

Awareness and Relevance of Pre-Employment Medical Examinations of Seafarers among Maritime Students at the University of Antique: The Basis for a Health Intervention Program

Peter Ralph B. Galicia^a, ^aMaritime Faculty, University of Antique, Sibalom, Antique, Philippines, Email: antique_1985@yahoo.com.ph

This descriptive-survey study aims to ascertain the level of awareness and perceived relevance of pre-employment medical examinations of seafarers among maritime students in the University of Antique as a basis for a health intervention program. The data gathering instrument utilised for this study was a researcher-constructed survey questionnaire on pre-employment medical examinations of seafarers. The computer-processed statistics included means, frequency and rank for descriptive analysis, and the t-test for independent samples and for inferential analysis. The Alpha level for these samples was set at .05. The study found that maritime students had a generally high level of awareness on pre-employment medical examinations of seafarers and perceived that these examinations were relevant to seafaring duties. No significant difference existed between the students' level of awareness and their perceived relevance on pre-employment medical examinations of seafarers when classified according to maritime programs.

Key words: *Maritime students, Health, Awareness, Relevance, Pre-Employment Medical Examinations (PEME), University of Antique.*



Introduction

Seafaring is considered the most dangerous profession in the world, second only to fishing. Half-millions of Filipino seafarers are facing uncertain health scenarios that can threaten their seafaring careers. Seafarers are required to undergo medical examinations to reduce risks to other crew members and for the safe operation of the ship, and also to preserve their own health and safety (International Labour Organisation, 2013).

According to the Maritime Labour Convention (2006) and the International Convention on Standards of Training, Certification and Watchkeeping for Seafarers (2012) as amended, all seafarers are required to hold medical certificates proving their medical status as fit to perform various duties onboard vessels.

To maintain the globally competitive status of Filipino seafarers, the Maritime Industry Authority (MARINA) and the Department of Health (DOH) established certain policies and standards for medical fitness, requirements for recognition of medical practitioners and procedures for the issuance of medical certificates (IRR of Executive Order 63, 2018).

The Department of Health issued Administrative Order No. 2007-0025 on the revised guidelines for conducting medical fitness examinations for seafarers. This Administrative Order aims to provide standards of PEME conduct for seafarer candidates and serving seafarers. These guidelines consider the recommendations made in the 1995 International Conference on STCW jointly participated in by the International Labour Organisation (ILO), the International Maritime Organization (IMO) and the World Health Organisation (WHO), and first published 1998 ILO/WHO Guidelines.

Lucero-Prisno's (2002) study revealed that seafarers' maritime education does not emphasise health risks, and that they lack the preparation skills necessary for dealing with health-threatening realities. He further revealed that seafarers are unable to appropriately handle psychological stresses, like loneliness and fatigue, as well as other related health problems. This lack of knowledge and awareness surrounding health situations for seafarers can then affect the national and international economies that include the welfare and survival of households. This lack of significant health research and subsequent policy weaknesses give rise to challenges surrounding long-term welfare for seafarers, especially when ailments, injuries and deaths are seen throughout the industry as a result of such detriments (Lucero-Prisno, 2002).

Sarmiento et.al (2015) found that maritime students are aware of medical examinations given to seafarers, and added that such examinations are of high importance to the maritime students in determining whether a student is capable of pursuing the program. One



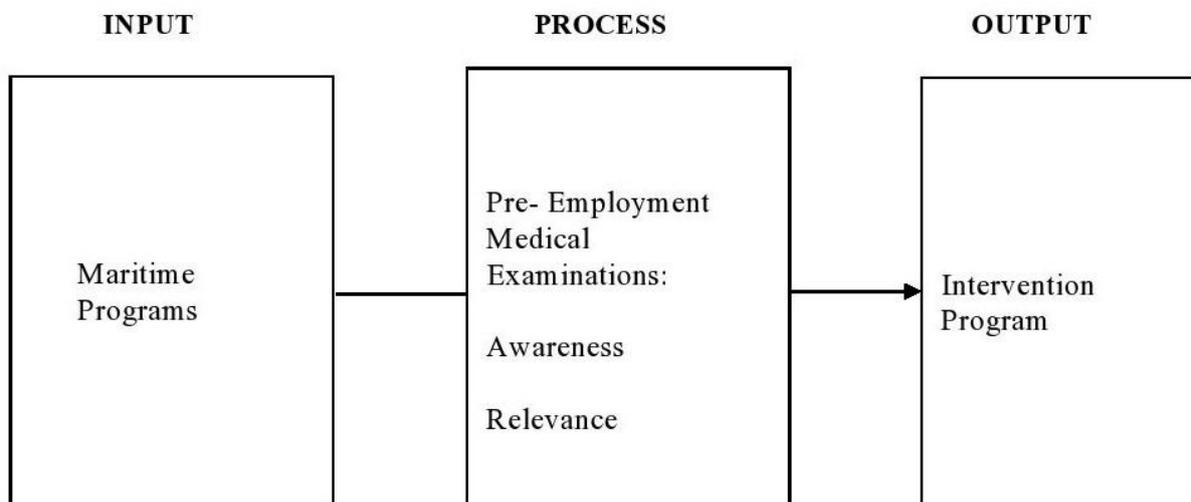
requirement for admission to maritime school is therefore a valid and up-to-date medical certificate; ensuring that all maritime students are medically fit thus enables them to perform well at their studies until they graduate and look for employment.

The aim of this study is to ascertain the views and perceptions of maritime students about medical examinations as the basis for a health intervention program. The study will also assess the health conditions of incoming first-year maritime students in order to determine early on whether or not to pursue seafaring studies. Lastly, the research aims to educate maritime students on the importance of health in preparation for seafaring careers.

Theoretical Framework of the Study

This research is based on the Precaution Adoption Process Model by Weinstein and Sandman (1992) which identifies seven progressive stages from lack of awareness to action. These stages include (1) unaware of the issue, in which individuals have never heard of potential precautions or hazards; (2) unengaged by the issue, in which individuals have learned about precautionary behaviour but have not considered subsequent actions that should or should not be taken regarding these behaviours; (3) undecided about acting, the decision-making stage in which people become engaged and consider responses to potential hazards; (4) decided not to act, in which people stop the precaution adoption process; (5) decided to act, in which people tend to implement the adoption process; (6) acting, in which responsive behaviours are initiated, and (7) maintenance, in which people constantly maintain the responsive behaviours. While these stages are vital in recognising and adopting precautions for seafaring activities, there exists a gap in the model on implementing specific approaches to prepare individuals for future seafaring careers. The level of awareness and perceived relevance among maritime students of seafarers' pre-employment medical examinations may determine the most effective methods of such approaches and how best to implement healthy lifestyles while at sea. Figure 1 below illustrates in graphic form the paradigm of this research.

Figure 1. Paradigm of the study



Study Objectives

The objective of this study is to ascertain the level of awareness and perceived relevance of pre-employment medical examinations (PEME) of seafarers among maritime students of the University of Antique as the basis for a health intervention program. The study further aims to determine the differences between awareness levels and perceived relevance of pre-employment medical examinations of seafarers when classified to maritime programs.

Methodology

Research design

The descriptive research method was employed in this investigation to best collect and analyse the type of data required. According to Gay et al. (2009), descriptive research involves the collection of data to answer questions concerning the level of awareness and perceived relevance of pre-employment medical examinations of the subjects in the study. Gay et al. add that descriptive research determines and reports the way things are, which is a necessary component for the nature of this study.

Participants

The respondents in this study comprised of 127 randomly selected first year maritime students at the University of Antique. These students were sourced from the officially enrolled population of 186 students, as recorded by the University of Antique's Registrar's Office in July 2019.



Stratified proportional random sampling was used to ensure that the proportion of the strata in the population was the same as the proportion in the sample. The sample was drawn using the simple random sampling technique in order to select the specified number of respondents from each of the two programs.

Instruments

Data was collected using a questionnaire-checklist which posed various questions surrounding maritime students' awareness and perceived relevance of seafarer PEME. This checklist was validated by a jury of five members and was constructed on the basis of the revised guidelines stipulated under Administrative Order No. 2007 – 0025. Such guidelines took into account the recommendations made in the 1995 International Conference on STCW, which was jointly participated in by the International Labor Organisation Regulation (ILO), the International Maritime Organisation (IMO) and the World Health Organization (WHO).

The questionnaire consisted of two sections: 1) the level of awareness of seafarer PEME, and 2) the perceived relevance of seafarer PEME. The first section aimed to ascertain respondents' levels of awareness of the PEME that seafarers are required to take before joining their ship, while the second section aimed to ascertain their perceived relevance of this PEME. All items in the questionnaire had a factor load of .950 and .960 for the level of awareness and perceived relevance of PEME of seafarers respectively.

Procedure

The researcher requested permission to administer the research instrument from the Dean of the college of maritime studies. Upon approval of the permit, meticulous oral instructions, both in English and Tagalog dialect, were provided to ensure that participants completed the questionnaires appropriately.

Data analysis

Completed questionnaires were scored and subjected to appropriate computer-processed statistics using the Statistical Package for the Social Sciences (SPSS) software version 23. The computer-processed statistics used are means, frequency and rank for descriptive analysis, and the t-test for independent samples and for inferential analysis. Alpha level is set at .05.



Results and Discussion

Students' awareness levels of seafarer PEME

Table 1 below presents the students' awareness on pre-employment medical examinations of seafarers. These results reveal that students generally exhibited a "highly aware" level of awareness on pre-employment medical examinations ($M = 3.61$). When classified to certain categories, this level was again found to be "highly aware". Sarmiento et al. (2015) experienced similar results which showed that the majority of maritime students were aware of medical examinations.

Results also reveal the top three highest means of the students' awareness levels on seafarer PEME, including the Audiometry test ($M = 3.78$), the Urinalysis test ($M = 3.76$), and medical history ($M = 3.72$). This data indicates that students take good care of their hearing and liquid intake and keep their medical records for future reference. The three lowest means of awareness levels include the Hepatitis B test ($M = 3.50$), the rapid plasma regain test ($M = 3.45$), and the human immunodeficiency virus test ($M = 3.43$). This data reveals that students have not experienced the tests before, and that such tests are not administered by the school as entry requirements.

Table 1: Students' awareness levels of seafarer PEME

Level of Awareness	M	Description	Rank
I am aware that . . .			
1. past medical and physical history should be surrendered to medical examiners for review and reference purposes.	3.72	Highly aware	3
2. Visual acuity test determines the smallest letters can possibly read on a standardized chart (snellen chart).	3.55	Highly aware	9.5
3. Ishihara test determines the red-green- yellow color deficiencies of the eyes.	3.69	Highly aware	4.5
4. Audiometry test determines how well your ear can hear.	3.78	Highly aware	1
5. Urinalysis test determines the health condition of kidney or other internal diseases.	3.76	Highly aware	2
6. Stool or Fecalalysis test determines the health condition of intestine for possible bowel cancer or other gastrointestinal illness.	3.69	Highly aware	4.5
7. Complete Blood Count and Blood Typing evaluates the condition of cells that circulate in the blood.	3.62	Highly aware	7
8. Chest X-ray (at least 11 x 14 plate size) produces an image of the chest and the internal organs for any conditions such as pneumonia, enlarged heart, and others.	3.63	Highly aware	6
9. Rapid plasma reagin (RPR) determines the antibodies present in the blood that may have syphilis and STD.	3.45	Aware	13
10. Hepatitis B test determines the viral infection affecting the liver.	3.50	Highly aware	12
11. Human immunodeficiency virus (HIV) test check the condition of blood or body fluid for infection.	3.43	Aware	14
12. Electrocardiogram (ECG) check for signs of heart disease.	3.55	Highly aware	9.5
13. Dental examination inspects the condition of teeth and surrounding soft tissues of the oral cavity.	3.54	Highly aware	11
14. Psychometric examination assesses the intelligence, skills and personality of seafarers.	3.61	Highly aware	8
TOTAL	3.61	Highly aware	

Scale: Highly aware: 3.50 -4.00; Aware: 2.50-3.49; Less aware: 1.50-2.49; Not aware: 1.00-1.49

Students' perceived relevance of seafarer PEME

Table 2 below presents the students' perceived relevance of pre-employment medical examinations of seafarers. Results reveal that participants generally exhibited a "relevant" perceived relevance of pre-employment medical examinations of seafarers (M = 3.28). When classified to certain categories, results indicated "highly relevant" for BSMARe students (M = 3.54) and "relevant" for BSMT students (M = 3.41). Sarmiento et al. (2015) produced similar results which revealed that maritime students considered medical examinations to be highly important for seafarers.

The three highest means of students' perceived relevance of seafarer PEME include verbal pronunciation (M = 3.64), vision for the ship's navigation (M = 3.57) and physical ability to climb ladders (M = 3.56). These results indicate the students' effective communication skills, their ability to identify different colours in various conditions, and their appropriate physical fitness levels. The three lowest means include active communicable skin diseases (M = 3.35), muscular skeletal defect (M = 3.39) and malignant neoplasm (M = 3.39). These results show that although students take good care of their health in preparation for seafaring careers, their knowledge of other PEME requirements is lacking.

Table 2: Students' perceived relevance of seafarer PEME

Perceived Relevance	M	Description	Rank
1. Vision require for ship's navigation such as chart and nautical publication reference, use of bridge equipment, identification of aids to navigation.	3.57	Highly relevant	2
2. Vision require in performing all necessary functions in darkness without compromising safety.	3.46	Relevant	10.5
3. Physical ability requires to climb up and down vertical/inclined ladders and stairways onboard.	3.56	Highly relevant	3
4. Physical ability manipulates mechanical devices in manual, digital dexterity and strength.	3.55	Highly relevant	4
5. impairment or disease prevent normal movement and physical activity.	3.50	Highly relevant	6.5
6. Vision distinguishes an object or shape at a certain distance.	3.53	Highly relevant	5
7. Hearing specify dB sound at a certain distance.	3.49	Relevant	8
8. Verbal ability describes immediate surroundings, activities, and pronounces words clearly.	3.64	Highly relevant	1
9. any infectious disease presents as health hazard to other crew members.	3.50	Highly relevant	6.5
10. hematological condition causes work interruption at sea.	3.43	Relevant	14.5
11. Malignant neoplasm disqualifies seafarers to work onboard.	3.39	Relevant	16.5
12. Acute or chronic neurological or sensory disorder recurs or limits the functional capacity of seafarer to perform sea duties.	3.48	Relevant	9
13. Acute or chronic cardiovascular condition limits physical activity required for sea duties.	3.44	Relevant	13
14. Acute, chronic, or recurrent gastrointestinal disturbance affects seafarer's function onboard.	3.43	Relevant	14.5
15. Musculoskeletal defect interfere the discharge of seafarer's duties such as decrease in muscular power, loss of balance, mobility and lack of coordination.	3.39	Relevant	16.5
16. Active communicable skin disease or recurrent skin disease pose a threat to seafarer's health, health of other crew members on board or ship's passengers.	3.35	Relevant	18
17. Speech impediment or hearing acuity problem interfere the communication of seafarers especially for deck officers and crew members with special communication functions.	3.46	Relevant	10.5
18. Acute or chronic eye condition or history of eye disease result to unsatisfactory work performance, pose a threat to working safely at sea.	3.45	Relevant	12
TOTAL	3.48	Relevant	

Scale: Highly relevant: 3.50 -4.00; Relevant: 2.50-3.49; Less relevant: 1.50-2.49; Not relevant: 1.00-1.49

Differences in students' awareness levels of seafarer PEME

Table 3 presents the differences in students' awareness of seafarer pre-employment medical examinations when classified according to maritime programs. Results reveal that no significant difference existed in awareness levels, as indicated by $t(125) = .823, p > .05$. This data implies that maritime programs have no influence on students' awareness of seafarer PEME.

Table 3: T-test results for differences in students' awareness levels of seafarer PEME

Category	Mean	t-value	df	2 tail Sig.
Maritime Programs				
BSMT	3.57	.823	125	.412
BSMarE	3.64			

$p > .05$

Differences in students' perceived relevance of seafarer PEME

Table 4 presents the difference in the students' perceived relevance of seafarer pre-employment medical examinations when classified according to maritime programs. Results similarly reveal no significant difference in the students' perceived relevance of seafarer PEME when classified according to maritime programs, as evidenced by $t(125) = 1.246$, $p > .05$. This data also implies that maritime programs have no influence on the students' perceived relevance of seafarer PEME.

Table 4: T-test results for differences in students' perceived relevance of seafarer PEME.

Category	Mean	t-value	df	2 tail Sig.
Maritime Programs				
BSMT	3.41	1.246	125	.215
BSMarE	3.54			

$p > .05$

Proposed Health Intervention Program

Table 5: Proposed health intervention program

Program/Components	Name of Agency	Key Responsibilities
1. "KalusUgAn sa Paaralan": Health Intervention Program	Local Government Unit Maritime Industry Authority Maritime Higher Education Institutions (MHEIs)	Improve health and Wellness of Maritime Students
AmBisyon Natin 2040: Facilitate Health and Wellness services and Care, wellness facilities, sports and fitness facilities, etc.		AmBisyon Natin 2040: Facilitate Health and Wellness services and Care, wellness facilities, sports and fitness facilities, etc.
United Nations' Sustainable Development Goals (SDG) 2030: Good Health and Well-being for people		

Conclusions

Results of this study show that maritime students of the University of Antique believe that they are highly aware of PEME given to seafarers upon employment. Students perceive such examinations as highly relevant when appropriating seafarers' medical fitness, a stipulation of the shipping companies prior to employment. Students share similar levels of knowledge and of perceived relevance of PEME in terms of maritime programs. This study proposes a health intervention program, "KalusUgAn sa Paaralan", to further improve the health and wellness of maritime students of the University of Antique.

Recommendations

It is recommended that the concerned agencies should facilitate health and wellness services and sports and fitness facilities to ensure healthy lifestyles for maritime students. Agencies should also provide relevant information and management strategies for health issues related to seafaring or other health-related problems that may occur during voyages. These recommendations are aligned with the national and international policies outlined in AmBisyon Natin 2040 and the United Nations' Sustainable Development Goals (SDG) 2030, initiatives which are highly relevant and important to maritime students' health and wellbeing.



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