



**An assessment of risk management practices and travel-related perceptions among Thai
tourist scuba divers in Phuket**

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**A Thesis Submitted in Partial Fulfillment of the Requirements for the Degree of
Master of Business Administration in Hospitality and Tourism Management
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บทคัดย่อ

วัตถุประสงค์ของการทำวิจัยนี้ เพื่อ 1) เพื่อประเมินระดับความเสี่ยงที่นักท่องเที่ยวชาวไทยมีต่อการเดินทางท่องเที่ยวเพื่อทำกิจกรรมดำน้ำลึกที่จังหวัดภูเก็ต 2) เพื่อศึกษาความสัมพันธ์ระหว่างปัจจัยระดับบุคคลและระดับความเสี่ยงที่นักท่องเที่ยวชาวไทยมีต่อกิจกรรมดำน้ำลึก งานวิจัยได้ปรับใช้ทฤษฎี Protection Motivation Theory หรือ ทฤษฎีแรงจูงใจเพื่อป้องกัน เพื่อประเมินความกังวลต่อภัยคุกคาม การประเมินความสามารถในการรองรับต่อสถานการณ์ ที่มีต่อการประเมินความเสี่ยงในระหว่างท่องเที่ยวมาดำน้ำลึกที่จังหวัดภูเก็ต เป็นการศึกษาเชิงปริมาณใช้แบบสอบถามสุ่มเก็บข้อมูลจากนักท่องเที่ยวชาวไทยจำนวน 304 ชุด ที่เดินทางมาดำน้ำลึก หรือสูบบุหรี่ได้ฟุ้ง ในไตรมาสแรกของปี 2022 การวิเคราะห์ข้อมูลประกอบด้วยสถิติพรรณนา สถิติที่ใช้ในการทดสอบกลุ่มตัวอย่างสองกลุ่มที่เป็นอิสระจากกัน และการวิเคราะห์สหสัมพันธ์

ผลการวิจัยพบว่าการรับรู้ความเสี่ยงของนักดำน้ำลึกของนักท่องเที่ยวชาวไทยที่เดินทางไปภูเก็ตมีความแตกต่างกันระหว่างกลุ่มผู้หญิงและผู้ชายในด้านความเสี่ยงการสูญเสียทรัพย์สิน ความสะอาดของห้องบนเรือ ความถูกต้องของการบรรยายสรุปก่อนดำน้ำ ความน่าเชื่อถือของการตรวจสอบการดำน้ำ พฤติกรรมเสี่ยงของพนักงาน การระคายเคืองต่อแดด สภาพอากาศที่รุนแรง และสิ่งมีชีวิตในทะเลที่เป็นอันตราย งานวิจัยได้ชี้ให้เห็นว่าระดับความเสี่ยงระหว่างนักท่องเที่ยวกลุ่มผู้หญิงมากกว่านักท่องเที่ยวกลุ่มผู้ชายเนื่องจากบทบาททางเพศ แบบแผนทางเพศ ซึ่งผู้หญิงมักจะกลัวสิ่งมีชีวิตใต้ท้องทะเลที่อันตราย มีความกังวลต่อความสวยงามและรูปร่างหน้าตา สถานการณ์ที่คุกคาม รวมถึงการเข้าถึงสิ่งอำนวยความสะดวกเมื่อเกิดเหตุฉุกเฉิน รวมถึงการเจ็บป่วยจากภาวะการเกิดฟองอากาศในเลือดหรือ Decompression sickness และภัยคุกคามอื่นๆ ที่รุนแรงมากกว่าผู้ชาย ในขณะที่เดียวกัน ผู้ชายพิจารณาถึงศักยภาพของความเสี่ยงต่อกิจกรรมบางอย่างมากกว่าผู้หญิง เพราะโดยปกติผู้ชายมีความรู้สึกที่ต้องรับผิดชอบในการดูแลคุ้มครองหรือผู้อื่นในสถานการณ์ที่ยากลำบาก ทั้งชายและหญิงรับรู้ถึงมาตรฐานการปฏิบัติตามกฎระเบียบของ SHA ในช่วงวิกฤตการระบาดใหญ่ของ Covid-19

คำสำคัญ : ปัจจัยด้านความปลอดภัย, การรับรู้ความเสี่ยงของนักท่องเที่ยว, ประสบการณ์การดำน้ำ เพื่อนันทนาการ, มาตรฐานความปลอดภัยและแนวทางการปฏิบัติ, ทฤษฎีแรงจูงใจเพื่อป้องกัน, การประเมินความเสี่ยง

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Abstract

The objectives of this study were to determine travel-related risk perceptions from Thai tourists who engage in scuba diving in Phuket, and to assess effects of demographic background on travel risk perceptions of tourists when engaging scuba diving activity. Quantitative research using questionnaires was applied to collect data from Thai tourist scuba divers in Phuket during the first quarter of year 2022. Four hundred were distributed and 304 usable completed were returned.

The risks are commonly associated with weather, natural disasters, and health related-issues in both expected or unexpected situations. Scuba diving is a high-risk activity, and at one atmospheric pressure, people can be able to adapt themselves. Generally, for all divers, the underwater world is a non-respirable world. Therefore, they are at all risks of deadly injury caused by increasing hyperbaric pressure. Protection Motivation Theory (PMT) had been conducted to the survey for threat appraisal and coping appraisal due to the risk measurement while traveling to scuba dive in Phuket. Data analysis was performed using Descriptive statistics, Independent t-test, and Correlation analysis.

The findings showed that risk perception among Thai tourist scuba divers who traveled to Phuket had vary in terms of genders associated with loss of belonging, the sanity of the room on the boat, the accuracy of the pre-dive briefing, reliability of the pre-dive check, risky behavior of staff, sunburn and extreme weather, and dangerous marine life. To be precise, females perceived the risks more than males because of gender roles and gender stereotypes. According to gender roles development theories, girls and boys develop gender-specific behaviors that may be portrayed as feminine and masculine as an influence of socialization. Thus, females tend to have a greater fear of dangerous marine life, beauty and physical appearance, life-threatening situations, distant/ inaccessible emergency health assistant includes decompression sickness and others severe threats more than males. Meanwhile, males are more likely consider the potential of their

vulnerability to certain activity than females because of males are generally feel the responsibility to look after their partner or others in difficult situations. Both males and females perceived the standard of SHA regulation practice on board during Covid-19 pandemic crisis.

Keywords; Safety factor; Tourist risk experience/perception, Recreation experience,
Safety standards and code of practice, Protection Motivation Theory, risk assessment

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CHAPTER 1

INTRODUCTION

1.1 The tourism industry in Thailand

Thailand is one of the Asian nations with one of the most advanced tourism sectors. According to UNTWO, Thailand's position as the top tourist destination in the world is continuing to decline. In consecutive year of double-digit growth, Thailand rose from fifth to third in terms of tourism receipts, which amounted to 50 billion USD in 2016 (Table 1.1). Additionally, the nation improved to ninth place in terms of foreign visitor arrivals (33 million) (Table 1.2) (World Tourism Organization, 2017). Bangkok, the capital of Thailand, is recognized as one of the world's ten most beautiful cities. As a result, with 6-7 percent of the nation's GDP devoted to it, the tourism sector is one of the primary economic pillars of the nation. In 2016, this sector generated 2.5 trillion THB (\$71 billion) in revenue, of which 870 billion came from imported sales and 1.6 trillion from exports. Thailand in 2016, tourists spent an average of 5,100 THB each day, and this figure is anticipated to rise. (Netherlands Embassy in Bangkok, 2018).

Table 1.1 International tourism revenue 2016

International tourism receipts	US\$				Local currencies	
	(billion)		Change(%)		Change(%)	
Rank	2015	2016*	15/14	16*/15	15/14	16*/15
1 United States	205.4	205.9	7.0	0.3	7.0	0.3
2 Spain	56.5	60.3	-13.3	6.9	3.8	7.1
3 Thailand	44.9	49.9	16.9	11.0	23.0	14.7
4 China	45.0	44.4	2.1	-1.2	3.6	5.3
5 France	44.9	42.5	-22.9	-5.3	-7.6	-5.1
6 Italy	39.4	40.2	-13.3	2.0	3.8	2.3
7 United Kingdom	45.5	39.6	-2.3	-12.9	5.2	-1.4
8 Germany	36.9	37.4	-14.8	1.4	2.0	1.7
9 Hong kong (China)	36.2	32.9	-5.8	-9.1	-5.8	-9.0
10 Australian	28.9	32.4	-8.2	12.3	10.2	13.5

Source: UNWTO (2017)

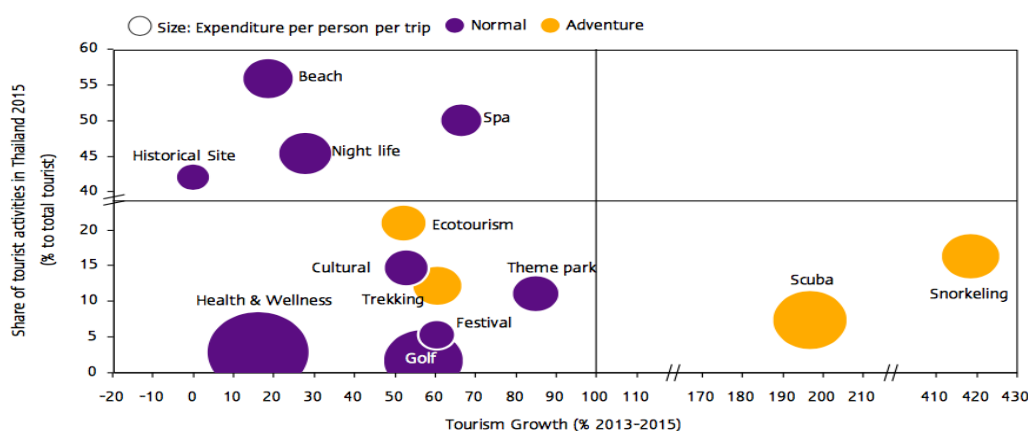
Table 1.2 International tourist arrivals

International tourism receipts						
Rank	Series	(million)		Change(%)		
		2015	2016*	15/14	16*/15	
1	France	TF	84.5	82.6	0.9	-2.2
2	United States	TF	77.5	75.6	3.3	-2.4
3	Spain	TF	68.5	75.6	5.5	10.3
4	China	TF	56.9	59.3	2.3	4.2
5	Italy	TF	50.7	52.4	4.4	3.2
6	United Kingdom	TF	34.4	35.8	5.6	4.0
7	Germany	TCE	35.0	35.6	6.0	1.7
8	Mexico	TF	32.1	35.0	9.4	8.9
9	Thailand	TF	29.9	32.6	20.6	8.9
10	Turkey	TF	39.5	-	-0.8	-

Source: UNWTO (2017)

Both domestic and foreign tourists visit Thailand for a variety of events and purposes. Many tourists go to Thailand in search of adventure, including ecotourism, scuba diving, trekking, and snorkeling. As depicted in figure 1.1, Thailand's adventure travel makes up 10–20% of all travel visitors, while more than half come for leisure, including relaxation, time at the beach, nightlife, spa treatments, massages, and visits to historical sites, among other activities. Despite this, within the two years from 2013 to 2015, the number of adventure tourists doubled., highlighting the significant growing potential in the next years (SCB Economic Intelligence Center, 2017). One of Thailand's most popular tourist destinations is Phuket, where visitors come for adventurous pursuits like scuba diving (PADI Travel, 2020).

Figure 1.1 Share of popular activities in Thailand (2015)



1.2 Phuket

Phuket's trading in the past was influenced by India and China since it is surrounded by water. In the 19th century, indigenous people or "Chao Leh" were used to fishing for pearls to make a living but were displaced by tin mining and rubber plantations as major sources (Phuket.Net, 2018). Foreign investment has been expanded in Thailand since Vietnam War or during the 1960s period. Thailand had the agreement and support from the US are cooperating the tourism industry, including investments, infrastructure development, and international cooperation. Since then, the growth of this industry in Thailand has been characterized as a major international tourism destination. Touristic transition has occurred during the mid-1980s (Cohen, 2001; Page, 2017).

According to "Statistics on domestic travel from Q1 to Q4, broken down by region and province" by Ministry of Tourism & Sports, it is found that in comparison between the year 2016 and 2017 of Internal Tourism in the Kingdom in the first Quarter is surprisingly increase to 16.75% in terms of Number of Accommodation and 7.85% in Guest Arrivals of Accommodation per person. In the Southern part of Thailand, there are 14 provinces, and 12 of them are connected to the sea except for Yala and Pattalung. However, 5 of them reached the most tourist occupancy rates, which are Phang Nga, Phuket, Songkla, Krabi, and Surat Thani. The total of guest arrivals accommodation per person in Southern goes up from the year 2016 to 5.01% or 8.11% in the number of accommodations. In Phuket itself, even though the occupancy rate is slightly lower than the year 2016 but when compared to other cities, the Guest Arrivals of Accommodation per person is the highest rate in the south (Ministry of tourism and sports, 2017).

The top two of population density and touristic parts of Thailand are Bangkok with an average of 59.19 million, and the South with an average of 47.53 million during the year 2014 and 2016 (Ministry of tourism and sports, 2017). Moreover, Phuket has its reputation as the piers that can lead to many places, including islands and even surrounding provinces. Since its fluctuated tourists from the past nine years through its airport operation, this can measure how it becomes an important hub in tourism and touristic distribution (AOT, DOA). There are five active public piers for ferryboats; Chalong pier, Rassada pier, Ao Po pier, Bang Rong pier, Rawai pier. The main ones that most tourists are coming here for and connecting to other destinations around Phuket Island are Rassada Pier leading to Ao Nang, Koh Bulon, Koh Kradan, Koh Lanta, Koh Libong, Loh Lipe, Koh Mook, Koh Yai, and Koh Phi Phi Sea Angel Pier leading to Ao Nang, Koh Lanta, Koh Phi Phi, and Rai Lay. Additionally, Ao Por leads to Koh Plong, Koh Yao Noi/Yai, and Koh Naka Noi/Yai. Ferries' capability is from 200-400 people onboard. The other ones are private operations and mostly for yachting; Yacht Marina – Phuket Boat Lagoon, Phuket Yacht Haven, Ao Po Grand Marina, and Royal Phuket Marina (Phuketferry.com, 2018).

Being known for the “Pearl of Andaman,” Phuket has its clear blue water city, its fame for leisure traveling, its beautiful scenery, as well as its sandy beaches. Since there are various activities both onshore and offshore available for tourists to enjoy, it would have attracted sea lovers around the world. The outstanding tourist attractive beaches include Patong, Kata, and Karon. Moreover, on the southern part of the sea, there are gorgeous coral reefs for scuba diving (Mots.go.th, 2017). According to recent Thai tourist news, Bangkok, Phuket, Ko Samui, and Hua Hin all placed highly in the 2017 SmartTravelAsia.com Best in Travel Poll. They were all rated among the "Top 10 Holiday Destinations" in Asia by SmartTravelAsia.com's Best in Travel poll, an impartial, free, and open poll that received votes from more than 1.2 million users of the online magazine around the world (TAT Newsroom, 2017).

As reported by the National Statistical Office of Thailand during the period of the year 2009-2015, the estimated tourist statistics, both Thais and foreigners, as well as domestic and international visitors in Phuket, were presented in the following table. The number of visitors has been increasing each year, affecting all kinds of industries; travel and tourism, hotels, airlines, transportation, and restaurants. (Phuket.nso.go.th, 2017). Most importantly, one of the main country's revenues factors is generated from the tourism industry. Meanwhile, in 2014, the

statistics of tourists and hotel occupancy rate had slightly dropped over the past years. Since the military coup for months of protests, Thailand has lost billion baht in tourism-related revenue and approximately 10 billion baht in only one province, which is Pattaya, considered as another tourist famous city in Thailand (Pattaya Mail, 2017).

Table 1.3 In/Outbound travelers situation of Phuket province from the year 2009 – 2015 by National Statistical Office of Thailand (2017)

Item	2009	2010	2011	2012	2013	2014	2015
Visitor	3,375,931	5,471,218	9,467,248	10,789,647	11,960,044	11,958,603	13,203,284
Thai	887,365	965,192	2,844,472	3,233,542	3,564,123	3,499,187	3,714,328
Foreigner	2,488,566	4,506,026	6,622,776	7,556,105	8,395,921	8,459,416	9,488,956
Tourist	3,126,558	5,120,761	8,891,039	10,211,885	11,339,885	11,312,037	12,520,769
Thai	741,343	815,096	2,600,462	2,994,910	3,304,904	3,226,421	3,425,414
Foreigner	2,385,215	4,305,665	6,290,577	7,216,975	8,034,981	8,085,616	9,095,355
Excursionist	249,373	350,457	576,209	577,762	620,159	646,566	682,515
Thai	146,022	150,096	244,010	238,632	259,219	272,766	288,914
Foreigner	103,351	200,361	332,199	339,130	360,940	373,800	393,601
Average Length of Stay (Day)	5.99	4.26	4.33	4.46	4.02	3.89	4.02
Thai	3.96	2.88	2.98	3.00	2.87	2.74	2.70
Foreigner	6.62	4.52	4.90	5.06	4.49	4.35	4.51
Average Expenditure (Baht/Person/Day)							
Visitor	4,187	4,897	4,828	4,964	5,639	5,806	6,143
Thai	2,835	2,868	3,118	3,279	3,819	3,992	4,244
Foreigner	4,552	5,155	5,266	5,386	6,126	6,238	6,442
Tourist	4,210	4,935	4,862	4,996	5,683	5,810	6,040
Thai	2,859	2,905	3,147	3,310	3,865	4,047	4,304
Foreigner	4,566	5,180	5,293	5,412	6,161	6,274	6,477

Table 1.3 Continued

Item	2009	2010	2011	2012	2013	2014	2015
Excursionist	2,311	2,504	2,514	2,423	2,462	2,520	2,635
Thai	2,150	2,291	2,225	2,109	2,153	2,200	2,324
Foreigner	2,515	2,663	2,727	2,643	2,684	2,753	2,862
Revenue (Million Baht)							
Visitor	94,007	108,446	188,822	228,985	260,442	259,291	313,006
Thai	7,132	7,160	24,895	30,292	37,217	36,375	40,474
Foreigner	86,875	101,286	163,927	198,693	223,225	222,915	272,532
Accommodation Establishments							
Rooms	37,884	44,330	57,679	53,814	46,007	48,241	82,962
Occupancy Rate (%)	35.84	46.20	56.47	61.41	71.58	70.39	73.38
Number of guest arrivals	2,721,269	4,642,862	8,271,722	9,569,786	10,804,700	10,793,303	11,928,579
Thai	550,031	628,320	2,375,725	2,780,374	3,087,913	2,975,032	3,156,924
Foreigner	2,171,238	4,014,542	5,895,997	6,789,412	7,716,787	7,818,271	8,771,655

1.3 Diving industry

Scuba diving has started in the early 1930s with Military diving purposes along the French Mediterranean coast and in Southern California, USA. From time to time, the instruments have been developing continuously (All4Diving, 2017). Scuba diving has become one of the most popular recreational underwater sports. It is widely spreading in many countries offering the best in beaches and seas such as the United States, Australia, Japan, Philippines, Egypt, Indonesia, and others. According to Higham & Lück (2007), Scuba diving is important for maritime tourism. Modern scuba diving environment is now seen as economically significant to tourist destinations, technological development, and diversified management strategies. Additionally, it has bearing on debates about environmental sustainability and climate change.

Diving is a high-risk activity, and at one atmospheric pressure, people can be able to adapt themselves. Generally, for all divers, the underwater world is a non-respirable environment. As a result, individuals run the danger of suffering a fatal injury from rising hyperbaric pressure. Physical limits apply to both professional and recreational diving in addition to the unchangeable laws of physics. The same high-risk environment can provide basic risks to all divers. Slightly different between the two types of diving is occupational one needs to put their effort in safety checking not just only themselves but also the team members. Besides, they need to be trained in related to the OHS (Occupational Health and Safety) responsibilities which includes the requirements of the proper regulations, standards, and codes in scuba diving (ADAS, 2017).

According to CNN's list of the 50 top dive sites worldwide for 2017, Thailand offers one of the best diving sites in the world. Elephant Head Rock in Similan, Phang Nga province, is ranked 29 out of 50 with its unique and incredible cave backdrop and the chance to see black tip, white tip, and leopard sharks. Japanese Gardens, Koh Tao Island in Surat Thani province, a number of turtles that can be seen, catfish, yellow rabbitfish, boring clams, a mini-wreck of a former dive boat, and multi-colored corals (Travel.cnn.com, 2017).

1.4 Risk Management

Natural catastrophes (including earthquakes, volcanic eruptions, and others) , terrible weather (including floods, droughts, and others), and health-related difficulties (including illness, disability, old age, and death) have all been major social concerns for a long time. Because of the risks involved with these alarming occurrences, precautionary measures (like crop diversification and quarantine) as well as—and perhaps more significantly—casual exchange-based risk-sharing strategies have been developed. These include extended families, reciprocal gift-giving, egalitarian tribal societies, and crop-sharing agreements with landlords. Many developing nations still rely on these informal mechanisms to manage risk today.

Two significant developments occurred as a result of the growth of industries and the urbanization of society. The first was the demise of traditional and informal risk-sharing mechanisms, and the second was the emergence of a new set of risks, most notably work-related accidents and unemployment. The formation of "social insurance" programs based on the concept of social hazards resulted from these issues plaguing governments and society in the newly industrialized world in the late 1800s (Hesse, 1997). Starting in more industrialized countries' late 19th century mandated work-injury, health, and social insurance for the elderly. A century later, almost all industrialized nations established governmental programs to address "social hazards" such work-related injuries, illnesses, disabilities, death, and unemployment) for the majority of their citizens.

Other sorts of risk resulting from economic policy and the development process emerged with the creation of the modern nations, as well as the rise of new decolonized states and big cities. These dangers include devaluation and inflation brought on by economic policy, changes in relative pricing brought on by trade or contemporary technology, failure of social programs, and modifications to tax rules. All have a significant impact on how well-off people, households, and communities are. Additionally, as evidenced by the rise in natural disasters, the development process itself, including relocation and environmental deterioration, raises risks (IFRC&RCS, 1999) . Recent trends in the development of trade, technology, and political institutions have provided a lot of potential for welfare improvements globally. The inhabitants of the world are prepared to benefit from global comparative advantages as a result of the globalization of commerce in commodities and services. Technology is accelerating innovation

and has the potential to lift many people's biggest development barriers. Holding those in power accountable to larger parts of the population has enhanced governance in more open political systems. Together, these developments have led to enhanced social and economic development, the eradication of poverty, and successful growth.

The same mechanisms that enable welfare increases, however, also make outcomes more variable for society as a whole and for some groups in particular. An international illustration of this is the global financial crisis of 1998. Modernized systems and technological advancements may not be distributed equally among people, families, ethnic groups, towns, and nations. Depending on the developing social context and legislative measures, increased commerce or better technology may widen the gap between the rich and the poor while also increasing opportunity for everyone. Social exclusion, cultural hierarchy, and income unpredictability brought on by globalization might actually make large groups in society more vulnerable. The risks are equal to the potential returns, to put it another way. Further complicating matters, the move towards globalization and the increased mobility of production factors limit governments' capacity to generate revenue and pursue independent economic policies, which makes it difficult for them to have national assistance programs for the most vulnerable members of their society (Tanzi, 2000; Holzmann and Jorgensen, 1999).

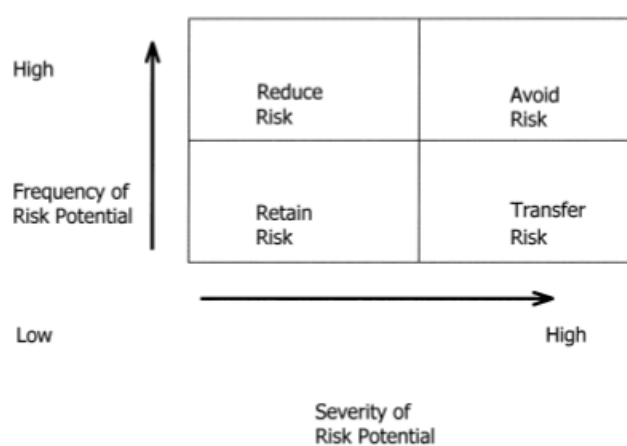
1.4.1 Risk management for scuba diving operators

In recent times risk management has become a crucial means of understanding and acting up tourist health needs. And it is exactly this sentiment that was declared by Wilks and Oldenburg (1995). Risk management is nowadays internationally recognized by dive trip operators as a globally recognized business initiative. The initial foundation of decision-making towards risk management is to precisely evaluate business potential which is based on the quantity and severity of recognized potential dangers. In this paradigm, risk is divided into three categories: direct financial risk, indirect financial risk resulting from legal actions, and physical dangers experienced by customers and employees. The study by Cuskelly and Auld (1989) suggested the use of a matrix plan for risk evaluation. Fig. 1 shows the framework, which offers four management reaction options based on the severity and frequency of the specific risks.

1.4.2 Risk retention

Commercial operators encounter a wide variety of somewhat risky situations whereby the repetition and seriousness of risk is low. Operators typically maintain their risk in such cases. Self-insurance may be used in this situation, where as operator acknowledges and admits a specific level of risk. Retention may be active or passive. An instructor who decides not to insure his personal diving gear may be opting to accept the risk. This proactive choice may be supported by the fact that he always keeps the necessary equipment close at hand and that, in the event that it was lost, the cost of replacing it would be less than the cumulative cost of the insurance payments. When everything is running smoothly, this risk management technique is great.

Figure 1.2 The risk evaluation matrix (Cuskelly and Auld, 1989)



1.4.3 Risk transfer

In situations where the possibility of risk is low, but the severity is intense, in such cases the transferring of responsibility to other parties is a widely adhered to method of risk management (Wilks & Oldenburg, 1995). A common example of this would be customer diving safety. Injuries do not occur frequently, but when they do happen, they can be extreme. As the intensity of risk possibility is increasing, the responsibility of businesses to manage their risk becomes not worthwhile, thus they must pass it on to others or insurance cover. It is compulsory for all instructors and dive masters, Professional liability insurance must be purchased as a condition of membership, as mandated by their training organizations. Additionally, diving operators operating from land-based facilities or maritime boats typically have public liability

insurance (Wodak & Gatehouse, 1993) . Despite the fact that diving operators must have insurance coverage, Wilks and Oldenburg (1995) made the point the exclusive reliance on insurance protection is not the wisest approach.

1.4.4 Risk reduction

Operators are obligated to consider means of reducing their exposure when the likelihood of a danger is low but its frequency is on the rise. For instance, more divers might be skipping the pre-dive briefing and returning to the boat after the dive with their oxygen tanks critically low. To solves this problem, some common solutions could be to include the setting up of policies and procedures, conduct staff training, organize hazard warning signs, provide emergency services and also maintain paper documentation (Wilks, 1993d, 1999). In Australia, when on a dive trip, Diving Industry Taskforce (1999) proposed that:

- rules of conducting to make sure that dive sites are supervised by assigned lookouts;
- rules for onboard individuals' recreational divers and boat;
- strict rules be applied to make sure that written records are kept, including dive safety logs for all dive trips, with no exceptions whatsoever.

1.4.5 Risk avoidance

Lastly, when both the repetative and intensity of potential risk are above the average, it is highly recommended operators seek to cancel a program or activity such as weather conditions. This is a serious circumstance for operators since it can result in lessen customers' expectation, as well as company earnings drop. So as to prevent additional issues, it is a crucial risk management element (Wilks & Oldenburg, 1995). Recent boat accident due to bad weather, resulting in the death of 46 Chinese tourists in Phuket in 2018 is an instance of the extremely serious results of not turning to severity avoidance, by not cancelling a potentially dangerous boat trip. In short, the optimal situation to manage risk for diving companies should combine best strategies for risk reduction, as well as insurance coverage helps ease part of the financial strain in the event of a diving accident (Wilks and Devis, 2000).

1.5 Research Objectives

The research objectives of this study are as follow:

- 1) Research objective 1: To determine travel-related risk perceptions from Thai tourists who engage in scuba diving in Phuket
- 2) Research objective 2: To assess effects of demographic background on travel risk perceptions of tourists when engaging in diving activities

1.6 Significance of the study

Even though Phuket is known as of the most desirable destination in Thailand for scuba diver, recent news on scuba related incidents have made a headline of various news agency both locally and internationally (Chuenniran, 2019; CTN News, 2019; Post Reporters, 2018). These news may deter potential tourists, both nationally and internationally, seeking adventurous sports like scuba diving away. Ultimately, scuba diving activities in Phuket may diminished as a result of negative news. The disruption in scuba diving businesses has the potential to cause decline in GDP of the region, as well as, Thailand as a whole. For this reason, it is critical to comprehend how people perceive risk. related to scuba diving in Phuket so that management plan can be formulated to minimize perceived risk and ensure that Phuket is still a forerunning destination for scuba diving. Moreover, Phuket has been impacted by COVID-19, which poses travel risk to tourists especially those who desire to engage in liveboard diving.

1.7 Scope of the study

- Target population – Thai Travel-related divers in Phuket
- The samples in this study are –308 travel-related scuba divers, and certified diving instructors working in diving organizations, selected by convenience sampling method
- Area of study – Phuket diving industry of the year 2022 such as Racha Yai/Noi island, Phi Phi island, Mai Ton island, and surrounded islands.

1.8 Expected contributions of the research

- Examine the effects of tourists (divers) risks perception and safety (risk) management have on Phuket diving industry
- Identify the safety training in diving organizations that should be concerned and taking actions
- Provide recommendations for the future improvements and a better image of Thailand tourist destination, Phuket
- Determine the influences of COVID-19 and SHA program on risk perception related to liveaboard scuba diving

1.9 Definitions of Key Terms

Liveaboard scuba diving

The term "liveaboard" refers to either a boat that was especially built for the activity of scuba diving or an already-existing vessel that has been modified to provide scuba diving excursions that often continue for more than one night (Padi Travel, 2022).

Risk perception

Risk perception refers to an individual's internal appraisal of the degree of danger that is connected to a certain threat is what is meant when we talk about risk perception (e. g. , health threat) . Risk perceptions of individuals are affected by a variety of variables, including their age, gender, and cultural background. For instance, women have a propensity to exaggerate the likelihood that they may acquire breast cancer. People may be motivated to seek genetic services, genetic testing, or preventive surgery as a result of their inflated beliefs of the risks involved. The term also referred to as perceived risk (AMerican Psychological Association, 2022).

Risk Assessment

The study in the UK diving operators' risk assessing and managing found that there are proper regulations to apply in diving industry includes divers and operators. Based on Health and Safety Executive (HSE) and Diving at Work Regulation created the generic terms of a system of risk assessment which requires minimum diving qualification, medical requirement, and written records (Sayer, 2004).

Thai tourist scuba diver

A diver who has Thai citizenship who came to Phuket for travel-related diving purpose (Singha, 2016).

Protection Motivation Theory

The theory that analyzes perceptions of the risk in order to avoid the possibility of loss or injury (Rogers, 1993).

CHAPTER 2

LITERATURE REVIEW

Since diving is an important marine tourism sector in Thailand, especially in Phuket, to reduce dangers and improve market accessibility, it needs appropriate safety standards. This study was conducted with its two main objectives; to measure travel-related risk perceptions from tourists who engage in scuba diving in Phuket and to assess effects of demographic on the overall travel risk perceptions of tourists when engaging in diving activities. This chapter, divided into three main parts, presented the scope of this research by examining literatures pertaining to risk management in terms of diving activities. The outline of this chapter is as follow:

2.1 Travel-related risk perception

2.1.1 Definition, type of risks and risk perception towards traveling

2.1.2 Factors that influence on travel decision making

2.1.3 Demographics

2.1.4 Risk associated with recreational scuba diving

2.2 Risk management practices

2.2.1 Recreational and Occupational scuba diving

2.2.2 Maritime safety

2.2.3 Scuba diving safety and code of practice

2.2.4 Scuba diving fatalities

2.2.5 Various incidences in Thailand

2.2.6 Governmental regulation and law concerning scuba diving in
Thailand

2.3 Related theories

2.3.1 Protection motivation theory

2.3.2 Risk compensation/risk homeostasis theory

2.3.3 Situated rationality theory

2.1 Travel-related Risk Perception

2.1.1 Definition and type of risks

Risk is a terminology defined differently by various people (Adams, 2014). Despite the variations in the definition of risk, the word poses the urgency feeling as it addresses detrimental, or even catastrophic consequences (Johansen & Rausand, 2014). The definition of risk given or used by different scholars differ depending on their professionalism, as well as, the context they are using the term “risk” for. Due to vast differences in the situations where the term “risk” can be used, there is dispute on the term's definition and interpretation. (Aven & Renn, 2009). Some definitions of risk are based on uncertainty while other definitions are based on probabilities. In addition, some authors also use the term risk in relation to expected values. On the other hand, some people may regard the term on objectives (Šotić & Rajić, 2015). In terms of service businesses including transportation, hospitality and tourism, ‘risk’ is related to many causes e.g. natural disaster, technological, industrial business or even crime. In other words, risk can be defined as the undesirable situations occurred unexpectedly which affects normal events (Amirudin et al., 2017). In dynamic society, risk can be side effects that accidentally causing harm to people, environment or investment (Rasmussen, 1997).

Other definitions of risk are illustrated in Table 2.1. Although the definitions of risk usually involved undesirable outcomes, risk is not always a bad concept especially in relation to the tourism industry (Yang & Vikneswaran, 2014). Scholars addressed that risk can be perceived as a benefit of tourism because travelers and adventurers occasionally seek out danger. (Cohen, 1972; Plog, 2001). As shown in Table 2.1, risk is sometimes associated with uncertainty (Aven & Renn, 2009). Based on this definition of risk, purchasing a holiday in itself is a risk as the nature of the tourism product is intangible, irreducible, diverse, and transient. (Willaims & Baláž, 2013).

Table 2.1 Different Definition of risk

Definition	Source
<i>“Risk is the measure of probability and the weight of undesired consequences”</i>	Lawrence (1976)
<i>“Risk equals to product of probability and severity”</i>	Wilson & Crouch (1982)
<i>“Risk is a combination of five primitives: outcome, likelihood, significance, causal scenario and population affected”</i>	Kumamoto & Henley (1996).
<i>“Risk is a situation or event where something of human value (including humans themselves) has been put at stake and where the outcome is uncertain”</i>	Rosa (1998)
<i>“Risk is an uncertain consequence of an event or activity related to something of human value”</i>	International Risk Governance Council. (2005)
<i>“Risk equals expected damage”</i>	Campbell (2005).
<i>“Risk is the likelihood of an injury, disease or damage to the health of employees due to hazards”</i>	Law on Safety and Health at Work. (2005).
<i>“Risk refers to uncertainty about and severity of the events and consequences (or outcomes) of an activity with respect to something that humans value”</i>	Aven & Renn (2009).

In general, risk can be divided into 2 main types; one is controllable e. g. uncertainty of success or failure. In contrast, feeling of insecurity or nervousness when confronted with uncontrollable situation (Morgan, 2001). The classification of risk can be related to financial and no-financial, static and dynamic, pure and speculative as well as fundamental and particular ones (Amirudin et al., 2017). Researches around risk in tourism industry often explore risk from tourist’ s perspective where risk is often referred to as perceived risk (Yang & Vikneswaran, 2014). Perceived risk can be divided into three dimensions namely risk with physical equipment,

destination-specific risk, and vacation risk (Roehl & Fesenmaier, 1992). The topic of perceived risk is discussed further in later section.

Risk perception towards traveling

Deng and Ritchie (2016) defined travel risk perception from International University students that identified six major aspects are as follow: Physical risk concerns the danger of getting physical harmed while in a foreign country; Physical risk can in turn be divided into political, health issues, crime and harassment, as well as terrorism (Sönmez & Graefe, 1998). The types of physical risk can even be subdivided even more. For example, health risk can constitute contagious diseases, food that has undergone genetic modification (GM food) (Larsen, Ogaard, & Brun, 2011) or abnormal food (Lepp & Gibson, 2003), alcoholic poisoning (Sönmez et al., 2006) and narcotics (Uriely & Belhassen, 2006). Floyd and Pennington-Gray (2004) made some comparisons of the perceived physical risk of international travel between different tourist venues, including natural settings, parks, and amusement parks.

Psychological risk is related to the emotions which are felt when a planned trip conflicts with one's personality (Roehl & Fesenmaier, 1992). Boksberger, Bieger, & Laesser (2007) described it as the risk of being embarrassed or losing one's confidence. The sources of psychological risk to a traveler can include the atmosphere of the destination (Aschauer, 2010), language barriers (Han, 2005), cultural barriers (Lepp & Gibson, 2003) and the feeling on claustrophobia from intense crowds (Lawson & Thyne, 2001; Reichel et al., 2007). Furthermore, Mitchell and Vassos (1997) and Roehl and Fesenmaier (1992) compared the emotional strain exposed to travelers from different situations, including having poor accommodation standards, cancelled flights, and sub-standard food. Eitzinger & Wiedemann, (2007) added that a further psychological risk can comprise the anxiety of consuming alcohol (Eitzinger & Wiedemann, 2007). While other fears include becoming lost (Simpson & Siguaw, 2008), being anxious (Floyd & Pennington-Gray, 2004), being scammed (Gallarza & Gil Saura, 2006) and being pessimistic of succeeding in the near future (Reichel et al., 2007).

Social risk is related to not conforming to the standards of the host country natives or other travelers in the area (Roehl & Fesenmaier, 1992). In addition to studies being done on travelers' self-image as thought of by the locals, Floyd & Pennington-Gray (2004) explored the perceptions of the friends and family members of the traveler. Gallarza & Gil Saura

(2006) extended upon that to include the thoughts on the traveler by peers and service personnel. Studies were also done on the social risk emanating from how tourists perceive each other. Such as either as strangers or disturbers. And sometimes even as competitors (Pearce, 2005). There was even some research done on travelers' concerns for children (Simpson & Siguaw, 2008). Sönmez & Sirakaya (2002) delved into the social impacts on the traveler from the lifestyle, standard of living, dress codes and attitude towards women in the host country. Political instability, strikes and marches were also explored as means of social risk (Reichel et al., 2007). With (Lepp & Gibson, 2003) extending upon this to examine how the attitudes towards politics and religion by the local people can cause cross-cultural differences and hence act as a form of social risk.

The potential for a trip to not live up to expectations can be described as performance risk (Roehl & Fesenmaier, 1992). Performance risk has various names in tourism-related studies, including "equipment / functional risk" (Moutinho, 1987; Promsivapallop and Kannaovakun, 2017), "expectation risk" (Reichel et al., 2007), and "satisfaction risk" (Roehl & Fesenmaier, 1992; Promsivapallop and Kannaovakun, 2017). There are many variables to performance risk, which include Value for money, scenery, activities, entertainment, infrastructure, accessibility, and relaxation during trip (Chi & Qu, 2008; Yu & Goulden, 2006). In addition, Service quality was examined by Gallarza and Gil Saura (2006) by analyzing how tourists' perceived staff performance. Rittichainuwat and Chakraborty (2009) then explored a bit further in relation to performance risk and mentioned that travelers not being exposed to new experiences and entertainment often lead to boredom. On the other hand, In certain studies, performance risk has been quantified but not formally identified, so, by examining feedback from tourists on general safety, acceptability, expectations, and satisfaction relating to their holiday experience (Fuchs & Reichel, 2006; Reichel et al., 2007).

Financial risk is the thread of losing the funds invested into a trip. Or another way of putting it is, when the trip isn't worth it (Roehl & Fesenmaier, 1992). Chi and Qu (2008) and Sönmez and Sirakaya (2002) examined travelers' attitudes toward "worth the money" in a normal sense. Simpson and Siguaw (2008) delved into financial concerns and overpricing. They interestingly determined that travelers were more concerned about over-spending than the actual prices of tourism related items and services. Roehl and Fesenmaier (1992) divided 3 categories to assess the monetary risk posed by tourists. Namely, "unforeseeable additional costs", "influence

on the financial condition” and “more costly than alternative locations”. Fuchs and Reichel (2006) furthermore added to that by including unforeseeable incidental costs, including clothes, maps, and sport equipment to the analysis. Rather than studying financial risk in broader terms, Rittichainuwat and Chakraborty (2009) compared foreigners’ perceptions of particular items and services, including hotel room prices, the cost of tour packages and flight costs. The expenses of shopping and related activities were further included in the studies of Lepp and Gibson (2003). Lastly, Gallarza and Gil Saura (2006) assessed the "cost of opportunity" in relation to expense of travel and how the funds could have been better spent elsewhere.

Time risk refers to risk of a trip draining one’s time (Roehl & Fesenmaier, 1992), or as described by Mowen & Minor (2000) a particular travel related decision will cost more time that would have liked. Time was determined to be a very important variable in a number of research cases. Gallarza and Gil Saura (2006) highlighted four factors: amount of time for planning and preparation, spending time on returning back home, cost of losses of time and finally, time spent on the actual trip itself. Rittichainuwat and Chakraborty (2009) subsequently examined the perceived risk associated with excessive travel time, longer than anticipated time on traveling, overly numerous connecting flights, and congested roads. They came to the conclusion that lengthy travel distances were a significant source of potential risk for many travelers, including students.

However, recurring visits, selection of a location, experience traveling previously, country of origin and group differences have been recognized to be other determining factors as to how a tourist perceives travel risks. Past experience has a major impact because it can raise awareness of potential threats and increase knowledge about them and determine a tourist’s intentions. Individuals’ having more travel experience are usually more immune to travel risk concerns (Lepp & Gibson, 2003). Despite the visitors having felt a certain risk to their personal safety, they would still probably come back and suggest it to their friends (George, R., 2010). Choice of destination, for example, the natural disaster intensity and frequency in Asia and North America were a concern for travelers to such regions, while Asia, South America, the Middle East, and Africa were considered to be unsafe travel destinations due to the possibility of infectious illness outbreaks.

Country of origin, tourists from different countries have been studied and comparisons have been made. With the studies tending to be context and situation specific. Surveys were conducted on different nationalities and ethnic backgrounds, exploring how they reacted to different elements of risk. For example, Money and Crotts (2003) observed that travelers from Germany were more tolerant to travel risks than Japanese tourists. Travelers from the US, Hong Kong, and Australia were shown to be more sensitive to travel dangers than visitors from the UK, Canada, and Greece by Reisinger and Mavondo in 2006. According to Simpson and Siguaw (2008), Mexican visitors were more concerned with their health and well-being than with the surroundings of the travel site.

Group differences in risk perception, studies related to travel risk show that the category and level of concern of risk factors differ depending on the individuals examined and their specific situations. A diverse range of factors, including past experience, lifestyle and demographics also have an impact. It was also discovered that certain variables had an impact on people's interpretation of risk and safety. These included age, nationality, and purpose of visit (George, R., 2010). Simpson and Siguaw (2008) found that demographic information; sexual identity, age, marital conditions, ethnic families and household earnings are also significant factors to travel risk perception. Apart from the mentioned risks, in terms of hospitality and tourism industries, technology risks and business risks are included into the type of risks (Analysing Risk Management In Holiday And Hospitality Industries Tourism Essay, 2020).

2.1.2 Factors that influence on travel decision making

Traveling is based on emotional feelings and yet satisfaction and meaningful sensation can also be the reason of travelers' repetition and that apply to the feeling of "pleasant, risk-free, secure, efficient, even to boost their self-confidence" in order to make a loyal guest (ibid, 2020). Many people would describe the fulfilment of experiences as the key to a satisfied, complete and happy life. There are internal and external factors for a tourist decision-making process. Internal factors comprise of socio-psychological, personal variables and environmental variables. Many internal forces include values, learning, personality, motives and attitudes influence perception. The external factors will base on social, family roles, culture and environment. The decision-making process can be separated into three parts: the pre-decision and decision process, the post-purchase review, and the future decision-making. The concept of

perception is a selective process that can distort or attend and involves the perceiver, the target and the situation. Travelers' perception and information search behavior comes from the individual's memories (internal), traveling experience and expectation from buying the products/services and influential information from others or commercials (external). The tourist destination image is also significant for decision making, which effects on how tourists perceive the particular place's reputation (Radphukeaw, 2011).

Pearce's (1988) described his Travel Career Ladder which motivates one's satisfaction level on traveling are (1) relaxation (2) stimulation (3) relationship (4) self-esteem and development and (5) fulfillment. According to the theory of Maslow in 1970 'Hierarchy of Needs' and 'Travel Career Ladder' by Pearce in 1988. The patterns and drivers of academic travel, according to Williams and McNeil, are as follows: (1) survival, which involves meeting off-campus teaching and learning expectations; (2) safe travel competency and administration; (3) social development and relationship building; (4) leadership development; and (5) achieving traveler status. However, Simpson and Siguaw's (2008) found that demographic characteristics are generally involve with gender, age, marital status and income. Some of which can lead to limitation on one's travel choices e.g., females may find difficulties in some places due to their gender. Besides, income and education are also necessary as much as other variables.

2.1.3 Demographics

In this research, one of the main variables to risk perception is demographics. Its characteristics are varied as the study mentioned in 2.1.2. However, to assess traveler's perspective and manageable risks on traveling, Simpson and Siguaw (2008) and studies in the past have considered and focused on traveler type; traveler or non-traveler, gender differences, age differences (18-24yrs, 25-30yrs, 31-45yrs, 46-60yrs, and more than 60yrs), ethnic/country group differences, marital status differences (married, single, widowed, and divorced), and income group differences (<\$20,000, \$20,000-\$49,999, \$50,000-\$80,000, and >80,000 per annum).

The results of risk perception on travelers shown that non-travelers were more concern to danger both physically and household as well as the quality of transportation services. There were not much necessarily effects on genders. On the contrary, the youngest age group had most nervousness towards financial situation, quality of transportation services and quality of

travel service provider, and other people. On the other hand, they were least concern towards danger while traveling and the particular place surroundings. The group of above 60 years were most express their fears and health condition but least concern towards other people or the quality of transportation services. The third and fourth group of age were extremely involving with crime concerns both physically and asset as well as concern other people since these two age groups possibly have their children at their property (Simpson and Siguaw 2008).

Whilst, Mexicans were the ethnic group most concerned with their health, safety, and the environment of their trip destinations. Hispanic was most anxious about quality of transportation and property crime. Anglos were most concern about fears and other people. For marital status factor, the widowed were not significantly concern on any risks but only slightly on fears and health condition. Singles were most mentioned on quality of travel service provider. Major concerns for both the married and the divorced were crime risk and the particular place surroundings when traveling. Lastly, the higher income can lead to crime risk concern than the lower income, whilst, the lower income group were more mentioned on transportation quality since they may have senior in the group. The lowest income group was extremely concern towards fears while the highest one was property crime (Simpson and Siguaw 2008).

2.1.4 Risk associated with recreational scuba diving

One significant area of marine tourism is scuba diving in many countries including Thailand. Scuba diving is recreational tourist activities that requires proper standards of safety to minimize the risk and enhance market accessibility (Lucrezi et al., 2018). Despite being a sport that is reasonably safe nowadays (Wilks & Davis, 2000), scuba diving safety issues continue to draw unfavorable attention from the international media (ibid, 2000). Recreational diving is based on self-responsibility, where accidents are more frequent than in professional diving, which is governed by established risk assessment, codes of practices, regulation, and mitigation programs (Lucrezi et al., 2018).

Lucrezi and colleagues (2018) have listed a series of risks exposed to recreational scuba divers, which could result in accident, injury, liability, or even death to the divers. Recreational associated risks mentioned by the researchers include risky behaviour by client (e.g. no pre-dive checks), risking behaviour by staff (e.g. alcohol abuse), sunburn, illness, stress, various hazards (e.g. sharp objects, slippery floors/roads), electrical failures, fires and

explosions, chemical/ bacterial exposure, social instability/ violence, crime, distant/ inaccessible emergency facilities/ services/ assistance, vehicle incident/ accident (e. g. car crash) , inefficient emergency assistance plans, compressor failure, poor breathing gas quality/ wrong gas mixture, vessel incidents/accidents (e.g. capsizing, engine failure, falling), bad weather and rapid climatic change, diving equipment malfunction/ failure, diving incidents/ accidents (e. g. buddy system failure, running out of gas), and marine life injuries (Lucrezi et al., 2018).

2.2 Risk management practices

Though Phuket has strength point on fertility of its Andaman ocean resources, coral reef, and standardized conservation strategy. In spite of being a well-known regional developed dive site, natural resources and environment are being destroyed within a short amount of time due to lack of responsibilities and knowledge on protecting strategy from business providers and authorities especially in diving industry. Some of operators are not followed the rules and regulations from maritime and diving policies. Moreover, regularly training for good understanding and conservation towards an underwater world is scarcely found (Lertvanichpisal, 2008).

In the decade, marine accidents have been occurring regularly in Phuket. For example, on July 26th, 2017, sightseeing boat “Chokethara 2” has sunk between Ngam island and Kaloke island at Chumphon gulf since engines didn’ t work properly caused 5 deaths and 11 injuries. On July 5th, 2018, the tourist cruise called “Phoenix” sunk and killed 47 Chinese tourists which caused by weather condition and wavy tide. On the same day, there were other 2 sunken ships accidents that caused injuries and lives of tourists and ship crew even though the weather warning has been announced but the shipmasters were not aware (BBC News, 2017) . On February 10th, 2020, 2 speedboat crashed at Royal Phuket Marina estuary caused 2 deaths and many injuries and most of injurer were Russian tourists (VOICETV, 2020). To avoid or reduce all of these unexpected situations do seriously require attention and good of risk management.

To manage and reduce risks in recreational activities, both individuals and business operators should be aware of safety, common policies, basic knowledge of particular place and activity and so on. Therefore, to prevent and minimize the worse outcomes. Amirudin, Nawawi and Puteh Salin (2017), described the step of risk management as follow:

- 1) Risk management objectives
- 2) Risk identification consists of tools for identifying risk; risk analysis questionnaires, interviews, inspection of how things are operated
- 3) Risk evaluation which adopted risk management matrix that includes risk avoidance, risk reduction, risk retention, and risk transfer
- 4) Implementing the decision
- 5) Evaluating and reviewing
- 6) Risk management framework

2.2.1 Recreational and Occupational scuba diving

Scuba diving plays a significant role in maritime tourism and One of the world's most rapidly expanding pastimes, it has grown into a multimillion dollar industry (Ong & Musa, 2011) The Professional Association of the Dive Instructors (PADI) estimates that there have been over 25,000,000 PADI certifications worldwide since 1967, or 9,000,000 divers annually. It's operated over 200 countries globally. There are many levels and types for scuba diving but to dive successfully, it has to be certified by the first level which is Open Water Diver course. Advanced Open Water Diver and another specialization courses can be done after the first level is certified. However, Discover Scuba Diving is not a scuba certification course but it will allow the divers to discover more about underwater world and the key skills in diving with a professional supervision before decided to continue the next level.

The skills and certifications are as follow: **Recreational Divers**

- Scuba Diver/ Beginner – At this level, the diver will be in an intermediate of Open Water Diver course, but it will take shorter of time in training and less of depth with 12 meters or 40 feet.
- Open Water Diver – This can be learned online/ classroom for scuba diving knowledge development including the basic scuba diving equipment; mask, regulator, tank, fins, wet/dry suit, BCD (buoyancy control device), dive computer, and then experience at least 4 real diving whether in an ocean or lake with the local dive center.
- Specialties – a subgroup of Advanced Open Water Diver and can be classified into a specific interest/skill for the divers;
 1. Adaptive Support Diver

2. Adaptive Techniques
3. Advanced Rebreather Diver
4. Altitude Diver
5. Boat Diver
6. Cavern Diver
7. Coral Reef Conservation
8. Deep Diver
9. Digital Underwater Photographer
10. Diver Propulsion Vehicle
11. Drift Diver
12. Dry Suit Diver
13. Emergency Oxygen Provider
14. Enriched Air Diver
15. Equipment Specialist
16. Fish Identification
17. Ice Diver
18. Multilevel Diver
19. Night Diver
20. Peak Performance Buoyancy
21. Project AWARE Specialist
22. Public Safety Diver
23. Search and Recovery Diver
24. Sidemount Diver
25. Underwater Naturalist
26. Underwater Navigator
27. Underwater Videographer
28. Wreck Diver
29. Distinctive Specialist

- Advanced Open Water Diver/Adventure Diver – advances the skills and being confident in diving and tools usage
- Rescue Diver/EFR – The skill of self-rescue and manage the emergency problems above and under water for other divers are also necessary
- Master Scuba Diver – Not many certified divers are certified at this level since it requires much of skills and experience in diving

Occupational/Professional divers

- Divemaster – At this level, the divers can also practice the skills for mentoring and motivating others and can be doing as a career
- Assistant Instructor – this level is to mentor, to support, and being a ladder to a Course Director and can teach divers to the level of Divemaster
- Instructor OWSI (Open Water Scuba Instructor) – from this level, the divers can certify other divers
- Instructor MSDT (Master Scuba Diver Trainer)
- Instructor IDCS (Instructor Development Course Staff)
- Instructor MI (Master Scuba Instructor)
- Course Director – The highest and most prestigious professional rating in recreational diving is this one (Padi.com, 2017)

2.2.2 Maritime safety

Because it affects society in both positive and harmful ways, marine tourism poses a policy conundrum. On the one hand, it helps the local and national economy significantly financially. On the other hand, though, it helps to destroy priceless aquatic resources. Many strategies for managing marine resources have been put out in the past thirty years. Making marine protected areas is one of them (MPAs). Phi Phi Marine National Park visitors brought in an estimated US\$1.387 million in economic value (Asafu-Adjaye and Tapsuwan, 2008).

When a typhoon strikes Korea, there are several options for shelter, including anchoring or taking shelter in safe places, or berthing at a safe berth. Large ships typically find greater shelter outside of the port when the typhoon is particularly powerful. There was no official Typhoon Refuge Management Plan in place in the Korean ports at the time of the Sea Prince

tragedy. As a result, the majority of Korean ports (including the Yeosu Port) adopted a Typhoon Refuge Management Plan. Such the incident, with the main points being as follows: for safe operation, vessels having a gross tonnage of greater than 7000 are urged to depart the port; depending on the size, kind, and category of cargoes carried by the vessel, ships with a gross tonnage of less than 7000 tons may continue to remain in the port refuge zones.; the VTS authority responds to emergencies in a flexible manner. The Typhoon Refuge Management Plan, however, is only meant to serve as a reference for the captains and is not required. Therefore, when a powerful typhoon is approaching, it is entirely up to the captain to decide whether to depart or remain in the port. (Cho, 2007).

2.2.3 Scuba diving safety and code of practice

There are 4 types of recreational scuba divers who frequent the Great Barrier Reef, each with their own separate safety risk profile. Firstly, there are those who have had some previous diving experience, adequate training and possess official certification from an accredited training company. When this group goes on a dive, they have a card which enables them to rent diving gear and dive with a dive partner, similarly to what they would do where they are based. This allows for diving to depths of not more than 18 meters in decent weather conditions, for those with a beginner level of certification. On the Great Barrier Reef, these skilled divers make roughly 943,000 dives each year from commercial vessels. The second type of divers are those conducting their training so as to obtain certification. Every trainee diver needs to show their skills over a minimum of four open water dives while being supervised by an instructor, as part of their training program in order to obtain a license. Open water training dives constitute in the vicinity of around 150,000 dives per annum on the Great Barrier Reef, with another 68,000 specialty dives, such as night dives, marine biology related training and advanced training dives. All of which are conducted with an experienced and qualified diver accompanying the trainee.

The third type of divers are those who haven't been trained or certified and aren't even in the process of doing so. In the industry they are often referred to as 'introductory' or 'resort' divers. Often their first scuba diving experience wasn't actually planned. Instead, they were drawn to the experience while on holiday in a marine location by one of the local tourism scouts. These beginning divers are accompanied by trained instructors who keep a close eye on them. On the Great Barrier Reef, there are roughly 129,500 resort dives per year. Holiday makers

have described a great feeling of enjoyment from these introductory diving experiences, declaring them very safe and satisfying. By conducting this introductory diving experience, it does not however enable these tourists to then continue diving by themselves. If they become interested in obtaining a license, they are then required to take an official thorough open water training program, so as to obtain certification.

The final type of divers are advanced qualified instructors, such as Divemasters. These can be further divided into four sub-groups: instructors of open water education courses, resort course supervisors, certified diver guides, and instructors of resort courses; and, finally, social divers who dive without the aid of a resort or course. Divemasters operate as underwater guides for less experienced qualified divers as well as official aid to instructors during their training schedules. They frequently help resort trained divers on their second dive of the day, and occasionally they even go on their own private dives for fun. On the Great Barrier Reef, it is usual to see certified instructors and Divemasters, however it is unknown how many dives they perform annually. In fact, there are not many known details and stats regarding their exact work practices and endeavors with customers (Wilks and Devis, 2000).

Countries have different laws and approaches when it comes to diving for scientific purposes and this section makes some comparisons. Although the subjects explored and documents being referenced are vastly in depth and complex, a basic overview and insight can be drawn. Some countries don't actually have much official written legislation on the topics of diving for work or sport. However, the documents being referred to here act as a guide to distinguish between what is acceptable and wanted, versus what is deemed to be too much by their standards.

The regulations relating to diver safety and education do not usually distinguish between locals and foreigners. The same rules apply to both parties. Visitors are commonly checked to make sure they conduct themselves to the country's own standards. Most institutes have set procedures and paperwork to be filled in, so as to make checks. There are rare occasions when foreign diving teams work without a host country institution's assistance. In such circumstances the foreign group would normally naturally follow their own country's set of regulations. However, they are still encouraged to check to ensure that their methods and regulations are in line with those of the host which they are in.

In the past, the majority of countries have only had national regulations for diving so as to protect ancient historic sites or military related areas. As well as to prevent spearfishing and/or contain marine parks. However, recent years have seen a plethora of new regulations developed in more technically advanced countries, so as to enforce stricter standards of diver training and safety for different specific regions and situations. France, Britain, Scandinavia, South Africa, Australia, Germany and USA are some regions of such developments. The regulations however have at times initially been developed in a rushed manner and then commonly edited afterwards. New regulations concerning commercial diving in offshore oil fields is an example, as this involves quite different methods and equipment from those commonly used by scientists. However, at times these new rules are not fitting in relation to scuba diving for research purposes. To solve this problem, there have been cases of scientific representatives having managed to get complete (or sometimes partial) official exemption from commercial diving laws in the host country.

With the complex legal framework in technologically advanced nations, it's common for there to be changes from one year to the next. It is recommended that scientists who are required to conduct work beyond their own country first check if there are statutory laws in the host country in relation to training requirements, diver conduct, medical restrictions, allowed gear and required insurance. It is common knowledge in the diving community that there are stumbling blocks caused due to varying laws in different countries, with international scientific divers at times having to turn to the CMAS (Confederation Modiale des Activities Subaquatiques) to help find a solution (UNESCO, 1988).

2.2.4 Scuba diving fatalities

Webster, D. P., (1966) analyzed 11 factors in his research 'Skin and Scuba Diving Fatalities in the United States' that can be related to scuba diving fatalities are as following:

(a) Swimming experience - It would be fair to assume that those tragically losing their lives during a diving expedition would be inexperienced swimmers. However, this surprisingly was discovered not to be the case. A high percentage of the victims of diving fatalities were actually of experienced swimmers. Many were members of some form scholastic or competitive swimming team at some stage in their lives. In one particular case, the victim was

even a state champion. However, it must also be highlighted that these individuals were relatively inexperienced when it came to scuba diving. It was even determined that seven fatalities arose from divers having their very first ever diving experience. Age was not one of the major focuses of the analysis, however it can be gathered that age could have had something to do with it on quite a number of instances, as 13 fatalities were minors under the age of 18.

(b) Seasonal variations - As most would imagine, the European summer holiday months were the period that experienced the greatest number of diving fatalities. The hot European months of May till August were the most tragic periods. From 86 total diving fatalities, 16 occurred in July, 11 in May, as well as another 11 in June and 10 in August. Strangely there were then only 4 drownings in September followed by quite a bizarrely high 9 in October. No explanation was determined as to a reason for the sudden spike in October. There were another 8 diving deaths in March, with the cold temperatures and bad weather conditions, as well as lack of physical fitness of the victims, being the perceived culprits for the tragic losses in life.

(c) Days of the week and holiday period - As expected, weekends experienced the highest number of fatalities, with Sundays having the most deaths (25) and Saturdays having the second highest amount (22). The 2 days of the weekend together accounting for 47 fatalities, which is just over 50% of the total for all days of the week. However, only four deaths happened on public holidays or holiday weekends. There have been an equal 9 fatalities on Tuesday, Wednesday as well as Thursday. Whereas there were only 7 deaths on a Friday and 5 on a Monday.

(d) Location - Nearly 50% (42) of the 86 drownings occurred in oceans, gulfs, bays and other large areas of open water. This was followed by 17 deaths happening in small lakes and other inland smaller areas of water. The third highest number of fatalities (11) were experienced in caves, springs, abandoned mines, quarries and other excavations.

(e) Activities of victims - The majority of fatalities occurred during recreational skin or scuba dives. There were three occasions however when deaths resulted during the testing of equipment, with one device being tested actually being just a homemade item of equipment. Two further accidents happened when tragically trying to recover a body, and one person even sadly lost his life after managing to rescue a skin dive partner. Searches for lost items and tools by divers diving solo accounted for a number of the tragedies, with the objects being

searched for ranging from an outboard motor, to a hunting knife and fishing equipment. Some divers with more experience passed away while spear fishing, diving for lobsters, sponge diving as well as in search of lost treasures on sunken vessels.

(f) Diving experience - From all the newspaper mentions where they declared the actual diving experience of the drowning victims, quite shockingly, experienced divers (17) suffered just as many deaths as inexperienced divers 16. With 3 of the fatalities occurring to professional, well-seasoned divers.

(g) Proximate causes - Panic, resulting in fatigue and exhaustion was described and the main cause for most of the fatalities (46). Being trapped and entangled in kelp beneath ice and underwater cavities caused 16 deaths. Hitting sharp and hard objects in the water resulted in 3 loses of life. Being drawn into undercurrent and rough seas caused 2 more fatalities. With the final culprit of drowning being determined to be cramp on 1 occasion.

(h) Contributory causes - The ignoring of certain conventional well known and educated diving rules by the victims contributed to the causes of death on almost all occasions. Individuals being overly confident on their physical abilities was thought to be another factor for 28 of the fatalities. Diving alone without a dive partner was related to 15 of the cases of death, and swimming or working under water too far from the victim's dive partner was linked with a further 24 fatalities. The next most common contributing factor was when the victims went diving in threes, as in such conditions individual divers didn't have designated partners to warn them or help them when encountering danger. Lastly, the physical conditions of the victim were at times another reason for concern and resulted in 2 deaths, with 1 person being under the influence of alcohol and another actually being paralyzed below the waist.

(i) Lack of or state of equipment - Poor diving gear, such as faulty air-tank valves and air regulators, flimsy mouthpieces, cracked dive masks and defective life-vests amounted to 23 deaths. There were other cases where the diver didn't utilize safety gear or didn't drop his weight belts when encountering difficulties under water. Not being given (or ignoring to use) lifelines, life-vests, flashlights, and other equipment contributed to some of the drownings. Not having a knife to cut through seaweed, kelp, anchors and other tangled lines also lead to some victims getting trapped below the surface. Using someone else's equipment, and hence not being accustomed to it, resulted in 2 of the loses of life. For the majority of such cases related to the

lack of appropriate gear or use of faulty equipment, the ultimate causes of death which resulted were said to be the running out of oxygen and failure to breathe.

(j) Water conditions - Chilling water resulting in hypothermia, as well as large waves and undercurrents gave rise to 22 of the fatalities.

(k) Discovery of accidents - Out of the 75 occasions that someone was reported missing, the report was made within just 15 minutes for 72 of such instances. Two thirds of the time it was the actual victim's dive partner who noticed the missing person and informed the rest of the crew and/or authorities. A family member (who could have also been the dive partner) was responsible for reporting the missing relative for 11 of the accidents. For 65 out of the 68 cases where the diver's partner and/or family member was the person to determine something was not right, the accident was realized within 15 minutes. For the remaining 7 occasions in which the report was made within 15 minutes, the person who made the discovery was someone else other than the victim's dive companion or relative.

(l) Decompression illness (Vann et al., 2011) combines two syndromes: arterial gas embolism and the typical decompression sickness symptoms. It is produced by intravascular bubbles that form as a result of reduced normal atmospheric pressure. Decompression sickness (DCS) can be occurred when body tissues absorb nitrogen gas while diving under limited pressure in some amount of depth. The brain is easily adapting in absorbing the nitrogen into body and also tissues which means that the more depth divers take the more serious trauma and internal damage they will get. Arterial gas embolism is the most dangerous symptoms between the two and it will normally develop within 2 hours after the diver surfaces. Moreover, it is relevant to the brain damage and rarely affect to heart and another part of the body including lung disease and breathe controlling.

2.2.5 Various incidences in Thailand

Based on "diving accident" keyword search on Bangkok post website, there were 83 articles identified (Bangkok Post, 2020). Examples of the article headlines include "Third body from capsized ferry found" (Chaolan, 2020), "Chinese tourists has legs slashed by boat propeller in Koh Phi Phi" (Post Reporters, 2018), "Shame on Koh Tao – a young British women claimed she was drugged and raped on Koh Tao" (Bangkok Post, 2018), "Phuket must face demons, or end is nigh – my condolences to the families of the 47 Chinese holidaymakers who

were killed when the diving boat they were on sank in the waters off Phuket in a fierce storm on July 5” (Wangkiat, 2018), “Japanese tourist killed by propeller on dive trip” (Chuenniran, 2018), “Missing Russian ‘lacked diving skills’” (Chaolan, 2017), “Korean and diving instructor drown in Phuket” (Chuenniran, 2019), “New year’s eve diving tragedy in Koh Phi Phi” (Thawan, 2018), “Phuket probe into dive tour deaths to target Try Dive, freelance instructors” (Sakoot, 2019), “22-year-old Israeli tourist dies in Thailand diving accident” (Toi staff, 2019), and “60 year-old British Diver found dead in Southern Thailand” (CTN News, 2019).

2.2.6 Governmental regulation and law concerning scuba diving in Thailand

Thai scuba diving business in Thailand is governed under the Tourism Business and Guide Act B.E.2551 (2008). According to the legislation, dive operators must file multiple documents, including boat documents, certificate of dive professionals and crew, accident insurance document, and certificate of diving equipment to guarantee the operation of the business is safe (Department of Tourism, 2008). In addition, the Department of Tourism has also issued Standard Number Mor Tor Tor 407: 2556, which establishes qualification requirements for scuba diving businesses and scuba diving activity intendants in each region of Thailand to follow in order to assess the level that shows a company's or diving area's quality. (Sombatsubsin, 2014) . The Ministerial Regulation on Prescribing the Standards of Administration and Management of Occupational Safety, Health, and the Environment governs occupational safety, health, and the environment in relation to diving work. The rules for diving work are outlined in B.E.2548. But the purpose of these laws is incompatible with the practice of recreational scuba diving, as shown by the following: It seems to be applicable solely to the particular profession diver who works in the commercial diving industry (Sombatsubsin, 2014).

With the lack of official recreational diving practice guidelines from local authorities, Thai diving operators usually follows international guidelines from Divers Alert Network (DAN). According to DAN, divers must have dive insurance. Moreover, the cruise director must do the briefing accordingly the boat once embark. floor plan, rules on boat;l ife vest, wearing life vest only in an open air area, rules on the boat, hand rails everywhere on boat, no deck whiles boating and a buddy is needed when you are on a deck, life raft must be checked yearly,1669, national park phone numbers in case of emergency, hospital numbers, fire

extinguisher; both green and red type on board, environmental friendly, oxygen tank and first aid kit is a must (DAN, 2022b).

During COVID-19 some dive operators in Phuket obtained the SHA+ guarantee from Amazing Thailand Safety & Health Administration as a reassurance to their customers. With this guarantee, dive operators must ensure the following practices (Aloha diving, 2022):

- Both staff and divers must be vaccinated with approved vaccines
- Staff must wear masks at all times while they are in the dive shop, on the piers, and on the boats
- Facilities, including both the dive shop and boat, must provide accessible to hand sanitizer
- Dive shops must be disinfected twice a day
- Boat must be disinfected in the morning at the pier before all dive trip, and again after the completion of the trip
- Food safety must be ensured by providing lunch for individual diver in a sealed package.
- Sanitize all dive equipment (BCD, fins, regulator, second stages, oral inflators, masks, wet suits, and snorkels) each time after use with Quaternary Ammonium Compounds or Bleach
- Daily monitoring of body temperature of both crews and divers

Other basic COVID-19 preventive measure recommended by DAN are as follow (DAN, 2022a):

- Frequent handwashing
- Avoid touching mouth, nose, and eyes
- Social distancing at a minimum of 1.5 meters

2.3 Related theories

2.3.1 Protection Motivation Theory

Protection Motivation Theory, or PMT, is one of the ideas of risk perception that is frequently referenced (Becker & Maiman, 1975) and the theory was conducted to this research. According to PMT, people are more inclined to take precautions when foreseeing unfavorable

individuals fear the consequences, desire to avoid them, and think they have the authority to do so (Rogers, 1975). Originally the theory was developed as a theory of fear appeal (ibid, 1975), however, PMT was later changed into a model of generalized attitude change (Maddux & Rogers, 1983). PMT included the self-efficacy construct, it emphasizes the cognitive processes that can influence behavioral change, transforming the theory into an attitudinal paradigm (ibid, 1983). Based on this assumption of the theoryThe PMT framework helps people understand why people altering their thoughts and actions in risky situations (Floyd et al., 2000). According to academics, PMT is comprehensive enough to be used in every situation where risk is present (Prentice-Dun & Rogers, 2006).

The core aspect of PMT is that when selecting whether or not to adopt a risk-reducing behavior, one goes through two cognitive processes (Rogers, 1983). Individuals first engage in a threat appraisal process in which they assess danger due to perceived severity and perceived vulnerability (Floyd et al., 2000). The perceived degree of harm posed to a person as a result of the event or activity is known as perceived severity (Rogers, 1975). Contrarily, perceived vulnerability relates to the belief a threat will arise (ibid, 1975). People go through a coping evaluation process in the second cognitive stage, where they assess their ability to respond effectively to risk and their level of self-efficacy (Floyd et al., 2000). Response efficacy refers to the belief that a recommended behavior is effective in defending oneself against a risk (ibid., 2000), as opposed to self-efficacy, which is the conviction that one can effectively carry out a prescribed conduct in an effort to protect oneself from risk, (ibid, 2000). Threat appraisal and coping appraisal processes merged as a result of the two cognitive processes to encourage, maintain, and direct participation in risk-reduction strategies behavior (Floyd et al., 2000).

In relation to tourism industry, past studies also suggested that threat appraisal is influenced by numerous factors including demographic factors (such as gender, age, household income, race/ethnicity, education level, life stage, and place of residence), international travel-specific psychology factors (e.g. international travel risk perception, safety concerns), destination-specific psychological factors/ destination image, destination-specific factors (e.g. presence of friend/relatives living in the destination, fluency in the native language of the destination), and past travel experience (Rogers, 1983; Loewenstein et al., Risk as feeling).

2.3.2 Risk compensation/risk homeostasis theory

Risk compensation or risk homeostasis theory is a theory that explain the reason as to why individual engage in risky behaviour or activities (Wilde, 1994). Since the risk compensation/risk homeostasis theory typically focused on transportation safety, this theory is essential to the study (Wilde, 1987). In the case of scuba diving in Phuket, diving is engaged not only boat transportation, but also on-land transportation and sometime air transportation (Lucrezi et al., 2018). A previous study's resulted in drivers were more inclined to interact in risky driving behavior when their automobile had safety features such airbags, seatbelts, warning systems, anti-lock brakes, or seatbelt warnings (Janssen, 1994).

Even though extensive researches involved risk compensation theory has been performed in relation to transportation, the theory have been proven to be applicable to non-transportation related study. When wearing a helmet and wrist guards, for instance, youngsters were seen to move through an obstacle course more swiftly and irresponsibly than when they weren't wearing these safety accessories (tripping, falling, hitting items) (Morrongiello et al., 2007). Bridger & Freidberg's work in the area of occupational research (1999) discovered that individuals who used the squat lifting technique and wore abdominal belts typically overestimated the amount of weight that could be lifted safely because they believed these safeguards would better protect them. The study further asserted that when wearing personal protective equipment and loggers, people worked more quickly, expected fewer hazards, and adopted a braver, carefree attitude (Klen, 1997). The risk compensation hypothesis is controversial, but it seems that several research that are unrelated to transportation support the contention that the theory is still beneficial for predicting many types of risky conduct.

2.3.3 Situated rationality theory

The contextual rationality hypothesis argues that it is incorrect to believe that safe behavior is necessarily rational and that high-risk behavior is fundamentally illogical (Lawson, 1997). Based on this theory, participating in high-risk behaviour often involved rational justification than simply assuming that risk-taker is crazy (ibid, 1997). For example, one may choose to sunbathe outdoor on a sunny day or using tanning salons regardless of the possibility of causing skin cancer to enhance their perception of their body (Cafri et al., 2009). Another instance is when people have unprotected intercourse with persons who are drug users or HIV-positive in

resulted to demonstrate their trust and love for their partner (Rhodes, 1997). According to this view, taking risks is sensible if the payoff is substantial (Hmabach et al., 2011). The scholars have also found that the perceived risk of an activity decreases as the perceived reward of that activity increases (Finucane et al., 2000). In that the idea is frequently discovered to be associated with the notion of planned behavior, situated rationality theory is frequently tied to peer and community pressure (Ajzen & Fishbein, 1975). The theory of planned behavior contends that a variety of social, environmental, and psychological factors have an impact on one's intention to engage in high-risk behavior since one frequently bases decisions on subjective norms (ibid, 1975).

2.4 Conceptual framework and research hypotheses

Figure 2.1 Conceptual framework

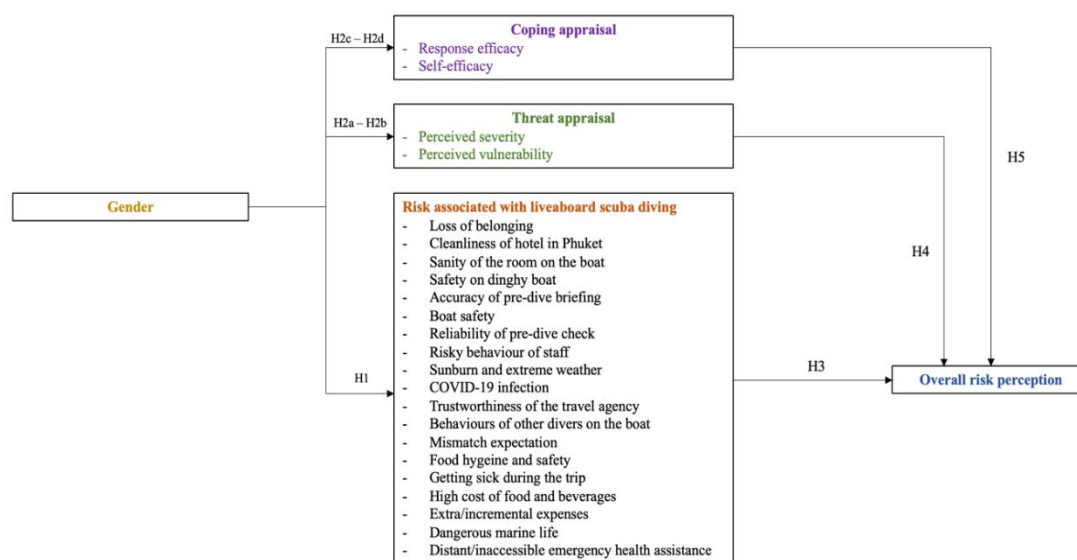


Figure 2.1 shows the conceptual framework of this study. This study comprises of six main research hypotheses. The hypotheses of this research are as follow:

Hypothesis 1 (H1) : Divers of different genders have a different perception of the risk associated with liveaboard scuba diving

Hypothesis 2 (H2): Divers of different gender have a different perception of overall threat appraisal and coping appraisal

- H2a: Divers of different gender have a different perception of perceived severity

- H2b: Divers of different gender have a different perception of perceived vulnerability
- H2C: Divers of different gender have a different perceptions of response efficacy
- H2D: Divers of different gender have a different perceptions of self-efficacy

Hypothesis 3 (H3): Varying risk perception associated with liveboard scuba diving is related to the overall risk perception of liveboard scuba diving in Phuket

Hypothesis 4 (H4): Overall threat appraisal is related to the overall risk perception of liveboard scuba diving in Phuket

Hypothesis 5 (H5): Overall coping appraisal is related the overall risk perception of liveboard scuba diving in Phuket

CHAPTER 3

METHODOLOGY

3.1 Research approaches

The term research approach refers to a plan of action that gives researchers the guidance they need to perform their study effectively and methodically. A research methodological approach may be classified into three broad categories: a quantitative approach, a qualitative approach, and a mixed techniques approach (Creswell, 2009). When numerical data is required to answer research questions and goals, the quantitative research technique is the most appropriate option. In contrast, qualitative research is more appropriate when the study questions and goals need the collection of rich textual material. Because the purpose of this research is to overall perception of the divers regarding diving risk in Phuket, quantitative research approach is adequate. Besides, during the COVID-19 pandemic situation has led number of participants to be fewer than expected, and subsequently there were 308 participants and only useable 304 questionnaires for further analysis. In addition, numerical data obtained through quantitative research is necessary for the research in order to verify that the findings could be generalized, since the study's goal was to examine the disparities between different demographic background. Based on these considerations, the quantitative research approach is the most appropriate research methodology to use in this case.

3.2 Instrumental development

The research tool of this study is an anonymous online questionnaire, which has been generated using Google Form. The survey has been divided into six sections. The first section regards the informed consent, which is an important component of ethical research. The informed consent provides respondents with brief information of the research objectives, as well as acknowledges participants about their rights associated with this study. The second section concerns screening questions, which asked participants whether they are local or tourists, their length of stay in Phuket, and their experienced with liveaboard diving. The third component deals with the participants' demographic data, which includes their gender, age, region of residence, marital status, highest level of education, occupation, and average monthly income. The fourth

section focuses on diving experiences of the respondents. The information obtained from this section include type of diving qualification, level of diving qualification, number of dives, average number of dives in the past three years, maximum depth, and past diving experience. The fifth section concerns the diver's risk perception during live aboard scuba diving in Phuket. The last section of the survey focuses on threat appraisal and coping appraisal associated with liveaboard scuba diving in Phuket. All in all, the survey comprises of 52 questions. The sources of the survey questions is as shown in Appendix 1.

3.3 Sampling technique, sample size

In terms of sampling method, there are two types: both non-probability and probability sampling (Saunders and Lewis, 2009). In contrast to non-probability sampling, which uses a non-random approach, probability sampling uses a random sampling methodology to obtain a sample (ibid, 2009). Because of the short time frame, the non-probability sampling strategy was more practicable for this investigation. For starters, this study used convenience sampling, which involves sending surveys to a select group of people the researcher often interacts with, such as close friends, family members, and coworkers. Moreover, the survey link was sent to various dive center whom the researcher has contact with. Based on a convenience sample, the researcher also sent a direct message to people in the circle on Facebook, other social media sites, and a Facebook community for scuba divers in addition to posting the link to the survey on personal Facebook and posting it on that platform. This research relies on snowball sampling after convenience sampling, which is also known as chain-referral sampling, chain sampling, or referral sampling (Goodman, 1961). This approach enables researchers to gain future participants from previously recruited individuals, i.e. those acquired by convenience sampling (ibid, 1961). This snowballing strategy aided in obtaining a suitable sample size in a shorter amount of time. In order to encourage respondents to share the survey with individuals they know, the researcher included a prompt at the end of the questionnaire. The prompt also stated the requirements that the potential participants are those who have experience or looking to partake liveaboard diving in Phuket. This information ensures that the participant is forwarding the survey to the appropriate target group.

3.4 Data analysis

The quantitative research approach yielded numerical data, which was evaluated using the Statistical Package for Social Sciences (SPSS) application. The information was entered into the SPSS application and encoded for analysis. The SPSS software is used in this research for three purposes: descriptive statistics, hypothesis testing using t-test, and multiple regression. In order to analyse with 0.8 interval scales, the a five-point Likert scale's level of agreement has been separated into five levels., as shown in Table 3.2 (Researchgate.net, 2019).

Table 3.1 Level of Agreement

Level of Agreement	Mean
Strongly agree	4.20 to 5.00
Agree	3.40 to 4.19
Neutral	2.60 to 3.39
Disagree	1.80 to 2.59
Strongly disagree	1.00 to 1.79

3.5 Ethical consideration

When performing research, ethics is critical. The participant's identity and personal information must be kept private. As a result, the data and findings gained from this research will be kept anonymous and utilized only for academic reasons. Furthermore, the online survey is completely anonymous. Additionally, participants are free to leave the survey whenever they choose.

CHAPTER 4

RESULTS

The findings of the analysis and hypothesis testing are presented in this chapter. All the data were analyzed through a statistic analysis program SPSS to determine travel-related risk perceptions from Thai tourists who engage in scuba diving in Phuket, to assess effects of demographic background on travel risk perceptions of tourists when engaging in diving activities, and to evaluate the impact of Covid-19 crisis in the past year and the SHA regulations applied on liveaboard boat.

According to the objective of this study, descriptive statistics were used in order to explain the demographic characteristics of the respondents. An independent sample T-Test was used to measure risk perception and gender variation of risk threat appraisal and coping appraisal. Lastly, Correlation analysis was used to find the differences between different risk and overall risk perception

4.1 Demographics Characteristics of the Respondents

Demographic information about the respondents, including gender, age, region of residence, marital status, degree of education, occupation, and average monthly income, was presented in Table 4.1.

It shows that there are more female Thai tourists divers than those of male and Other is not taken into this survey descriptive result regards in not adequate in data generated. The age group was divided into five groups and the majority of participants were 25-40 years of age group which was 179 or 58.9% of all the population. Then the second most population was 95 people or 31.3% of 41-55 years' old which was followed by 15 people for the age under 25, 11 people for the age between 56-60 years and 4 participants who are more than 60 years which are 4.9%, 3.6% and 1.3% respectively.

In terms of region of residence, the majority of those surveyed, 195 (64.15%) stayed in Bangkok and metropolis area, the second majority of respondents were from Southern part of Thailand (40 respondents or 13.2%) and the third majority of participants stayed in Central part of Thailand (28 participants or 9.2%). The rest were from Easter part of Thailand (17

participants or 5.6%), Western part of Thailand (12 participants or 3.9%), Northern part of Thailand (8 participants or 2.6%) and Northeastern part of Thailand (4 participants or 1.3%).

In terms of marital status, 68.4% of participants were single never married 30.6% were married and only 1% was divorced. According to the educational background, the majority of the respondents, 233 (76.6%) had bachelor degree. The second majority of respondents were Master's degree (62 or 20.4%) and Diploma (5 respondents), PhD (3 participants) and lastly high school (1 participant).

Regarding occupation, 44.7% were self-employed, followed by 28.6% were corporate employees, 16.1% were freelance and 8.6% were civil servants. The rest 1.3% were students and 0.3% were unemployed and lecturer respectively. For monthly income, 156 (51.3%) of the respondents earned between 50,001-75,000 THB and 104 (34.2%) of them earned between 25,001-50,000 THB. A minority of 18 (5.9%) respondents earned between 75,001-100,000 THB and 100,001 THB and above respectively. 8 (2.6%) respondents earned less than 25,000 THB.

Table 4.1 Demographic information of participants

	Frequency	Percentage
Gender		
Male	123	40.5
Female	151	49.7
Other	30	9.9
Age		
Under 25 years	15	4.9
25 – 40 years	179	58.9
41 – 55 years	95	31.3
56 – 60 years	11	3.6
More than 60 years	4	1.3
Region of residence		
Bangkok and metropolis area	195	64.1
Central part of Thailand	28	9.2
Eastern part of Thailand	17	5.6
Western part of Thailand	12	3.9

Table 4.1 Continued

	Frequency	Percentage
Northeastern part of Thailand	4	1.3
Southern part of Thailand	40	13.2
Northern part of Thailand	8	2.6
Marital status		
Single never married	208	68.4
Married	93	30.6
Divorced	3	1.0
Highest education level		
High school	1	.3
Diploma	5	1.6
Bachelor's degree	233	76.6
Master's degree	62	20.4
PhD	3	1.0
Occupation		
Self-employed	136	44.7
Corporate employee	87	28.6
Civil servant	26	8.6
Student	4	1.3
Freelance	49	16.1
Unemployed	1	.3
Lecturer	1	.3
Average monthly income		
Less than 25,000 THB	8	2.6
25,001 – 50,000 THB	104	34.2
50,001 – 75,000 THB	156	51.3
75,001 – 100,000 THB	18	5.9
100,001 THB and above	18	5.9

4.2 Scuba diving experiences

Table 4.2 shows the scuba diving experiences of the participants. The table shows that most of the participants have PADI diving qualifications (85.9%). In terms of level of diving qualification, the most common level obtained by the participants is Advanced Open Water Diver (76%), followed by Open Water Diver (8.6%), and Dive Instructor (6.9%). The finding also suggested that 89.14% have dived between 0 to 300 dives while only one participant have dived for more than 5,000 times. In the past 3 years, most of the respondents have dived on an average of 0 to 50 dives per annum. The common depth for diving among the participants is between 11 to 20 meters (36.51%), and 0 to 10 meters (36.18%). Only six participants or 1.97% have dived at a depth that is more than 50 meters. Lastly, the top five most popular diving sites among the participants include Similan Islands, Phi Phi Island, Patong Beach, Kata Beach, and Racha Yai/Noi Island.

Table 4.2 Scuba diving experiences

	Frequency	Percentage
Diving qualification		
PADI	261	85.9
NAUI	20	6.6
SSI	17	5.6
CMAS	1	.3
None	1	.3
Other	4	1.3
Level of diving qualification		
Basic instruction on holiday/experience day	4	1.3
Open Water Diver	26	8.6
Advanced Open Water Diver	231	76.0
Rescue Diver	6	2.0
Enriched Air (Nitrox) Diver	5	1.6
Dive Master	4	1.3
Dive Instructor	21	6.9
None	5	1.6

Table 4.2 Continued

	Frequency	Percentage
OWSI	2	.7
Number of dives		
0 – 300	271	89.14
301 – 600	7	2.3
601 – 1,000	5	1.64
1,001 – 1,500	6	1.97
1,501 – 2,000	3	0.99
2,001 – 3,000	7	2.3
3,001 – 5,000	4	1.32
5,001 and more	1	0.33
Average number of dives per annum you have undertaken in the last 3 years		
0 – 50	281	93.36
51 – 100	7	2.33
101 – 150	5	1.66
151 – 200	2	0.66
201 – 500	6	1.99
501 – 1,000	3	1.00
More than 1,000	2	0.66
Maximum depth		
0 – 10	110	36.18
11 – 20	111	36.51
21 – 30	42	13.82
31 – 40	26	8.55
41 – 50	9	2.96
More than 50	6	1.97
Diving locations		
Similan Islands	231	21.6
Phi Phi Island	208	19.4
Patong Beach	192	17.9
Kata Beach	130	12.1

Table 4.2 Continued

	Frequency	Percentage
Racha Yai/Noi Island	68	6.4
Phang Nga Bay	61	5.7
Karon Beach	37	3.5
Coral Island	32	3
Ya Nui Beach	26	2.4
Naihan Beach	19	1.8
Nai Yang Beach	18	1.7
Nai Thon Beach	16	1.5
Mai Kao Beach	16	1.5
Surin beach	16	1.5

4.3 Gender variation of perception of risk associated with liveaboard scuba diving

The first hypothesis of this study stated that “*Divers of different genders have a different perception of the risk associated with liveaboard scuba diving (H1)*”. Table 4.3 shows that the overall risk perception of Phuket as a gender is slightly higher in females ($\bar{x} = 2.91$) than males ($\bar{x} = 2.84$). According to Table 4.4, the first hypothesis can be accepted as there is significant differences between the perceived overall risk of Phuket between male and female divers ($p < 0.05$).

Considering individual factors, the factors that pose the most risk in the perception of female divers, listed as follow:

- the accuracy of pre-dive briefing ($\bar{x} = 4.32$)
- reliability of pre-dive check ($\bar{x} = 4.19$)
- boat safety ($\bar{x} = 4.14$)
- safety of dinghy boat ($\bar{x} = 3.94$)
- sunburn and extreme weather ($\bar{x} = 3.81$)
- risky behaviour of staff ($\bar{x} = 3.79$)
- dangerous marine life ($\bar{x} = 3.54$)
- extra/incremental expenses ($\bar{x} = 3.46$)

- high cost of food and beverages ($\bar{x} = 3.40$)
- distant/inaccessible emergency health assistance ($\bar{x} = 3.17$)
- food hygiene and safety ($\bar{x} = 3.16$)
- COVID-19 infection ($\bar{x} = 2.90$)
- getting sick during the trip ($\bar{x} = 2.88$)
- sanity of the room on the boat ($\bar{x} = 2.87$)
- behaviors of other divers on the boat ($\bar{x} = 2.75$)
- trustworthiness of the travel agency ($\bar{x} = 2.72$)
- cleanliness of hotel in Phuket ($\bar{x} = 2.65$)
- loss of belonging ($\bar{x} = 2.63$)
- mismatch expectation ($\bar{x} = 2.56$)

On the other hand, the factors that pose the most risk in the perception of male divers, listed as follow:

- accuracy of pre-dive briefing ($\bar{x} = 3.94$)
- boat safety ($\bar{x} = 3.86$)
- reliability of pre-dive check ($\bar{x} = 3.67$)
- safety on dinghy boat ($\bar{x} = 3.63$)
- sunburn and extreme weather ($\bar{x} = 3.50$)
- extra/incremental expenses ($\bar{x} = 3.47$)
- risky behaviour of staff ($\bar{x} = 3.41$)
- dangerous marine life ($\bar{x} = 3.33$)
- high cost of food and beverages ($\bar{x} = 3.28$)
- distant/inaccessible emergency health assistance ($\bar{x} = 3.12$)
- food hygiene and safety ($\bar{x} = 3.01$)
- sanity of the room on the boat ($\bar{x} = 2.86$)
- getting sick during the trip and COVID-19 infection ($\bar{x} = 2.69$)
- behaviors of other divers on the boat ($\bar{x} = 2.68$)
- trustworthiness of the travel agency ($\bar{x} = 2.60$)
- loss of belonging ($\bar{x} = 2.50$)

- cleanliness of hotel in Phuket ($\bar{x} = 2.47$)
- mismatch expectation ($\bar{x} = 2.44$).

Furthermore, Table 4.3 shows that there is a significant difference between male and female divers in terms of the perceived risk associated with loss of belonging, the sanity of the room on the boat, the accuracy of pre-dive briefing, reliability of pre-dive check, risky behavior of staff, sunburn and extreme weather, and dangerous marine life. To be precise, females perceived that loss of belonging, sanity of the room on the boat, accuracy of pre-dive briefing, reliability of pre-dive check, risky behaviour of staff, sunburn and extreme weather, and dangerous marine life pose more risk than males.

Table 4.3 Independent t-test on risk perception between genders

	Male		Female		t-value	p-value
	Mean	S.D.	Mean	S.D.		
RA1: I am concerned about losing my belonging while scuba dive in Phuket	2.50	1.141	2.63	0.977	-0.962	0.029
RA2: I am concerned that my hotel in Phuket will be unclean	2.47	0.986	2.65	0.896	-1.559	0.148
RA3: I am concerned about the sanity of the room on the boat	2.86	1.111	2.87	0.964	-0.045	0.050
RA4: I am concerned my safety on dinghy boat	3.63	1.375	3.94	1.382	-1.829	0.890
RA5: I am concerned about the pre-diving briefing whether or not the information on the weather, current, and other precaution of each dive site will be accurate	3.95	1.436	4.32	1.145	-2.298	0.002
RA6: I am concerned about the safety of the boat itself	3.86	1.422	4.14	1.265	-1.707	0.087
RA7: I am concerned that the reliability of the pre-dive tools check	3.67	1.519	4.19	1.202	-3.083	0.000

Table 4.3 Continued

	Male		Female		t- value	p- value
	Mean	S.D.	Mean	S.D.		
RA8: I am concerned about risky behaviour of staff	3.41	1.525	3.79	1.340	- 2.175	0.039
RA9: I am concerned about sunburn and extreme weather condition	3.50	1.495	3.81	1.300	- 1.821	0.003
RA10: I am concerned that I might be at risk of getting infected by COVID-19 during my live aboard diving trip	2.69	1.153	2.90	1.100	- 1.535	0.215
RA11: I am concerned about the trustworthiness of the travel agency	2.60	1.220	2.72	1.061	- 0.824	0.109
RA12: I am concerned about the behaviours of other divers on the boat	2.68	1.074	2.75	1.008	- 0.519	0.431
RA13: I am concerned that the experience will not match my expectation or as advertised by the agency	2.44	1.017	2.56	0.964	- 0.977	0.765
RA14: I am concerned about food hygiene	3.01	1.191	3.16	1.027	- 1.125	0.122
RA15: I am concerned that I will get sick during the trip	2.69	1.087	2.88	1.058	- 1.458	0.714
RA16: I am concerned about the high cost of food and beverages	3.28	1.098	3.40	1.065	- 0.860	0.646
RA17: I am concerned about the expected extra expense and incidental expenses	3.47	1.190	3.46	1.130	0.104	0.666
RA18: I am concerned about the dangerous marine life	3.33	1.417	3.54	1.264	- 1.288	0.041
RA19: I am concerned about distant/inaccessible emergency health assistance on the boat	3.12	1.013	3.17	0.922	- 0.429	0.289

Remarks: Significant valued at $p > 0.05$

4.4 Gender variation of perception of risk threat appraisal and coping appraisal

The second hypothesis of this study stated that divers of different gender have different perceptions of overall threat appraisal and coping appraisal. Table 4.5 shows that both males and females chose “neutral” to all of the statements related to perceived severity. From the five statements on perceived severity, the mean score of the three of the statements including:

- “ *if something unexpected was going to happen during scuba diving in Phuket, it will likely cause tremendous harm to my health*”
- “ *if I encountered threat during live aboard scuba diving in Phuket, the consequences would be severe*”
- “ *if I got infected with COVID-19 during liveaboard in Phuket, the health consequences are likely to be severe*”

They are higher in female than male. On the other hand, both male and female divers disagree in each and every claim relating to perceived vulnerability. Overall, the mean score of the three statements out of four statements under perceived vulnerability is higher in male than female except for one statement saying that “*I am at risk for being victimized by live aboard scuba diving related accident*” where the mean score is identical between the two groups of participants.

Regarding response efficacy under coping appraisal, both male ($\bar{x} = 3.91$) and female ($\bar{x} = 4.09$) participants generally agree to the statement “*I am confident that the SHA safety standard can help minimize my risk of COVID-19 infection while I liveaboard scuba dive in Phuket*”. For the statement “*I am confident that the safety standard of scuba diving association will minimize my risk of encountering potential threats while I liveaboard scuba dive in Phuket*”, the mean score for both gender groups also fallen in the category of agree. Similarly, both female and male generally agreed to the sentences related to self-efficacy. The sentence that received the highest mean score among both males and female is “*I am confident that I can comply to the safety standard of liveaboard scuba diving while I am in Phuket*”.

Table 4.4 Descriptive statistics on the perception of threat appraisal and coping appraisal by gender

	Male		Female		t-value	p-value
	Mean	S.D.	Mean	S.D.		
Perceived Severity						
PS1: If something unexpected was going to happen during scuba diving in Phuket, it will likely cause tremendous harm to my health	2.83	0.964	2.99	0.779	-1.525	0.005
PS2: If I encountered threat during live aboard scuba diving in Phuket, the consequences would be severe	2.75	1.021	2.85	0.8310	-0.873	0.006
PS3: If I encountered threat during live aboard scuba diving in Phuket, the consequences would be serious	2.78	1.013	2.71	0.821	0.649	0.071
PS4: If something happens during live aboard scuba diving in Phuket, the threat is likely to be extremely dangerous	2.98	0.983	2.92	0.813	-0.583	0.068
PS5: If I got infected with COVID-19 during live aboard in Phuket, the health consequences are likely to be severe	2.49	1.043	2.62	0.893	-1.152	0.060
Perceived Vulnerability						
PV1: It is likely that I will be involved with live aboard scuba diving related accident	2.28	1.019	2.26	0.796	0.161	0.026
PV2: I am at risk for being victimized by live aboard scuba diving related accident	2.20	0.929	2.20	0.825	-0.034	0.276
PV3: I am vulnerable to harm during live aboard scuba diving in Phuket	2.20	1.063	2.15	0.790	0.441	0.001
PV4: I am vulnerable to COVID-19 infection during live aboard scuba diving in Phuket	2.50	1.112	2.44	0.921	0.482	0.032

Table 4.4 Continued

	Male		Female		t-value	p-value
	Mean	S.D.	Mean	S.D.		
Response Efficacy						
RE1: I am confident that the SHA safety standard can help minimize my risk of COVID-19 infection while I live aboard scuba dive in Phuket	3.91	1.337	4.09	1.323	-1.128	0.731
RE2: I am confident that the safety standard of scuba diving association will minimize my risk of encountering potential threats while I live aboard scuba dive in Phuket	4.00	1.289	4.14	1.276	-0.894	0.832
Self Efficacy						
SE1: I am very confident that I can manage risk associated with liveaboard scuba diving in Phuket	4.05	1.254	4.21	1.147	-1.123	0.556
SE2: I am not confident that I will not be infected with COVID-19 during live aboard scuba diving trip in Phuket	3.76	1.375	4.02	1.197	-1.697	0.059
SE3: I am confident that I can comply to the safety standard of live aboard scuba diving while I am in Phuket	4.15	1.150	4.31	1.001	-1.268	0.294
SE4: I am confident that I can comply to the safety standard recommended by SHA while scuba diving (live aboard) in Phuket	4.07	1.229	4.28	1.021	-1.508	0.082
Remarks: Significant valued at $p > 0.05$						

To identify whether there is a significant difference between the perception of threat appraisal and coping appraisal among two genders, independent t-tests were performed where the result is as shown in Table 4.4. The chart demonstrates that there are some notable disparities in threat appraisal between male and female divers, but not coping appraisal. Regarding, perceived severity, there were significant differences of two statements including “*If*

something unexpected was going to happen during scuba diving in Phuket, it will likely cause tremendous harm to my health”, and *“If I encountered threat during live aboard scuba diving in Phuket, the consequences would be severe”* between males and female. In terms of perceived vulnerability, the statements with significant differences between the two gender groups are *“it is likely that I will be involved with live aboard scuba diving related accident”*, *“I am vulnerable to harm during liveaboard scuba diving in Phuket”*, and *“I am vulnerable to COVID-19 infection during liveaboard scuba diving in Phuket”*. By comparing the mean score of each statement in Table 4.5, the mean score of the statements on perceived severity is higher in females than males. In contrast, the mean score of the statements on perceived vulnerability is higher in males than females.

4.5 Impacts of risk perception on the overall risk perception of liveaboard scuba diving in Phuket

The third hypothesis of this study stated that *“varying risk perception associated with liveaboard scuba diving has a different impact on the overall risk perception of liveaboard scuba diving in Phuket”*. To determine the relationship between various risks and divers' perceptions of overall risk, Pearson correlation tests were conducted.

Table 4.5 Correlation analysis between different risk and overall risk perception

		RA	RA	RA	RA	RA	RA	RA	RA	RA	RA10	RA11	RA12	RA13	RA14	RA15	RA16	RA17	RA18	RA19
		1	2	3	4	5	6	7	8	9										
Overall risk perception	Pearson Correlation	.129*	.135*	0.067	.344**	.352**	.268**	.295**	.284**	.416**	0.108	0.060	0.022	.229**	.164**	.210**	.209**	.186**	.328**	.356**
	Sig. (2-tailed)	0.025	0.018	0.245	0.000	0.000	0.000	0.000	0.000	0.000	0.060	0.295	0.706	0.000	0.004	0.000	0.000	0.001	0.000	0.000
	N	304	304	304	304	304	304	304	304	304	304	304	304	304	304	304	304	304	304	304

** . Correlation is significant at the 0.01 level (2-tailed).

* . Correlation is significant at the 0.05 level (2-tailed).

Table 4.5 shows that the risk factors that has significant correlation with overall risk perception are as follow:

- RA1: I am concerned about losing my belonging while scuba dive in Phuket
- RA2: I am concerned that my hotel in Phuket will be unclean
- RA4: I am concerned my safety on dinghy boat
- RA5: I am concerned about the pre-diving briefing whether or not the information on the weather, current, and other precaution of each dive site will be accurate
- RA6: I am concerned about the safety of the boat itself
- RA7: I am concerned that the reliability of the pre-dive tools check
- RA8: I am concerned about risky behaviour of staff
- RA9: I am concerned about sunburn and extreme weather condition
- RA13: I am concerned that the experience will not match my expectation or as advertised by the agency
- RA14: I am concerned about food hygiene
- RA15: I am concerned that I will get sick during the trip
- RA16: I am concerned about the high cost of food and beverages
- RA17: I am concerned about the expected extra expense and incidental expenses
- RA18: I am concerned about the dangerous marine life
- RA119: I am concerned about distant/inaccessible emergency health assistance on the boat

Based on these findings, the third hypothesis can be somewhat accepted.

4.6 Significance of overall threat appraisal on the overall risk perception of liveaboard scuba diving in Phuket

The fourth hypothesis of the study stated that “ *the overall threat appraisal signifies the overall risk perception of liveaboard scuba diving in Phuket*”. As shown in Table 4.6, Correlation analysis was conducted to determine the diver’s Threat Appraisal signifies the overall risk perception of liveaboard scuba diving in Phuket.

There are significant differences between overall risk and two variables including “ *If something unexpected was going to happen during scuba diving in Phuket, it will likely cause tremendous harm to my health*” and “ *If I encountered threat during live aboard scuba diving in Phuket, the consequences would be serious*”.

Table 4.6 Threat appraisal factors signifies the overall risk perception of liveaboard scuba diving in Phuket

	Correlation	
	Pearson Correlation	Sig.(2-tailed)
Overall risk perception	1	
PS1: If something unexpected was going to happen during scuba diving in Phuket, it will likely cause tremendous harm to my health	0.116	0.044*
PS2: If I encountered threat during liveaboard scuba diving in Phuket, the consequences would be severe	0.094	0.101
PS3: If I encountered threat during liveaboard scuba diving in Phuket, the consequences would be serious	0.147	0.010*
PS4: If something happens during liveaboard scuba diving in Phuket, the threat is likely to be extremely dangerous	0.103	0.073
PS5: If I got infected with COVID-19 during live aboard in Phuket, the health consequences are likely to be severe	0.097	0.09
PV1: It is likely that I will be involved with live aboard scuba diving related accident	-0.009	0.869
PV2: I am at risk for being victimized by liveaboard scuba diving related accident	0.073	0.206
PV3: I am vulnerable to harm during liveaboard scuba diving in Phuket	0.072	0.212
PV4: I am vulnerable to COVID-19 infection during liveaboard scuba diving in Phuket	0.102	0.075

**, Correlation is significant at the 0.01 level (2-tailed).

*, Correlation is significant at the 0.05 level (2-tailed).

4.7 Significance of overall coping on the overall risk perception of liveaboard scuba diving in Phuket

The final hypothesis of this study states that “ *the overall coping appraisal signifies the overall risk perception of liveaboard scuba diving in Phuket*”. Correlation analysis was conducted to determine the diver’s Coping Appraisal signifies the overall risk perception of liveaboard scuba diving in Phuket as follow:

- There is a significant difference between overall risk perception and “*I am not confident that I will not be infected with COVID-19 during liveaboard scuba diving trip in Phuket*” (Sig. 2-tail = 0.000)

Table 4.7 Coping appraisal factors signify the overall risk perception of liveaboard scuba diving in Phuket

	Correlation	
	Overall risk perception	
	Pearson Correlation	Sig. (2-tailed)
Overall risk perception	1	
I am very confident that I can manage the risk associated with liveaboard scuba diving in Phuket	-0.059	0.303
I am not confident that I will not be infected with COVID-19 during liveaboard scuba diving trip in Phuket	-0.203	0.000
I am confident that I can comply to the safety standard of liveaboard scuba diving while I am in Phuket	-0.05	0.384
I am confident that I can comply to the safety standard recommended by SHA while scuba diving liveaboard in Phuket	-0.104	0.069

** . Correlation is significant at the 0.01 level (2-tailed).

* . Correlation is significant at the 0.05 level (2-tailed).

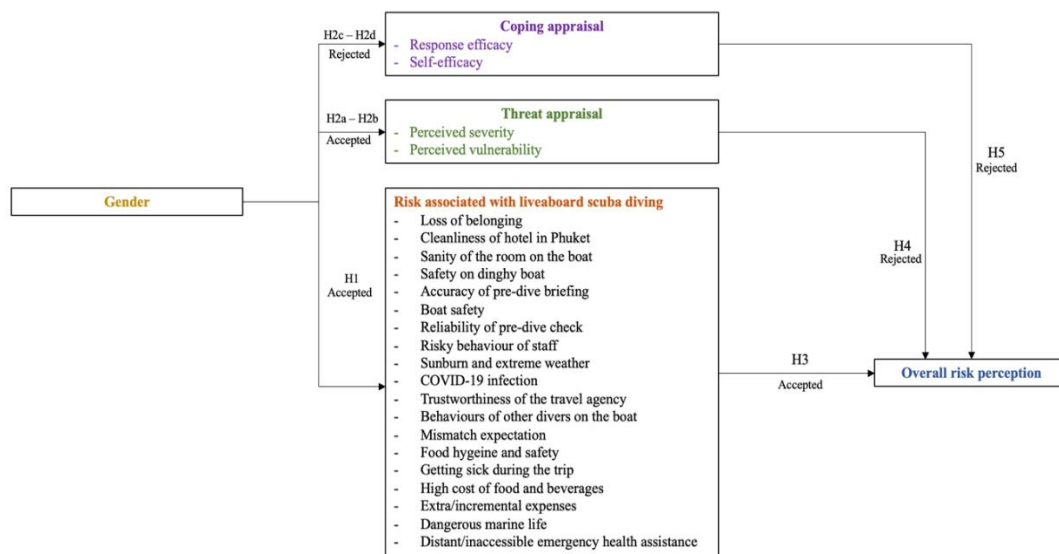
4.8 Summary of hypothesis testing

Table 4.8 and Figure show that four out of eight hypotheses can be accepted by the findings of this study. The hypotheses accepted include “divers of different genders have a different perception of the risk associated with liveaboard scuba diving”, “divers of different gender have a different perception of perceived severity”, “divers of different gender have a different perception of perceived vulnerability”, and “varying risk perception associated with liveaboard scuba diving has a different impact on the overall risk perception of liveaboard scuba diving in Phuket”. The remaining hypotheses, on the other hand, have been rejected due to insignificant findings.

Table 4.8 Summary of hypothesis testing

Hypothesis	Findings
H1: Divers of different genders have a different perception of the risk associated with liveaboard scuba diving	Accepted
H2a: Divers of different gender have a different perception of perceived severity	Accepted
H2b: Divers of different gender have a different perception of perceived vulnerability	Accepted
H2c: Divers of different gender have a different perception of response efficacy	Rejected
H2d: Divers of different gender have a different perception of self-efficacy	Rejected
H3: Varying risk perception associated with liveaboard scuba diving is related to the overall risk perception of liveaboard scuba diving in Phuket	Accepted
H4: Overall threat appraisal is related to the overall risk perception of liveaboard scuba diving in Phuket	Rejected (only perceived severity not perceived vulnerability)
H5: Overall coping appraisal is related the overall risk perception of liveaboard scuba diving in Phuket	Rejected (only response efficacy not self-efficacy)

Figure 4.1 Summary of hypotheses testing in relation to the conceptual framework



CHAPTER 5

DISCUSSION AND CONCLUSION

The findings are discussed in this chapter by comparing and contrasting the findings found in this study with the existing body of research. The chapter has been divided into seven major sections based on research hypotheses. Thus, the first section of this chapter concerns the perception of the risk associated with liveaboard scuba diving followed by a perception of the overall threat appraisal and coping appraisal between different genders. The third section regards the risk factors influencing the overall risk perception of liveaboard scuba diving in Phuket. The fourth section provides a discussion on the significance of the overall threat appraisal on the overall risk perception of liveaboard scuba diving in Phuket while the fifth section addresses the significance of the overall coping appraisal on the overall risk perception of liveaboard scuba diving in Phuket. Then, follow by the restrictions and future research focuses. The last section of the chapter focuses on implications and recommendations.

5.1 Perception of the risk associated with liveaboard scuba diving

The finding of this study suggested that there is a significant difference between male and female Divers in terms of the perceived risk associated with loss of belonging, the sanity of the room on the boat, the accuracy of the pre-dive briefing, reliability of pre-dive check, risky behavior of staff, sunburn and extreme weather, and dangerous marine life. To be precise, females perceived that loss of belonging, the sanity of the room on the boat, accuracy of the pre-dive briefing, reliability of pre-dive check, risky behavior of staff, sunburn and extreme weather, and dangerous marine life pose more risk than males. The fear of loss of belonging is greater among females than males possibly because of gender roles and gender stereotypes. According to gender roles development theories, girls and boys develop gender-specific behaviors that may be portrayed as feminine and masculine as an influence of socialization (Leaper & Friedman, 2007). Females are expected by social norms to take care of their children and take of care the cleanliness around the household (Gerdes et al., 2022). The expected social roles, therefore, influence women to perceive a loss of belonging and sanity of the room on the boat as risk factors for liveaboard dives. Moreover, another study also found that women tend to have a greater fear

of dangerous animals than men (Gerdes et al., 2022). Fear of sunburn among females may be explainable in the sense that females may perceive beauty and physical appearance more than men. Another study's findings, which suggested that, reinforce this conclusion, appearance matters more for women than men regardless of age (Oberg & Tornstam, 1999). Moreover, white skin has long been an ideal beauty standard in Asian countries including Thailand (Kang, 2021; Li et al., 2008). Thus, it is sensible to note that Thai females are more concerned of sunburn. The top three risks perceived by female divers were the accuracy of pre-dive briefing, reliability of pre-dive check, and boat safety. These three risks are considered by both males and females as the inaccuracy or error in these factors could lead to life-threatening situations (Lucrezi et al., 2018; Lucrezi et al., 2019; Wirakusuma et al., 2021).

5.2 Perception of the overall threat appraisal and coping appraisal between different genders

This study found that divers of different gender have a different perception of perceived severity and perceived vulnerability, but not response efficacy nor self-efficacy. To be precise, this study found that female has more concern related to perceived severity than male while male has more concern related to perceived vulnerability than female. Study suggested that female are more likely to perceived certain things as risky compared to male as they may have less ability to deal with that particular risk (Harris et al., 2006). On the other hand, male show higher perceived vulnerability than female because male generally feel the responsibility to looks after their partner or others in difficult situation. Thus, gender role stereotype influences them to be more protective. As a results, men are more likely to consider the potential of their vulnerability to certain activity than female (Hannak et al., 2011).

5.3 Risk factors influencing the overall risk perception of liveaboard scuba diving in Phuket

The risk factors that has significant correlation with overall risk perception are loss of belonging, cleanliness of hotel in Phuket, safety on dinghy boat, accuracy of pre-dive briefing, boat safety, reliability of pre-dive check, risky behaviour of staff, sunburn and extreme weather, mismatch expectation, food hygiene and safety, getting sick during the trip, high cost of food and beverages, extra/incremental expenses, dangerous marine life, and distant/inaccessible

emergency health assistance. Other studies also found that one of the risk factors perceived by tourists is lost items (Lucrezi et al., 2018; Lucrezi et al., 2019; Wirakusuma et al., 2021). Similarly, other study also found that some scuba diving concerns about the pre-dive briefing especially when they dive oversea where language may be a barrier to effective communication (Lucrezi et al., 2019). This is consistent with other finding which suggested that pre-dive briefing is necessary for the safety of the diver and the safety of the coral reef ecosystem (Lucrezi et al., 2019; Toyoshima & Nadaoka, 2015). Pre-dive check is also important and essential for the safety of the divers as malfunction and mishaps of dive equipment could lead a greater chance of mortality rates the of divers (Ranapurwala, 2014). Since scuba diving, especially liveaboard, relied heavily on the aid of staff on the boat whose roles often include caring of the equipment, staff behaviour was also found to be one of the perceived risks (Lucrezi et al., 2018; Lucrezi et al., 2019; Wirakusuma et al., 2021). Other study also found that sunburn and extreme weather poses certain risk to scuba diving activities (Wirakusuma et al., 2021). Studies also found that tourists may also perceive dangerous marine life as potential risk of scuba diving (Lucrezi et al., 2018; Lucrezi et al., 2019; Wirakusuma et al., 2021). For example, serious fatalities could occur to divers due to shark attack (Denoble, 2014). Distant/inaccessible emergency health assistance is important risk factor not only in the case of threatening injuries, but also in relation to serious condition known as decompression sickness. To treat decompression sickness, a hospital needs to be fully equipped with hyperbaric chamber to get rid of nitrogen bubbles formed in the divers' blood vessel (Chantre et al., 2018). Thus, situation away from hospital with advanced technology means that diver could be in serious life-threatening situation if they are experiencing decompression sickness.

5.4 Significance of the overall threat appraisal on the overall risk perception of liveaboard scuba diving in Phuket

This study found that perceived severity, but not perceived vulnerability, has the significant influence on overall risk perception of liveaboard scuba diving in Phuket. Based on this finding, it is clear that divers perceived that risk factors associated with scuba diving could lead to severe threats, however, the likelihood that the incidence will occur is relatively low. This finding is in contrary to past research where perceived severity and perceived vulnerability often

occur together and individuals often assess both threats comprehensively (Rogers, 1975). That being said, the finding of this study found similar findings as the past study performed in Thailand where perceived severity, but not perceived vulnerability influences the risk perceptions among international tourists (Jarumaneerat, 2021). It could be explained that liveaboard diving in Phuket is relatively safe and that standards and measures have kept a trustworthy level of safety for Thai people, thus they feel less vulnerable.

5.5 Significance of the overall coping appraisal on the overall risk perception of liveaboard scuba diving in Phuket

The result of this study suggested that response efficacy has significant positive effect on risk perception of liveaboard scuba diving in Phuket while self-efficacy do not have significant effect. Based on these findings, it could be implied that the participants are certain that the SHA safety standard can help minimize their risk of COVID-19 infection while engaging in live aboard scuba dive in Phuket. Moreover, they also feel confident that the safety standard of scuba diving association will minimize my risk of encountering potential threats while I liveaboard scuba dive in Phuket.

5.6 Limitations and future research directions

Data collection time is limited as the first quarter of this year and also during Covid-19 pandemic, as a result, the participants of Thai tourists who came to Phuket for scuba diving is not met to the researcher's expectations in terms of qualitative data collection or interviewing part. For future research, suggestions and recommendations from the divers could also be a useful contribution.

5.7 Implications and recommendations

This study data could be supportive to scuba diving and tourism industries in Phuket. Risk management is necessary and the foundation of all recreational activities. Protection Motivation Theory (PMT) has been developed and contributed to the research in order to minimize the risks that could have happened to the divers and to promote a safety tourist destination for Phuket, all providers and agents have to be more aware and concern towards

clients or tourists' safety. Alongside with the related governmental support and strict the regulations on certification to diving companies and punish in cases of any violations occurred. Moreover, this study evidenced gender variations to risk perception toward scuba diving in Phuket, Thailand. It is, therefore, recommended that diving companies in Phuket consider the individual needs of each gender. For example, females are more concerned of loss of belonging. As such, the company should have a locker or a safety box that divers can store their things while staying on a liveaboard boat to dive. Moreover, sunscreen and adequate shady area on the boat are also essential to provide a sense of safety to female divers. This study found that both genders were concerned about the pre-dive briefing, pre-dive check, and boat safety. To minimize concerns, dive companies in Phuket could introduce more physical evidence that can generate trust among divers. For example, maps, models, pictures, and other mediums can be used during a pre-dive briefing to give a more comprehensive explanation to the divers. During the pre-dive check, dive company could provide a checklist to the divers to ensure that all of the items have been maintained, checked, and care for before any dive. In terms of boat safety, the company could have a safety explanation poster of the boat on various parts of the boat. Also, safety tools such as life jackets and safety ring should be clearly visible to divers.

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Appendix A

Questionnaire source

Independent Variable	Statement	Scale	Modified from
Demographic information			
Gender	What is your gender?	Multiple choice questions (MCQ) - Male - Female - LGBTQ - Prefer not to say	(Clifford et al., 2018)
Age	What is your age?	Multiple choice questions (MCQ) - Under 25 - 25-40 years - 41-55 years - 56-60 years - >60 years	
Region of residence	Which part of Thailand are you from?	Multiple choice questions (MCQ) - Bangkok and metropolis area - Central part of Thailand - Eastern part of Thailand - Western part of Thailand - Northeastern part of	(Chaisawat, 2005; Huttasin et al., 2015)

		Thailand	
		- Southern part of Thailand	
Marital status	What is your marital status?	Multiple choice questions (MCQ)	(Clifford et al., 2018)
		- Single never married	
		- Married	
		- Divorced	
Highest education level	What is your highest education level?	Multiple choice questions (MCQ)	
		- Lower than high school	
		- High school	
		- Diploma	
		- Bachelor's degree	
		- Master's degree	
		- PhD	
		- Other	
Occupation	What is your occupation?	Multiple choice questions (MCQ)	(Phakthongsuk, 2009)
		- Self-employed	
		- Corporate employee	
		- Civil servant	
		- Student	
		- Freelance	
		- Unemployed	
		- Other	
Average monthly income	What is your average monthly income?	Multiple choice questions (MCQ)	(Yiengprugsawan et al., 2007)

- Less than 25,000 THB
- 25,001–50,000 THB
- 50,000–75,000 THB
- 75,001–100,000 THB
- 100,001 and above

Diving Experiences

Diving qualification	Which diving qualification do you hold?	Multiple choice questions (MCQ)	(Hammerton, 2017; Lucrezi et al., 2019; Shshtari et al., 2019)
		<ul style="list-style-type: none"> - PADI - NAUI - SSI - CMAS - Other 	
Diving qualification level	Which level is your diving qualification	Multiple choice questions (MCQ)	
		<ul style="list-style-type: none"> - PADI - Basic instruction on holiday/experience day - Open Water Diver - Advanced Open Water Diver - Rescue Diver - Enriched Air (Nitrox) Diver - Dive Master - Dive Instructor - Other 	
Total number of dives	What is your total number of dives	Fill in the blank	
Average number of	What is the average		

dive per year	number of dives per annum you have undertaken in the last 3 years?		
Maximum depth	What is the maximum depth you have dived to?		
Past diving experience in Phuket	Where in Phuket have you dived or planned to dive?	Multiple choice questions (MCQ)	(Dearden et al., 2007)
		<ul style="list-style-type: none"> - Patong Beach - Kata Beach - Karon Beach - Naihan Beach - Nai Thon Beach - Nai Yang Beach - Ya Noi Beach - Mai Know Beach - Racha Yai/Noi Island - Similan Islands - Coral Island - Phi Phi Island - Phang Nga Bay - Other 	

Diver's risk perceptions during live aboard scuba diving

Lost item	I concern about losing my belonging while I scuba dive in Phuket	5 Point Likert scale (Strongly disagree – strongly agree)	(Lucrezi et al., 2018; Lucrezi et al., 2019; Wirakusuma et al., 2021)
Hotel cleanliness	I concern that my hotel in Phuket will		

	be unclean	
Sanity on the boat	I concern about the sanity of the room on the boat	
Safety on dinghy boat	I concern my safety on dinghy boat	
Accuracy of diving brief	I concern about the pre-diving briefing whether or not the information on the weather, current, and other precaution of each dive site will be accurate	
Boat safety	I concern about the safety of the boat itself	5 Point Likert scale (Strongly disagree – strongly agree)
Pre-check dive reliability	I concern that the reliability of the pre- dive check	
Staff behavior	I concern about risky behaviour of staff	
Sunburn and extreme weather	I concern about sunburn and extreme weather	
COVID-19	I concern about COVID-19 transmission	(Wirakusuma et al., 2021)
Travel agency	I concern about the trustworthiness of	(Lucrezi et al., 2018; Lucrezi et al., 2019;

	the travel agency	Wirakusuma et al., 2021)
Other divers	I concern about the other divers on the boat	
Expectation-reality discrepancy	I concern that the experience will not match my expectation or as advertised by the agency	
Food	I concern about food hygiene and safety	
Personal health/sickness	I am concern that I will get sick during the trip	
Cost	I am concern about the high cost of food and beverages I am concern about the expected extra expense and incidental expenses	
Dangerous marine life	I am concern about the dangerous marine life	
Emergency service accessibility	I am concern about distant/inaccessible emergency health assistance on the boat	

Overall risk perception	On the scale of 1 to 5, where 1 being low risk and 5 being high risk, how risky do you think engaging in live aboard diving in Phuket is?	5 Point Likert scale (Low risk – High risk)	Wirakusuma et al., 2021)
Threat appraisal			
Perceived severity	<p>If something unexpected was going to happen during scuba diving in Phuket, it will likely cause tremendous harm to my health</p> <p>If I encountered threat during live aboard scuba diving in Phuket, the consequences would be severe</p> <p>If I encountered threat during live aboard scuba diving in Phuket, the consequences would be serious</p> <p>If something happens during</p>	5 Point Likert scale (Strongly disagree – strongly agree)	(Geng et al., 2020; Verkoeyen & Nepal, 2019)

	the SHA safety standard can help minimize my risk of COVID-19 infection while I live aboard scuba dive in Phuket	(Strongly disagree – strongly agree)	Verkoeyen & Nepal, 2019)
	I am confident that the safety standard of scuba diving association will minimize my risk of encountering potential threats while I live aboard scuba dive in Phuket		
Self-efficacy	I am very confident that I can manage the risk associated with live aboard scuba diving in Phuket	5 Point Likert scale (Strongly disagree – strongly agree)	(Geng et al., 2020; Verkoeyen & Nepal, 2019)
	I am confident that I will not be infected with COVID-19 during live aboard scuba diving trip in Phuket		
	I am confident that I can comply to the safety standard of live aboard scuba		

diving while I am in

Phuket

I am confident that I

can comply to the

safety standard

recommended by

SHA while scuba

diving (live aboard)

in Phuket

Appendix B

Questionnaire

SECTION 1: INFORMED CONSENT

Dear participant,

First of all, thank you for accepting my invitation to participate in my study. My name is Panyaporn Jiamsajjamongkol, current Master's degree student majoring in Hospitality and Tourism Management at Prince of Songkla University, Phuket Campus. The questionnaire is part of thesis. The total of my thesis is "A assessment of risk management practices and travel-related perceptions among divers in Phuket, Thailand". The study aims to explore the perceived risks among divers before, during, and after diving in Phuket. This survey will require around 20 minutes of your time. This survey is anonymous, and all of the information collected from this study will be kept confidential and will only be used for academic purposes. You also have full rights to refuse to participate or withdraw from this study. Upon your withdrawal, the information collection from you will be deleted and omitted form this study. Thank you again for your kind participations. Should you have any questions regarding this study, please feel free to contact me at pandi.jiam@gmail.com.

Please tick the following box to agree that you have read this consent form and willing to participate in this study

เรียนผู้เข้าร่วม

ก่อนอื่นขอขอบคุณที่ตอบรับคำเชิญให้เข้าร่วมการศึกษาของดิฉัน ดิฉันชื่อนางสาว ปัญญาพร เจียมสัจจะมงคล กำลังศึกษาระดับปริญญาโทสาขาการจัดการการท่องเที่ยวและโรงแรม ที่มหาวิทยาลัยสงขลานครินทร์ แบบสอบถามเป็นส่วนหนึ่งของเอกสารวิทยานิพนธ์ของฉันท การศึกษานี้มีจุดมุ่งหมายเพื่อศึกษาเกี่ยวกับความคิดเห็นของชาวไทยที่มีความเสี่ยงเกี่ยวกับการดำน้ำ ที่ภูเก็ต แบบสำรวจนี้จะต้องใช้เวลาประมาณ 20 นาที แบบสำรวจนี้ไม่ระบุชื่อและข้อมูลทั้งหมดที่ รวบรวมจากแบบสำรวจนี้จะถูกเก็บไว้เป็นความลับและจะใช้เพื่อวัตถุประสงค์ทางวิชาการเท่านั้น นอกจากนี้คุณยังมีสิทธิ์อย่างเต็มที่ในการปฏิเสธที่จะเข้าร่วมหรือถอนตัวจากการศึกษานี้ เมื่อคุณ ถอนตัวข้อมูลที่รวบรวมจากคุณจะถูกลบและละเว้นจากการศึกษานี้ ขอขอบคุณอีกครั้งสำหรับการมี ส่วนร่วม หากคุณมีคำถามใด ๆ เกี่ยวกับการศึกษานี้โปรดติดต่อฉันได้ที่ pandi.jiam@gmail.com.

โปรดทำเครื่องหมายในช่องต่อไปนี้อย่างถูกต้องเพื่อยอมรับว่าคุณได้อ่านแบบฟอร์มความยินยอมนี้และยินดีที่จะเข้าร่วมในการศึกษานี้

SECTION 2: SCREENING QUESTIONS

1. **Are you a local or a tourist?** / คุณเป็นคนท้องถิ่นหรือนักท่องเที่ยว
 - Local / ท้องถิ่น
 - Tourist / นักท่องเที่ยว

2. **How long are you staying in Phuket?** / คุณอยู่ที่ภูเก็ตนานแค่ไหน
 - 1-2 days / 1 – 2 วัน
 - 3-4 days / 3 – 4 วัน
 - 5-6 days / 5 – 6 วัน
 - A week and more / หนึ่งอาทิตย์หรือมากกว่า

3. **Have you ever dived (live aboard) in Phuket before?** / คุณเคยดำน้ำแบบ live aboard ที่ภูเก็ตหรือไม่
 - Yes / เคย
 - No / ไม่เคย

4. **Have you ever planned to dive liveaboard in Phuket before?** / คุณเคยมีแพลนจะดำน้ำแบบ live aboard ที่ภูเก็ตหรือไม่
 - Yes / เคย
 - No (This is the end of your questionnaire, thank you for your participations) / ไม่เคย

SECTION 3: DEMOGRAPHIC INFORMATION

5. **What is your gender?** / เพศ
 - Male / ชาย
 - Female / หญิง
 - LGBTQ
 - Prefer not to say / ไม่ประสงค์ตอบข้อนี้

6. What is your age? / อายุ

- Under 25 / น้อยกว่า 25
- 25 – 40 years / 25 – 40 ปี
- 41 – 55 years / 41 – 55 ปี
- 56 – 60 years / 56 – 60 ปี
- More than 60 years / มากกว่า 60 ปี

7. Which part of Thailand are you from? / ภูมิภาคที่อยู่อาศัย

- Bangkok and metropolis area / กรุงเทพมหานครและปริมณฑล
- Central part of Thailand / ภาคกลาง
- Eastern part of Thailand / ภาคตะวันออก
- Western part of Thailand / ภาคตะวันตก
- Northeastern part of Thailand / ภาคอีสาน
- Southern part of Thailand / ภาคใต้
- Other/อื่นๆ

8. What is your marital status / สถานภาพสมรส

- Single never married / โสดไม่เคยแต่งงาน
- Married / แต่งงานแล้ว
- Divorced / หย่า
- Other/อื่นๆ

9. Highest education level

- Lower than high school / ต่ำกว่ามัธยม
- High school / มัธยม
- Diploma / ประกาศนียบัตร
- Bachelor's degree /ปริญญาตรี
- Master's degree /ปริญญาโท
- PhD /ปริญญาเอก
- Other/อื่นๆ

10. What is your occupation / อาชีพ

- Self-employed / ธุรกิจส่วนตัว
- Corporate employee / พนักงานบริษัท
- Civil servant / ข้าราชการ
- Student / นักเรียน
- Freelance / อาชีพอิสระ
- Unemployed /ว่างงาน
- Other/อื่นๆ

11. What is your Average monthly income / เงินเดือน

- Less than 25,000 THB / น้อยกว่า 25,000 บาท
- 25,001 – 50,000 THB
- 50,001 – 75,000 THB
- 75,001 – 100,000 THB
- 100,001 THB and above / มากกว่า 100,000 บาท

SECTION 4: DIVING EXPERIENCES**12. Which diving qualification do you hold? คุณมีใบรับรองการดำน้ำจากสมาคมใด**

- PADI
- NAUI
- SSI
- CMAS
- Other (please specify: _____) อื่นๆ โปรดระบุ

13. Which level is your diving qualification? ใบรับรองการดำน้ำของคุณอยู่ในระดับใด

- Basic instruction on holiday/experience day
- Open Water Diver
- Advanced Open Water Diver
- Rescue Diver
- Enriched Air (Nitrox) Diver

- Dive Master
- Dive Instructor
- Other (please specify: _____) อื่นๆ โปรดระบุ

14. What is your total number of dives? คุณดำน้ำมาแล้วทั้งหมดกี่ครั้ง _____ ครั้ง

15. What is the average number of dives per annum you have undertaken in the last 3 years? เฉลี่ยใน 3 ปีที่ผ่านมาคุณดำน้ำกี่ครั้งต่อปี _____

16. What is the maximum depth you have dived to? ความลึกสูงสุดที่คุณเคยดำน้ำมา _____ meters

17. Where in Phuket have you dived or planned to dive? คุณเคยดำน้ำที่ไหนมาก่อน หรือมีแพลนจะดำน้ำที่ไหนในภูเก็ต (please tick all that applied/ เลือกได้มากกว่า 1 ข้อ)

- Patong Beach
- Kata Beach
- Karon Beach
- Naihan Beach
- Nai Thon Beach
- Nai Yang Beach
- Ya Noi Beach
- Mai Know Beach
- Racha Yai/Noi Island
- Similan Islands
- Coral Island
- Phi Phi Island
- Phang Nga Bay
- Other (please specify: _____) อื่นๆ โปรดระบุ

**SECTION 5: DIVER'S RISK PERCEPTIONS DURING LIVE ABOARD SCUBA DIVING
IN PHUKET**

Following questions concern your risk perception DURING LIVE ABOARD DIVING in Phuket.

For the following questions, please rate your level of agreement to the following statements, where 1 being strongly disagree, and 5 being strongly agree.

คำถามต่อไปนี้เกี่ยวข้องกับทัศนคติของคุณต่อความเสี่ยงที่มีต่อการดำน้ำแบบ live aboard ที่ภูเก็ต สำหรับคำถามต่อไปนี้โปรดให้คะแนนระดับการเห็นด้วยของคุณต่อข้อความต่อไปนี้โดยที่ 1 ไม่เห็นด้วยอย่างยิ่งและ 5 เห็นด้วยอย่างยิ่ง

	1	2	3	4	5
18. I concern about losing my belonging while I scuba dive in Phuket / ฉันกลัวว่าของฉันจะหายระหว่างที่ฉันดำน้ำที่ Phuket					
19. I concern that my hotel in Phuket will be unclean / ฉันกังวลเรื่องความสะอาดของที่พักที่ภูเก็ต					
20. I concern about the sanity of the room on the boat / ฉันกังวลเรื่องความสะอาดของห้องนอนบนเรือ					
21. I concern my safety on dinghy boat / ฉันกังวลเรื่องความปลอดภัยของฉันบนเรือยาง					
22. I concern about the pre-diving briefing whether or not the information on the weather, current, and other precaution of each dive site will be accurate / ฉันกังวลเรื่องข้อมูลที่จะได้รับก่อนจะดำน้ำ ว่าข้อมูลต่างๆ เช่น สภาพอากาศ คลื่นลมและข้อควรระวังอื่นๆ จะครบถ้วนหรือไม่					
23. I concern about the safety of the boat itself / ฉันกังวลเรื่องความปลอดภัยบนเรือ					
24. I concern that the reliability of the pre-dive check / ฉันกังวลเรื่องการเช็คอุปกรณ์ต่างๆก่อนดำน้ำ					
25. I concern about risky behaviour of staff / ฉันกังวลเรื่องความปลอดภัยของพนักงานบนเรือที่อาจจะนำไปสู่ความเสี่ยงและอันตราย					

26. I concern about sunburn and extreme weather condition / ฉันกังวลเรื่องแดด และสภาวะอากาศ					
27. I am concerned that I might be at risk of getting infected by COVID-19 during my live aboard diving trip/ ฉันกังวลเรื่องการติดเชื้อ โควิดระหว่างเข้าร่วมกิจกรรมดำน้ำแบบ live aboard					
28. I concern about the trustworthiness of the travel agency / ฉันกังวลเรื่องคุณภาพและความน่าเชื่อถือของเอเจนซี่ที่ขยและดำน้ำ					
29. I am concerned about the behaviours of other divers on the boat / ฉันกังวลเรื่องพฤติกรรมของคนดำน้ำอื่นๆที่อยู่บนเรือ					
30. I am concerned that the experience will not match my expectation or as advertised by the agency / ฉันกังวลว่าประสบการณ์การดำน้ำจะไม่เป็นไปตามที่คาดหวังหรือเป็นไปตามที่โฆษณา					
31. I concern about food hygiene and safety/ ฉันกังวลเรื่องความสะอาดของอาหารที่บริการบนเรือ					
32. I am concern that I will get sick during the trip/ ฉันกังวลว่าฉันจะป่วยระหว่างอยู่บนเรือ					
33. I am concern about the high cost of food and beverages / ฉันกังวลเรื่องราคาของอาหารและเครื่องดื่ม					
34. I am concern about the expected extra expense and incidental expenses / ฉันกังวลว่าทริปนี้อาจจะมีค่าใช้จ่ายอื่นๆที่เพิ่มเข้ามา หรือมองไม่เห็น					
35. I am concern about the dangerous marine life / ฉันกังวลเรื่องสัตว์ทะเลที่อาจจะเป็นอันตราย					
36. I am concern about distant/inaccessible emergency health assistance on the boat / ฉันกังวลเรื่องการออกเรือไปไกลๆ ทำให้ความช่วยเหลือด้านสุขภาพในยามฉุกเฉินเป็นไปได้ยากลำบาก					

Overall risk perception					
37. On the scale of 1 to 5, where 1 being low risk and 5 being high risk, how risky do you think partaking live aboard diving in Phuket is? ในภาพรวมคุณคิดว่าการดำน้ำแบบนอนบนเรือที่ภูเก็ตมีความเสี่ยงมากน้อยแค่ไหน (1 = เสี่ยงน้อย 5 = เสี่ยงมาก)					

Section 6 : Threat appraisal and coping appraisal

Following questions concern your perception about threat and coping ability DURING LIVE ABOARD DIVING in Phuket. For the following questions, please rate your level of agreement to the following statements, where 1 being strongly disagree, and 5 being strongly agree.

คำถามต่อไปนี้เกี่ยวข้องกับทัศนคติของคุณต่อความเสี่ยงและการรับมือกับความเสี่ยงระหว่างการดำน้ำ สำหรับคำถามต่อไปนี้โปรดให้คะแนนระดับการเห็นด้วยของคุณต่อข้อความต่อไปนี้โดยที่ 1 ไม่เห็นด้วยอย่างยิ่งและ 5 เห็นด้วยอย่างยิ่ง

	1	2	3	4	5
Threat appraisal: Perceived severity					
38. If something unexpected was going to happen during scuba diving in Phuket, it will likely cause tremendous harm to my health/ ถ้าเกิดมีเหตุการณ์ไม่คาดฝันเกิดขึ้นระหว่างที่ฉันดำน้ำแบบ liveaboard ที่ภูเก็ต เหตุการณ์นั้นน่าจะผลเสียอย่างร้ายแรงต่อสุขภาพของฉัน					
39. If I encountered threat during live aboard scuba diving in Phuket, the consequences would be severe/ ถ้าฉันเจอเหตุร้ายระหว่างดำน้ำแบบ liveaboard ที่ภูเก็ต ผลกระทบน่าจะรุนแรงมาก					
40. If I encountered threat during live aboard scuba diving in Phuket, the consequences would be serious/ ถ้าฉันเจอเหตุร้ายระหว่างดำน้ำแบบ liveaboard ที่ภูเก็ต ผลกระทบน่าจะรุนแรงมาก					

<p>41. If something happens during live aboard scuba diving in Phuket, the threat is likely to be extremely dangerous/ ถ้าหากมีเหตุการณ์อะไรเกิดขึ้นระหว่าง ดำน้ำแบบ liveaboard ที่ภูเก็ต เหตุการณ์นั้น ๆ น่าจะเป็นอะไรที่อันตรายมาก</p>					
<p>42. If I got infected with COVID-19 during live aboard in Phuket, the health consequences are likely to be severe/ ถ้าฉันติดเชื้อโควิดระหว่างน้ำแบบ liveaboard ที่ภูเก็ต ผลกระทบต่อสุขภาพของการติดเชื้อน่าจะรุนแรงมาก</p>					
Threat appraisal: Perceived vulnerability					
<p>43. It is likely that I will be involved with live aboard scuba diving related accident/ มีความเป็นไปได้ว่าฉันจะเป็นเหยื่อของอุบัติเหตุที่อาจเกิดขึ้นระหว่างดำน้ำแบบ liveaboard ที่ภูเก็ต</p>					
<p>44. I am at risk for being victimized by live aboard scuba diving related accident/ ฉันมีความเสี่ยงสูงที่จะพบสບอุบัติเหตุหรือเจอเรื่องราวร้ายๆระหว่างดำน้ำแบบ liveaboard ที่ภูเก็ต</p>					
<p>45. I am vulnerable to harm during live aboard scuba diving in Phuket/ ฉันมีความเสี่ยงที่จะได้รับบาดเจ็บระหว่างดำน้ำแบบ liveaboard ที่ภูเก็ต</p>					
<p>46. I am vulnerable to COVID-19 infection during live aboard scuba diving in Phuket/ ฉันมีความเสี่ยงที่จะติดเชื้อโควิดระหว่างดำน้ำแบบ liveaboard ที่ภูเก็ต</p>					
Coping appraisal: Response efficacy					
<p>47. I am confident that the SHA safety standard can help minimize my risk of COVID-19 infection while I live aboard scuba dive in Phuket/ ฉันมั่นใจว่ามาตรฐานความปลอดภัยของSHAสามารถช่วยลดความเสี่ยงที่ฉันจะติดโควิดระหว่างดำน้ำแบบ liveaboard ที่ภูเก็ต</p>					
<p>48. I am confident that the safety standard of scuba diving</p>					

association will minimize my risk of encountering potential threats while I live aboard scuba dive in Phuket/ ฉันมั่นใจว่ามาตรฐานความปลอดภัยของสมาคมดำน้ำต่างๆ สามารถช่วยลดความเสี่ยงเกี่ยวกับการดำน้ำได้เป็นอย่างดีในระหว่างที่ดำน้ำแบบ liveboard ที่ภูเก็ต					
Coping appraisal: Self-efficacy					
49. I am very confident that I can manage the risk associated with live aboard scuba diving in Phuket/ ฉันมั่นใจว่าฉันจัดการความเสี่ยงในระหว่างดำน้ำแบบ liveboard ที่ภูเก็ตได้					
50. I am not confident that I will not be infected with COVID-19 during live aboard scuba diving trip in Phuket / ฉันมั่นใจว่าฉันจะไม่ติดเชื้อ โควิดระหว่างดำน้ำแบบ liveboard ที่ภูเก็ตได้					
51. I am confident that I can comply to the safety standard of live aboard scuba diving while I am in Phuket/ ฉันมั่นใจว่าฉันสามารถปฏิบัติตามมาตรฐานความปลอดภัยของการดำน้ำได้ ระหว่างที่ดำน้ำแบบ liveboard ที่ภูเก็ต					
52. I am confident that I can comply to the safety standard recommended by SHA while scuba diving (live aboard) in Phuket/ ฉันมั่นใจว่าฉันสามารถปฏิบัติตามมาตรฐานความปลอดภัยของSHAได้ ระหว่างที่ดำน้ำแบบ liveboard ที่ภูเก็ต					

The end of the survey

Please send the URL of this survey to some body you know they love to or have dived

(Live aboard) in Phuket

Thank you again for your participation

สิ้นสุดการสำรวจ

โปรดส่ง URL ของแบบสำรวจนี้ให้กับเพื่อนของท่านที่เคฯหรือมีแพลนจะดำน้ำแบบนอนบนเรือที่ภูเก็ต ขอขอบคุณอีกครั้งสำหรับการเข้าร่วมการศึกษาในครั้งนี้

Appendix C

Certificate



VITAE

Name Miss Panyaporn Jiamsajjamongkol

Student ID 6030121005

Educational Attainment

Degree	Name of Institution	Year of Graduation
Bachelor of Humanities (English Literature)	Chiang Mai University	2008

List of Publication and Proceeding (If any)

Panyaporn Jiamsajjamongkol, Tatiyaporn Jarumaneerat. (2022). *A Comparative Assessment of Risk Management Practices and Travel-Related Risk Perceptions Among Thai Tourist Scuba Divers in Phuket, Thailand*. The 13th Hatyai National and International Conference on May 12,2022.