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MASTER’S THESIS

**A RESEARCH ON SAFETY CULTURE AWARENESS OF
MARINA EMPLOYEES**

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APPROVAL PAGE



DECLARATION

I hereby declare that this master's thesis titled as "A Research on Safety Culture Awareness of Marina Employees" has been written by my self in accordance with the academic rules and ethical conduct. I also declare that all materials benefited in this thesis consist of the mentioned resources in the reference list. I verify all these with my honor.

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ABSTRACT
Master's Thesis
A Research on Safety Culture Awareness of Marina Employees
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Maritime Business Administration Program

Safety culture which is commonly used on several sectors is considered as a proactive accident prevention method to reduce occupational safety risk level in an organization. Employees are the most important resources in marinas and their awareness related to safety should be observed by marina managements. The aim of this research is to analyze the safety culture awareness level of marina employees located in İzmir and Aydın regions by using safety culture questionnaire. Safety culture questionnaire developed by Dursun (2011) is conducted while measuring safety culture awareness level of marina employees. While determining safety culture awareness level of marina employees, safety culture variables and demographics of marina employees' relations are also analyzed in the scope of research. The research results show that, safety culture awareness of marina employees differs according to employees' age. However safety culture awareness of marina employees does not differ according to gender, educational status, work status, work experience, work department and occupational accident experience.

Keywords: Marina, Marina Employees, Safety, Safety Culture, Safety Awareness.

ÖZET

Yüksek Lisans Tezi

Marina Çalışanları Emniyet Kültürü Farkındalığı Üzerine Bir Çalışma

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Örgütlerdeki iş emniyeti risklerini azaltmak için kazaları önlemede proaktif bir yöntem olan emniyet kültürü son zamanlarda birçok sektör tarafından yaygın bir şekilde kullanılmaktadır. Çalışanlar marinaların en önemli kaynaklarıdır ve emniyetle ilgili farkındalıklarının marina yönetimi tarafından gözlenmesi gerekir. Çalışmanın amacı, İzmir ve Aydın bölgelerinde bulunan marinalardaki çalışanların emniyet kültürü anketi uygulayarak emniyet kültürü farkındalık düzeylerini ölçmektir. Marina çalışanlarının emniyet kültürü farkındalık düzeyleri ölçülürken Dursun (2011) tarafından geliştirilen emniyet kültürü anketinden yararlanılmıştır. Marina çalışanlarının emniyet kültürü farkındalıkları belirlenirken emniyet kültürü değişkenleri ve marina çalışanlarının demografik özellikleri arasındaki ilişki de araştırma kapsamında incelenmiştir. Araştırmanın analiz sonuçlarına göre marina çalışanlarının emniyet kültürü farkındalıkları çalışanların yaşına göre farklılık göstermektedir. Ancak marina çalışanlarının emniyet kültürü farkındalıkları cinsiyet, eğitim durumu, işteki konumu, departmanı ve iş kazası geçmişine göre farklılık göstermemektedir.

Anahtar Kelimeler: Marina, Marina Çalışanları, Emniyet, Emniyet Kültürü, Emniyet Farkındalığı.

**A RESEARCH ON SAFETY CULTURE AWARENESS OF
MARINA EMPLOYEES
CONTENTS**

APPROVAL PAGE	II
DECLARATION	III
ABSTRACT	IV
ÖZET	V
CONTENTS	VI
ABBREVIATIONS	IX
LIST OF TABLES	X
LIST OF FIGURES	XI
LIST OF APPENDICES	XII

INTRODUCTION	1
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**CHAPTER ONE
YACHT TOURISM AND MARINAS**

1.1. YACHT TOURISM AND MARINA RELATIONS	2
1.1.1. Marina: Concept and Definitions	2
1.1.2. Yachting in Tourism Sector	4
1.2. ECONOMIC CONTRIBUTIONS OF MARINAS	5
1.3. MARINAS IN TURKEY AND IN THE WORLD	8
1.3.1. Marinas in the World	8
1.3.2. Marinas in Turkey	9
1.4. MARINA MANAGEMENT	12
1.4.1. Marina Organizational Structure	13
1.4.2. Services Supplied in Marinas	18
1.5. MARINA TYPES	21
1.5.1. Marinas According to Investor	21
1.5.1.1. Public Marinas	21

1.5.1.2 Private Marinas	22
1.5.2. Marinas According to Physical Characteristics	22
1.5.2.1 Boutique Marinas	22
1.5.2.2. Marinas with Commercial Area	23
1.5.2.3 Full Service Marinas	24
1.5.2.4. Club Marinas	24
1.5.3. Marinas According to Marine Tourism Regulation	25
1.5.3.1. Three Anchored Marinas	25
1.5.3.2. Four Anchored Marinas	26
1.5.3.3. Five Anchored Marinas	26
1.6. LEGAL ASPECT OF MARINAS	27
1.6.1. Infrastructure Requirements for Marinas	27
1.6.2. Superstructure Requirements for Marinas	28
1.7. SAFETY IN MARINAS	29

CHAPTER TWO

SAFETY CULTURE

2.1. ORGANIZATIONAL CULTURE	30
2.2. SAFETY CULTURE CONCEPT	31
2.2.1. Definition of Safety Culture	31
2.2.2. Attributes of Safety Culture	35
2.2.3. Aim of Safety Culture	38
2.2.4. Components of Safety Culture	39
2.3. SAFETY CULTURE MODELS	41
2.3.1. Safety Culture Maturity Model	41
2.3.2. Reciprocal Safety Culture Model	43
2.3.3. Total Safety Culture Model	44
2.3.4. Attitudes Towards Safety Culture Model	45
2.3.5. Berend's Safety Culture Model	46
2.3.6. Socio-Technical Model of Safety Culture	48
2.4. POSITIVE SAFETY CULTURE	48

2.5. INDICATORS OF SAFETY CULTURE	51
2.6. SAFETY CLIMATE AND SAFETY CULTURE	55
2.7. SAFETY PERFORMANCE INDICATOR	57
2.8. SAFETY CULTURE LITERATURE	58
2.8.1. Safety Culture Literature in the World	58
2.8.2. Safety Culture Literature in Turkey	60

CHAPTER THREE

STUDY ON SAFETY CULTURE AWARENESS ON MARINA EMPLOYEES

3.1. AIM AND IMPORTANCE OF THE RESEARCH	63
3.2. RESEARCH METHODOLOGY	63
3.2.1. Research Model	63
3.2.2. Research Hypotheses	64
3.2.3. Data Collection Tool	65
3.2.4. Research Sample	65
3.2.5. Data Collection Process	67
3.3. DATA ANALYSIS	67
3.3.1. Reliability Analysis	67
3.3.2. Normality Test	68
3.4. FINDINGS OF THE RESEARCH	68
3.4.1. Demographic Findings	68
3.4.2. Hypothesis Tests	70
3.4.3. Factor Analysis	86
3.4.4. Comparison of Marinas	92
3.5. DISCUSSION OF FINDINGS	93
CONCLUSION AND RECOMMENDATIONS	97
REFERENCES	100
APPENDIX	

ABBREVIATIONS

HSE	Health and Safety Executives
IAEA	International Atomic Energy Agency
ICOMIA	International Council of Marine Industry Associations
ICS	International Chamber of Shipping
INSAG	International Nuclear Safety Advisory Group
OECD	Organization of Economic Cooperation and Development
SMS	Safety Management System
SPSS	Statistical Package Program for Social Science
TYHA	The Yacht Harbour Association
US	United States

LIST OF TABLES

Table 1: Marina and Mooring Capacities in the World	p. 9
Table 2: Active Marinas with Tourism Management Certificate	p. 10
Table 3: Active Marinas with Tourism Investment Certificate	p. 11
Table 4: Active Marinas without Management or Investment Certificate	p. 11
Table 5: Definitions of Safety Culture”	p. 33
Table 6: Definitions of Safety Climate	p. 56
Table 7: Characteristics of the Marinas in the Sample	p. 66
Table 8: Reliability Test	p. 68
Table 9: Test of Normality	p. 68
Table 10: Employee’s Demographic Distributions	p. 69
Table 11: Analysis of Sub-hypothesis According to Gender	p. 70
Table 12: Analysis of Sub-hypothesis According to Age Groups	p. 71
Table 13: Analysis of Sub-hypothesis According to Education Groups	p. 74
Table 14: Analysis of Sub-hypothesis According to Years of Experience in the Company	p. 76
Table 15: Analysis of Sub-hypothesis According to Marital Status	p. 77
Table 16: Analysis of Sub-hypothesis According to Total Work Experience	p. 78
Table 17: Analysis of Sub-hypothesis According to Work Status	p. 80
Table 18: Analysis of Sub-hypothesis According to Department	p. 81
Table 19: Analysis of Sub-hypothesis According to Lifetime Accident Experience	82
Table 20: Analysis of Sub-hypothesis According to Company Accident Experience	p. 83
Table 21: Analysis of Sub-hypothesis According to Near miss Experience	p. 84
Table 22: Hypothesis Results	p. 85
Table 23: KMO and Bartlett’s Test Results	p. 86
Table 24: Factor Analysis of Safety Culture Awareness Variables	p. 87
Table 25: Marina Comparisons	p. 92

LIST OF FIGURES

Figure 1: Position of Marina Businesses in Economic Sectors	p. 7
Figure 2: Sample Marina Organization Structure	p. 13
Figure 3: Public Marina/ Göcek Municipality Marina-Muğla	p. 21
Figure 4: Private Marina/ D-Marin Didim Marina- Aydın	p. 22
Figure 5: Boutique Marinas/ Setur Altinyunus Marina- İzmir	p. 23
Figure 6: Marinas with Commercial Area/ Kuşadası Marina- Aydın	p. 23
Figure 7: Full-Service Marinas/ Ataköy Marina- İstanbul	p. 24
Figure 8: Club Marinas/ Club Marina Göcek- Muğla	p. 25
Figure 9: Strategic Approach to Safety	p. 40
Figure 10: Safety Culture Maturity Model	p. 41
Figure 11: Reciprocal Safety Culture Model	p. 44
Figure 12: Total Safety Culture Model	p. 45
Figure 13: Attitudes Towards Safety Culture Model	p. 46
Figure 14: Berend's Safety Culture Model	p. 47
Figure 15: Socio-Technical Model of Safety Culture	p. 48
Figure 16: Organizational Indicator of Safety Culture	p. 53
Figure 17: Research Model	p. 64

LIST OF APPENDICES

Appendix 1: Emniyet Kültürü Farkındalık Anket Formu	app p. 1
Appendix 2: Safety Culture Awareness Questionnaire Form	app p. 5



INTRODUCTION

Marinas have to comply with comprehensive requirements both compulsory and voluntary to become competitive in yachting sector so as to have more customers in terms of quality and quantity and gain economic advantages. Safety is one of the most important selective factors for marina customers, yachters, while their decision process which marina they will berth their recreational boats and supply its maintenance equipment, common care and get their personnel needs. Marina customers spend more money when compared to regular tourists that visit the region. Considering this fact, tourist quality is much more important than tourist quantity. Although safety itself is not enough in order to get competitive advantages in marina market, safety is a basic need for marina employees and customers. It is necessary to give more importance to provide sustainability and increase efficiency in marinas which are crucial infrastructure of yacht tourism both public and management level. Majority of occupational accidents are caused by human or human factors. Safety culture could be used as behavioral change method on occupational areas in order to decrease work related risks. When marina employees consider safety as a culture rather than regulatory means, they are more reluctant to comply with safety measures and aware of all occupational safety risks related to marina jobs.

First chapter of the study consists of marinas and marina concept. Yacht tourism and marina relations are mentioned and their economic contributions to local and national economies are discussed. Marina types, legal aspect of marinas and marina management and current status of marinas are also examined on this chapter.

On second chapter of the study, safety culture concept is comprehensively analyzed. Safety culture definitions, attributes of safety culture, models of safety culture, and safety culture indicators are discussed.

Final chapter of the study encompasses the questionnaire application process and research method is discussed. Data analysis of the research and hypothesis tests is conducted on the last chapter. Findings of the research and results of the study are also mentioned.

CHAPTER ONE

YACHT TOURISM AND MARINAS

1.1. YACHT TOURISM AND MARINA RELATIONS

Marinas are regarded as service providers to recreational and commercial yachts and they could be accepted as the important substructure components of yacht tourism (Atlay Işık and Cerit, 2008: 585; Kalemderoğlu et al., 2004: 2).

1.1.1. Marina: Concept and Definitions

The term ‘marina’ was firstly used by U.S. National Association of Engine & Boat Manufacturers in 1928 and defined as modern coastal facilities for recreational boats. More comprehensive marina description made by the Association is ‘the places which supply service to modern yachting, yachts are being able to berth and take to the shore for maintenance, refuel, prepared to the navigation in addition to these where the yacht owner can meet their needs, places near to various shops, transportation and communication tools (Adie, 1984: 37).

According to ICOMIA, marina is ‘a public or private marine facility commercially managed that primarily supplies sea services (e.g. moorings, anchorage) and/or shore services (e.g. dry-stack, on-land) storage for recreational or leisure boats for a rental or for purchase and generally boat operation services and products such as fuel, maintenance and repairs, showers, sanitary services, recreational boat sales and ship store’ (ICOMIA, 2006: 3).

Yacht marinas are small harbours for providing maintenance, repair, waste management, wintering services to yachts; providing electricity, water, fuel oil, phone, internet to the yachts and providing restaurant, hotel and shopping services to yacht owners (Ercanik, 2003). Marinas provide essential on-water and off-water boat storage and associated infrastructure and amenities as well as public access to waterways across the land/water interface. They are often developed and operated by private investment and need professional management of the complex interface

between public access, operational health and safety, environmental control, industrial activities and tourism (ICOMIA, 2018: 1).

Today, marinas are not only as places where yachters are able to moor their yachts, supply their basic needs such as fuel, food and water, but also places that are the focus of regional socio-economic development (Yüksel Project, 2010: 3).

Marinas were assumed as luxury places till now however today marina facilities are demanded by people who have various income levels especially are members of middle and high income groups. Recreational boating is experienced in different ways, such as cruising at sea, boating at inland waters (lake and river), fishing, water skiing, sailing and so on throughout the world. Therefore, marina managements should search different ways of accommodating boaters' needs and demands for lots of services and facilities. Boaters should be considered as a tourist due to expanding international tourism. Marinas should provide desired services to boaters and be aware of their needs. For being commercially successful, marinas have to use business strategies such as differentiation and they are not assumed as just a parking lot for boats. They must provide a variety of services to boaters in order to get customer satisfaction (Stone, 2000: 2).

Marina development could be summarized in three stages. First generation marinas commonly constructed in 1950s near river basin and located in the areas of yachting interest. They changed wooden jetties, pile moorings and mud berths, often associated with boatyards which had themselves served for wartime use. Second generation marinas of the 1970s peaking in the 1980s were waterside properties that become popular perceived as second home. Third generation of marina development shows changes in the demand on coastlines as well as the increasing difficulties in finding suitable marina sites at the beginning of 1990s and as customer based marina generation increased the demand from yachter in many case (Bourne, 1993: 1).

Yacht marinas are well-equipped mooring services where yachts or pleasure boats can be berthed, provide security services, have safe spaces for boats dry-stack, have various social activities and shopping opportunities (Diakomihalis, 2007: 444).

According to The Yacht Harbour Association (TYHA) (2013), marinas are the places which provide direct passage to each boat, have adequate water depth for

yachts continuously and provide facilities such as parking, toilet and laundry service (The Yacht Harbour Association, 2013: 12).

1.1.2. Yachting in Tourism Sector

Marinas, which have important places in yacht tourism activities have critical role among tourism activities in Turkey (Dikeç and Töz, 2017: 109).

Yacht tourism, subsector of maritime sector, has a part in the tourism activities and provides substantial resources and finance for the whole economy while creating new jobs. Considering the huge financial potential, the public and private sector are providing investment to yacht tourism. New marinas have been constructed by both private and public sector or they are under construction stage (Sarışık et al., 2011: 1016). The countries which consider the significance of yacht tourism as a profitable sector started to build yacht marinas in a large scale. Yacht marina investments are expensive which is mainly supported by states by incentives as cheap credits and long term rights (Ercanik, 2001: 11).

Yacht tourism is considered as combination of maritime management and tourism sectors (Atlay Işık and Cerit, 2008: 586). Yacht tourism is assumed as one of the substantial components of marine tourism (Diakomihalis, 2007: 437).

At the beginning of 2000's tourism authorities in Turkey were encouraging yacht tourism as a differentiation method of tourism (Sarışık et al., 2001: 1017). Current aim of Turkish tourism is diversification therefore, yachting is considered in macro plans as a strategic maritime option (SPI, 2006).

In recent years, marine tourism is developing and with this rising trend of maritime tourism, demand for yacht tourism is rising too. So, in order to satisfy the rising demand for yacht tourism, old marinas should be modernized and new marinas should be constructed. Culture and Tourism Ministry has responsibility for planning and construction of new yacht marinas in Turkey (Fedai, 2016: 51).

According to Sarışık et al. (2011: 1017) the economic aspects of yacht tourism are consisted of four sub-industries and effect of yachting industry is depend on the efficiency of below sub-industries.

- Yacht management

- Yachter
- Yacht manufacture
- Yacht harbour or marinas.

The yacht management is a sub-sector that has contribution to the economy by supplying consumers and boaters. Most people have strong interests and willing to yachting experience, demand to attend blue voyage. Marine tourism is referred as alternative form of tourism preferred contrary to common products. In addition, second sub-industry is yachter who navigates self-possessed sea craft or join a tour program for the product utilization supplied by a yacht-business. Yacht manufacture is a sub-industry that empowered by the improvement of yacht tourism in any country, by the accelerated demand for yachts. Capacity of yacht construction and quality of manufacture in a country has indirect influences on the volume, quantity and efficiency of yachting. The last one is yacht harbours or marinas which have more critical effects on overall industry. Marinas may be more critical than other factors due to being the key component, yachts and boaters need some equipped and qualified harbours for boat repair as well as they demand facilities they can get their special requirements for leisure (Sarışık et al, 2011: 1017).

Sarışık et al. (2011: 1018) also emphasize that Turkey should be aware of not making the same faults of specific states by fulfilling their coast with concrete contractions. Researchers percept the uniqueness of yacht tourism as an alternative to hotels and structure-intense formation of tourism activities. Furthermore, yacht tourism sector is considered as a conservative and sustainable form of tourism.

1.2. ECONOMIC CONTRIBUTIONS OF MARINAS

Marinas provide employment, economic activity and support tourism to the communities surrounding their location and contribute to the aesthetic and social fabric of their communities (ICOMIA, 2018: 1).

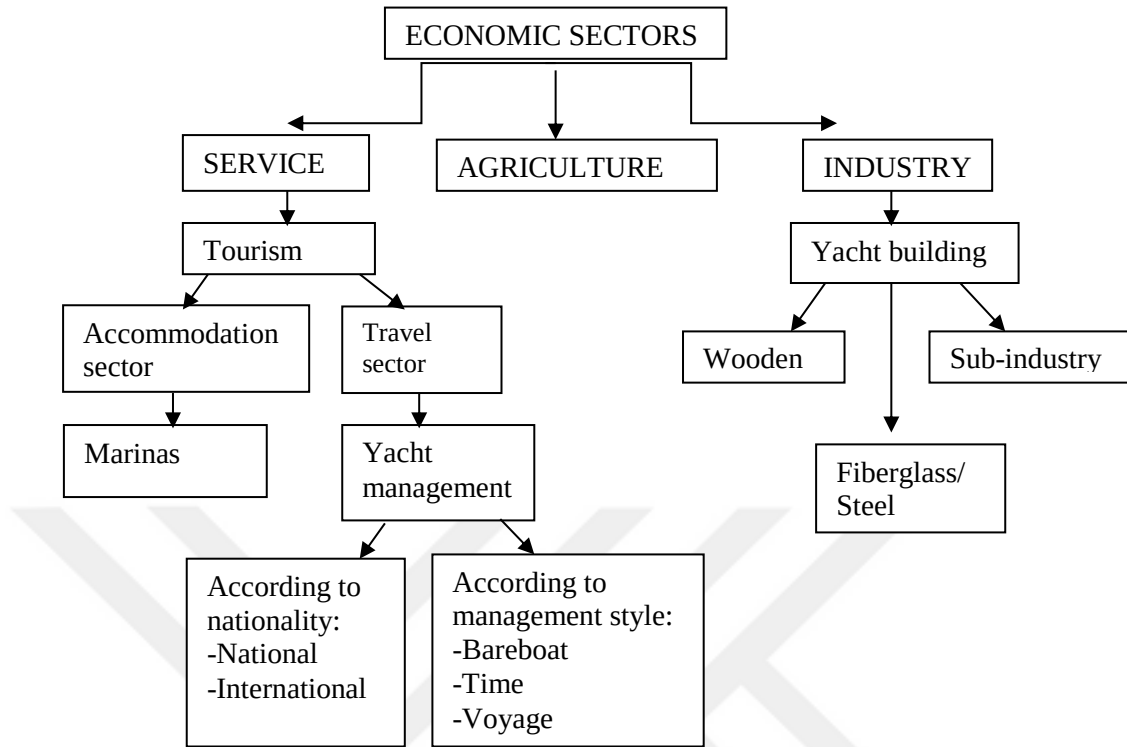
Developments in marina sector, increasing the number of marinas and the mooring capacities makes significant contributions to the development of both regional and national economy (Dikeç and Töz, 2017: 109)

Marinas could be perceived as a magnet for economic development and the promotion of nautical tourism. A marina gives jobs, starting with the on-site labor needed to build the facility. The economic contributions go on with ripple effect, marina provide important contribution to the surrounding community through boaters' quest for goods and services such as restaurants, sporting goods stores, boutiques, fuel stations and hotels. In fact, marinas are being considered as destination point resorts by cruising yachtsmen. In addition, marinas are getting contribution to the community by to local taxes (Stone, 2000: 6).

Cerit et al. (1995: 182) explain position of marina businesses among economic sector branches as seen Figure 1. It could be considered that yacht tourism has crucial effects on several economic sectors. Marinas provide crucial contribution to service and industry sector.

Tourism as seen in Figure 1 is considered as a major sub-sector of services and it is separated to branches. Marine tourism which is one of the most important among those branches, reserves a critical place in Turkey's future by providing significant contributions to national and local economy. Considering the special condition of sector, yachting and marinas are two important areas which deserve more attention (Sari, 2012: 199).

Figure 1: Position of Marina Businesses in Economic Sectors



Source: Cerit et al., 1995:182

It is obviously seen that yacht tourism provides enormous contribution to the overall economy of country. Furthermore, the yacht tourism is forecasted to have an huge economy valued about 300 billion dollar in the Mediterranean basin which is one of the most yacht attractive region in the World. Turkey is also making new strategies and constructing new marinas to get higher share from this economy. It is estimated that 700.000 recreational boats are sailing in Mediterranean and Turkish marinas hosting only 4.1% by means of boat numbers (Sarışık et al, 2011: 1017). Although yachting and yacht tourism have been developing rapidly in Turkey in recent years, it is seen that marine tourism, which is one of the high value added tourism activities, does not get enough share compared with leading countries such as France, Spain and Greece considering the huge potential of the region (Transport Ministry, 2013: 2).

Marinas have prominence for Turkey's accelerated tourism revenues. It is considered that both public and private sectors' interest and putting some more priority to marinas could have more benefits for tourism sector regarding revenues;

because yacht tourists that are visiting the marina by their private boats spend much more money than regular hotel tourists (Sarı, 2012: 203).

1.3. MARINAS IN TURKEY AND IN THE WORLD

In the world, yachting industry has increased the demand to the Mediterranean basin and the Mediterranean region has become the most important region in terms of yachting and yacht tourism (Transport Ministry, 2013: 2).

1.3.1. Marinas in the World

There are total 2.5 million recreational boats in the world and 56% of the yachts around the world are motor yachts (1.4 million); 44% consists of sailing boats (1.1 million). 2 million of the total number of yachts in the world is between 7.5 and 12 meters and half a million is in the range of 12-24 meters. World total yachts are positioned in 60% of Europe, 30% in North America and 10% rest of the World. There are total 23.367 marinas throughout the World and 1.133.081 mooring capacities serving the yacht tourism (ICOMIA, 2014: 5).

Table 1: Marina and Mooring Capacities in the World

Country	Marina Quantity	Mooring Quantity	Buoy Mooring Quantity	Ramps
Argentina	253	89		
Australia	450	75.000	30.000	1.000
Brazil	556	69.580	7.840	456
China	92	8.000		
Czech Republic	32	680	1.460	68
Finland	1.770	80.900		8.300
France	370	252.500	60.000	1.195
Germany	2.700			
Greece	22	8.100	1.200	58
Ireland	24	6.560	10.000	900
Italy	432	160.568		1.600
Japan	570	55.000	44.000	
Netherlands	1.160			500
New Zealand	211	13.000	10.000	260
Poland	1.300	11.800		19.000
Spain	360	130.000	1.500	200
Sweden	1.500	100.000	100.000	1.000
Turkey	86	28.361		
United Kingdom	565	81.304	160.000	
USA	11.000	80.000		
Total	23.367	1.133.081	426.000	34.537

Source: ICOMIA, 2014: 5; Chamber of Shipping, 2017: 192

1.3.2. Marinas in Turkey

Turkey has 86 yacht marinas registered to Ministry of Tourism which has 8.333 km coastline and 28.361 units of yacht capacity (Chamber of Shipping, 2017: 198). Table 2 indicates active marinas with tourism management certificate. There are 25 active marinas with tourism management certificate and total capacity of these

marinas are 12.189 including sea and shore area. Ataköy marina located İstanbul has the highest sea mooring capacity with 700 boats. Considering sea and shore total capacity D-Marin Didim marina located Aydın has the highest total capacity with 1176 boats mooring capacity.

Table 2: Active Marinas with Tourism Management Certificate

	Marina name	Town	District	City	Sea	Land	Total
1	Ataköy Marina		Bakırköy	İstanbul	700	100	800
2	West İstanbul Marina		Beylikdüzü	İstanbul	600	350	950
3	Setur Yalova Marina		Merkez	Yalova	240	80	320
4	Çanakkale Marina		Merkez	Çanakkale	230	0	230
5	Setur Ayvalık Marina		Ayvalık	Balıkesir	200	150	350
6	Port Alaçatı Marina	Alaçatı	Çeşme	İzmir	260	100	360
7	IC Çeşme Marina		Çeşme	İzmir	385	100	485
8	Teos Marina	Sığacık	Seferihisar	İzmir	530	80	610
9	D-Marin Didim Marina		Didim	Aydın	576	600	1176
10	Setur Kuşadası Marina		Kuşadası	Aydın	470	130	600
11	D-Marin Turgutreis Marina	Turgutreis	Bodrum	Muğla	550	150	700
12	Milta Bodrum Marina		Bodrum	Muğla	375	50	425
13	Marintürk Göcek Exclusive	Göcek	Fethiye	Muğla	100	0	100
14	Marintürk Village Port	Göcek	Fethiye	Muğla	220	250	470
15	İltur Club Marina	Göcek	Fethiye	Muğla	121	0	121
16	Skopea	Göcek	Fethiye	Muğla	80	0	80
17	D-Marin Göcek Marina	Göcek	Fethiye	Muğla	379	0	379
18	Ece Saray Marina		Fethiye	Muğla	460	0	460
19	Netsel Marmaris Marina		Marmaris	Muğla	700	130	830
20	Setur Gökova Ören Marina	Ören	Milas	Muğla	416	130	546
21	G Marina Kemer		Kemer	Antalya	150	150	300
22	Setur Antalya Marina		Merkez	Antalya	235	150	385
23	Alanya Marina		Alanya	Antalya	287	160	447
24	Kaleiçi Yat Limanı		Muratpaşa	Antalya	65	0	65
25	Mersin Marina	Yenişehir	Merkez	Mersin	500	500	1000

Source: Marine Tourism Association, 2015; Akaltan, 2016.

According to Marine Tourism Association data, there are 6 marinas in Turkey with tourism investment certificate as seen Table 3. These marinas have total 2332 mooring capacity. Palmarina Bodrum marina has the highest total mooring capacity with 760 boats.

Table 3: Active Marinas with Tourism Investment Certificate

	Marina name	Town	District	City	Sea	Land	Total
1	Marina İstanbul		Büyükçekmece	İstanbul	600	120	720
2	Palmarina Bodrum		Yalıkavak	Bodrum	620	140	760
3	Alacati Turistik Tesisleri Yat limanı		Bodrum	Muğla	42	10	52
4	Mandalıya Yat Limanı		Milas	Muğla	50	0	50
5	Güllük Yat Marina	Güllük	Güllük	Muğla	270	0	270
6	Martı Marina	Orhaniye	Marmaris	Muğla	380	100	480

Source: Marine Tourism Association, 2015; Akaltan, 2016.

According to Marine Tourism Association data, there are 11 marinas in Turkey with tourism investment certificate as seen Table 4. These marinas have total 4707 mooring capacity. Setur Kalamış marina located İstanbul has the highest total mooring capacity with 1510 boats.

Table 4: Active Marinas without Management or Investment Certificate

	Marina name	Town	District	City	Sea	Land	Total
1	Güzelce Marina		Büyükçekmece	İstanbul	250	100	350
2	Setur Kalamış Marina		Kadıköy	İstanbul	1290	220	1510
3	Marintürk İstanbul City Port		Pendik	İstanbul	140	100	240
4	Levent Marina		Balçova	İzmir	45	20	65
5	SeturAltinyunus Marina		Çeşme	İzmir	180	60	240
6	Göcek Belediye Marina	Göcek	Fethiye	Muğla	150	0	150
7	Setur Kaş Marina		Kaş	Antalya	472	160	632
8	Setur Finike Marina		Finike	Antalya	320	150	470
9	Kumkuyu Yat Limanı	Kumkuyu	Erdemli	Mersin	270	250	520
10	KarpazGate Marina		Karpaz	KKTC	300	50	350
11	Gemyat Delta Marina		Girne	KKTC	90	90	180

Source: Marine Tourism Association, 2015; Akaltan, 2016

There are marinas on different investment stage and planned to complete near future.

Marina Project on Construction Stage (Chamber of Shipping, 2017: 202)

- Dalaman Marina

- Datça Marina
- Haliç Marina and Facility

Marina Project on Bid Stage (Chamber of Shipping, 2017: 202)

- İzmir Karaburun Marina
- Silivri Marina
- Tekirdağ Marina
- İzmirÇeşme Şifne Marina
- İzmir Seferihisar Ürkmez Marina
- İzmir Yeni Foça Marina
- Balıkesir Avşa Adası Türkeli Marina

The high standards of businesses are the proof of the country's capacity for encouraging yacht tourism in Turkey. Turkey has qualified employees, appropriate coastal places, enough maritime structure and shore facilities capacity to sustain marina management properly. The service costs of Turkish marinas such as repair and maintenance, dry-stack although their high-quality are lower than competitor marinas in Europe. Turkish marinas' service costs are 30% cheaper than Greeks marina and they are 40-60% cheaper than other European countries (Sarıışık et al, 2011: 1019).

In general, the region between Bodrum and Finike has the busiest of boat voyage in terms of marina quantity and capacity. Furthermore Bodrum to Kusadasi in the north region and Finike to Antalya in the south region could be counted as the second busy regions for recreational boats (Transport Ministry, 2013: 2).

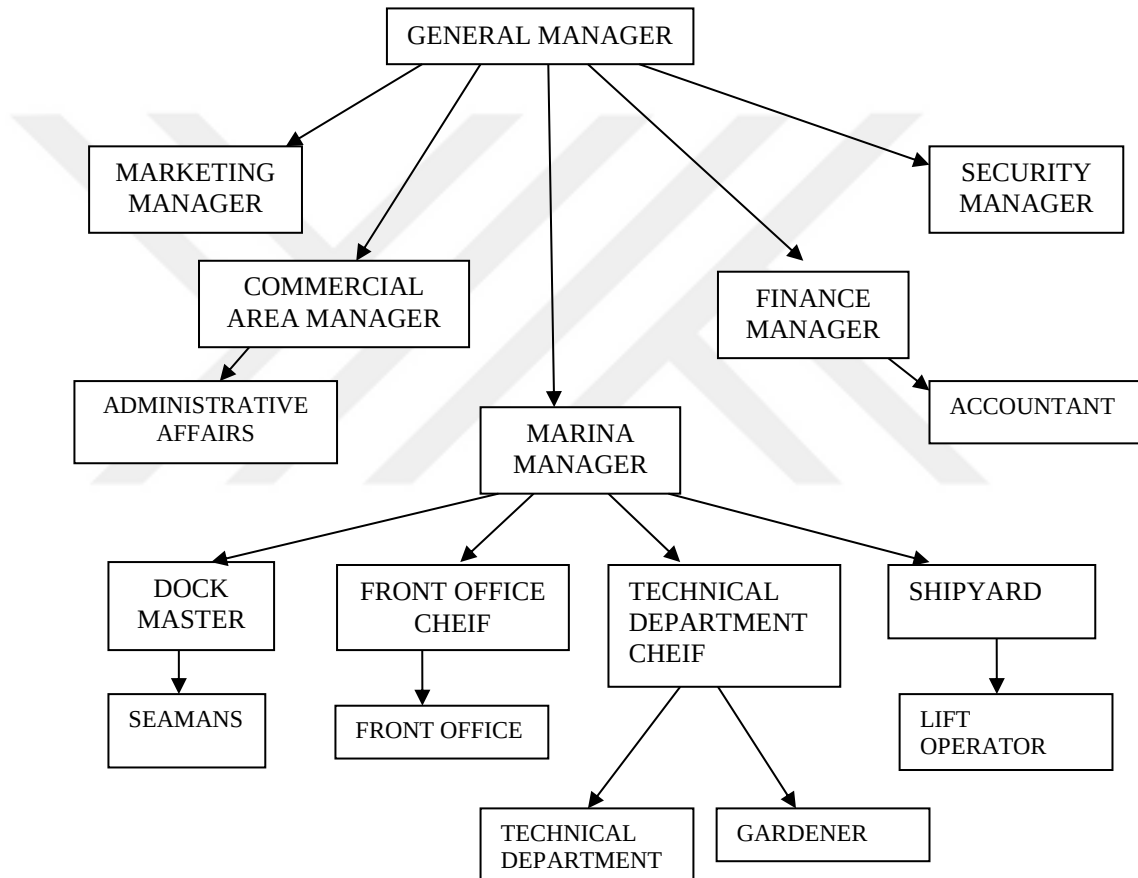
1.4. MARINA MANAGEMENT

Marina management is key factor for yacht tourism sector and marinas could become financially advantageous by using proper management options. Marina organizational structure and services supplied in marinas are expressed with their detailed components.

1.4.1. Marina Organizational Structure

Marina organizational structure could be differentiated by management according to their job description. Medium and large scale marinas commonly use the organizational structure as seen in Figure 2.

Figure 2: Sample Marina Organization Structure



Source: Çeşme Marina Operation Manuel

Marina employees' job descriptions and allocation of duties could be delegated to various employees by management decision. However, assignments of duties generally are distributed to workforce according to their titles listed.

General Manager

Marina general managers' duties are listed below (Koç, 2015:129):

- Manage and follow marina operations
- Determine the marina targets and the ways to reach the targets by planning
- Check that the maintenance works are carried out by the personnel of the marina properly.
- Ensure that the marina is always clean and tidy
- Ensure that company policies and marina rules are conducted properly
- Plan marina promotions, marketing and advertisement; ensure that they are being carried out.
- Follow the finance department and marina input and output.
- Check all employee are working ethically and professionally
- Control the performance of all tenants in the marina by following their contracts
- Keep required reports and records
- Increase customer satisfaction
- Prepare reports about marina activities for board members
- Follow marina performance
- Warn people and yachts who disturb others, and take out of marina if necessary.

Marina Manager

Marina managers' duties are listed below (Çeşme Marina Operational Manuel, 2010):

- Manage employee on marina department and consult to general manager in case of contract cancellation and other disciplinary matters.
- Control periodic repair and maintenance and ensure the operations are being executed by related employee
- Make expenditure related to marina repair and maintenance by approval of general manager
- Implementation of companies' safety policies and guidelines

- Provide necessary help about marina employee service and cleanness hygiene and presentation
- Assist the preparation of financial and general marina records, such as preparation and follow-up of business plans, purchase, share purchase, cash sale, bank transactions, reconciliation of debtor and creditor accounts and all relevant daily marina records when required by general manager or financial manager.
- Attend marina marketing
- Supervise the control of the tenants, licensees in the marina and to ensure that the necessary work arising from the obligations of these persons is ensured.
- Monitor and report the performances of marina contractors and suppliers, thus ensuring the necessary work arising from the obligations of these people.
- Ensure that all personnel comply with marina regulations regarding clothing and behavior forms, to ensure that the personnel always provide kind and friendly service to customers.

Finance Manager

Finance managers' duties are listed below (Çeşme Marina Operational Manuel, 2010):

- Ensure proper accountant entry is being done
- Submit monthly accrument tables to management
- Prepare work plan and long term budget by working coordinated with general manager
- Prepare and submit semi and full year reports that should be done legally together with company auditors.
- Fulfill all financial requirements
- Follow-up of all health and life insurances of the personnel, arrangement of employee contracts, watch, reports and salary payments
- Insurance of marina and follow-up
- Purchase all equipment and tools used in marina
- Ensure proper documentation of all financial and accountant papers
- Arrange banking debit and credit payments

- Prepare reports required by company auditors
- Follow-up all bills and cash receipts
- Ensure that the cash equivalents of the marinas are valued with interest or funds in banks
- Ensure that marina customers invoice given in time
- Follow-up all legal modification that could affect company activities

Commercial Areas Manager

Commercial area managers' duties are listed below (Çeşme Marina Operational Manuel, 2010):

- Follow-up commercial areas' income
- Accrue the rents
- Prepare invoices for general expenses
- Check general rules are being complied with in commercial areas
- Follow-up contract related to commercial areas and renewals
- Bill electricity and water expenditure about commercial areas
- Follow-up income related to commercial areas and report to general manager
- Increase the income related to commercial areas

Front Desk Personnel

Front desk personnel duties are listed below (Koç, 2015:140)

- Follow and implement the yacht entry/ exit operations effectively and professionally,
- Respond to phones immediately, in a tone that is clear and unprofessional and with a smile, and to use expressions according to marina standards
- Communicate with the guests and customers, to ask them questions about the quality of service provided to them during their stay and to define what corrective measures can be taken if there are customer complaints,
- Ensure that all task shift checklists are followed up continuously and that they provide guidance towards their colleagues,
- Manage the boat registrations, to organize the order forms and to arrange the registration records and documents

- Ensure the security of information related to customers and personnel
- Keep marina database and all standard documentation
- Maintain small cash accounts and to reconcile cash and check / credit payments from marina activity
- Implement all general office procedures such as filing, photocopying and telephone requests for the front office to ensure a clean and orderly working environment,
- Monitor stationery stocks and office equipment and to update order levels as necessary and again
- Reviewing and reviewing all guest surveys and submitting them to management
- Interact with all guests in a respectful and professional manner and to work with their colleagues

Seaman

Seaman duties are listed below (Balci, 2011:141)

- Monitor suitability of the mooring pier and monitoring of water and electricity usage
- Help yacht owners while they are mooring, especially if weather / tide conditions are not suitable; towing and assisting, car parking and baggage handling
- Registration of yachts, allocation of fenders, arrangement of the mooring form and invoices, receiving payments (including cash) and issuance of receipts
- Ensure that the boats in the marina are always properly and safely moored and to be protected with fenders, as well as to ensure that the mooring ropes, electrical wiring and ladder of the boats do not damage the pontoon
- Carry out routine repair and maintenance works in cooperation with the maintenance department
- Ensure high standards hygiene, cleaning and appearance of buildings, bridge pontoons and the marina working areas

- Operation of the fuel tank by following all relevant marina procedures when there is no person responsible for the fuel tank
- Help the lifting operation in case of need
- Monitor security (including night / night security patrol), answer phones, operate the VHF, keep records

Lift Operator

Lift operator's duties are listed below (Koç, 2015:140):

- Registration of the applications related to the movements of the boats within dry-stack
- Regularly tailoring the boats to the landing site according to their descending order and efficiently using the dry-stack area
- Ensuring that the boats are safely chocked
- Hull cleaning
- Add lubricants to lifting equipment
- Carrying out the tasks related to the boat transportation
- Carry out routine equipment repair and maintenance works and related cleaning activities when necessary
- Keep the necessary records for lifting and launching operations
- Ensure that chocks provided for use are properly stacked and maintained
- Control whether the work done in the dry-stack are conforms to the rules of the company
- Take all safety measures of all boats on dry-stack according to all weather conditions

1.4.2. Services Supplied in Marinas

The demand from customers for services of marinas is changing depending on the seasonal time. During the summer months, recreational boats traffic observed as a result demand for mooring at marinas increase. Contrary to summer time, during the winter time the demand for dry-stack increases for boats to have maintenance (Diakomihalis, 2007: 446).

In a modern marina, the service should be provided at first yacht mooring and mooring service. Other services to be found in marinas include fuel supply, electricity and water supply, shower-toilet, laundry, health services, maintenance and repair services, waste reception facility, yacht market, shopping areas, fire installation and social activity services (Atlay Işık, 2010: 5).

There are two dimensions of the service given in the marinas which is one of the important actor in marine tourism sector. The first of these is focused human while the other one is focused on boats. Human-oriented dimension includes services for marina customer satisfaction while yacht oriented dimension contain the services for boats (Dikeç and Töz, 2017: 109).

Services provided by marinas could be offered under four main topics (Balcı, 2011: 48):

- Marina Office service
- Marina Port service
- Technical service
- General service

Marina Office Service

Marina office services provide general information, boat records, pricing, control tower contact at the marina entrance and exit, assistance service and tourism guidance services at the front office about the region and the environment. Office services contain (Teosmarina, 2017):

- Front desk services
- Daily weather information
- Telecommunication service
- Radiotelephone services
- Reservation services
- Mail and cargo service
- E-mail and fax
- Insurance services
- Rent a car
- Customs procedure services

- Transit log and other agency service

Marina Port Service

Marinas have 24h services for safely towing, mooring, docking and preservation of the boats. Marina port services include (Yachtmarin, 2018):

- Diving services
- Boat washing/cleaning services
- Tube filling
- Towing service
- Mooring service
- Fuel services
- Waste/ garbage reception service

Marina Technical Service

Marina technical services include all kind of repair and maintenance services for both the motorboats and sailing boats are listed as (Koç, 2015: 67):

- Hull cleaning
- Painting and fiberglass work
- Engine repair and maintenance
- Electrical repair and maintenance
- Furniture, wood repair services and lathe
- Sail and canvas fabrications and maintenance
- Rigging equipment maintenance
- Air conditioning services
- Inflatable boat repair and maintenance service
- All kind of services for winter (battery control and charge, general cleaning, bilge drainage etc.)

Marina General Service

Marinas provide various services to their customers. Marinas' general services could be summarized as follows (Yachtmarin, 2018):

- Internet and TV services

- Electricity and water supply
- Shower/WC and laundry services
- Security services
- Health services
- Social living services

1.5. MARINA TYPES

While it is mentioned about marinas, they could be classified according to their various attributes such as investor, physical characteristic and tourism regulations (Koç, 2015: 60).

1.5.1. Marinas According to Investor

Marinas could be classified as public and private marinas according to their investors (Sarı, 2011: 35).

1.5.1.1. Public Marinas

Public marinas' construction, management and investment provided by public sectors either state owned or municipality. These kinds of marinas do not supply same level services with modern marinas. Public marinas generally provide basic services for boats such as electricity, water and mooring (Sarı, 2011: 35).

Figure 3: Public Marina/ Göcek Municipality Marina-Muğla



Source: Yatliman, 2019.

1.5.1.2 Private Marinas

Investments of marinas and management are afforded by private sector. Yacht tourism service quality is given particular importance furthermore private marinas are differentiated from public marinas by quality and sort of services. Considering commercial perspective, services are more expensive than public marinas (Sevinç, 2014: 33).

Figure 4: Private Marina/ D-Marin Didim Marina- Aydın



Source: Dmarin, 2019

1.5.2. Marinas According to Physical Characteristics

Marinas could be classified according to their physical characteristics such as boutique marinas, marinas with commercial areas, full service marinas and club marinas (Balcı, 2011: 15).

1.5.2.1 Boutique Marinas

Boutique marinas are considered to provide special and high quality service only about mooring, electricity, water and general services for about 100-150 boats. Boutique marinas are generally urban marinas thus the services normally provided by marinas could be found outside close to marina region. Therefore boutique marinas get their income from mooring service (Sarı, 2011: 36).

Figure 5: Boutique Marinas/ Setur Altinyunus Marina- İzmir



Source: Yatlman, 2018.

1.5.2.2. Marinas with Commercial Area

Marinas with commercial area provide mooring service as well as social activity areas such as shopping, cafes, restaurants. In these kinds of marinas, commercial areas are focused so income from commercial areas have more quantity comparing other types of marinas (Balcı, 2011: 17).

Figure 6: Marinas with Commercial Area/ Kuşadası Marina- Aydın



Source: Seturmarinas, 2018.

1.5.2.3 Full Service Marinas

Full serviced marinas have better capacity and contain both commercial zones and technical service areas. Services provided by these kinds of marinas as follows (Marinaappraisal, 2018);

- Restaurant and food courts
- Hotel, bungalow and house
- Yacht market
- Quays for the cruise ships
- Mooring and repair & maintenance services.

Figure 7: Full-Service Marinas/ Ataköy Marina- İstanbul



Source: Atakoymarina, 2019.

1.5.2.4. Club Marinas

Club marinas are owned by private yacht clubs and provide mooring service for members only. They have limited berthing capacity due to need of registration (Yatliman, 2019).

Figure 8: Club Marinas/ Club Marina Göcek- Muğla



Source: Yatliman, 2019.

1.5.3. Marinas According to Marine Tourism Regulation

Marinas could be classified three, four, five anchored marinas according to Marine Tourism Regulation. Marinas should have some qualifications in addition to infrastructure and superstructure requirements for marinas mentioned in regulation (Sarı, 2011: 61).

1.5.3.1. Three Anchored Marinas

Three anchored marinas have to comply with regulation required by legislation and provide services below (Sevinç, 2014: 39):

- Selling units
- Shower/wc (at least %5 of mooring capacity) for male/female
- Places for laundry and dishwashing
- Social facilities for yachters rest and socialize
- Toilets and special arrangements for disabled people.

1.5.3.2. Four Anchored Marinas

Four anchored marinas have to supply all service for three anchored marinas regulated by legislation. Furthermore, four anchored marinas to provide services below (Koç, 2015: 60):

- Restaurant and cafe
- Shower/wc (at least %10 of mooring capacity) for male/female
- Dry-cleaning service
- Boat yard and crane systems
- Repair and maintenance service
- Warehouse
- Parking lot/service (at least 20% of mooring capacity)
- Tennis court
- Swimming pool or beach
- Units for equipped gymnastic, massage, sauna and bathroom.

1.5.3.3. Five Anchored Marinas

Five anchored marinas have to supply all services for four anchored marinas regulated by legislation. Furthermore, five anchored marinas to provide services below (Sevinç, 2014: 40);

- Commercial bank services
- Infirmary
- Concert hall, art gallery and exhibition unit
- Meeting hall
- At least two tennis court
- Parking lot for at least 30% of mooring capacity.
- Helicopter landing field

1.6. LEGAL ASPECT OF MARINAS

Marine Tourism Legislation regulates marine tourism facilities, marinas, about yachts mooring, berthing and launching services. Marinas are defined as marine tourism facilities that have the qualification and in addition berths for yacht mooring, repair and maintenance service for boats, shopping places, accommodation and social activity areas (Sarı, 2011:40).

1.6.1. Infrastructure Requirements for Marinas

Marinas are required to have some infrastructure attributes according to Marine Tourism Legislation Article 6;

- Proper for business attributes piers and docks for boats mooring and berthing safely.
- Beacon and signs suitable to marine legislations in order to assist boats approaching and/or entrance to marine tourism facilities.
- Systems and generators that provides safe illumination of the area including all units of sea tourism facilities' environment, pier and dock.
- Fresh water tank commensurate with marina capacity, installation supplies continuous usable water and hot water.
- Fire station, fire prevention equipment and fire detection systems covering all marina areas.
- For marina facilities which have not garbage reception license; disposal of bilge, sludge, dirty oil, garbage, solid and liquid waste in accordance with Environment Regulation numbered 2872 and related Legislation, suitable enclosed storage and treatment facilities.
- Pedestals on the piers and floatable docks positioned suitable distance to meet direct boat requirements for water, electricity, TV, telephone
- 10% car parking area of total marina capacity for disabled people
- Radio transceivers with multichannel VHF bands that operate at the frequencies suitable for internal and external telephone, fax, post device, data,

internet, communication systems with boats in navigation and search and rescue.

- Vehicle roads suitable passage for ambulance, fire truck, garbage lorries and general usage vehicles as well as provide service to piers and docks.
- Infrastructure systems for noise reduction.

Marinas are required to have infrastructure qualifications below (Yacht Tourism Regulation, 2011);

- Preserved marine area with depth of at least 2,5 m
- Breakwaters and piers to protect boats from swells
- Lighthouses for safe entrance of boats
- Piers and pontoons for boats safe mooring
- Sufficient illumination of marina areas
- Water and electricity connection facilities

1.6.2. Superstructure Requirements for Marinas

Marinas are required to have some superstructure attributes (Sarı, 2011:44).

- Safe entrance system to marine tourism facilities
- Front desk and management unit.
- Special room for rest.
- Food and drink units.
- Sufficient amount of shower and toilets form men and women.
- Duty free units.
- First aid equipment and locker.
- Food, shower, toilet and rest unit for marina employees and yachters.
- Fuel station and units.
- Equipment and luggage locker for yachts.
- Sport facilities.

- Mooring and pilotage boats provide assistance service for yachts entering or leaving the marina.
- Firefighting system or fire boat for initial response to fire from seaward.
- Public service building for officers authorized to perform border entry by Council of Ministers in marine tourism facilities assigned as marine border gate.

Marinas are required to have superstructure qualifications below (Yacht Tourism Regulation, 2011);

- Water and electricity connection boxes for boats
- Special closed place for official services for customs
- Garbage reception facilities according to their types
- Generator and spare water tank for emergency use
- Mooring boat to assist the marina customers while they are berthing
- Showers, toilets and resting places for men and women

1.7. SAFETY IN MARINAS

Marina safety policy applies to employees, customers, visitors and anyone else using marina. Employees should help to create a sense of general awareness and responsibility in all users of the marina in order to provide safe working areas to all stakeholders. For this reason, it is recommended that the safety policy is linked to the marina terms and conditions. Marina management should provide adequate and appropriate equipment, work platforms and training to ensure the safe operation related to marina works. Each employee is assumed to use the safety equipment correctly, work safely and immediately correct or draw attention to the safety hazards of the marina. Marina managers should do whatever is reasonable to prevent incidents, decrease the occupational risks, and meet all legal safety requirements about marina (Çeşme Marina Operational Manuel, 2010).

CHAPTER TWO

SAFETY CULTURE

2.1. ORGANIZATIONAL CULTURE

Organizational culture could be assumed to be derived from anthropologist concept of culture. Organizational culture is considered as a sub-component of culture concept (Chaudry et al., 2007: 994).

Schein (1990: 111) who is one of the most cited organizational culture definition, expresses organizational culture as;

“a pattern of basic assumptions invented, discovered, or developed by a given group as it learns to cope with its problems of external adaptation and internal integration; that has worked well enough to be considered valid and, therefore, to be taught to new members as the correct way to perceive, think, and feel in relation to those problems”

Guldenmund (2000: 235) defines organizational culture as “a relatively stable, multidimensional, holistic construct shared by groups of organizational members that supplies a frame of reference and which gives meaning to and or is typically revealed in certain practices”

Organizational culture is broadly considered to have critical role for organization’s success or failure with regard to business (Glendon and Stanton, 2000: 193).

According to Guldenmund (2000) organizational culture has seven characteristics:

- holistic construct that organizational culture is an abstract concept
- stability that requires specific period of time(5 years)
- multi-dimensionality
- shared by group of people and organization
- various aspects (different cultures or a safety culture)
- practices (norms and values)
- functionality that provide frame of reference for behavior.

Scope of organizational culture as follows (Erkmen and Bozkurt, 2011: 201):

- conflict resolution process of decisions
- active management of organizational culture
- customer orientation and satisfaction
- positive attitudes to change
- involving of employee on management process
- openness of organizational goals
- improvement of human resources
- commitment of employee to organization
- authority and responsibility
- organized management style
- focus the main organizational process
- coordination/cooperation of departments
- performance orientation
- reward orientation
- organized task construct

Literature commonly emphasizes that safety culture term originally arose from more comprehensive concept of organizational culture and could be referred as sub-component of organizational culture (Cooper, 2000: 112; Glendon and Stanton, 2000: 194; Reason, 1998: 293; Wiegmann et al, 2004: 120; Sorensen, 2002: 192).

2.2. SAFETY CULTURE CONCEPT

2.2.1. Definition of Safety Culture

Safety culture term was initially introduced in INSAG's report prepared by International Atomic Energy Agency (IAEA) after Chernobyl nuclear reactor disaster in 1986 and causal factor of incident was attributed to poor safety culture (Cooper, 2000: 112). International Atomic Energy Agency (IAEA, 1991) defined as "safety culture is that assembly of characteristics and attitudes in organizations and individuals which establishes that, as an overriding priority, nuclear plant safety

issues receive the attention warranted by their significance”. Definition of agency emphasizes two major components:

- safety culture related with safety attitude and safety management established by organization
- good safety culture assign the highest priority to safety

ICS defines that safety culture is norms and practices that management and employees share to ensure that safety risks are minimized all the time and mitigated to the greatest level possible (ICS, 2013: 5).

Safety culture concept development depends on the major organizational accidents (Chernobyl nuclear plant, Colombia space shuttle) and it is created as a response to these disasters to prevent them before incidents happen (Mearns et al, 2003: 642).

Despite usage widely for many years, safety culture concept is not clear (Choudry et al, 2007: 996) and there is no consensus or universally accepted definition of safety culture (Guldenmund, 2000: 241; Cooper, 2000: 3; Sorensen, 2002: 192). Despite the lack of consensus on the definition of safety culture, it is widely accepted that safety culture could be considered as a proactive approach to safety (Lee and Harrison, 2000: 63).

Safety culture has numerous definitions as seen Table 5, but it commonly refers to values related to attitudes to safety, perception of risk, behaviors and the beliefs of all employees shared by organization or group (Altınpınar and Başar, 2018: 1; Yule, 2003: 3). Definition differences and variability depends on the sector that safety culture used and attributes and characteristics of the specific field.

Table 5: Definitions of Safety Culture

Reference	Definition of safety culture
Carroll (1998)	“Safety culture refers to a high value (priority) placed on worker safety and public (nuclear) safety by everyone in every group and at every level of the plant. It also refers to expectations that people will act to preserve and enhance safety, take personal responsibility for safety, and be rewarded consistently with these values.”
Ciavarelli & Figlock (1996)	“Safety culture is defined as the shared values, beliefs, assumptions, and norms that may govern organizational decision making, as well as individual and group attitudes about safety.”
Cooper (2000)	“Safety culture is a sub facet of organizational culture that is thought to affect member’s attitudes and behavior in relation to an organization’s ongoing health and safety performance.”
Cox & Cox (1991)	“Safety culture reflects attitudes, beliefs, perceptions, and values that employees share in relation to safety.”
Cox & Flin (1998) Lee (1998) Wilpert (2000)	“The safety culture of an organization is the product of individual and group values, attitudes, perceptions, competencies, and patterns of behavior that determine the commitment to, and the style and proficiency of, an organization’s health and safety management.”
Eiff (1999)	“A safety culture exists within an organization in which each individual employee, regardless of their position, assumes an active role in error prevention, and that role is supported by the organization”
Fang et al(2006)	“A set of prevailing indicators, beliefs and values that the organization owns in safety”
Glendon&Stanton(2000)	“Comprises attitudes, behaviors, norms and values, personal responsibilities as well as human resources features such as training and development”
Guldenmund(2000)	“Those aspects of the organizational culture which will impact on attitudes and behavior related to increasing or decreasing risk”
Hale(2000)	“Refers to ‘the attitudes, beliefs and perceptions shared by natural groups as defining norms and values, which determine how they act and react in relation to risks and risk control’”
Helmreich & Merritt (1998)	“Safety culture: A group of individuals guided in their behavior by their joint belief in the importance of safety, and their shared understanding that every member willingly upholds the group’s safety norms and will support other members to that common end.”
Kennedy and Kirwan (1998)	“An abstract concept, which is underpinned by the amalgamation of individual and group perceptions, thought processes, feelings and behaviors, which in turn gives rise to the particular way of doing things in the organization. It is a sub-element of the overall organizational culture”
McDonald & Ryan (1992)) Mearns & Flin (1999)) Pidgeon (1991) (1994)	“Safety culture is defined as the set of beliefs, norms, attitudes, roles, and social and technical practices that are concerned with minimizing the exposure of employees, managers, customers, and members of the public to conditions considered dangerous or injurious.”

Mearns, Flin, Gordon, & Fleming (1998)	“Safety culture is defined as the attitudes, values, norms, and beliefs that a particular group of people share with respect to risk and safety”
Meshkati (1997)	“Safety culture is defined as that assembly of characteristics and attitudes in organizations and individuals that establishes that, as an overriding priority, nuclear plant safety issues receive the attention warranted by their significance”
Minerals Council of Australia (1999))	“Safety culture refers to the formal safety issues in the company dealing with perceptions of management, supervision, management systems, and perceptions of the organization.”
Mohamed(2003)	“A sub-facet of organizational culture, which affects workers’ attitudes and behavior in relation to an organization’s on-going safety performance”
Pidgeon (2001)	“A safety culture is in turn the set of assumptions and their associated practices that permit beliefs about danger and safety to be constructed.”
Richter and Koch (2004)	“Shared and learned meanings, experiences and interpretations of work and safety - expressed partially symbolically – which guide people’s actions towards risk, accidents and prevention”

Source: Wiegmann et al, 2004: 122; Chaudry et al, 2007: 999

Wiegman et al(2002: 8) indicates global definition based on the definition made by various sector considering commonalities. Researchers describe the concept as:

Safety culture is the enduring value and priority placed on worker and public safety by everyone in every group at every level of an organization. It refers to the extent to which individuals and groups will commit to personal responsibility for safety, act to preserve, enhance and communicate safety concerns, strive to actively learn, adapt and modify (both individual and organizational) behavior based on lessons learned from mistakes, and be rewarded in a manner consistent with these values’.

Reason (1998: 294) assumes that safety culture as an engine that drives the organizational system towards the aim of sustainable resistance against operational hazards, equipment failure and personnel injuries. Safety culture is part of organizational culture that have utmost priority to safety related values, beliefs and attitudes (Cooper, 2000: 25). Safety culture success depends on commitment and qualifications provided by policy, managerial and individual context (IAEA, 1991: 3).

2.2.2. Attributes of Safety Culture

Safety culture emerges from investigation of accident causation throughout the several periods. First period is technical period which development of new mechanic equipment were rapid and most incidents caused by mechanical failures, especially in design, reliability and construction of tools and equipment. Second period is considered as human error period which is assumed that accidents caused by human operator fault were thought as the reason of system breakdown. Third stage is considered as sociotechnical period which causation of accidents are referred as combination of human and technical factors. Final stage is safety culture period which accident causation is considered complex construct and has several reason behind the failures (Wiegmann et al, 2007: 2).

According to Sorensen (2002:192) uniformity while defining safety culture is necessary but characteristic of safety culture has to be taken into account on greater extent and these attributes are considered much more important than definition of safety culture. Wiegmann et al(2004: 123) lists common attributes among these various definitions regardless the particular industry taking into account. These attributes are as follows:

- “Safety culture is a concept defined at the group level or higher that refers to the shared values among all the group or organization members.”
- “Safety culture is concerned with formal safety issues in an organization and closely related to, but not restricted to, the management and supervisory systems.”
- “Safety culture emphasizes the contribution from everyone at every level of an organization.”
- “Safety culture of an organization has an impact on its members’ behavior at work.”
- “Safety culture is usually reflected in the contingency between reward systems and safety performance.”
- “Safety culture is reflected in an organization’s willingness to develop and learn from errors, incidents, and accidents.”
- “Safety culture is relatively enduring, stable, and resistant to change.”

Ryan (2000: 2) lists the qualifications of desired safety culture. These qualifications are:

- “Safety rules and regulations are complied with by employees at all times.”
- “Employees look for safety deficiencies and they get initiative for corrective actions when found”
- “All workers are eager to involve safety related activities. Participation in safety is promoted and encouraged through respect and positive recognition”
- “Safety-related problems are openly communicated without fear of discipline. Individuals are not assumed to be faulty”
- “Safety-related incidents are assumed as an opportunity to indicate system failures and therefore improve the system fault”.
- “Education/training programs teach employees the needed knowledge, skills, and abilities to perform their jobs safely”
- “All employees fully understand and appreciate the potential hazards of the operations performed”
- “Employees do not consider taking unnecessary risks.”
- “Managers never (knowingly or mindlessly) encourage employees to take unnecessary risks.”
- “Regular behavior-based feedback on safety matters is a way of life. Corrective feedback is constructive and appreciated”
- “Peer pressure acts toward, rather than against safety (and is really peer support). All business activities are managed with a constant focus on hazard eradication and injury prevention.”

Parker et al (2006: 552) propose the attributes that an effective safety culture should have as:

- Safety information system that assesses the information gathered from accidents as well as proactive audits made regularly on the system
- Reporting culture that employees are ready to report their mistakes and violations

- Trust culture that employee are encouraged and rewarded to supply important safety related information, however clear line should be indicated between acceptable and unacceptable behavior
- Flexibility to reconfigure the structure of organization related with dynamic task environment
- Competence to demonstrate right conclusion from organization's safety system and willingness to make implementation when it is required

IAEA (2002: 10-13) lists characteristics of safety culture comprehensively. Agency separate safety culture to three level (artefacts, espoused values and basic assumptions) and identifies main characteristics at different levels.

1. Characteristics of artefacts level

- "Top management commitment to safety"
- "Visible leadership"
- "Systematic approach to safety"
- "Self-assessment"
- "Strategic business importance of safety"
- "Absence of safety versus production conflict"
- "Relationship to regulators and other external groups"
- "Proactive and long term perspective"
- "Management of change"
- "Quality of documentation and procedures"
- "Compliance with regulations and procedures"
- "Sufficient and competent staff"
- "Employees have a questioning attitude"
- "Man, technology and organization knowledge"
- "Clear roles, responsibilities and accountabilities"
- "Motivation and job satisfaction"
- "Involvement of all employees to safety measures"
- "Good working conditions with regard to time pressure, workload and stress"
- "Measurement of safety performance"

- “Proper resource allocation”
- “Collaboration and teamwork”
- “Handling of conflict”
- “Confidential relationship between managers and employees”
- “Awareness of work process”
- “Good housekeeping”

2. Characteristics of espoused values level

- “High priority to safety”
- “Safety can always be improved”
- “Openness and communications”
- “Organizational safety learning from incidents “

3. Characteristics of basic assumptions level

- “Organization’s view of mistakes”
- “Organization’s view of safety“
- “Systems thinking approach”
- “Safety role of managers”
- “View of people empowerment“

2.2.3. Aim of Safety Culture

Aim of safety culture considering concept as a management tool is to enhance employee’s beliefs, attitudes, perception, awareness and behaviors about safety (Beck and Woolfson, 1999: 39). Safety culture has generally aimed to achieve two goals (Edwards et al, 2013: 77):

- understanding the cause and reason of incidents
- to identify how to decrease the risk of accidents and severity of incidents.

Cooper (2006: 4) indicates that the purpose of safety culture is to enhance occupational safety in organization, improve safe work environment and to reduce the likelihood of risks related with occupations. Researcher also emphasizes the

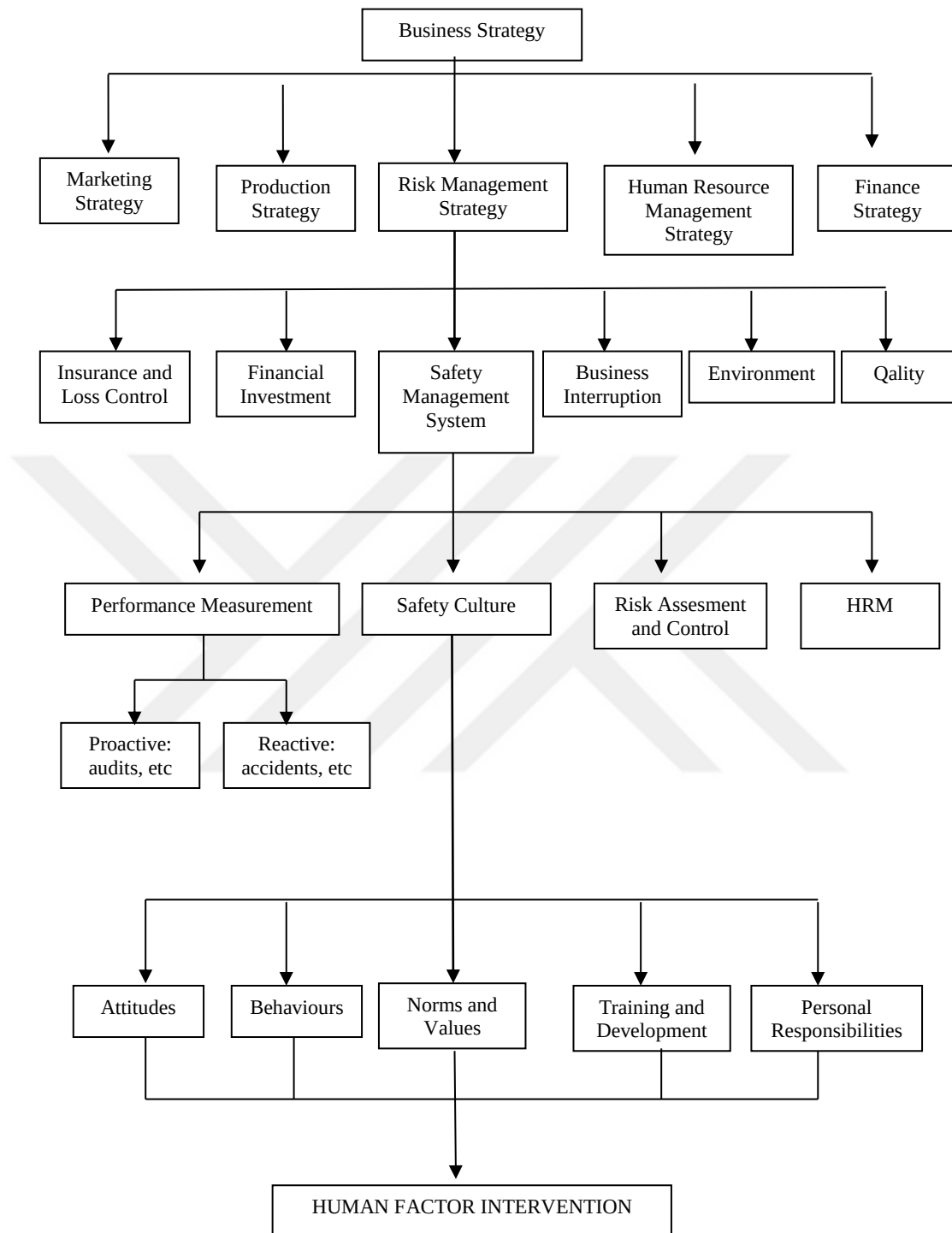
importance of safety culture's aim as "to stop low frequency, high severity events such as Bhopal, Chernobyl Piper Alpha, Texas City, Deep Water Horizon et al., as well as high frequency, low impact events (i.e. personal injuries, etc)."

Safety culture as a management tool do not only have the aim of prevention of accidents in an organization and reduce the risk of occupational accidents, the concept of safety culture has also positive effects on organizations' quality, reliability, productivity, competitiveness, and profit (Demirbilek, 2005: 91).

2.2.4. Components of Safety Culture

Glendon and Stanton (2000: 204) demonstrates safety culture's role in overall business strategy and how components and sub-components effected from each other as seen Figure 2. According to their research at the top business strategy drives marketing strategy, production strategy, *risk management strategy*, human resources management strategy and finance strategy. Risk management strategy includes insurance and loss control, financial investments, *safety management strategy*, business interruption, environment and quality. Safety management strategy comprises performance management, *safety culture*, risk assessment and control and human resource management. Safety culture has components of attitudes, behaviors, norms and values, training and development, personal responsibility. Safety culture components have contribution to human factor interventions which play role in behavioral based accidents.

Figure 9: Strategic Approach to Safety



Source: Glendon and Stanton, 2000: 204.

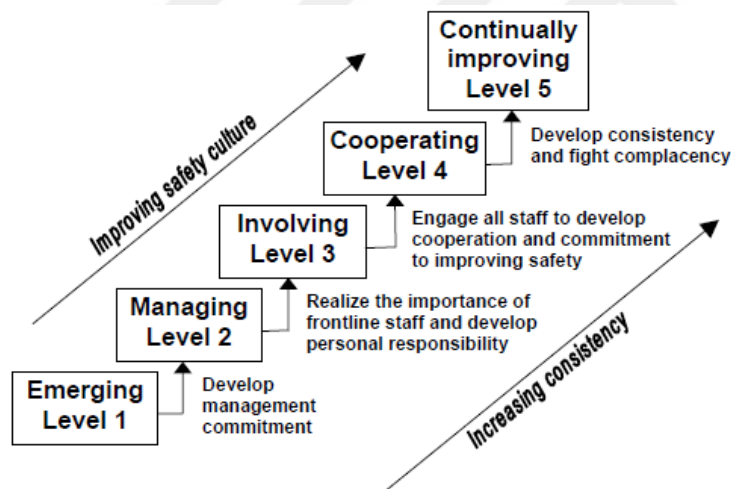
IAEA (1991: 5) report indicates two general components of safety culture. First one is responsibility of management hierarchy requirement for safety framework in organization. Second one is attitudes of employee at all levels for benefiting from safety framework.

2.3. SAFETY CULTURE MODELS

2.3.1. Safety Culture Maturity Model

Fleming (2001) demonstrates in Figure 3 the five stages of safety culture level of organizations and states the basic qualification of each level. Model also proposes what actions to be taken while improving safety culture level both management side and employee side.

Figure 10: Safety Culture Maturity Model



Source: Fleming (2001: 4)

Emerging level of safety culture is determined as compliance to procedures and regulations. Safety department is assumed responsible for safety. Many incidents are considered as unavoidable and as part of the job. Most frontline employees are unaware of safety and may only use safety as the basis for other arguments, such as changes in shift systems (Dursun, 2011: 40).

In managing level safety is considered as business risk and management time and efforts is spent for accident prevention. Safety is described in terms of compliance to rules, procedures and technical controls. Managers believe that accidents are preventable and majority of incidents are caused by unsafe behavior of frontline employee. Safety performance is assessed in term of lagging indicators such as accident rates. Managers play reactive role in their safety involvement such as punishment after accidents occur (Fleming, 2001: 5).

In involving level organization pay special attention to safety and think that involvement of frontline employee is crucial to achieve safe working environment. Managers think that accidents caused by various factors and root causes of accidents originate from management decision. Most of frontline employees are reluctant to work with management to promote safety in organization and majority of staff are aware of personal responsibility for their own safety (Fleming, 2001: 5).

In cooperating level most of employees in the organization believe that safety is important both moral and financial point of view and each employee knows that they have individual responsibility for safety. The ideas and feeling of employees are important and recognized fairly by management. Management takes proactive measures to prevent accidents. Safety performance is attributed as significant management tool and all current data are actively monitored. Even non-work accidents are monitored for promoting safety (Dursun, 2011: 41).

In continually improvement level safety is considered as a core company value and all staff aware of their own responsibility and they try to improve overall organization safety level. Each employee are looking for deficiencies that have potential to cause incidents. Organizations use lots of different indicators to monitor safety performance and constantly striving to improve hazard control system and to be better. All employees have the belief that safety is critical part of their job. The company invest significant finance and endeavors in promoting safety (Fleming, 2001: 6).

Ten variables of safety culture maturity model can be listed as follows (Fleming, 2001: 10):

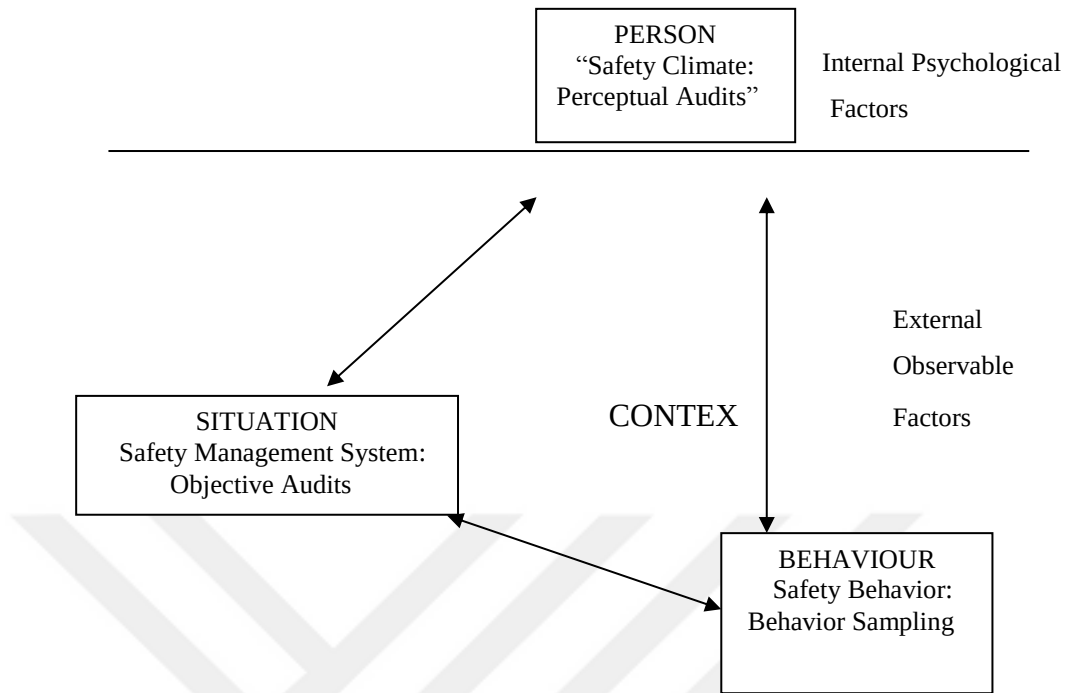
- “Management commitment and visibility”
- “Communication”

- “Productivity versus safety”
- “Learning organization”
- “Safety resources”
- “Participation”
- “Shared perceptions about safety”
- “Trust”
- “Industrial relations and job satisfaction”
- “Training”

2.3.2. Reciprocal Safety Culture Model

Model developed by Cooper (2000) contains three elements as seen by Figure 10. Subjective element indicates internal psychological factor, observable element indicates safety related behavior and objective element indicates situational features. In this model psychological factor (i.e. attitudes and perceptions) are calculated via safety climate questionnaire, safe behavior is calculated via checklist prepared by safety initiatives and situational aspects are defined as SMS inspections. By making these complex assessments, organizations may indicate current situations main components of safety culture. Reciprocal model also provides integrated thinking route related with many processes that effect safety culture (Cooper, 2000: 121).

Figure 11: Reciprocal Safety Culture Model

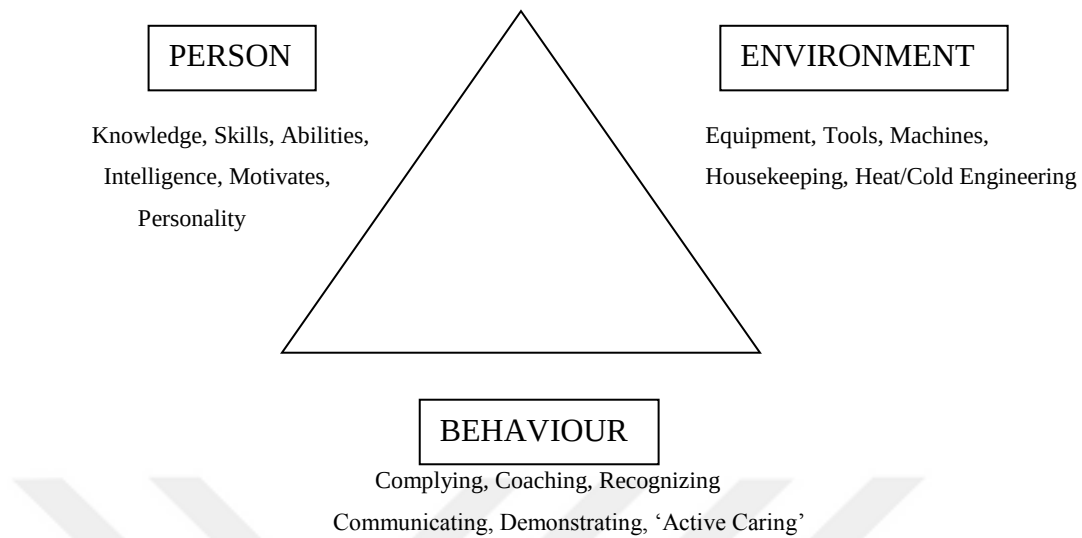


Source: Cooper (2000: 120)

2.3.3. Total Safety Culture Model

Model developed by Geller (1994) emphasizes dynamic and interactive safety triangulation between person, environment and behavior factors as seen Figure 11 (Dursun, 2011: 43). These three factors effected by each other both positive and negative way.

Figure 12: Total Safety Culture Model



Source: Geller, 1994: 19.

Geller (1994: 19) proposes ten basic principles to reach total safety culture model. These principles are as follows:

- Culture should direct safety process
- Behavior and human based factor indicate safety
- Focus on process not outcome
- Activators directs behavior and motivates by consequences
- Focus on achieving organizational safety success not avoiding failure
- Observation and feedback related to safety
- Effective feedback system
- Process caring supplied by observing and coaching
- Empowerment to enhance safety
- Safety should be perceived as a value

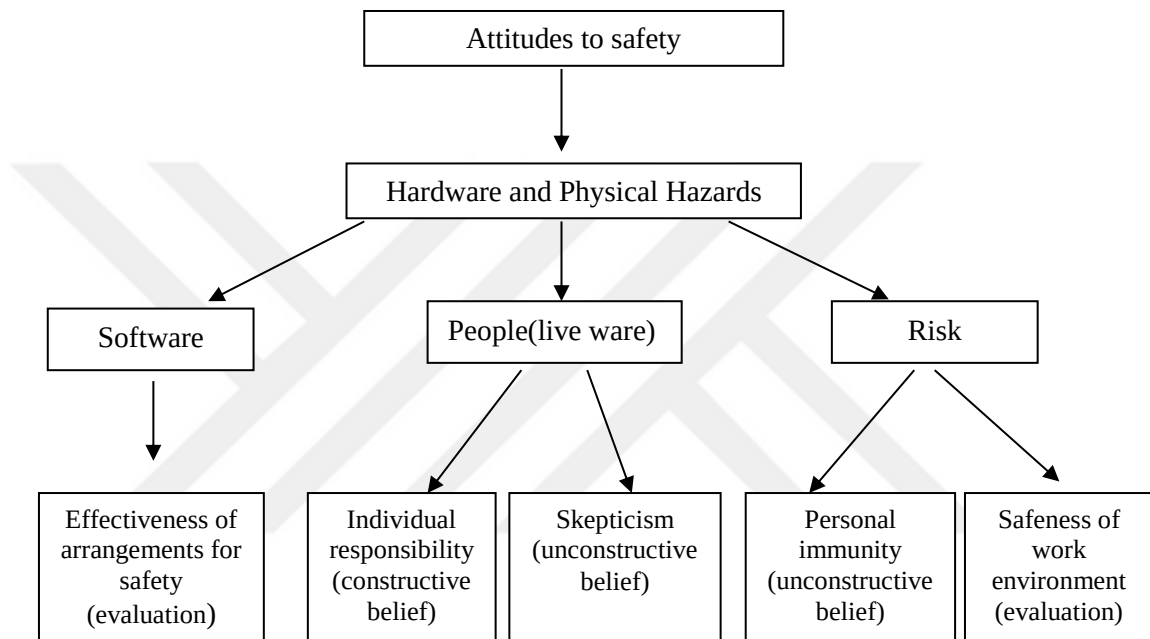
2.3.4. Attitudes Towards Safety Culture Model

Model developed by Cox and Cox (1991) demonstrates attitudes related with safety in organization. These attitudes directed four main categories:

- “hardware, i.e. safety hardware and physical hazards;”

- “software, i.e. rules and procedures, legislation, safety management and policy;”
- “people/livewire, i.e. all classes of people involved like workers, supervisors, management, safety committees, specialists, authorities, unions; and”
- “risks, i.e. risky behavior and its regulation.”

Figure 13: Attitudes Towards Safety Culture Model

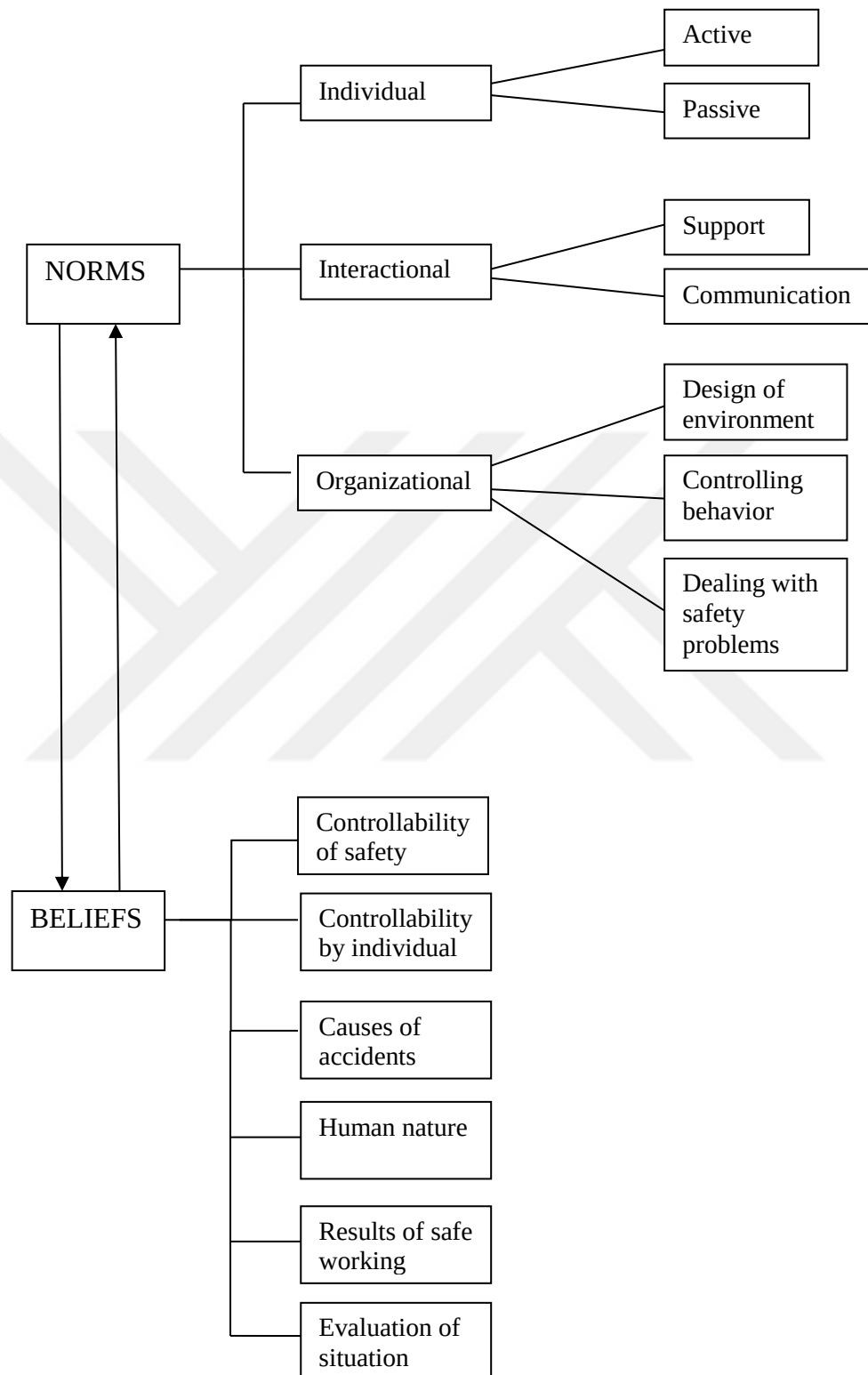


Source: Guldenmund, 2000: 239.

2.3.5. Berend’s Safety Culture Model

Model developed by Berend (1995) emphasizes two main classes of statement including norms and beliefs as seen Figure 13. Norms are divided into three sub-group individual, interactional and organizational norms. Each norm again divided into several groups. On the other hand beliefs directly divided into six sub-groups of which controllability of safety, controllability of individual, causes of accidents, human nature, results of safe working, evaluation of situation. Norms and beliefs have power to affect each other (Guldenmund, 2000: 240).

Figure 14: Berend's Safety Culture Model

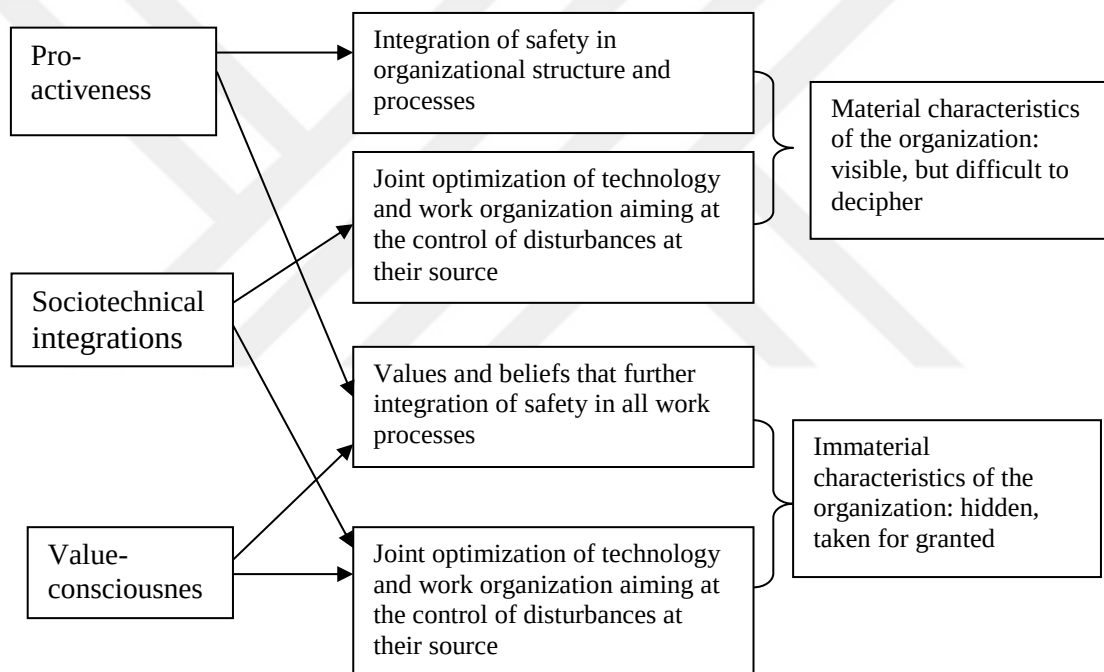


Source: Guldenmund, 2000: 241

2.3.6. Socio-Technical Model of Safety Culture

Model developed by Grote and Künzler(2000) is combination of proactive integration of organizational safety structure and processes that is common to concept of safety culture and management with design needs derived from sociotechnical management system integration aimed to deal with local uncertainties. Cultural norms are taken into account against proactive safety management and sociotechnical integration (Grote, 2008:451).

Figure 15: Socio-Technical Model of Safety Culture



Source: Grote and Künzler, 2000: 139.

2.4. POSITIVE SAFETY CULTURE

Choudhry (2007: 1004) mentioned some qualification in order to develop positive safety culture.

1. *Changing attitudes and behaviors*: Safe behaviors can be developed by verbal instruction, training and warning signs. Both employee and organization could be benefit from changing attitudes and behavior. However if

organization give incentive or rewards to finish tasks earlier, employees tend not to comply safety procedures such as not to wear safety protective equipment

2. *Management commitment:* Management has key role while enhancing positive safety culture. This could be demonstrated by providing sources, time, inspections and by participating risk assessment process.
3. *Employee involvement:* Organization participated in training and consultation about safety related issues such as machinery isolation.
4. *Promotional strategies:* Promotional strategies could be conducted in organizations in order to enhance safety culture awareness among workers. These are mission statement, publish materials and media could be used as promotional strategies.
5. *Training and seminars:* Training activities should include company meetings, trainings for employee responsibilities towards safety.
6. *Special campaigns:* Campaign should include safety weeks, accident reporting and investigation, risk assessment and introduction to safety management system.

According to Hughes and Ferret (2008: 52) components of positive safety culture are as follows:

1. Leadership and commitment to safety throughout all organizational level
2. Admit that high standards of safety are achievable in long-term organizational strategy
3. Detailed evaluation of safety related risks and development of proper monitoring system
4. Safety policies indicating safety objectives
5. Training program for employee and communication procedure
6. Systems for controlling equipment, procedures and prompt corrective actions of any defect
7. Query of all incidents and accidents and detailed reports of necessary corrective actions

Hughes and Ferret (2008: 52) also emphasize poor and/or negative safety culture indicator contrary to positive safety culture in their research. These qualifications could be assumed as organization with positive safety culture should not have.

- High sickness and absenteeism rate among employee
- Perception of blame culture
- Lack of safety improvement due to high staff turnover rate
- Lack of resources (budget, people and facilities) for effective safety management
- Lack of compliance to related safety rules and regulations also procedures or organization
- Poor selection criteria for contractors
- Poor level of communication and cooperation
- Weak safety management structure
- Poor level of safety competence
- High insurance premiums

Poor safety culture symptoms could be evaluated in two different perspective; organizational perspective and regulator perspective (IAEA, 2002: 52).

1. Organizational Perspective: Poor safety culture indicators on internal organizational point of view are listed below and each of them should be closely interested by organization in order to prevent potential disasters.
 - Lack of systematic approach
 - Procedures not properly serviced
 - Incidents not analyzed in-depth
 - Resource mismatch
 - Number of violations increasing
 - Increasing backlog of corrective actions
 - Verification of readiness for operation or maintenance
 - Employee safety concerns not dealt with promptly
 - Near miss reporting

- Lack of self-assessment processes
 - Poor housekeeping standard
2. Regulator Perspective: Poor safety culture indicators on regulator point of view are listed below. External observers have key role to detect these indicator in order to prevent accidents.
- Failure of corporate memory
 - Low status of quality assurance function
 - Location of Headquarter
 - Lack of ownership
 - Isolationism
 - Lack of learning
 - Unwillingness to share or co-operate
 - Failure to observe the findings of independent external safety reviews
 - Deficiencies in legal body

2.5. INDICATORS OF SAFETY CULTURE

According to Wiegman et al (2002: 11) suggest five global indicators of safety culture.

1. *Organizational commitment*: Organizations' upper level management recognized as having essential role in enhancing safety culture. Organizational commitment to safety could be considered as upper level management describe safety as a core value or guideline of organizations. Management should demonstrate continuous positive attitudes against safety even in financial retrenchment period and actively promote safety across all levels of organization. Organizational commitment makes sure that every aspect of its operations, such as equipment, procedures, training, and work schedules, are regularly evaluated.
2. *Management Involvement*: Management involvement refers both upper and mid-level managers provide personally involvement to critical safety programs within the organization. Management involvement is reflected by

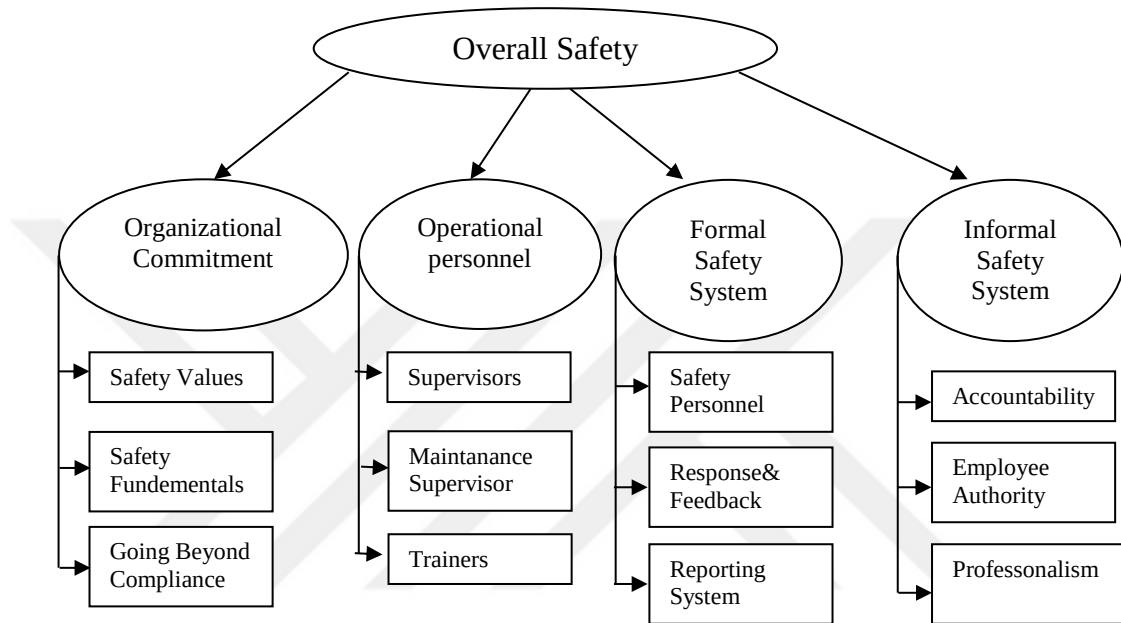
managers' presence and contribution to safety activities and training, their active participation to safety critical operations. Managers are reluctant to participate risk assessment process and share their experiences with subordinates in daily operations related with safety issues. Management involvement also provides good communication environment about safety both up and down in the organizational hierarchy.

3. *Employee Empowerment:* Frontline employees within organization mostly expose to safety risks and accidents. Organizations that have good/positive safety culture empower their employees and guarantee that their staff clearly understand their critical task while promoting safety. Empowerment refers to individual's perception as a result of delegation of authority or responsibility for safe operations. Employees are asked about organizational safety and actively participate safety decision to achieve safety improvement.
4. *Reward System:* Reward system as an indicator of safety culture refers to an established incentive system for reinforcing safe behaviors such as monetary incentives, public praise and recognition by peers and managers. Reward system at the same time discourage or punish unnecessary risky and unsafe behaviors. Conducting such reward system is substantial however the system should be formally documented and consistently applied and clearly explained and understood by all employees.
5. *Reporting System:* Effective reporting system is the key for explaining weak part of organizations vulnerability of safety management before incidents occur. The ability of organizations to learn proactively and adopt its operations is important for improving safety depend on accidents and near misses before exposure to incidents. It is also noteworthy to ensure that staff will not experience reprisal or negative outcomes as a result of applying reporting system, as well as to provide structured feedback system to inform the employee that their suggestions and concerns have been taken into account. Organizations with good safety culture should provide formal reporting system and that is actually used comfortably by employees. Effective safety reporting system encourages employee to report safety

issues, and it also provides valuable feedback to all employee in the organization.

Wiegman et al, (2007:6-7) explains four safety culture indicators with their sub-indicators and components as seen Figure 15.

Figure 16: Organizational Indicator of Safety Culture



Source: Wiegman et al, 2007: 6

Organizational commitment refers to level which senior management prioritizes safety in decision-making and provides necessary resources to safety. Organizational commitment is demonstrated by three major components (Wiegman et al, 2007: 6).

a) Safety values refer to attitudes expressed by top management regarding safety

b) Safety fundamentals refer to compliances with regulated aspect of safety such as training requirements and manuals

c) Going beyond compliance refer to safety priority for allocation of resources(equipment and personnel) even they are not regulated by laws.

Operational personnel refers to level that direct involvement of supervision of the staff's safety behavior are committed to safety and reinforce the safety norms

and values espoused by higher management. Operational personnel are demonstrated by three major components. Supervisors have critical role to acknowledge safety related issues to upper management and their involvement also crucial for safety on the part of supervisory and middle management at an organization. Maintenance supervisors have responsibility for ensuring that priority is given to safety, effectively managing, maintaining, and inspecting the safety integrity of the equipment. Trainers provide training related with safety, actual occupational risks and issues associated with work (Wiegman et al, 2007: 6).

The *formal safety system* is the processes for reporting and acknowledging both occupational and process safety issues and problems. Formal safety system has three components. safety personnel refers to employee associated with safety job such as safety officer or safety specialists. Response and feedback refers to appropriate management responses to safety information report, and dissemination of safety information to employee. Reporting system refers to accessibility, familiarity, and actual use of the organization's formal safety reporting system (Wiegman et al, 2007: 6).

Informal safety system refers to the unwritten rules related to safety behavior, including rewards and punishments for safe and unsafe actions. Accountability refers to proper consistency which employees are held accountable for behaviors that are unsafe. Authority refers to authorization and employee participation to safety decision in organization. Employee professionalism refers to norms and values of employee group related to safety and unsafe behavior (Wiegman et al, 2007: 6).

Gordon et al (2007: 678) explain the 21 safety culture indicators under 4 main safety culture indicators.

1. Management Demonstration

- Management commitment to safety
- Safety performance goals
- Impact
- Investment and resource allocation
- Policy and strategy on safety
- Safety versus productivity

2. Planning and Organizing for Safety

- Safety planning
 - Training and competence
 - Knowledge of risk
 - Risk assessment and management
3. Communication, Trust and Responsibility
- Communication about safety
 - Integrated teams
 - Involvement of employee
 - Relationship with external environment
 - Involvement of stakeholder
 - Trust and confidence
 - Responsibility of safety
4. Measuring, Auditing and Reviewing
- Organizational learning
 - Safety management system and audits
 - Achievement of safety targets
 - Test of safety in design

2.6. SAFETY CLIMATE AND SAFETY CULTURE

Safety climate is considered as one of the indicator of safety culture (Zohar, 1980). Choudry et al, (2007: 1009) consider that safety climate is produced by safety culture and is depended on current safety culture. Researchers suppose safety climate investigations are being conducted limited manner and they dismiss some important aspects of safety culture.

Table 6 lists the definitions derived from literature about safety climate.

Table 6: Definitions of Safety Climate

Reference	Definition of safety climate
Zohar (1980)	“A summary of molar perceptions that employees share about their work environment. “
Glennon (1982a, b)	“Employees’ perceptions of the many characteristics of their organization that have a direct impact upon their behavior to reduce or eliminate danger and, safety climate is a special kind of organizational climate. “
Brown and Holmes (1986)	“A set of perception of beliefs held by an individual and/or group about a particular entity.”
Dedobbeleer and Beland (1991)	“Molar perceptions people have of their work setting”
Cooper and Philips (1994)	“Safety climate is concerned with the shared perceptions and beliefs that workers hold regarding safety in their work place.”
Niskanen (1994)	“Safety climate refers to a set of attributes that can be perceived about particular work organizations and which may be induced by the policies and practices that those organizations impose upon their workers and supervisors.“
Coyle et al. (1995)	“The objective measurement of attitudes and perceptions toward occupational health and safety issues. “
Cabrera et al. (1997)	“The shared perceptions of organizational members about their work environment and, more precisely, about their organizational safety policies”.
Williamson et al. (1997)	“Safety climate is a summary concept describing the safety ethic in an organization or workplace which is reflected in employees' beliefs about safety. “

Source: Cole et al, 2013: 19

Literature has not come up with a generally accepted definition of safety climate either; furthermore some of the safety climate definitions are almost same with safety culture definition (Wiegman et al, 2004:124). Safety climate and safety culture are mostly used interchangeably (Cox and Flin, 1998: 191). Both terms are used to explain output of safety issues’ perceptions in an organization by individual or group (Pedro and Sérgio, 2003: 23).

Wiegman et al. (2002:8) express three important safety climate attributes related with safety culture regarding definitions of both terms.

- Safety climate is considered as psychological phenomenon, which is defined as the perceptions of the state of safety at a particular time.
- Safety climate is closely connected with intangible issues such as situational and environmental factors
- Safety climate is a temporal concept, a “snapshot” of safety culture

2.7. SAFETY PERFORMANCE INDICATOR

According to Edwards et al. (2013), safety culture could be used as a solution for poor safety performance. Safety culture is considered widely as leading safety performance indicator, contrary to lagging safety performance indicator such as accident rates and injury numbers (Flin et al., 2000)

Safety performance indicator could be utilized by organizations to get information on its available safety level and efficiency of safety improvements efforts. Safety should be considered as something more than lack of risk and organizations should focus positive side of safety. Researcher suggests that the utilization of safety culture as a leading safety performance indicator (Reiman and Pietikainen, 2010: 5).

OECD (2008: 5) guide document on safety performance indicators defines the concept as: “Activities indicators designed to help identify whether enterprises/organizations are taking actions believed necessary to lower risks.”

Purpose of safety performance indicators could be categorized into three groups (Hale, 2009: 479):

- Monitoring organization’s safety level
- Safety management progress in organization
- Motivating the employee and management to take necessary precautions related to safety issues

HSE (2006) defines leading performance indicator as follows: ‘The leading indicator identifies failings or ‘holes’ in vital aspects of the risk control system discovered during routine checks on the operation of a critical activity within the risk control system.

According to Reiman and Pietikainen (2015: 20) there are several reasons to use leading safety performance indicators listed as:

- Indicators provide necessary information on where to focus development efforts
- Indicators provide proactive measures (leading indicator) of safety management rather than reactive measures (lagging indicator)
- Indicators provide early warnings on potential weak part of vulnerabilities in the organizational risks
- Indicators focus on precursor to incidents
- Indicator supply data on effectiveness of safety efforts
- Indicator tell about current organizational health and safety level not only absence of them

Lagging safety performance indicators do not provide information about safety level of the system or organization, instead lagging indicators only tell about system outputs (Reiman and Pietikainen, 2010: 24).

2.8. SAFETY CULTURE LITERATURE

Literature about safety culture is separated to research done in the world and research done in Turkey.

2.8.1. Safety Culture Literature in the World

Lee (1998) applied 81 items questionnaire to 5296 nuclear reprocessing plant investigating the relationship with occupational accident experience and safety culture factors. Questionnaire items consists of 9 domain of safety of which safety procedures, risk, permit to work, job satisfaction, safety rules, participation, training, control of safety and design of plant. Researcher found significant difference between employees that have occupational accident and that have not occupational accidents on safety culture factor. According to findings from study employees that have not occupational accident experience have more positive safety culture attitude compared with employees that have occupational accident experiences.

Gill and Sergill (2004) on their research they conducted 464 aviation personnel respondent in New Zealand including pilot, air traffic controller with 26 scale questionnaire. Researcher found that luck and safety is the most important factor in aviation safety.

Hovold (2010) conducted questionnaire on maritime sector to 1158 crew working on commercial vessels. Ship's crew has 6 different nationalities (Norwegian, Netherlands, Lithuania, Poland, Philippines, Indonesia). Researcher investigates the differences between nationalities on behalf of safety culture factors. Study consists of four safety culture factors of which management attitudes to safety, work stress, knowledge and fatalism. Researcher makes three groups from respondents. First group is West European crew members, second group is East European crew members, third group is Far East crew members. West European crew members have the lowest fatalism level and Far East crew members have the highest fatalism level. Researcher also investigates the relationship between safety culture factor and demographics of employees such as age, gender, marital status. Study indicates that older crew members have more positive safety culture attitudes than young crew members.

Fung et al (2005) applied questionnaire to 423 workers on public and private construction sector. Researchers use the safety culture questionnaire consists of 8 factors of which management commitment, safety communication, report of accident and near miss, role of line managers, line managers commitment, personnel role effects of colleague, risk taking behaviors and obstacles to safe behaviors. Researchers compare safety culture divergence among three group of construction personnel top management, supervisory staff and front line workers. According to researchers employees who have occupational accident experience have higher safety culture awareness than employees who don't have occupational accident experience. Research indicates that there is no significant safety culture awareness differentiation between first line managers and top managers. However first line managers are significantly high safety culture awareness on factors of management commitment, safety communication, report of accident and near miss, role of line managers, personnel role effects of colleague than worker groups.

Arslan et al. (2016) conducted questionnaire to 70 maritime sector employees working both shore office and onboard the ship. Researchers applied the safety culture questionnaire consists of 10 factors of which communication, employer and employee trust, feedback, involvement, mutual trust, problem identification, promotion of safety, responsiveness, safety awareness, training and competence. Researchers compare safety culture dimensions between shore employees and ship crew. According to research ship crew members' total safety culture scores are lower than shore staff. Research also indicates that ship crew members seem to adhere less faithful and effectively comply with to the appropriate rules, standards and procedures to related safety culture factors than shore employees.

2.8.2. Safety Culture Literature in Turkey

Demirbilek (2005) developed safety culture questionnaire by using related safety literature and applied to 258 textile factory employees. Researcher found 8 safety culture factors of which management commitment, safety priority, safety communication, safety training, safety involvement, physical stress, safety perception and safety beliefs. Researcher investigates the relations between safety culture factor and demographics of employees such as age, gender, marital status, educational status, work status, work experience and occupational accident experience. According to correlation analysis conducted by researcher there are positive correlations between all safety culture factors except physical stress. Study found that there are no meaningful differences between gender groups and work experience considering safety culture factors. According to study safety culture factors are differentiated with educational status.

Ocaktan (2009) conducted questionnaire developed by Demirbilek (2005) to 710 automotive employees. Researcher identifies 6 safety culture factors of which management commitment, safety priority, safety communication, safety training, safety involvement of employee and safety perception. Researcher found strong positive correlations between all safety culture factors. The strongest correlations are found between management commitment, safety priority and safety communication. Furthermore study found that there is meaningful relationship between safety culture

factors and demographic variables such as age, gender, educational status, marital status, work status and work experience.

Dursun (2011) developed safety culture questionnaire aimed to indicate safety culture level of respondents by using related safety literature and applied to 358 production industry employees. Researcher found 11 safety culture factors of which management attitude, management behavior, safety priority, safety communication, safety training, safety awareness and competence, involvement of employee, reporting culture, fatalism, safety compliance and safety involvement. Dursun (2011) investigates the relationship between safety culture factor and demographics of employees such as age, gender, work status, marital status, educational status, work experience. He also investigates relationship between safety culture variables and occupational accident experience, low and high risk company and safe behavior. According to researcher's findings there is positive correlation between safety culture awareness of employee and safe behavior. Research indicates that positive correlation between safety culture factors except fatalism. Fatalism has negative correlation with other safety culture factors.

Uslu (2014) conducted questionnaire developed by Dursun (2011) to 453 metal production industry employees. According to the study, there are 8 safety culture factors of which management commitment, safety priority, safety communication, safety training, safety awareness and competence, safety involvement of employee, reporting culture and fatalism. Researcher investigates the relationship between safety culture factor and demographics of employees such as age, gender, work status, marital status, educational status, work experience and occupational accident experience. According to his study safety culture awareness of employees differ with educational status, work status and occupational accident experiences. Research also indicates that safety culture awareness of employees do not differ with age, gender, marital status and work experiences.

Uzunköprü (2016) conducted questionnaire on maritime sector developed by Demirbilek (2005) to 158 ship crew calling Aliğa port. Researcher found 6 safety culture factors of which management commitment, safety priority, safety communication, safety training, safety involvement and safety perception. Researcher investigates the relationship between safety culture factor and

demographics of employees such as age, work status, marital status, educational status, economic status, carriage of dangerous cargoes, work experience, occupational accident experience and job satisfaction. According to his study safety culture perception of employees differ with, work status and occupational accident experiences. Research also indicates that safety culture perception of employees do not differ with age, marital status and work experiences, educational status and job satisfaction. Occupational accident experience has significant difference with safety culture factor of management commitment and safety communication. Economic status has significant difference with safety culture factor of safety priority and safety communication.

Altınpınar and Başar (2018) applied safety culture questionnaire to 318 maritime and aviation employees. Researcher found 6 safety culture factors of which perception of importance of safety culture, motivation, working condition, culture of communication, safe environment and reporting of near miss conditions. Researchers compare safety culture awareness of aviation and maritime employees. According to study safety culture awareness of aviation employees are higher than maritime employees. Research also indicates that safety culture awareness of employees do not differ with age and occupational accident experiences.

CHAPTER THREE

STUDY ON SAFETY CULTURE AWARENESS ON MARINA EMPLOYEES

3.1. AIM AND IMPORTANCE OF THE RESEARCH

The aim of this research is to analyze the safety culture awareness of marina employees' located in İzmir and Aydın regions by using safety culture questionnaire. This thesis also aims to demonstrate prevailing marina human resource conditions related to safety culture by comparing employees' responses in six different marinas. Turkey ranks first in occupational accidents in Europe and ranks third in the world. Considering this fact, it is necessary to use safety culture as a proactive accident prevention method in order to reduce injuries, life losses, accident rates and to increase environmental protection. It is obvious that the existent research related to safety culture on maritime is very limited.

3.2. RESEARCH METHODOLOGY

This study utilizes a type of quantitative research method, which is a survey analysis of safety culture awareness of marina employees. In this chapter, research model, research hypothesis, data collection tool, research sample and data collection process are discussed in order.

3.2.1. Research Model

This research is investigating safety culture awareness and demographic variables of marina employees such as gender, age, education, company experience, work experience, status, position of work, department, exposure of occupational accidents and near miss experience. Demographic variables of marina employees and safety culture level relationships are investigated on the scope of this research.

Figure 17: Research Model

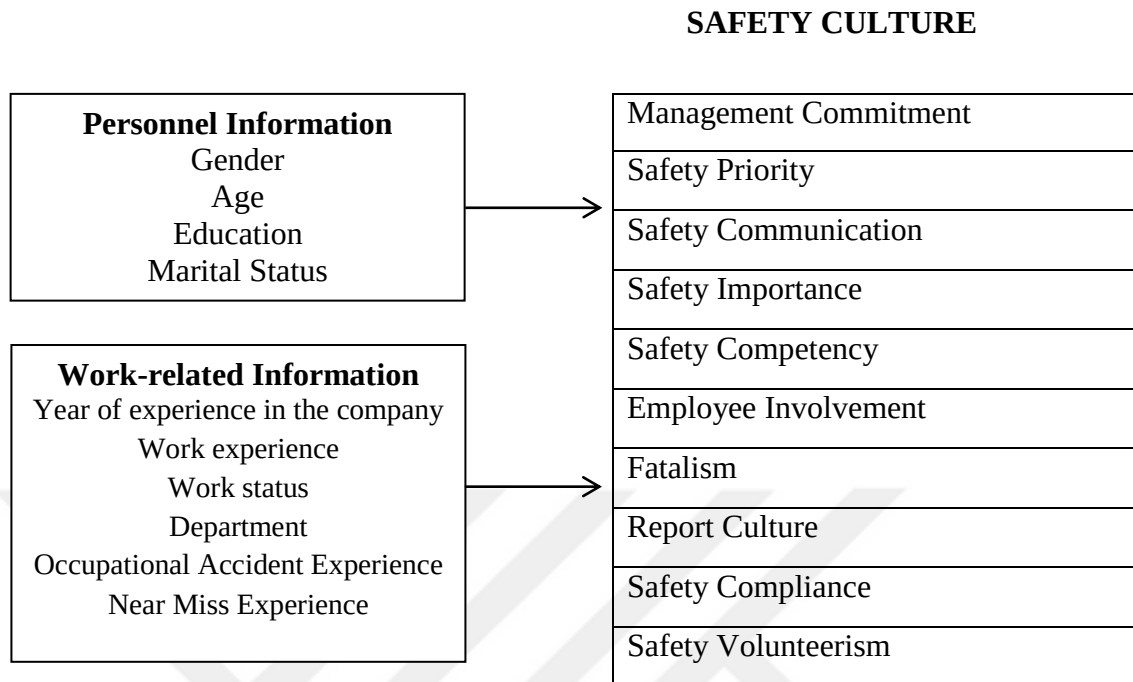


Figure 16 shows the research model, which includes the dimensions of safety culture and their effect to demographic variables of marina employees. These demographic variables are consisted of both personnel and work-related information.

3.2.2. Research Hypotheses

Based on the research model that is illustrated by Figure 16, the research hypotheses are listed below:

H₁: Safety culture awareness level of the employees does differ according to gender.

H₂: Safety culture awareness level of the employees does differ according to age.

H₃: Safety culture awareness level of the employees does differ according to education status.

H₄: Safety culture awareness level of the employees does differ according to years of experience in the company.

H₅: Safety culture awareness level of the employees does differ according to marital status.

H₆: Safety culture awareness level of the employees does differ according to total work experience.

H₇: Safety culture awareness level of the employees does differ according to work status.

H₈: Safety culture awareness level of the employees does differ according to department.

H₉: Safety culture awareness level of the employees does differ according to lifetime occupational accident experience.

H₁₀: Safety culture awareness level of the employees does differ according to current company occupational accident experience.

H₁₁: Safety culture awareness level of the employees does differ according to near miss experience.

3.2.3. Data Collection Tool

A questionnaire form which consists of 58 questions is used while collecting data on safety culture awareness level. Questionnaire has 47 Likert type items related to safety culture and 11 profile questions. In this research safety culture questionnaire translated and developed from safety literature by Dursun (2011) is used (see Appendix 1).

3.2.4. Research Sample

Research is conducted on 6 marinas' employees in İzmir and Aydın provinces. It is attempted to conduct the questionnaire on all marina employees in Turkey however only 6 marinas accepted to participate to the questionnaire. The research sample includes 198 marina employees in six different marinas, where 109 employees are from İzmir marinas and 89 employees are from Aydın marinas. Purposive sampling could be used for non-probability based on population and objective of study (Altunışık et al, 2012). Purposive sampling method is used in the research.

Marina A has 49 employees and 45 questionnaires are responded by marina employees. 4 employees cannot be reached due to managerial issues. 3

questionnaires are cancelled because of missing data on questionnaire items and total 42 questionnaires are used on SPSS statistics program.

Marina B has 41 employees and 40 questionnaires are responded by marina employees. 1 employee cannot be reached due to management issues. 2 questionnaires are cancelled because of missing data on questionnaire items and total 38 questionnaires are used on SPSS statistics program.

Marina C has 12 employees and 12 questionnaires are responded by marina employees. 12 questionnaires are used on SPSS statistics program..

Marina D has 21 employees and 18 questionnaires are responded by marina employees. 3 employees cannot be reached. 1 questionnaire is cancelled because of missing data on questionnaire items and total 17 questionnaires are used on SPSS statistics program.

Marina E has 29 employees and 27 questionnaires are responded by marina employees. 2 employees cannot be reached. 1 questionnaire is cancelled because of missing data on questionnaire items and total 26 questionnaires are used on SPSS statistics program.

Marina F has 70 employees and 67 questionnaires are responded by marina employees. 3 employees cannot be reached. 4 questionnaires are cancelled because of missing data on questionnaire items and total 63 questionnaires are used on SPSS statistics program.

Table 7 shows the characteristics of the marinas participated to the research. Table shows the total employee numbers, type of interview, 5 anchor approval and chain marina ownership for each marina.

Table 7: Characteristics of the Marinas in the Sample

MARINA	TOTAL EMPLOYEES	5 ANCHOR APPROVAL	CHAIN MARINA OWNERSHIP
A	49	X	--
B	41	--	--
C	21	--	--
D	12	--	X
E	29	--	X
F	70	X	X
TOTAL	222		

3.2.5. Data Collection Process

During the questionnaire application process, firstly 2 marina managers on marina A and B were interviewed face to face related to safety culture awareness questionnaire on 21 November 2018. On behalf of their opinions some corrections on safety culture questionnaire items were conducted to prevent misunderstandings on application process of questionnaire to marina employees. Pilot questionnaire firstly applied to 16 marina employees on marina A and their feedback related to items were taken and found proper to application.

Safety culture questionnaire forms were sent to marina managements in Turkey via e-mail for in the beginning of the research. However, marinas were not replied positively to participate the research. Permissions to conduct safety culture questionnaire were taken from 6 marina managements in İzmir and Aydın after face to face interviews and explanation of questionnaire. 6 marina managers interviewed and acknowledged briefly about safety culture questionnaire, importance of research on marina employees and marina management and possible contribution of study to yachting sector are mentioned during the interview process. Questionnaire forms are collected from marina employees between December 2018 and March 2019.

3.3. DATA ANALYSIS

SPSS 21.0 statistics program is used to analyze the data collected from 198 marina employees. For the reliability of the scale, Cronbach's alpha value is calculated. Kolmogorov-Smirnov analysis is used to understand whether the data are normally distributed or not. As the data are not normally distributed, Mann Whitney U tests and Kruskal Wallis tests, and Spearman correlation analysis are conducted (Altunışık et al., 2012).

3.3.1. Reliability Analysis

According to reliability analysis, Cronbach's Alpha value is found 0.869. This means that the scale used in the questionnaire applied to marina employees has

high reliability value. Table 8 shows the reliability of safety culture scale.

Table 8: Reliability Test

Cronbach's Alpha	N of Items
.869	47

3.3.2. Normality Test

Kolmogorov-Smirnov analysis is used to test whether data are normally distributed or not. When Table 9 examined, Kolmogorov-Smirnov significance value are found smaller than 0.05 (p: 0.031). As a result of test, data are not considered normally distributed. Due to non-parametric distribution of data, Man Whitney U tests are used for two independent group variables and Kruskal Wallis tests are used for three and more independent group variables.

Table 9: Test of Normality

Kolmogorov-Smirnov Significance Value	0.031
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3.4. FINDINGS OF THE RESEARCH

In this chapter, findings reached from data analysis of research are listed. Demographic findings of respondents, hypothesis tests derived from research model, factor analysis of questionnaire items, correlations between safety culture factors and comparisons of marinas regarding their various attributes are explained in order.

3.4.1. Demographic Findings

Respondents' demographic features such as gender, age, education level, working time, marital status, work experience, work status and occupational accident experiences are shown in the Table 10.

Table 10: Employee's Demographic Distributions

GENDER	FREQUENCY	PERCENTAGE
Male	150	75.8
Female	48	24.2
AGE		
0-26	36	18.2
26-35	82	41.4
35-45	60	30.3
46-55	18	9.1
56+	2	1.0
EDUCATION LEVEL		
Primary	41	20.7
High school	81	40.9
Associate's Degree	36	18.2
Bachelor's Degree	40	20.2
COMPANY WORK TIME		
0-2 Years	77	38.9
2-5 Years	43	21.7
5-10 Years	58	29.3
10+ Years	20	10.1
MARITAL STATUS		
Married	112	56.6
Single	86	43.4
TOTAL WORK EXPERIENCE		
0-2 Years	47	23.7
2-5 Years	43	21.7
5-10 Years	48	24.2
10+ Years	60	30.3
WORK STATUS		
Manager	23	11.6
Staff	175	88.4
DEPARTMENT		
Office	85	42.9
Harbour	113	57.1
LIFETIME ACCIDENT EXPERIENCE		
Yes	21	10.6
No	177	89.4
MARINA ACCIDENT EXPERIENCE		
Yes	10	5.1
No	188	94.9
NEAR MISS EXPERIENCE		
Yes	13	6.6
No	185	93.4

Table 10 shows the demographic distributions of marina employees. According to findings, majority of employees are male respondents with frequency of 150. Age interval 26-35 has highest frequency. Majority of respondents are high school graduate with 40.9% rate. Majority of respondents are 5-10 years working experience with frequency of 58. Married respondents have higher frequency than single respondents. Majority of respondents are staff with frequency of 175. While it is estimated that there are approximately 2000 marina employees in the country, this research is based on 198 respondents. It is considered that demographic findings of marina employees have qualification to represent the population.

3.4.2. Hypothesis Tests

As the result of the analysis, the data significance level were found 0.031 and level is less than 0.05 and the data were not normally distributed. Mann Whitney U tests could be used for non-parametric tests which have two independent variables and Kruskal Wallis tests could be used for non-parametric tests which have three and more independent variables (Altunışık et al, 2012). Therefore Mann Whitney U tests are carried out to test hypothesis H₁, H₅, H₇, H₈, H₉, H₁₀, H₁₁ and Kruskal Wallis tests are carried out to test hypothesis H₂, H₃, H₄, H₆.

H₁: Safety culture awareness level of the employees does differ according to the gender.

Table 11 shows the supported sub-hypothesis results derived from H₁ hypothesis considering the safety culture awareness variables' differentiation according to gender groups.

Table 11: Analysis of Sub-hypothesis According to Gender

Hypothesis	*Mean	*Mean Rank	Sig.(p)
H1-5: Marina managers take responsibility for health and safety issues as well as quality and efficiency.	1:4.56 2:4.32	1:114,02 2:98.14	.023
H1-9: The management of the marina believes that the safety of the employees has great importance.	1:4.56 2:4.31	1:112,35 2:95.05	.047

H1-10: I believe that occupational safety issues are not given high priority.	1:1.72 2:2.12	1:82.59 2:104.91	.012
H1-46: I spend additional effort to improve workplace occupational safety.	1:4.08 2:4.32	1:86.23 2:103.74	.040

*1: Female; 2: Male

According to the results of sub-hypothesis of H1-5 and H1-9, female respondents' awareness for managers' health and safety responsibilities are higher than male respondents. By using crosstab tables it is found that 85% of female employees are working at office. This could cause by majority of female employees are working at office and they could observe the managers' decision regarding safety issues closer than harbor employees of which male dominated department. For sub-hypothesis of H1-10, female respondents' beliefs are higher than male respondents regarding occupational safety priority. This is considered to be caused due to 71% of male employees are working on harbor which is considered to have higher occupational risks than office environment, in addition male respondents are considered to exposed more occupational risks than female employees. Exposure to higher occupational risks could be the reason for lower awareness to safety priority. Male respondents significantly have higher mean and mean rank than female respondents regarding improving workplace occupational safety (H1-46). This is considered to be caused by high occupational risk exposure of male respondents.

H₂: Safety culture awareness level of the employees does differ according to the age group.

Table 12 shows the supported sub-hypothesis results derived from H₂ hypothesis considering the safety culture awareness variables' differentiation according to age groups.

Table 12: Analysis of Sub-hypothesis According to Age Groups

Hypothesis	Mean*	Mean Rank	Sig.(p)
H2-5: Marina managers take responsibility for health and safety issues as well as quality and efficiency.	1:4.41 2:4.39 3:4.23 4:4.72 5:4.38	1:102.17 2:100.35 3:86.95 4:127.17 5:153.00	.022

H2-6: Marina managers actively and visually pioneer occupational safety issues.	1:4.27 2:4.25 3:4.16 4:4.66 5:5.00	1:98.85 2:98.95 3:90.17 4:128.00 5:156.50	.048
H2-7: Marina managers regularly visit workplaces to check work conditions or talk to employees.	1:4.30 2:4.15 3:3.98 4:4.44 5:5.00	1:109 2:98 3:86 4:119 5:163	.038
H2-11: Occupational safety procedures are followed carefully.	1:4.27 2:4.13 3:4.18 4:4.50 5:5.00	1:102 2:93 3:95 4:127 5:160	.048
H2-12: Marina management believes that occupational safety has equivalent importance with production.	1:4.02 2:3.97 3:4.08 4:4.33 5:5.00	1:97 2:93 3:99 4:125 5:127	.035
H2-13: There is intense communication about occupational safety issues at the marina.	1:3.91 2:3.92 3:3.96 4:4.61 5:5.00	1:91 2:94 3:96 4:140 5:171	.002
H2-14: Marina employees may negotiate safety related topics that they have interests with upper management.	1:4.33 2:4.08 3:4.06 4:4.50 5:5.00	1:109 2:92 3:93 4:124 5:161	.032
H2-17: Marina employees are regularly consulted on workplace health and safety issues.	1:4.13 2:3.86 3:3.80 4:4.33 5:5.00	1:106 2:93 3:92 4:127 5:169	.025
H2-20: Marina employees attend comprehensive training in health and safety at work.	1:4.33 2:4.08 3:4.06 4:4.50 5:5.00	1:88 2:96 3:98 4:134 5:157	.018
H2-21: Marina employees have access to health and safety training programs in the workplace.	1:4.41 2:4.39 3:4.23 4:4.72 5:5.00	1:101 2:91 3:96 4:136 5:166	.007
H2-31: Accidents happen suddenly and there are very few things you can do to avoid them.	1:2.47 2:2.37 3:2.75 4:2.16 5:5.00	1:98 2:94 3:109 4:83 5:190	.048
H2-35: The use of machinery and technical equipment makes accidents unavoidable	1:2.44 2:2.24 3:2.43 4:1.94 5:5.00	1:105 2:96 3:104 4:76 5:191	.038
H2-41: Employees are willing to report accidents	1:3.91 2:4.06 3:4.23 4:4.50 5:5.00	1:85 2:95 3:105 4:123 5:166	.028

*1: 0-26 Years old; 2: 26-35 Years old; 3: 36-45 Years old; 4: 46-55 Years old; 5: 56+ Years old

According to the results of sub-hypothesis of H2-5, age between 46-55 years old respondents have higher mean rank than other age groups regarding “marina managers take responsibilities for health and safety issues as well as quality” variable. For sub-hypotheses H2-6, “managers’ actively and visually pioneer occupational safety issues” and H2-7 “managers’ regularly visit workplace to check work condition” older age groups have significantly higher mean scores than younger age groups. It can be argued that older age groups (46-55 and 56+) have higher management commitment than younger age groups. For sub-hypotheses H2-11, “occupational safety procedures are followed carefully” and H2-12 “occupational safety has equivalent importance with production”, older age groups have significantly higher mean scores than younger age groups. It can be argued that older age groups (46-55 and 56+) have higher safety priority than younger age groups.

For sub-hypotheses H2-13 “intense communication about safety”, H2-14 “negotiation safety related topics”, H2-17 “regularly consultant on workplace safety” and H2-20 “attend comprehensive training in health and safety at work” older age groups have significantly higher mean scores than younger age groups. It could be argued that older age groups (46-55 and 56+) have more work experience so they could realize the important of communication regarding safety.

For sub-hypothesis H2-21 “access to health and safety programs” older age groups have significantly higher mean scores than younger age groups. It can be argued that older age groups (46-55 and 56+) have higher safety involvement than younger age groups. For sub-hypothesis H2-31 “there are very few things you can avoid accident” and H2-35 “use of machines makes accidents unavoidable”, 46-55 years old age groups have significantly low mean scores than other age groups. It could be argued that 46-55 years old age group) have lower fatalism than other age groups. For sub-hypothesis H2-41 “willing to report accidents”, older age groups have significantly higher mean scores than younger age groups. It could be argued that older age groups (46-55 and 56+) have higher safety reporting than younger age groups.

H₃: Safety culture awareness level of the employees does differ according to the educational level.

Table 13 shows the supported sub-hypothesis results derived from H₃ hypothesis considering the safety culture awareness variables differentiation according to educational level.

Table 13: Analysis of Sub-hypothesis According to Education Groups

Hypothesis	Mean*	Mean Rank	Sig.(p)
H3-4: Marina managers consider the monitoring safety activities as the basis for improving and maintaining the occupational safety.	1:4.53 2:4.32 3:4.33 4:4.62	1:109.32 2:88.35 3:91.95 4:118.17	.009
H3-5: Marina managers take responsibility for health and safety issues as well as quality and efficiency.	1:4.55 2:4.28 3:4.22 4:4.56	1:111.23 2:92.54 3:86.74 4:113.21	.031
H3-6: Marina managers actively and visually pioneer occupational safety issues.	1:4.41 2:4.16 3:4.11 4:4.52	1:109.34 2:91.86 3:86.32 4:116.17	.021
H3-10: I believe that occupational safety issues are not given high priority.	1:2.04 2:2.19 3:2.11 4:1.60	1:98 2:109 3:104 4:74	.008
H3-13: There is intense communication about occupational safety issues at the marina.	1:4.04 2:3.97 3:3.77 4:4.30	1:102.22 2:95.76 3:84.00 4:117.85	.038
H3-14: Marina employees may negotiate safety related topics that they have interests with upper management.	1:3.92 2:4.19 3:4.08 4:4.45	1:83.12 2:101.79 3:93.01 4:117.49	.025
H3-31: Accidents happen suddenly and there are very few things you can do to avoid them.	1:3.00 2:2.66 3:2.02 4:2.15	1:118.12 2:106.59 3:78.86 4:84.63	.003
H3-32: What will happen to you while working is largely a matter of luck.	1:2.53 2:2.39 3:1.77 4:2.20	1:110.00 2:106.48 3:77.42 4:94.01	.030
H3-34: It is impossible to avoid an accident.	1:2.39 2:2.20 3:1.83 4:1.85	1:113.07 2:105.44 3:85.34 4:85.21	.034

H3-36: Despite the company's efforts, the prevention of accidents seems inevitable.	1:2.73 2:2.65 3:2.27 4:2.00	1:111.86 2:108.67 3:91.32 4:76.83	.006
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*1: Primary School; 2: High school; 3: Associate Degree; 4: Bachelor's Degree

According to the results of sub-hypothesis of H3-4 “monitoring safety activities for improving occupational safety” and H3-5 “managers take responsibility for health and safety issues as well as quality” and H3-6 “managers actively and visually pioneer occupational safety issues”, employee group with bachelor's degree have higher mean and mean rank than employees which have other kind of degrees. Respondents with bachelor degrees exhibit higher management commitment than the ones without bachelor degrees. For sub-hypothesis of H3-13 “intense communication about occupational safety” and H3-14 “negotiation of safety related topics”, employee group with bachelor's degree have higher mean and mean rank than other education group. It could be argued that these employees exhibit higher safety communication than others.

For sub-hypothesis of H3-10 “occupational safety issues are not given high priority”, H3-31 “there are very few things you can do to avoid accidents”, H3-32 “what will happen to you is largely a matter of luck.”, H3-34 “impossible to avoid an accident” and H3-36 “prevention of accidents seems inevitable”, employee group with bachelor's degree and associate's degree have lower mean and mean rank than the ones with primary and high school education. It could be argued that respondents which have university education (bachelor's degree and associate's degree) have lower fatalism than the ones without university education. Lower fatalism means that respondents have higher safety culture awareness. Impossibility of accident prevention belief, although safety measures and precaution are considered to have negative affect for prioritization of safety.

H₄: Safety culture awareness level of the employees does differ according to years of experience in the company.

Table 14 shows the supported sub-hypothesis results derived from H₄ hypothesis considering the safety culture awareness variables differentiation according to company working time by means of year.

Table 14: Analysis of Sub-hypothesis According to Years of Experience in the Company

Hypothesis	Mean*	Mean Rank*	Sig.(p)
H4-26: I think work safety is the most important thing while working.	1:4.68 2:4.67 3:4.32 4:4.45	1:108.79 2:107.35 3:83.10 4:94.68	.015
H4-27: Employees are involved in the preparation of guidelines for instructions and procedures.	1:4.09 2:3.72 3:3.79 4:4.30	1:108.43 2:86.44 3:90.08 4:120.21	.026

*1:0-2 Years; 2: 2-5 Years; 3:5-10 Years; 4:10+ Years

According to the results of sub-hypothesis of H4-26 “safety is the most important thing while working”, respondents who have 0-2 years of experience in the company have higher mean and mean rank than other work experience groups. It could be argued that unexperienced employees in the company have higher safety importance awareness than the more experienced group. For sub-hypothesis of H4-27 “involvement in the preparation of guidelines for instructions and procedures” respondents who have 10+ years of experience in the company have higher mean and mean rank than other work experience group. Marinas are considered to give more importance to experienced employees opinions during the preparation of safety procedure.

H₅: Safety culture awareness level of the employees does differ according to marital status.

Table 15 shows the supported sub-hypothesis results derived from H₅ hypothesis considering the safety culture awareness variables differentiation according to marital status.

Table 15: Analysis of Sub-hypothesis According to Marital Status

Hypothesis	*Mean	*Mean Rank	Sig.(p)
H5-5: Marina managers take responsibility for health and safety issues as well as quality and efficiency.	1:4.46 2:4.27	1:106,20 2:90.78	.035
H5-12: The management of the marina believes that the safety of the employees has great importance.	1:4.16 2:3.91	1:107,19 2:89.49	.015
H5-14: Marina employees may negotiate safety related topics that they have interests with upper management.	1:4.28 2:4.02	1:107,26 2:89.39	.018
H5-20: Marina employees attend comprehensive training in health and safety at work.	1:4.36 2:4.05	1:108.23 2:87.33	.005
H5-41: Employees are willing to report accidents	1:4.25 2:3.98	1:106,97 2:89.95	.021
H5-42: I use all my necessary occupational safety equipment during my work.	1:4.41 2:4.17	1:108,89 2:87.29	.003
H5-43: I use appropriate occupational safety procedures when doing my job	1:4.46 2:4.25	1:107,71 2:88.81	.009
H5-44: I ensure the highest levels of occupational safety during my work.	1:4.37 2:4.15	1:107,20 2:89.48	.014

*1: Married; 2: Single

According to the results of sub-hypothesis of H5-5 “managers take responsibility for health and safety issues as well as quality and efficiency”, married respondents have higher mean and mean rank than single respondents. Female respondents exhibit higher management commitment than single ones. Majority of females are office employees. They could realize management actions and their consequences due to working location. For sub-hypothesis of H5-12 “marina believes that the safety of the employees has great importance”, married respondents have higher mean and mean rank than single respondents. Female respondents exhibit higher safety priority than single respondents. For sub-hypothesis of H5-14 “negotiation safety related topics” and H5-20 “employees’ attendance to comprehensive training in health and safety at work” married respondents have higher mean and mean rank than single respondents. Female respondents are considered to have higher safety communication than male respondents. For sub-hypothesis of H5-41 “employees’ willingness to report accidents” married respondents have higher mean and mean rank than single respondents. It could be argued that female respondents have higher safety reporting than male respondents. According to the results of sub-hypothesis of H5-42 “use of necessary occupational safety equipment during work” and H5-43 “use of necessary occupational safety

procedure” married respondents have higher mean and mean rank than single respondents. It could be argued that married respondents have higher safety compliance than single respondents. Married respondents are considered more committed to safety procedures due to work related responsibility. According to the results of sub-hypothesis of H5-44 “ensure the highest levels of occupational safety during my work” married respondents have higher mean and mean rank than single respondents. It could be argued that married respondents have higher safety volunteerism. Female respondents are considered to be more reluctant to participate safety activities.

H₆: Safety culture awareness level of the employees does differ according to the total work experience.

Table 16 shows the supported sub-hypothesis results derived from H₆ hypothesis considering the safety culture awareness variables differentiation according to total work experience.

Table 16: Analysis of Sub-hypothesis According to Total Work Experience

Hypothesis	Mean*	Mean Rank*	Sig.(p)
H6-6: Marina managers actively and visually pioneer occupational safety issues.	1:4.65 2:4.53 3:4.33 4:4.18	1:86.71 2:120.38 3:102.18 4:96.76	.011
H6-7: Marina managers regularly visit workplaces to check work conditions or talk to employees	1:4.10 2:4.44 3:4.25 4:3.95	1:94.55 2:119.41 3:104.98 4:84.24	.009
H6-17: Marina employees are regularly consulted on workplace health and safety issues.	1:4.14 2:4.18 3:3.68 4:3.83	1:109.73 2:110.49 3:83.41 4:96.48	.044
H6-26: I think occupational safety is the most important thing while working.	1:4.65 2:4.65 3:4.29 4:4.60	1:108.59 2:106.69 3:80.80 4:102.44	.019
H6-37: We always report accidents and incidents in our company.	1:4.46 2:4.46 3:4.04 4:4.38	1:106.79 2:108.67 3:77.11 4:105.13	.007

H6-38: I encourage to report unsafe conditions.	1:4.40 2:4.25 3:3.95 4:4.28	1:110.59 2:101.87 3:79.41 4:104.88	.016
H ₆₋₄₆ : I spend additional effort to improve occupational safety.	1:4.27 2:4.30 3:4.02 4:4.41	1:99.50 2:101.38 3:82.91 4:111.76	.030

1:0-2 Years; 2: 2-5 Years; 3:5-10 Years; 4:10+ Years

According to the results of sub-hypothesis H6-6 “managers actively and visually pioneer occupational safety issues”, respondents who have 0-2 year work experiences have higher mean than others. It could be argued that less experienced employees have higher awareness related to managers’ safety leadership. For sub-hypothesis H6-7 “managers regularly visit workplaces to check work conditions or talk to employees”, respondents who have 2-5 year work experiences have higher mean and mean rank than others. This group is considered to exhibit higher management commitment than other total work experience group. For sub-hypothesis H6-17 “employees are regularly consulted on workplace health and safety issues”, respondents who have 2-5 year work experiences have higher mean and mean rank than others. Employees with less experienced groups (0-2 years and 2-5 years) have significantly higher scores regarding regular workplace safety consultation. Experienced groups regarding working time have higher occupational accident rate than employees with less work experiences. It could be argued that exposure to occupational accidents increase the expectation of safety consultation at workplace. For sub-hypothesis H6-26 “safety is the most important thing while working”, respondents who have 0-2 year work experiences have higher mean and mean rank than others. For sub-hypothesis H6-37 “always report accidents and incidents in our company” and H6-38 “encourage to report unsafe conditions”, respondents who have 0-2 year work experiences have higher mean and mean rank than others. It can be argued that less experienced employees have higher awareness related to safety reporting. For sub-hypothesis H6-46 “additional effort to improve occupational safety”, respondents who have more than 10 years’ work experiences have higher mean than other total experience group. It is argued that experienced employees have higher awareness related to safety effort.

H₇: Safety culture awareness level of the employees does differ according to work status.

Table 17 shows the supported sub-hypothesis results derived from H₇ hypothesis considering the safety culture awareness variables differentiation according to work status.

Table 17: Analysis of Sub-hypothesis According to Work Status

Hypothesis	*Mean	*Mean Rank	Sig.(p)
H7-30: Marina employees make written recommendations in case of working condition deficiencies.	1:3.21 2:3.72	1:72.65 2:103.03	.012
H7-36: Despite the company's efforts, the prevention of accidents seems inevitable.	1:1.91 2:2.54	1:73.80 2:102.88	.016

*1: Manager; 2: Staff

According to result of sub-hypothesis of H7-30 “employees make written recommendations in case of working condition deficiencies”, staff respondents have higher mean and mean rank than respondents who have managerial authority. It can be argued that managers have higher expectation regarding safety deficiency recommendation. For H7-36 “prevention of accidents seems inevitable”, staff respondents significantly have higher mean and mean rank than managers. Staff respondents are considered to have higher fatalism than managers.

H₈: Safety culture awareness level of the employees does differ according to marina department.

Table 18 shows the supported sub-hypothesis results derived from H₈ hypothesis considering the safety culture awareness variables differentiation according to department.

Table 18: Analysis of Sub-hypothesis According to Department

Hypothesis	*Mean	*Mean Rank	Sig.(p)
H8-17: Marina employees are regularly consulted on workplace health and safety issues.	1:3.76 2:4.08	1:89.71 2:106.87	.025
H8-29: Marina employees comply with occupational safety regulations	1:4.03 2:4.36	1:85.56 2:109.98	.001
H8-30: “Marina employees make written recommendations in case of working condition deficiencies.	1:3.51 2:3.77	1:90.30 2:106.42	.040

*1: Office; 2: Harbor

According to result of sub-hypothesis of H8-17 “employees are regularly consulted on workplace health and safety issues” harbor department respondents have higher mean and mean rank than office department respondents. Harbor department employees are considered to have significantly higher scores regarding regular workplace safety consultation. For H8-29 “employees comply with occupational safety regulations” and H8-30 “employees make written recommendations in case of working condition deficiencies” harbor department respondents have higher mean and mean rank than office department respondents. H8-29 “employees comply with occupational safety regulations” and H8-30 harbor department respondents significantly have higher mean and mean rank than office department respondents. Harbor department respondents have higher awareness regarding safety involvement.

H₉: Safety culture awareness level of the employees does differ according to lifetime occupational accident experience.

Table 19 shows the supported sub-hypothesis results derived from H₉ hypothesis considering the safety culture awareness variables differentiation according to lifetime occupational accident experience.

Table 19: Analysis of Sub-hypothesis According to Lifetime Accident Experience

Hypothesis	*Mean	*Mean Rank	Sig.(p)
H ₉₋₁₁ : Occupational safety procedures are followed carefully	1:3.71 2:4.27	1:72.38 2:102.27	.012
H ₉₋₁₅ : There is ample opportunity to address and discuss occupational safety issues at meetings.	1:3.61 2:4.13	1:71.71 2:102.80	.012
H ₉₋₁₆ : There is open communication about occupational safety issues at the marina.	1:3.71 2:4.19	1:76.31 2:102.75	.032
H ₉₋₁₇ : Marina employees are regularly consulted on workplace health and safety issues.	1:3.52 2:4.00	1:75.19 2:102.38	.027

*1: Yes; 2: No

According to result of sub-hypothesis of H₉₋₁₁” safety procedures are followed carefully” respondents who have not lifetime occupational accident experience significantly have higher mean and mean rank than respondents who have lifetime occupational accident experience. It is considered that respondents without occupational accident experience have higher awareness regarding following safety procedures. For sub-hypothesis of H₉₋₁₅ “opportunity to address and discuss occupational safety issues at meetings”, H₉₋₁₆ ” open communication about occupational safety issues at the marina” and H₉₋₁₇ “employees are regularly consulted on workplace health and safety issues” respondents without lifetime occupational accident experience significantly have higher mean and mean rank than respondents with lifetime occupational accident experience. It is considered that respondents without occupational accident experience have higher awareness regarding safety communication.

H₁₀: Safety culture awareness level of the employees does differ according to company occupational accident experience.

Table 20 shows the supported sub-hypothesis results derived from H₁₀ hypothesis considering the safety culture awareness variables differentiation according to company occupational accident experience.

Table 20: Analysis of Sub-hypothesis According to Company Accident Experience

Hypothesis	*Mean	*Mean Rank	Sig.(p)
H10-39: Reporting of accidents / incidents is important in working safely in our organization	1:4.10 2:4.42	1:69.15 2:101.11	.048
H10-43: I use appropriate occupational safety procedures when doing my job	1:4.00 2:4.39	1:65.71 2:101.31	.027
H10-45: I encourage occupational safety programs within the workplace.	1:3.80 2:4.24	1:66.40 2:101.26	.038

*1: Yes; 2: No

According to the result of sub-hypothesis of H10-39 “reporting of accidents / incidents is important in working safely”, respondents who have not occupational accident experience in current company significantly have higher mean and mean rank than respondents who have occupational accident experience. It is considered that respondents without occupational accident experience have higher awareness regarding accident reporting. For sub-hypothesis H10-43 “use of appropriate occupational safety procedures when doing job” respondents who have not occupational accident experience in current company significantly have higher mean and mean rank than respondents who have occupational accident experience. It is argued that respondents without occupational accident experience have higher awareness regarding occupational safety procedures compliance. For sub-hypothesis H10-45 “encourage occupational safety programs within the workplace” respondents who have not company occupational accident experience significantly have higher mean and mean rank than respondents who has company occupational accident experience. It could be said that respondents without occupational accident experience have higher awareness in terms of encouraging occupational safety.

H₁₁: Safety culture awareness level of the employees does differ according to near miss experience.

Table 21 shows the supported sub-hypothesis results derived from H₁₁ hypothesis considering the safety culture awareness variables’ differentiation according to near miss experience.

Table 21: Analysis of Sub-hypothesis According to Near miss Experience

Hypothesis	*Mean	*Mean Rank	Sig.(p)
H11-7: Marina managers regularly visit workplaces to check work conditions or talk to employees.	1:3.46 2:4.21	1:54.62 2:102.65	.002
H11-15: There is ample opportunity to address and discuss occupational safety issues at meetings.	1:3.46 2:4.12	1:67.21 2:101.61	.025
H11-20: “Marina employees attend comprehensive training in health and safety at work.	1:3.69 2:4.27	1:66.77 2:101.26	.021
H11-21: “Marina employees have access to health and education programs in the workplace	1:3.46 2:4.11	1:63.57 2:103.69	.011
H11-30: “Marina employees make written recommendations in case of working condition deficiencies.	1:3.07 2:3.70	1:68.04 2:101.06	.032
H11-42: “I use all my necessary occupational safety equipment during my work.	1:3.84 2:4.34	1:67.77 2:101.77	.018

*1: Yes; 2: No

According to the result of sub-hypothesis of H11-7 “managers regularly visit workplaces to check work conditions or talk to employees” respondents who have not near miss experience significantly have higher mean and mean rank than respondents who have near miss experience. It can be argued that respondents without near miss experience exhibit higher management commitment. For sub-hypothesis H11-15 “opportunity to discuss occupational safety issues at meetings” and H11-20 “employee’s attendance comprehensive training in health and safety at work” respondents who have not near miss experience significantly have higher mean and mean rank than respondents who have near miss experience. It can be discussed that respondents without near miss experience exhibit higher communication regarding safety issues. For sub-hypothesis H11-21 “having access to health and education programs in the workplace” and H11-30 “making written recommendations in case of working condition deficiencies” respondents who have not near miss experience significantly have higher mean and mean rank than respondents who have near miss experience. It is considered that respondents without near miss experience exhibit higher involvement safety intervention. For sub-hypothesis H11-42 “use of all necessary occupational safety equipment during work”, respondents who have not near miss experience significantly have higher mean and mean rank than respondents who have near miss experience. It is argued that respondents without near miss experience are more reluctant to use safety equipment during work.

Table 22 shows the safety culture awareness differentiation according to marina employees' demographics and whether the research hypotheses supported on behalf of analysis.

Table 22: Hypothesis Results

Hypothesis	Significance Value(p)	Result
H ₁ : Safety culture awareness level of the employees does differ according to the gender.	,601	Not Supported
H ₂ : Safety culture awareness level of the employees does differ according to the age group.	,045	Supported
H ₃ : Safety culture awareness level of the employees does differ according to education status.	,091	Not Supported
H ₄ : Safety culture awareness level of the employees does differ according to year of experience in the company.	,792	Not Supported
H ₅ : Safety culture awareness level of the employees does differ according to marital status.	,050	Not Supported
H ₆ : Safety culture awareness level of the employees does differ according to total work experience.	,180	Not Supported
H ₇ : Safety culture awareness level of the employees does differ according to work status.	,378	Not Supported
H ₈ : Safety culture awareness level of the employees does differ according to department.	,105	Not Supported
H ₉ : Safety culture awareness level of the employees does differ according to lifetime occupational accident.	,598	Not Supported
H ₁₀ : Safety culture awareness level of the employees does differ according to current company occupational accident.	,663	Not Supported
H ₁₁ : Safety culture awareness level of the employees does differ according to near miss experience.	,053	Not Supported

Results demonstrate that safety culture awareness of marina employees does differ according to age groups. Older age groups have significantly higher safety culture awareness than younger age groups. It is considered to be caused by having more work experience of older age groups make them more aware regarding safety culture. Furthermore, results of the research show that safety culture awareness of marina employees do not differ in accordance with gender, marital status, education,

work experience, department, work status, occupational accident experience and near miss experience.

3.4.3. Factor Analysis

Exploratory factor analysis is applied for the purpose of research. Firstly, in order to test factor model suitability regarding research data, Bartlett's Sphericity test is conducted. KMO value could be used to check whether scale items are suitable for factor analysis regarding sample size. Bartlett's Sphericity test value is assumed to have smaller than 0,05 in order to conduct factor analysis for data suitability and KMO value is assumed to have bigger than 0,5 in order to conduct factor analysis for sample size adequacy (Nakip, 2003).

As a result of test shown in Table 23, Bartlett's Sphericity test value is found smaller than 0,05 ($p:0,000$). Considering Bartlett's test results, research data are assumed to have significant value in order to conduct factor analysis. As a result of KMO test shown in Table 23, KMO value is found 0,890. Considering KMO test result, safety culture awareness variables are found proper for factor analysis regarding sample size.

Table 23: KMO and Bartlett's Test Results

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.	.890
Approx. Chi-Square	6193.752
Bartlett's Test of Sphericity df	1081
Sig.	.000

As a result of KMO test and Bartlett's Sphericity test, safety culture variables are found proper for factor analysis. Factor numbers are not limited and 10 factor determined on behalf of factor analysis. Items whose factor loading higher than 0,4 are taking into consideration while conducting analysis. Total 47 variables are included to factor analysis and no variables excluded from analysis. It is considered that all variables could be used on factor analysis. Table 24 shows the factors and statements' factor loadings belongs to each factor.

Table 24: Factor Analysis of Safety Culture Awareness Variables

Factor Groupings	Alpha	Mean*	Sd	Factor Loadings									
General Reliability	0,869			1	2	3	4	5	6	7	8	9	10
1. Management Commitment	0,891												
Q1-employees involvement to safety		4.56	0.61	,659									
Q2-marina safety training of the employee		4.45	0.56	,779									
Q3-communication within the organization		4.38	0.62	,724									
Q4-monitoring activities for improving safety		4.42	0.55	,758									
Q5-managers responsibility for safety		4.38	0.65	,773									
Q6- managers pioneer occupational safety		4.28	0.72	,676									
Q7-managers' regular safety visit		4.17	0.74	,573									
Q8-managers' discussion of safety		4.25	0.71	,622									
2. Safety Priority	0,812												
Q9-safety of employee have importance		4.37	0.73		,570								
Q11-occupational safety procedure		4.21	0.77		,500								
Q12-safety equivalent with production		4.06	0.76		,401								
Q18-safety priority in training		4.17	0.76		,516								
Q19-safety training situations		4.24	0.62		,548								
Q40-willing to report near miss		3,94	0,87		,536								
3. Safety Communication	0,874												
Q13-intense communication about safety		4.01	0.81			,497							
Q14-negotiation of safety related topics		4.17	0.81			,569							
Q15-opportunity to discuss safety at meetings		4.08	0.86			,740							
Q16-open communication about safety		4.14	0.82			,690							
Q17- employees are consulted on safety		4.13	0.83			,670							
Q20-employees attendance of safety		4.23	0.77			,517							
4. Safety Competency	0,806												
Q22-responsibility of safety at work		4.46	0.61				,672						
Q23-understanding the rules of safety		4.52	0.59				,680						
Q24-dealing with workplace safety		4.37	0.57				,551						
Q25-complying with occupational safety		4.41	0.65				,703						

5.Employee Involvement	0,862												
Q21-access to training program		4.07	0.79					,613					
Q27-involvement in guideline preparations		3.94	0.97					,762					
Q28-active participation to safety plans		4.02	0.80					,739					
Q29-complying with safety regulation		4.22	0.76					,665					
Q30-making written safety recommendation		3.66	0.99					,743					
6.Fatalism	0,853												
Q10-safety issues		2.03	1.10					,433					
Q31-few things to avoid accident		2.51	1.34					,777					
Q32-accident is matter of luck		2.27	1.22					,764					
Q33-accidents unavoidable		2.47	1.31					,795					
Q34-impossibility of accident		2.10	1.06					,853					
Q35-use of equipment for accident		2.33	1.36					741					
Q36-prevention of accidents		2.47	1,18					,660					
7.Report Culture	0,792												
Q37-always report accident		4.33	0.74						,731				
Q38-encourage to report		4.22	0.87						,769				
Q39-reporting importance		4.40	0.57						,682				
Q41-willing to report accident		4.13	0.77						,641				
8.Safety Compliance	0,882												
Q42-use of safety equipment		4.31	0.66							,625			
Q43-use of safety procedure		4.37	0.59							,520			
9.Safety Volunteerism	0,820												
Q44-highest level of safety		4.27	0.64								,460		
Q45-occupational safety program		4.22	0.68								,610		
Q46-additional effort to improve safety		4.26	0.66								,832		
Q47-voluntarily carry out safety tasks		4.20	0.79								,722		
10.Safety Importance													
Q26-safety is most important thing		4.55	0.64									,731	

There are ten factors determined as seen in Table 24. Factors are listed below:

1. **Management Commitment:** This factor expresses how managements are committed to safety regarding marina occupations. Factor consists of 8 statements (from Q1 to Q8 items). Each question consists of 5 Likert type scale and 1 express strongly disagree and 5 express strongly agree. Higher points indicate more positive attitudes to safety culture related with management commitment. Cronbach's alfa value of management commitment factor is 0,891. Management commitment factor has the highest reliability value among other safety culture factors. Statement (Q2) "marina safety training of the employee" has the highest factor loading value (0,779). Statement (Q8) "managers' discussion of safety" has the lowest factor loading value (0,622).
2. **Safety Priority:** This factor consists of 6 statements design to evaluate how employees perceive the priority of occupational safety (Q9, Q11, Q12, Q18, Q19, Q40 items). Each question consists of 5 Likert type scale and 1 express strongly disagree and 5 express strongly agree. Higher points indicate more positive attitudes to safety culture related with safety priority. Cronbach's alfa value of safety priority factor is 0,812. Safety priority factor has the high reliability value. Statement (Q19) "safety training situations" has the highest factor loading value (0,548). Statement (Q12) "safety equivalent with production" has the lowest factor loading value (0,401).
3. **Safety Communication:** This factor consists of 6 statements design to evaluate employee's perceptions about safety related communication between employee and management (Q13, Q14, Q15, Q16, Q17, Q20 items). Each question consists of 5 Likert type scale and 1 express strongly disagree and 5 express strongly agree. Higher points indicate more positive attitudes to safety culture related with safety communication. Cronbach's alfa value of safety communication factor is 0,874. Safety communication factor has the high reliability value. Statement (Q15) "opportunity to discuss safety at meetings" has the

highest factor loading value (0,740). Statement (Q13) “intense communication about safety” has the lowest factor loading value (0,497).

4. **Safety Competency:** This factor consists of 4 statements design to assess employee’s competency and awareness about safety issues (Q22, Q23, Q24, Q25 items). Each question consists of 5 Likert type scale and 1 express strongly disagree and 5 express strongly agree. Higher points indicate more positive attitudes to safety culture related with safety competency. Cronbach’s alfa value of safety competency factor is 0,806. Safety competency factor has the high reliability value. Statement (Q25) “complying with occupational safety” has the highest factor loading value (0,703). Statement (Q24) “dealing with workplace safety” has the lowest factor loading value (0,551).
5. **Employee Involvement:** This factor consists of 5 statements design to measure employee’s participation to safety procedures and their involvement in improving safety related occupational conditions (Q21, Q27, Q28, Q29, Q30 items). Each question consists of 5 Likert type scale and 1 express strongly disagree and 5 express strongly agree. Higher points indicate more positive attitudes to safety culture related with employee involvement. Cronbach’s alfa value of employee involvement factor is 0,862. Employee involvement factor has the high reliability value. Statement (Q27) “involvement in guideline preparations” has the highest factor loading value (0,762). Statement (Q21) “access to training program” has the lowest factor loading value (0,613).
6. **Fatalism:** This factor consists of 7 statements design to assess employee’s fatalistic beliefs related to occupational accidents (Q10, Q31, Q32, Q33, Q34, Q35, Q36 items). Each question consists of 5 Likert type scale and 1 express strongly disagree and 5 express strongly agree. Lower points indicate more positive attitudes to safety culture related with safety fatalism. Cronbach’s alfa value of fatalism factor is 0,853. Fatalism factor has the high reliability value. Statement (Q34) “impossibility of accident”

has the highest factor loading value (0,853). Statement (Q10) “safety issues” has the lowest factor loading value (0,433).

7. **Report Culture:** This factor consists of 4 statements design to measure reporting attitudes of near misses and unsafe behaviors in work related incidents (Q37, Q38, Q39, Q41 items). Each question consists of 5 Likert type scale and 1 express strongly disagree and 5 express strongly agree. Higher points indicate more positive attitudes to safety culture related with safety reporting. Cronbach’s alfa value of report culture factor is 0,792. Report culture factor has high reliability value. Statement (Q38) “encourage to report” has the highest factor loading value (0,769). Statement (Q41) “willing to report accident” has the lowest factor loading value (0,641).
8. **Safety Compliance:** This factor consists of 2 statements design to measure employee’s compliance with safety procedures (Q42, Q43 items). Each question consists of 5 Likert type scale and 1 express strongly disagree and 5 express strongly agree. Higher points indicate more positive attitudes to safety culture related with safety compliance. Cronbach’s alfa value of safety compliance factor is 0,882. Safety compliance factor has high reliability value. Statement (Q42) “use of safety equipment” has the highest factor loading value (0,625). Statement (Q43) “use of safety procedures” has the lowest factor loading value (0,520).
9. **Safety Volunteerism:** This factor consists of 4 statements design to measure employee’s volunteerism to safety related activities and programs (Q44, Q45, Q46, Q47 items). Each question consists of 5 Likert type scale and 1 express strongly disagree and 5 express strongly agree. Higher points indicate more positive attitudes to safety culture related with safety volunteerism. Cronbach’s alfa value of safety volunteerism factor is 0,820. Safety volunteerism factor has high reliability value. Statement (Q46) “additional effort to improve safety” has the highest

factor loading value (0,832). Statement (Q44) “highest level of safety” has the lowest factor loading value (0,460).

10. **Safety Importance:** This factor consists of a statement that evaluates employee’s perception about safety importance attributes provided by the management to employees (Q26 item). Question consists of 5 Likert type scale and 1 express strongly disagree and 5 express strongly agree. Higher points indicate more positive attitudes to safety culture related with safety importance.

3.4.4. Comparison of Marinas

Marina employees’ safety culture awareness and marina attributes to be compared with regards to information reached from open sources of related marinas. Table 26 shows the marina comparison results regarding their various attributes and mean scores of safety culture awareness factors for each marina.

Table 25: Marina Comparisons

	A	B	C	D	E	F
5 Anchor Approval	X	--	--	--	--	X
Total Employee Number	49	41	21	12	29	70
Chain Marina Ownership	--	--	--	X	X	X
Mean Scores						
Management Commitment	4.54	4.55	4.39	4.32	4.37	4.11
Safety Priority	4.32	4.19	4.28	4.10	4.18	4.03
Safety Communication	4.35	4.21	4.21	4.22	4.07	3.80
Safety Competency	4.62	4.48	4.46	4.31	4.28	4.38
Employee Involvement	4.22	3.95	4.10	3.96	3.96	3.82
Report Culture	4.36	4.25	4.51	4.21	4.05	4.26
Safety Compliance	4.57	4.42	4.32	4.41	4.15	4.22
Safety Volunteerism	4.41	4.20	4.26	4.33	4.06	4.19
Safety Importance	4.64	4.63	4.58	4.41	4.30	4.55
Total Safety Culture	4.41	4.28	4.31	4.22	4.16	4.07
Fatalism Score	2.22	2.37	2.56	1.73	2.08	2.50

Marina attributes include having 5 anchor approval given by tourism authorities regarding tourism legislations, total employee number that have direct

work contract with marina management and chain marina ownership which couple of marinas managed under a company or a group.

Marina A does have 5 anchor approval, 49 employees and does not have chain marina ownership. Marina B does have 41 employees and does not have 5 anchor approval and chain marina ownership. Marina C does have 21 employees and does not have 5 anchor approval and chain marina ownership. Marina D does have 12 employees and chain marina ownership, does not have 5 anchor approval. Marina E does have 29 employees and chain marina ownership, does not have 5 anchor approval. Marina F does have 70 employees, chain marina ownership and 5 anchor approval.

Marina A has the highest total safety culture mean scores. Marina A has the highest safety culture mean scores on safety culture factors of safety priority, safety communication, safety competency, safety involvement, report culture, safety compliance, safety volunteerism and safety importance among marinas participated to the research. Marina B has the highest safety culture mean scores on management commitment factor among marinas participated to the research. Table 26 shows the total safety culture mean score comparison of the 6 marinas on behalf of safety culture factors except fatalism factor. Fatalism is assumed to have lower mean score on marinas which have high employee safety culture awareness level. Marina D has the highest safety culture awareness regarding fatalism factor.

3.5. DISCUSSION OF FINDINGS

Research indicates that safety culture awareness level of the employees does differ in accordance with age groups. Older age group's safety culture awareness exceeds those of other groups. One of the potential causes for such difference is having more work experience. Having more work experience helps realizing the importance of occupational safety. Realizing the importance of occupational safety is one of the basic requirements for having high safety culture awareness. Considered that older age group employee expose to higher level of occupational accident, this experience increases the safety culture awareness of employees. By increasing safety culture awareness level, this would decrease the likelihood of occupational accidents.

Because of their further occupational and life responsibilities, older age group employees have higher safety culture awareness than younger groups. In other words older age group employees better acknowledge the side effects of occupational accidents than younger age groups. This result is parallel with the study of Ocaktan (2009) which applied automotive production factory workers and Hovald (2010) which applied to ship crews. Both researchers found that safety culture differs in accordance with age. According to their studies older age groups have higher safety culture awareness. However research on ship crew conducted by Uzunköprü (2016) and research on maritime and aviation employees conducted by Altınpınar and Başar (2018) found that there is no safety culture awareness differentiation in accordance with age groups.

It was assumed that education and safety culture awareness of marina employees would be positively correlated. Study demonstrates that safety culture awareness level of the employees does not differ in accordance with educational level. However, difference in education level does not lead to meaningful results. That said, the employees who have bachelor's and associate's degrees exhibit distinct levels of management commitment, fatalism and safety compliance compared to other education groups. Put differently, college graduates stand out in these three safety culture factors in the all groups. This result is parallel with the study of Uzunköprü (2016) which applied to the ship crew carrying dangerous cargoes. However result is found contrary with the research on textile factory workers conducted by Demirbilek (2005) and research on production industry workers conducted by Dursun (2011). Researchers found that safety culture awareness differ in accordance with educational level. Researchers indicate that safety culture awareness of respondents and their educations are correlated positively.

It was considered that safety culture awareness of marina employees have positively correlated with near miss experience and occupational accident experience. Pre-assumption before analyzing data was having occupational accident experience has positive effect on safety culture awareness of marina employees. However, these assumptions are not supported by hypothesis tests. Research indicates that safety culture awareness level of the employees does not differ

according to occupational accident experience and near miss experience. However study of Dursun (2009) which applied production industry workers and study of Uzunköprü (2016) which applied in ship's crew carrying dangerous cargoes found that safety culture awareness differs with occupational accident experience and near miss experience.

Research indicates that safety culture awareness level of the employees does not differ according to work status and department. This result is parallel with the study of Diaz and Cabrera (1997) which applied in metal industry workers and Uzunköprü (2016) which applied in ship's crew carrying dangerous cargoes. Both researchers also could not find correlation between safety culture awareness and work status and department. However study of Dursun (2009) which applied production industry workers and research on metal factory workers conducted by Uslu (2014) found that safety culture awareness differs with work status. Study of Arslan et al (2016) which applied to maritime sector employee found that safety culture awareness differs with department.

Comparison of marinas demonstrates that having 5 anchor approval does not provide enough contribution in order to get high safety culture awareness level contrary to general assumption. Although the marinas have been inspected by the authorities in terms of their management, environmental protection, safety precautions in order to get 5 anchor approval, their safety culture awareness levels proved to be lower than the marinas without 5 anchor approval. The highest level of difference is between the safety culture awareness scores of two marinas which have 5 anchor approval. The 5 anchor approval does not have a positive impact on the safety culture awareness of marina employees. Such marinas need to take necessary measures in order to improve safety culture awareness of marina employees.

Chain marina ownership also does not provide enough contribution in order to get high safety culture awareness scores. Marinas that belongs to chain marina managements are normally assumed to have high safety culture awareness level. However results of this research indicate that marinas with individual ownership management have higher safety culture awareness level than chain marina managements. The potential reasons of high safety culture awareness scores individual marina ownership are three-fold: 1) well defined responsibilities and

authorizations, 2) centralized management style and 3) swift decision making process.

Safety culture mean score does not differentiate according to total employee number of marinas. According to the occupational safety legislation, the marinas that employ fifty and more personnel must have additional requirements and measures concerning the occupational safety in marinas. These requirements include establishing monthly safety board within the marina management and employing an occupational safety expert. However these safety requirements are considered not to have positive impact on safety culture awareness scores on marinas.

Factor analysis of research indicates that factors determined for safety culture variables have similarities with other studies. Dursun (2011) found 11 safety culture factors of which management attitude, management behavior, safety priority, safety communication, safety training, safety awareness and competence, involvement of employee, reporting culture, fatalism, safety compliance and safety involvement. Factor quantity difference is considered due to management commitment factor. Dursun (2011) evaluates management commitment as two factors of which management attitude and management behavior. Detailed factor loadings of each statement are not included to study of Dursun (2011). According to the study of Uslu (2014), there are 8 safety culture factors of which management commitment, safety priority, safety communication, safety training, safety awareness and competence, safety involvement of employee, reporting culture and fatalism. Factor quantity differences are assumed to cause by sample size and the respondents working sector.

CONCLUSION AND RECOMMENDATIONS

Consequences of an accident could be harmful to environment, property and employees that worsen marina image and cause economic losses. Accidents do not only have direct costs such as lost time injury but also have indirect effects which are not generally taking into account and their consequences are much more harmful to organizations than direct costs. Accidents occur at 80% due to human factor, safety culture could be assumed as the most important behavioral change method and proactive approach to safety. Safety culture could decrease occupational risks before they could cause harmful accidents. Integration of safety into all organizational level and penetration of all activities and assignment are crucial for safe working environment. The best way to provide safe working environment is to develop safety culture on marina organizations.

Marina managements are required to provide safety throughout their occupational processes in marina. Marinas have occupational areas both shore and sea. This attribute increase the responsibilities of marina management regarding safety regulation. However safety alone supplied by marina management is not enough for marina safety. Because recreational boats are mooring the piers very close sometimes with distance of just one fender so boat owners and crews are also responsible for marina safety. In emergency situations like fire it is very easy to spread one boat to another. Any neglect of marina employees or boat crew could cause serious incidents which could cause lots of dangers in marina. Marina management to determine safety rules and regulations clearly and all marina users to be followed these rules for their safety.

Recreational boats are considered by their owners as both their house and their transportation vessel at sea and most of times their most important property even they spend limited time on board. Due to given special attention to their boats, boat owners demand utmost care from marina management and employees by means of several factors such as safety, environmental protection and customer satisfaction. Boat owners do not want to worry about their boats when they left them in marinas as they are leisure boats. Furthermore marina management has to persuade the yacht owners that their boats in safe condition and all necessary precautions related to their

boats are being taken in every stage of marina operations. Safety is one of the most important responsibilities that marina employees have to provide to customers and their boats.

The most important academic contribution of this study to the management discipline is to define the concept of safety culture. According to the findings safety culture could be assumed as the combination of several factors (safety involvement, commitment to safety on various stages, safety communication etc.) related to safety to prevent behavioral based and organizational based occupational accidents to reach zero incident rate target in an organization. Safety should be considered by employees as a lifestyle rather than just compulsory documentation that has to be complied with. Unless safety is considered by marina employees as a culture, precautions would not be taken before occupational accidents happen. It is important to take necessary actions for occupational risks before accidents occur.

The most cited safety culture indicator is management commitment. First and the most important aspect of safety culture in an organization is visible commitment of management. Unless top managers realize that safety is important value that company have, employees do not accept safety as a culture. Without visible commitment by upper management, employees are not reluctant to involve safety decision that affects their work. Employees that involve safety decisions are more reluctant to comply with occupational safety procedures of marina. At the same time employees do not want to report any missing parts of occupational safety. It is crucial to determine safety culture level of marina employees and detect the weak aspect of safety. Accident investigations reveals that majority of accidents are caused by human factors. Considering that the number of accidents will decrease in the marinas which have high safety culture awareness. Marina managements should determine the safety culture awareness level of their employees and they should take necessary actions to increase the safety culture awareness level. After determination of safety culture awareness of employees, marina managements should focus on weak part of safety to enhance the safety culture awareness.

Safety culture dimensions differentiate among the sectors that safety culture research applied. However some dimensions have common attributes at all organizations such as management commitment, safety communication. Safety

culture should be handled by various dimensions such as communication related safety, safety priority given by management to safety issues.

This research is considered to provide essential contribution to marina sector on safety. The lack of studies to measure safety culture awareness of marina employees is the source of motivation for the research. Marinas which have knowledge about safety culture awareness of their employees, have the essential advantage about safety. Marina management could be evaluated as an interdisciplinary work area that requires special knowledge and experience in technical and managerial point of view. Considering this special condition, marina management should focus on employees' safety culture in order to decrease occupational accidents.

Research sample could be increased for further studies due to sample restriction. Questionnaire could be applied to all marina employees in Turkey in order to get more reliable test results. Having increased respondents number allows comparing marinas on regional scope. Marina comparisons could be done with regards to different attributes in order to explain which attributes of marinas have effect on safety culture scores. Research could also be conducted to all marina stakeholders such as yachters and customers using marina. Furthermore data collection process also could be changed for further researches such as focus group studies and in depth interview. Research could be supported by qualitative analysis.

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APPENDIX

Appendix 1: Emniyet Kültürü Farkındalık Anket Formu

Bu anket, çalışmakta olduğunuz marinadaki emniyet kültürü farkındalık düzeyini ölçmeye yöneliktir. Ankete katılımınız ve vereceğiniz yanıtlar çalışmamız için çok değerlidir. Lütfen soruları çalıştığınız marinayı göz önünde bulundurarak cevaplandırınız. Elde edilecek sonuçlar tamamen bilimsel bir araştırma için kullanılacaktır. Ankete isminizi yazmayınız. Anket formunu doldururken göstereceğiniz ilgi ve katkılarınız için teşekkür ederiz. Doç.Dr. Çimen Karataş Çetin Mehmet Bakışkan Cep tel: 0555 553 85 62 E-mail :mehmetbakiskann@gmail.com		Kesinlikle Katılmıyorum	Katılmıyorum	Kararsızım	Katılıyorum	Kesinlikle Katılıyorum
1	Marina yöneticileri iş kazaları oranını azaltmada, çalışanların katılımını, bağlılığını ve iştiraklerini sağlık ve iş güvenliği faaliyetlerinin temeli olarak görmektedirler.					
2	Marina yöneticileri çalışanların eğitimini güvenli bir iş yerini başarmada esas olarak görmektedirler.					
3	Marina yöneticileri, örgüt içi iletişimi, iş güvenliği politikasını anlamada ve uygulamada esas olarak görmektedirler.					
4	Marina yöneticileri, iş güvenliği faaliyetlerini geliştirmek ve devam ettirmek için, faaliyetlerin izlenmesini temel olarak görmektedirler.					
5	Marina yöneticileri, kalite ve verimlilik konularında olduğu kadar sağlık ve iş güvenliği konularında da sorumluluk almaktadırlar.					
6	Marina yöneticileri aktif ve görünür olarak iş güvenliği konularında öncülük etmektedirler.					
7	Marina yöneticileri, düzenli olarak iş koşullarını kontrol etmek ya da çalışanlarla konuşmak için iş yerlerini ziyaret etmektedirler.					
8	Marina yöneticileri, iş güvenliği konularını görüşmek için çalışanlarla ve müdürlerle toplantılar düzenlemeyi teşvik etmektedirler.					
9	Marina yönetimi, çalışanların güvenliğinin büyük bir önemi olduğunu düşünmektedir.					
10	İş güvenliği meselelerine yüksek bir öncelik <u>verilmediğine</u> inanıyorum.					
11	İş güvenliği prosedürleri dikkatli bir şekilde takip edilmektedir.					
12	Marina yönetimi, iş güvenliğinin üretimle eş bir öneme sahip olduğunu düşünmektedir.					
13	Marinada iş güvenliği konuları hakkında yoğun bir iletişim					

	vardır.					
14	Marina çalışanları ilgilendikleri iş güvenliği konuları hakkında üst yönetimle müzakere edebilir (tartışabilir).					
15	Toplantılarda iş güvenliği konularına değinmek ve tartışmak için yeterince fırsat vardır.					
16	Marinada iş güvenliği konuları hakkında açık bir iletişim vardır.					
17	Marina çalışanları düzenli olarak işyeri sağlık ve güvenlik konuları hakkında fikri alınır.					
18	Eğitim programlarında iş güvenliği konularına yüksek bir öncelik verilir.					
19	İşyeri sağlık ve güvenlik eğitimi çalışanların işlerinde karşılaştıkları çeşitli durumları kapsar.					
20	Marina çalışanları işyerinde sağlık ve güvenlik konularında kapsamlı eğitim alır.					
21	Marina çalışanları işyerinde sağlık ve eğitim programlarına yeterince ulaşabilir.					
22	İşyerimde iş güvenliği konusunda sorumluluklarımın ne olduğunu biliyorum.					
23	İşimin gerektirdiği iş güvenliği kurallarını anlıyorum.					
24	İşyerimdeki iş güvenliği sorunlarıyla baş edebiliyorum.					
25	İş güvenliği kurallarına her zaman uyuyorum.					
26	Çalışırken iş güvenliği en önemli şey olduğunu düşünüyorum.					
27	Çalışanlar talimatnameler ve prosedürler için yönetmeliğin hazırlanmasına katılmaktadırlar.					
28	Marina çalışanları iş güvenliği planının düzenlenmesine, uygulanmasına ve takip edilmesine aktif olarak katılım sağlıyorlar.					
29	Marina çalışanları iş güvenliği yönetmeliklerine uymaktadırlar					
30	Marina çalışanları çalışma koşullarında noksanlıklar olduğunda yazılı önerilerde bulunuyorlar.					
31	Kazalar aniden olur ve önlemek için yapabilecek çok az şey vardır.					
32	Çalışırken başınıza ne geleceği büyük ölçüde şans meselesidir.					
33	Kazalar kaçınılmazdır.					
34	Bir kazadan kaçınmanız imkansızdır.					

35	Makinelerin ve teknik ekipmanların kullanımı kazaları kaçınılmaz kılar.					
36	Şirketin çabalarına rağmen kazaların önlenmesi kaçınılmaz görünüyor.					
37	Biz, şirketimizde her zaman kazaları ve olayları bildiriyoruz.					
38	Emniyetsiz koşulları bildirmeye teşvik ediliyorum.					
39	Kazaların/olayların bildirilmesi organizasyonumuzda güvenli çalışmada önemlidir.					
40	Çalışanlar kıl payı atlatılan kazaları (ramak kala kazaları) bildirmeye istekliler.					
41	Çalışanlar kazaları bildirmeye istekliler.					
42	İşimi yaptığım esnada bütün gerekli iş güvenliği ekipmanlarımı kullanırım.					
43	İşimi yaparken uygun iş güvenliği prosedürlerini kullanırım.					
44	İşimi yaptığım esnada en yüksek iş güvenliği seviyelerini sağlarım.					
45	İşyeri içinde iş güvenliği programlarını teşvik ederim.					
46	İşyeri iş güvenliğinin iyileştirilmesi için fazladan çaba harcarım.					
47	İşyeri iş güvenliğinin iyileştirilmesine yardım edecek görev ve aktiviteleri gönüllü olarak yaparım					

PROFİL BİLGİLERİ

1.Cinsiyetiniz:

☐ Kadın ☐ Erkek

2.Yaşınız

☐ 0-26 ☐ 26-35 ☐ 36-45 ☐ 46-55 ☐ 56 ve üstü

3. Eğitim Durumunuz

☐ İlk ve Ortaokul ☐ Lise ☐ Yüksekokul ☐ Fakülte

4. Bu kurumda çalışma süreniz

☐ 0-2 yıl ☐ 2-5 yıl ☐ 5-10 yıl ☐ 10 yıldan fazla

5. Medeni durumunuz

☐ Evli ☐ Bekar

6. Şu anda çalışmakta olduğunuz işteki toplam tecrübeniz

☐ 0-2 yıl ☐ 2-5 yıl ☐ 5-10 yıl ☐ 10 yıldan fazla

7.İşteki konumunuz

☐ Yönetici ☐ Çalışan

8. Marinada çalıştığınız birim (departmanınız).....

9.Çalışma hayatınız boyunca daha önce hiç iş kazasına uğradınız mı?

☐ Evet ☐ Hayır

10. Bu işyerinde daha önce hiç iş kazasına uğradınız mı?

☐ Evet ☐ Hayır

11. Bu işyerinde daha önce hiçbir iş kazasından son anda kurtulduğunuz oldu mu?

☐ Evet ☐ Hayır

Appendix 2: Safety Culture Awareness Questionnaire Form

This survey is intended to measure the level of safety culture awareness of marina employee. Your participation in the survey and your answers are very valuable for our study. Please answer questions considering the marina that you are working. The results will be used for scientific research. Please do not write your names on questionnaire form. Thank you for your interest and contribution in completing the questionnaire. Doç.Dr. Çimen Karataş Çetin Mehmet Bakışkan Cep tel: 0555 553 85 62 Email: mehmetbakiskann@gmail.com		Strongly Disagree	Agree	Neither Agree nor Disagree	Disagree	Strongly Agree
1	Marina managers consider employees involvement as the foundation of health and safety activities in reducing the rate of occupational accidents					
2	The management of the marina consider the training of the employees as a basis for achieving a safe workplace					
3	Marina managers consider communication within the organization as essential in understanding and implementing the occupational safety policy.					
4	Marina managers consider the monitoring of the activities as the basis for improving and maintaining the occupational safety activities					
5	Marina managers take responsibility for health and safety issues as well as quality and efficiency.					
6	Marina managers actively and visually pioneer occupational safety issues.					
7	Marina managers regularly visit workplaces to check work conditions or talk to employees.					
8	Marina managers encourage meetings with employees and managers to discuss occupational safety issues.					
9	The management of the marina believes that the safety of the employees have great importance.					
10	I believe that occupational safety issues are not given high priority.					
11	Occupational safety procedures are followed carefully					
12	Marina management believes that occupational safety has equivalent importance with production					

13	There is intense communication about occupational safety issues at the marina.					
14	Marina employees may negotiate safety related topics that they have interests with upper management.					
15	There is ample opportunity to address and discuss occupational safety issues at meetings.					
16	There is open communication about occupational safety issues at the marina.					
17	Marina employees are regularly consulted on workplace health and safety issues.					
18	Occupational safety issues are given a high priority in training programs.					
19	Workplace health and safety training covers various situations that employees face in their work.					
20	Marina employees attend comprehensive training in health and safety at work.					
21	Marina employees have access to health and training programs in the workplace					
22	I know what my responsibilities are for work safety at work					
23	I understand the rules of occupational safety that my work requires					
24	I can deal with workplace safety issues at work.					
25	I always comply with occupational safety rules.					
26	I think occupational safety is the most important thing while working.					
27	Employees are involved in the preparation of guidelines for instructions and procedures.					
28	Marina employees actively participate in the preparation, implementation and monitoring of the occupational safety plan					
29	Marina employees comply with occupational safety regulations					
30	Marina employees make written recommendations in case of working condition deficiencies.					
31	Accidents happen suddenly and there are very few things you can do to avoid them.					
32	What will happen to you while working is largely a matter of luck.					
33	Accidents are unavoidable.					
34	It is impossible to avoid an accident.					

35	The use of machinery and technical equipment makes accidents unavoidable					
36	Despite the company's efforts, the prevention of accidents seems inevitable.					
37	We always report accidents and incidents in our company.					
38	I encourage to report unsafe conditions.					
39	Reporting of accidents / incidents is important in working safely in our organization					
40	Employees are willing to report near-misses.					
41	Employees are willing to report accidents					
42	I use all my necessary occupational safety equipment during my work.					
43	I use appropriate occupational safety procedures when doing my job					
44	I ensure the highest levels of occupational safety during my work.					
45	I encourage occupational safety programs within the workplace.					
46	I spend additional effort to improve occupational safety.					
47	I voluntarily carry out tasks and activities to help improve workplace safety					

PROFILE QUESTIONS

1. Gender:

☐ Female ☐ Male

2. Age

☐ 0-26 ☐ 26-35 ☐ 36-45 ☐ 46-55 ☐ 56+

3. Educational Status

☐ Primary School ☐ High School ☐ Associate's Degree
☐ Bachelor's Degree

4. Working time on current marina

☐ 0-2 years ☐ 2-5 years ☐ 5-10 years ☐ 10 years+

5. Marital Status

☐ Married ☐ Single

6. Total work experience

☐ 0-2 years ☐ 2-5 years ☐ 5-10 years ☐ 10 years+

7. Work Status

☐ Manager ☐ Staff

8. Marina department.....

9. Have you ever experienced occupational accident in your lifetime?

☐ Yes ☐ No

10. Have you ever experienced occupational accident on current marina?

☐ Yes ☐ No

11. Have you ever experienced near miss on current marina?

☐ Yes ☐ No