, and the level of seafarers' satisfaction is described as "High," which means that seafarers find most parts of the supplemental learning material sufficient.

While for strategies to counteract factors affecting mental health, the composite mean is 3.44, and the level of seafarers' satisfaction is described as "High," which means that seafarers find most strategies of the supplemental learning material sufficient.

Finally, in terms of its usefulness, the composite mean is 3.62. The level of seafarers' satisfaction is described as "Very High," which means that seafarers find the supplemental learning material very useful or beneficial.

Table 5 shows the results.

Table 5 Seafarers' Level of Satisfaction on the Developed Booklet in Enhancing Mental Health

Statement	Mean	Descriptive Rating	SD
A. Physical Aspects			
1. The contents of the booklet are well-organized.	3.53	Very High	0.51
2. The layout design is coherent and pleasing to the eyes.	3.40	High	0.62
3. The font style and size of the booklet are appropriate.	3.50	High	0.57
4. All images and text in the booklet are visible and clear.	3.57	Very High	0.50
5. The booklet is well edited for spelling, grammar, and missing words	3.43	High	0.73
Composite Mean, Descriptive Rating, & SD	3.49	High	0.59
B. Strategies to Counteract Factors Affecting Mental Health (MH)			
1. The directions are clearly written and well explained.	3.57	Very High	0.50
2. The strategies are relevant to the factors that affect mental health	3.57	Very High	0.50
3. The strategies being offered are varied.	3.43	High	0.57
4. The strategies can be done easily.	3.30	High	0.60
5. The strategies can be done by the seafarers any time as the need arises.	3.33	High	0.55
Composite Mean, Descriptive Rating, & SD	3.44	High	0.54
C. Usefulness			
1. The booklet can help seafarers learn better.	3.73	Very High	0.45
2. The booklet can improve seafarers' mental health.	3.73	Very High	0.45
3. The booklet is relevant to the setting onboard ship.	3.53	Very High	0.51
4. The booklet can be used by a seafarer even without the help of others.	3.53	Very High	0.51
5. The booklet can motivate or catch the interest of the seafarers.	3.57	Very High	0.50
Composite Mean, Descriptive Rating, & SD	3.62	Very High	0.48
Grand Mean, Descriptive Rating, & SD	3.52	Very High	0.54

Table 6 shows the acceptability level of the Instructional Material Experts on the developed booklet in enhancing seafarers' mental health. The grand mean is 3.24, and the level of Instructional Material Experts' acceptability is described as "High," which means that experts think that the overall aspects of the supplemental learning material are very good but still have several revisions.

In terms of physical aspects, the composite mean is 3.0, and the level of Instructional Material Experts' acceptability is described as "High," which means that experts find most parts of the supplemental learning material sufficient.

While for strategies to counteract factors affecting mental health, the composite mean is 3.33, and the level of Instructional Material Experts' acceptability is described as "High," which means that experts find most strategies of the supplemental learning material sufficient.

Finally, in terms of its usefulness, the composite mean is 3.40, and the level of Instructional Material Experts' acceptability is described as "High," which means that experts find the supplemental learning material very useful or beneficial.

Table 6 shows the results.

Table 6. Instructional Material Experts' Level of Acceptability on the Developed Booklet in Enhancing Seafarers' Mental Health

Statement	Mean	Descriptive Rating	SD
A. Physical Aspects			
1. The contents of the booklet are well-organized.	3.33	High	0.58
2. The layout design is coherent and pleasing to the eyes.	3.0	High	0.00
3. The font style and size of the booklet are appropriate.	3.33	High	0.58
4. All images and text in the booklet are visible and clear.	3.0	High	0.00
5. The booklet is well edited for spelling, grammar, and missing words	2.33	Low	0.58
Composite Mean, Descriptive Rating, & SD	3.0	High	0.58
B. Strategies to Counteract Factors Affecting Mental Health (MH)			
1. The directions are clearly written and well explained.	3.33	High	0.58
2. The strategies are relevant to the factors that affect mental health	3.33	High	0.58
3. The strategies being offered are varied.	3.33	High	0.58
4. The strategies can be done easily.	3.33	High	0.58
5. The strategies can be done by the seafarers any time as the need arises.	3.33	High	0.58
Composite Mean, Descriptive Rating, & SD	3.33	High	0.58
C. Usefulness			
1. The booklet can help seafarers learn better.	3.67	Very High	0.58
2. The booklet can improve seafarers' mental health.	3.0	High	0.00
3. The booklet is relevant to the setting onboard ship.	3.67	Very High	0.58

4. The booklet can be used by a seafarer even without the help of others.	3.33	High	0.58
5. The booklet can motivate or catch the interest of the seafarers.	3.33	High	0.58
Composite Mean, Descriptive Rating, & SD	3.40	High	0.58
Grand Mean, Descriptive Rating, & SD	3.24	High	0.58

Table 7 shows the acceptability level of the Mental Health Experts on the developed booklet in enhancing seafarers' mental health. The grand mean is 3.40, and the level of Mental Health Experts' acceptability is described as "High," which means that experts think that the overall aspects of the supplemental learning material are very good but still have several revisions.

In terms of physical aspects, the composite mean is 3.5, and the level of Mental Health Experts' acceptability is described as "High," which means that experts find most parts of the supplemental learning material sufficient.

While for strategies to counteract factors affecting mental health, the composite mean is 3.3, and the level of Mental Health Experts' acceptability is described as "High," which means that experts find most strategies of the supplemental learning material sufficient.

Finally, in terms of its usefulness, the composite mean is 3.40, and the level of Mental Health Experts' acceptability is described as "High," which means that experts find the supplemental learning material very useful or beneficial.

Table 7 shows the results.

Table 7. Mental Health Experts' Level of Acceptability on the Developed Booklet in Enhancing Seafarers' Mental Health

Statement	Mean	Descriptive Rating	SD
A. Physical Aspects			
1. The contents of the booklet are well-organized.	3.0	High	1.41
2. The layout design is coherent and pleasing to the eyes.	3.5	High	0.71
3. The font style and size of the booklet are appropriate.	3.5	High	0.71
4. All images and text in the booklet are visible and clear.	4.0	Very High	0.00
5. The booklet is well edited for spelling, grammar, and missing words	3.5	High	0.71
Composite Mean, Descriptive Rating, & SD	3.5	High	0.71
B. Strategies to Counteract Factors Affecting Mental Health (MH)			
1. The directions are clearly written and well explained.	3.5	High	0.71
2. The strategies are relevant to the factors that affect mental health	3.0	High	1.41
3. The strategies being offered are varied.	3.5	High	0.71
4. The strategies can be done easily.	3.5	High	0.71
5. The strategies can be done by the seafarers any time as the need arises.	3.0	High	1.41

Composite Mean, Descriptive Rating, & SD	3.3	High	0.99
C. Usefulness			
1. The booklet can help seafarers learn better.	3.5	High	0.71
2. The booklet can improve seafarers' mental health.	3.0	High	1.41
3. The booklet is relevant to the setting onboard ship.	3.5	High	0.71
4. The booklet can be used by a seafarer even without the help of others.	3.0	High	1.41
5. The booklet can motivate or catch the interest of the seafarers.	4.0	Very High	0.00
Composite Mean, Descriptive Rating, & SD	3.40	High	0.85
Grand Mean, Descriptive Rating, & SD	3.40	High	0.85

4 CONCLUSIONS

This study concludes that the booklet can help enhance seafarers' mental health as shown by a very high level of satisfaction of seafarers and a high level of acceptability from the experts' point of view.

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