

Comprehensive analysis of yacht masters operating in Bodrum district in terms of fatigue, burnout, and job satisfaction

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ABSTRACT

Background: Yacht tourism is a developing sector in the world and in Turkey as well. Yacht masters are the most important components of this sector. This study aims to investigate the factors affecting the fatigue, job satisfaction, and burnout levels of yacht masters, offer solutions according to the findings, and eliminate this deficiency in the literature.

Materials and methods: The Maslach Burnout Scale (MBI), Minnesota Job Satisfaction Scale (MSQ) and Piper Fatigue Scale (PFS) were applied to yacht masters who are still actively working on yachts operating in the Bodrum district. Data analysis was performed using Statistical Package for the Social Sciences (SPSS) software.

Results and Conclusions: According to the results of the analysis, yacht masters have high emotional burnout perceptions and very high personal success perceptions. In addition, their depersonalisation levels are low and their overall job satisfaction is high. The general fatigue levels of the masters are moderate. As their job satisfaction rate increases, their perceived fatigue level decreases. As their age increases, their fatigue level decreases. As their fatigue level increases, their burnout level also increases.

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Key words: Maslach Burnout Scale (MBI), Minnesota Job Satisfaction Scale (MSQ), Piper Fatigue Scale (PFS), yacht tourism, maritime

INTRODUCTION

Yachts and yacht tourism are symbolic industries that represent modern seaside cities' development. Guests who prefer yacht tourism usually travel in small groups in close contact, are respectful of nature, and do not disturb local communities [1].

Yachting or yacht tourism is a specialised tourism activity that is limited to cruising activities on the water [2]. In addition to using boats as shelters, recreational facilities, and means of transportation, yacht tourism offers groups or individuals unique touristic experiences intertwined with the sea [3].

The yacht tourism sector, known as a service sector and includes sightseeing and entertainment, moves forward with yachts equipped with well-trained crews to meet the guest service demand of the marine tourism industry [4]. Yacht crew should provide elite service to their passengers, satisfy their gastronomic preferences, and provide entertainment and relaxation for passengers [5]. However, it should have the knowledge and skills to respond to emergencies such as fire and ship abandonment [6]. Yacht masters, who are the leaders of the yacht personnel, should check and monitor that all these tourism service activities and emergency

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training are carried out by the personnel, as well as the operational management of the yacht [7].

In the Mediterranean basin, which includes Turkey, the intensity of yacht tourism activities increases during the summer months [8]. It is defined as the high season between July and August in yachting [9]. Yacht crews are faced with difficulties such as working in extremely hot weather conditions, work stress and insomnia, inadequate physical conditions, and excessive workload, especially in this high season [10]. Due to the increasing touristic activity, the workload of yacht masters also increases significantly [11]. Heavy workload in the working environment is an important risk factor for burnout [12]. It is a well-known fact that a seafarer must work in a confined space away from home, in isolation from social life [13].

In theory, all onboard recreational activities for passengers can occur around the clock, and in practice, many sailors are on duty 24 hours a day. Many important environmental stress factors are added, such as psychosocial working conditions [14], vibration caused by the engine and noise inside the boat, temperature change caused by weather conditions and boat movements. Furthermore, long working hours, separation from family, fatigue, insomnia, work-related stress, risk of sea accident, multinational passengers, illnesses, and limited social activity make yacht personnel and masters vulnerable to burnout [15].

Developing technology, computer-controlled systems on boats have made boats technologically well equipped, but this advanced technology has led to a decrease in the number of workers on boats [16]. As a result, the workload of yacht personnel and yacht masters has increased.

According to the International Maritime Organization (IMO), fatigue is defined as a decrease in physical and/or mental ability resulting from physical, mental or emotional exertion that may impair performance [17]. Fatigue not only poses a threat to the individual health of seafarers but can also increase the risk of fatal accidents [18].

Freudenberger first described burnout in 1974. According to Freudenberger [19], burnout is the depletion of the employee's energy due to failures, overload, wear, loss of power and unmet expectations. The burnout inventory was developed by Maslach and Goldberg [20], who made the most important contributions to the literature on the concept of burnout. According to Maslach and Goldberg [20], burnout is handled in three dimensions. Emotional exhaustion, which refers to leaving one's job as a way of coping with the workload, is depersonalisation, which is the effort of the individual to distance himself from various aspects of their work, and a sense of personal accomplishment that expresses the inadequacy that develops due to the individual's lack of success and productivity at work [20].

Job satisfaction is a concept directly related to burnout. Job satisfaction is defined as the employees' perception of the job and their emotional reactions to this perception and the degree to which it meets their needs [21]. Job satisfaction is the satisfaction or dissatisfaction that employees feel towards their job. While the person with high job satisfaction has positive feelings about the job, the person with low satisfaction has negative feelings [22]. There is a linear relationship between job satisfaction and professional performance. As job satisfaction increases or decreases, the occupational performance also increases or decreases, respectively [23].

In the first part of the study, hypotheses were formed based on the research model and the demographic distributions of the participants were determined by frequency analysis. As a result of the Cronbach-Alpha values, the reliability analysis of the research was conducted. The normality research of the data used in the study was carried out with the Kolmogorov-Smirnov test. In the next section, descriptive statistics of the scales applied to the participants and the levels of their subscales are presented. A Pearson correlation analysis was conducted to determine the relationships between the participants' demographic characteristics, burnout, job satisfaction and fatigue of the participants and the levels of these relationships. Pearson correlation analyses were used to test the proposed research hypotheses.

This study is the first to evaluate the relationship between fatigue, job satisfaction and burnout levels among yacht masters. This study aimed to determine the factors affecting the fatigue, job satisfaction and burnout levels of yacht masters actively working on yachts by using the Statistical Package for the Social Sciences (SPSS) package programme.

MATERIALS AND METHODS

LITERATURE REVIEW

Due to the acceleration of all operational processes in maritime transport with technological innovations, the human factor has become a critical issue. Irregular and long working hours, rapid changes in working environments and other organizational and/or individual factors negatively affect seafarers' performance. Shipping involves various stressors that can cause seafarers to suffer from burnout. Job satisfaction is one of the most important factors affecting burnout. The yachting industry, the tourism-related branch of maritime, has different dynamics from commercial shipping. Yacht crew, including yacht masters, face challenges such as working in extremely hot or cold weather conditions, work stress and insomnia, poor physical conditions, and an excessive workload, particularly during high season. The resting times of yacht masters

depend on workload. In the high season, the workload of yacht masters increases significantly due to increased tourist activity.

Whether all these factors cause fatigue and burnout in yacht masters and their job satisfaction will be revealed in this study.

Andresen et al. (2007) [24] focused on pilots in seven European countries and analysed their job satisfaction levels. According to the results of their research, although their quality of life decreased due to health problems and unusual working hours, most of the pilots stated that they did not regret their career choices. They also presented the factors that would improve the working conditions of the pilots in their studies. Accordingly, the most critical parameters include changes in working hours, working conditions that minimize physical exertion, justice in terms of salaries, and flexibility in the remuneration system [24].

Allen et al. (2007) [25] highlighted that global concern about the extent of seafarers' fatigue is expected in the shipping industry. In their study, in which they presented an assessment of the extent to which fatigue can be prevented and managed, they determined that keeping the number of personnel onboard to a minimum provides an economic advantage for the employer, but the minimum number of personnel increases the level of fatigue per person. They argue that preventing fatigue and creating optimum working conditions can be achieved with appropriate training and guidance [25].

Allen et al. (2008) [26] noted that fatigue was noticeably less researched in the maritime field than in other sectors. Their literature review searched 11 databases to evaluate the latest developments in the area and distil the issues that most worry and challenge the maritime community. While diversity in the seafarer population has the potential to render estimates of global fatigue meaningless, evidence of misrecorded working hours illustrates how cultural and commercial pressures are shared universally [26].

In their published article, Li et al. (2014) [27] investigated the main factors contributing to job satisfaction among Chinese seafarers. The data they used in their study was collected through questionnaires. They used a structural equation modelling method to test and predict causal relationships using a combination of statistical data and qualitative causal assumptions. They concluded that promotion was the most important factor in job satisfaction, followed by salary, work environment and a sense of status [27].

Sliskovic and Penezic (2015) [15] aimed to determine the level and sources of job satisfaction and dissatisfaction in their study with 530 Croatian seafarers working in various positions on cargo ships. According to the results of the study, it was found that the participants were most satisfied with the salaries and the least satisfied with the

work organization on the ship. They stated that the main sources of job satisfaction were financial stability, security and the ratio of working days to days off. On the other hand, they concluded that the sources of dissatisfaction were both leaving home and family, and the working and living conditions on board [15].

Toz et al. (2015) [28] evaluated the related risks of work-related burnout levels in their study with 42 yacht masters to investigate the burnout levels of Turkish yacht masters using the emotional exhaustion approach of the Maslach Burnout Inventory (MBI). They concluded that overall emotional exhaustion and depersonalisation were low in yacht masters [28].

According to Bal Besikci et al. (2016) [29], in their research which aimed to determine the fatigue levels and mental symptoms of seafarers resulting from working conditions on board by using subjective measurements, the Piper Fatigue Scale (PFS) was used to measure the level of fatigue and the Symptom Checklist 90-Revised (SCL-90) to determine the severity of mental symptoms, and the data were analysed. As a result of their study, they determined that seafarers showed high levels of fatigue and mental symptoms. They also found that an increase in seafarers' fatigue increased their perception of mental symptoms and vice versa. In addition, they concluded that working at night negatively affected the fatigue of seafarers and increased the risk of accidents [29].

Zhao et al. (2016) [30] stated that fatigue had adverse effects on seafarers and the general working population. In 2016, researchers conducted a survey-based study to examine seafarers' fatigue, learn about potential risk factors, and create indexes that show fatigue. Their research analysed work and sleep patterns in global shipping and compared European and Chinese seafarers on the basis of fatigue by applying the t-test. They concluded that the health and safety of seafarers were negatively affected by fatigue [30].

Kim and Jang (2016) [31] found that obsessive-compulsive behaviour, depression, and somatization were the most common symptoms among officers in their study of 160 officers in Korea, in which they aimed to investigate the relationships between job stress, job satisfaction, and mental health. They showed that the prevalence of psychoticism, somatisation, depression, anxiety and phobic anxiety was higher in officers who reported poor health, low job satisfaction and high job stress [31].

In their study, which aimed to test the relationship between different aspects of internet access onboard and the satisfaction and health of seafarers, Sliskovic and Penezic (2016) [32] surveyed a total of 298 Croatian seafarers with at least 2 years of work experience. According to the results of their studies, they noted that the time spent on board,

not exceeding the contract periods and internet accessibility on board played an important role in promoting satisfaction and health in the maritime industry [32].

In their research, Yuen et al. (2018) [33] aimed to analyse the main determinants of job satisfaction and performance of seafarers. They surveyed 116 officers and analysed the data obtained using structural equation modelling. They concluded that job satisfaction was significantly associated with seafarers' job performance. They also stated that the amount of stress associated with working onboard and the attractiveness of the rewards offered were the main determinants of job satisfaction. Finally, they presented a management model consisting of policies and strategies to motivate and retain seafarers [33].

In his study, Krystosik (2018) [34] explained some basic ergonomic factors in the engine room, bridge and other positions of a commercial ship and made ergonomic evaluations of the crew of the ship. In his work, he examined the importance of the physical arrangement of the bridgehead, factors such as noise, vibration, heat radiation (in the engine room), psychological stress and ergonomics. He also discussed the impact of working in confined spaces for extended periods and the impact of certain operating conditions of a ship. In addition, he analysed the psychological burden of working areas, working methods, and environmental factors on board. He presented the effects of certain marine environmental conditions on the psychology of the crew, such as confined work, lack of leisure space, long-term family and sociocultural separation and frequent changes in climatic conditions [34].

According to Tavacioglu et al. (2019) [23], using the Maslach Burnout Inventory (MBI) and the Minnesota Job Satisfaction Scale (MSQ), in their study with a total of 203 seafarers, 133 deck/engineering officers and 186 deck personnel, between the ages of 18 and 60, correlation analysis revealed a negative relationship between job satisfaction and burnout. The authors found that while burnout decreased for both deck and engine personnel, job satisfaction increased and vice versa. They also emphasized that the results showed that as happiness increased, job satisfaction increased and burnout decreased [23].

An et al. (2020) [35] published their work in 2020, aiming to empirically examine the effects of work-family conflict, job stress, and job satisfaction on seafarer performance. They collected the data from merchant ship sailors arriving at Yangshan Port in Shanghai, China [35].

In his study aiming to investigate the effects of demographic factors such as gender, marital status, age, experience and education level, on job satisfaction, Kandemir (2021) [36] collected data from people working on yachts in the Bodrum town of Muğla, using a survey method. According to the results of his study, no difference was found between marital status and job satisfaction. In addition, it

has been concluded that age groups do not differ statistically in job satisfaction, that employees are more satisfied with their jobs as their age increases, and that job satisfaction increases as knowledge and experience increase. Finally, he stated that as the level of education increased, job satisfaction decreased, and as the level of education decreased, job satisfaction increased [36].

Yorulmaz and Sevinc (2021) [37] aimed to investigate the mediating role of work-family conflict and the moderator role of psychological resilience on yacht captains' perceived supervisor support and intention to leave during the COVID-19 epidemic. They concluded that perceived supervisor support had direct and indirect effects on intention to leave, with work-family conflict being a mediating variable. In addition, they also stated that the effect of work-family conflict on turnover intentions varied according to the psychological resilience levels of yacht captains [37].

As can be seen, there are studies of varying quality in the literature on personnel working at sea. A limited number of studies have been found on fatigue, burnout or job satisfaction among seafarers from the literature review in the field of maritime, while the number of studies on yacht personnel or yacht masters is much lower. Previous research shows that shipping involves high stress and serious risks. This study will enter the literature as the first research to evaluate the relationship between fatigue, job satisfaction and burnout levels among yacht masters. The number of these studies should be increased in order to provide more data richness in current and future studies.

METHODOLOGY

In this study, the burnout, satisfaction and fatigue levels of Turkish yacht masters were investigated with the Maslach Burnout Inventory (MBI), the Minnesota Job Satisfaction Scale (MSQ) and the Piper Fatigue Scale (PFS). Statistical analyses in the study were carried out using frequency and correlation analysis within the SPSS programme. A total of 68 Turkish yacht masters who are still actively working in the yacht tourism sector in the Bodrum region participated in the study. It is expected that the results of the study will provide specific outputs and guidelines for the relevant organizations dealing with yachting activities and offer suggestions for effective and efficient coordination between the relevant institutions.

The surveys were sampled by sharing them online via Google Forms (e-mail). In the first part of the research, demographic data such as gender, age, education, professional experience and the type of yacht they last worked on were collected from the yacht masters participating in the research. Following this, the participants answered a total of four sections, consisting of the MBI, MSQ and PFS measurement questionnaires.

The MBI questionnaire, which includes a socio-demographic information form used in this study, consists of 22 items and measures burnout related to the feelings and attitudes of professionals towards their jobs and staff [38]. Participants were asked questions on a 5-point Likert scale, with 1 meaning “never” and 5 meaning “always”. MBI is divided into subscales that measure emotional exhaustion, depersonalisation and personal achievement dimensions. Emotional exhaustion refers to an individual’s feelings of emotional exhaustion due to prolonged interaction with other people [39]. Questions 1, 2, 3, 6, 8, 13, 14, 16, and 20 in the questionnaire consist of 9 items measuring this emotional exhaustion. Depersonalisation is when employees treat the people they serve as objects, make derogatory remarks, and display an indifferent, cynical attitude [40]. Questions 5, 10, 11, 15 and 22 in the questionnaire consist of five items measuring this depersonalisation. Personal success defines a person’s feelings of competence and success at work [41]. Questions 4, 7, 9, 12, 17, 19 and 21 in the questionnaire measure personal achievement dimensions (Fig. 1).

The MSQ scale consists of a 5-point Likert-type questionnaire with 20 items in which 1 means “I am not at all satisfied” and 5 means “Very satisfied”. The first of the two sub-dimensions of the scale, inner satisfaction, consists of 12 questions and measures how employees feel about the job itself. In the questionnaire, internal factors correspond to questions 1, 2, 3, 4, 7, 8, 9, 10, 11, 15, 19, 20 [42]. The external factors, which are the second sub-dimension and evaluated with eight questions, reflect how the employees feel about the company. External factors are measured by the answers given to questions 5, 6, 12, 13, 14, 16, 17 and 18 [42]. In order not to mislead the participants and to make a correct analysis, three questions that did not fit the framework of the profession were excluded from the MSQ, taking into account the dynamics of the yacht captain’s profession, which is the subject of the study. The questionnaire was applied to the participating masters in a way to include 17 questions (Fig. 2).

The Piper Fatigue Scale (PFS) was designed as a self-administered research tool to measure subjective patterns of fatigue in various populations [43]. PFS has four sub-dimensions. These are the behavioural violence sub-dimension consisting of six items covering questions 2, 3, 4, 5, 6, and 7; the emotional sub-dimension consisting of five items covering questions 8, 9, 10, 11, and 12; and the sensory sub-dimension consisting of five items covering questions 13, 14, 15, 16, and 17, and the cognitive mood sub-dimension consisting of five items covering questions 18, 19, 20, 21, and 22 [44]. The scale items also include measuring the distress caused by fatigue and the effect

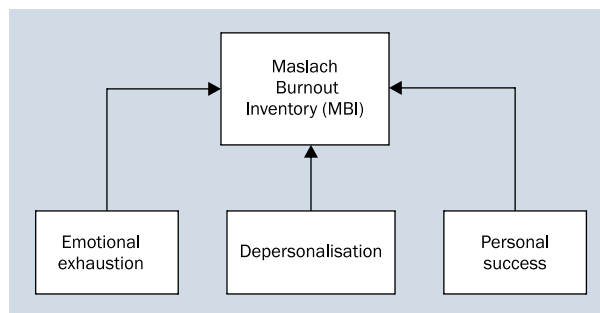


Figure 1. Maslach Burnout Inventory (MBI) model [38]

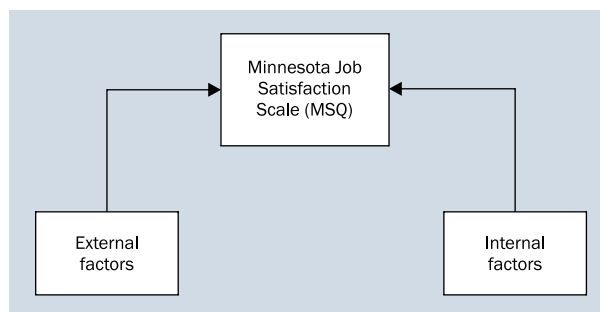


Figure 2. Minnesota Job Satisfaction Scale (MSQ) model [42]

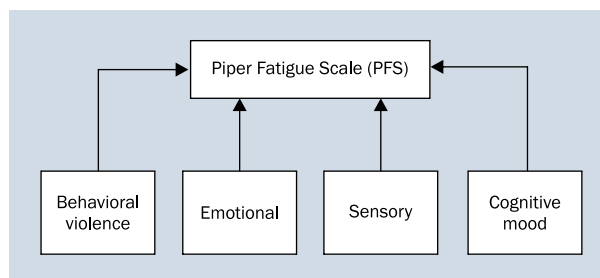


Figure 3. Piper Fatigue Scale (PFS) model [44]

of fatigue on activities of daily living. 22 items are scored on a numeric scale from “0” to “10” and the component items are averaged to calculate the four subscales and a Total Fatigue Score. As a result of the average scores; 0 points indicate no fatigue, 1–3 points indicate mild fatigue, 4–6 points indicate moderate and 7–10 points indicate severe fatigue (Fig. 3).

The SPSS (version 22.0) was used to analyse the data that was entered into the database. Pearson correlation analysis was performed to determine the relationships between the variables (Fig. 4).

The hypotheses based on the research model are as follows:

- H1: The relationship between age and level of job satisfaction;

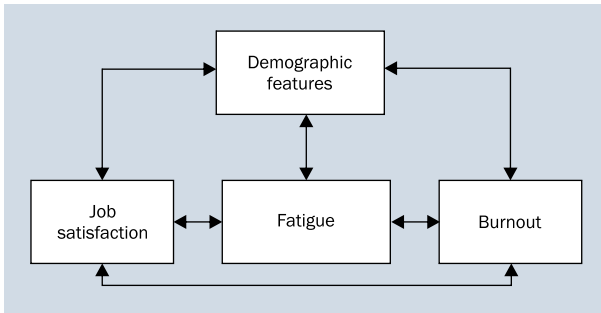


Figure 4. Model of the research

- H2: The relationship between age and fatigue level;
- H3: The relationship between age and burnout level;
- H4: The relationship between seniority in the profession and job satisfaction;
- H5: The relationship between seniority in the profession and the level of fatigue;
- H6: The relationship between seniority in the profession and the level of burnout;
- H7: The relationship between education level and job satisfaction, burnout, fatigue levels;
- H8: The relationship between job satisfaction level and fatigue level;
- H9: The relationship between job satisfaction and burnout;
- H10: The relationship between the level of fatigue and the level of burnout.

P-VALUE

Probability (p) value is a value used to determine the presence of statistical significance and the level of difference if any [45]. As a result of each statistical test, the p-value of the test statistic used is calculated. This p-value shows the probability of making an erroneous decision when it is said that “there is a significant difference in the result of the relevant hypothesis test”. A value of p less than 0.05 is sufficient for the analysis to be considered statistically significant. The smaller p-value means the greater the evidence for rejecting the H0 hypothesis. The general approach to how to interpret the p-value [46] is given in Table 1.

FREQUENCY ANALYSIS

Frequency analysis is a statistical analysis technique that shows the frequency of observations and percentage distribution of data. In other words, it reveals the frequency of the variables quantitatively. According to the results of the frequency analysis, classification can be carried out depending on the frequency of the coded units and the items can be placed in order of importance [47].

Table 1. Statistical interpretation of the p-value [46]

P-value	Interpretation
0.01 ≤ p < 0.05	Statistical significance
0.001 ≤ p < 0.01	High statistical significance
p < 0.001	Very high statistical significance
0.05 ≤ p < 0.10	Significance bias (borderline significance)
p > 0.10	The difference is due to coincidence (no statistically significant difference was found)

Table 2. Interpretation of correlation coefficients [49]

Correlation coefficients (r)	Level of relationship between variables
0.01–0.25	Very poor relationship
0.26–0.49	Poor relationship
0.50–0.69	Medium relationship
0.70–0.89	High relationship
0.90–1.0	Very high relationship

CORRELATION ANALYSIS

Correlation analysis was used to analyse the relationships between the variables in the study. In its broadest sense, correlation is a measure of the relationship between variables. In correlated data, a change in the magnitude of one variable is associated with a change in the magnitude of another variable in the same (positive correlation) or opposite (negative correlation) direction. Most of the time, the term correlation is used in the context of a linear relationship between two continuous variables and is expressed as a Pearson product-moment correlation. The Pearson correlation coefficient is typically used for data that is jointly normally distributed, in other words, for data that follows a bivariate normal distribution. For non-normally-distributed continuous data, ordinal data, or data with associated outliers, Spearman rank correlation can be used as a measure of a monotonic relationship. Both correlation coefficients are scaled to range from -1 to +1; where 0 indicates there is no linear or monotonic relationship and the relationship gets stronger and eventually approaches a straight line (Pearson correlation) or an ever-increasing or decreasing curve [48]. In summary, the correlation coefficient (r) is the measure of the relationship between two variables and varies between -1 and +1.

The following definitions were made regarding the strength of the correlation coefficient (Table 2) [49].

APPLICATION

This study was applied to the yacht masters who were actually still working in Bodrum in October after the high season conditions. Considering the demographic characteristics of the yacht masters participating in the research, it is seen that 42% of the total is composed of masters between the ages of 31 and 40. In the gender distribution, it was determined that male masters were in the majority with 96%. When their educational status is examined, it is seen that 35% of them are high school graduates. The seniority of 37% of the participants as yacht masters is between 0 and 5 years. Seventy-six per cent of them stated that the yacht they were working at that time or had worked the last time was a private yacht (Table 3).

The reliability analysis of the research was determined by the Cronbach-Alpha values. According to Nunally and Brestein [50], it can be accepted that variables with an Alpha value of 0.70 and higher can be measured reliably. Cronbach's Alpha values of the scales used in the research were found to be quite reliable at 84% for the Maslach Burnout Scale (MBS), close to 93% for the Minnesota Job Satisfaction Scale (MSQ), and close to 97% for the Piper Fatigue Scale (PFS) (Table 4).

The SPSS (version 22.0) package programme was used in the analysis of the data. After the data was entered into the programme, normality research was carried out. The Kolmogorov-Smirnov test in the SPSS package programme was used to determine whether the data obtained in the research had a normal distribution or not, and the results are shown in Table 5.

When Table 5 is examined, it is seen that each scale data set has a normal distribution ($p > 0.05$). For this reason, parametric tests were applied in the analysis of the research.

According to the 5-point Likert scale, the average emotional exhaustion levels of the yacht masters participating in the research were $3.06 \pm$ standard deviation 1.14), the average depersonalisation levels were 2.38 ± 0.90 , and the average personal achievement levels were 4.11 ± 0.64 , while the average general burnout levels were found to be 3.18 ± 0.62 , and the values are shown in Table 6.

The average of the internal factors affecting job satisfaction of the yacht masters participating in the research, which is one of the sub-scales of the Minnesota Job Satisfaction Scale (MSQ), is 3.66 ± 0.86 . According to the 5-point Likert scale, the average of the external factors affecting their job satisfaction is 3.21 ± 0.87 . For general job satisfaction levels, the mean was found to be 3.44 ± 0.83 and the values are given in Table 7.

The average of the behavioural severity levels of the yacht masters participating in the study, which is one of

Table 3. Demographic frequency and percentage information of the participants

Demography	Frequency (n = 68)	Percentage (%)
Sex		
Male	65	96
Female	3	4
Age		
25 and below	12	18
26–30	10	15
31–35	14	21
36–40	14	21
41–45	9	13
46 and above	9	13
Education		
Primary education	3	4
High school	24	35
Vocational school	21	31
Licence	14	21
Graduate	6	9
Seniority as a yacht master		
0–5 years	25	37
6–10 years	9	13
11–15 years	20	30
16–20 years	5	7
21 years and above	9	13
Yacht type currently or last served		
Private	52	76
Charterer	16	24

Table 4. Reliability analysis results of the research

Scale used	Cronbach's alpha value
Maslach Burnout Inventory	0.841
Minnesota Job Satisfaction Scale	0.929
Piper Fatigue Scale	0.974

Table 5. Kolmogorov-Smirnov normality test results of the scales

Scale used	Statistics	P
Maslach Burnout Inventory	0.90	0.200
Minnesota Job Satisfaction Scale	0.107	0.051
Piper Fatigue Scale	0.70	0.200

the sub-scales of the Piper Fatigue Scale (PFS), was 5.75 ± 2.40 according to the 10-point Likert scale, the average of their emotional levels was 6.38 ± 2.06 , and the average of their sensory level was 5.33 ± 2.44 , the mean cognitive mood levels were 5.03 ± 2.58 and the mean general fatigue levels were 5.62 ± 2.30 found and the values are given in Table 8.

According to the results of the Pearson correlation analysis given in Table 9, there is a relationship between age and fatigue ($r = 0.264$, $p < 0.05$), burnout and job satisfaction ($r = 0.459$, $p < 0.01$) and fatigue (r) of the participating

yacht masters. There is a statistically significant relationship between their job satisfaction and fatigue ($r = 0.616$, $p = 0.01$). There is a negative relationship between age and fatigue, burnout and job satisfaction, and job satisfaction and fatigue among yacht masters participating in the research. On the contrary, there is a positive relationship between their fatigue and their job satisfaction. Professional seniority increases with age. As a result, a statistically significant and positive relationship between yacht masters' age and professional seniority ($r = 0.673$, $p = 0.01$) is expected. No significant relationship was found between other variables. Since there were not enough ($n = 3$) female employees in our data set to affect the analysis, the distribution of analyses by gender could not be investigated.

Table 10 shows the significance levels of the 10 tested hypotheses according to the results of the Pearson correlation analysis used to test the predicted research hypotheses, and whether the theories are supported or not.

There is a weak relationship between the age and fatigue levels of the yacht masters participating in the research, and their fatigue levels decrease as their age increases ($r = 0.264$). A moderate relationship was found between job satisfaction levels and fatigue levels, and a weak relationship between burnout levels, namely that as job satisfaction levels increase, fatigue levels decrease ($r = -0.616$). In addition, as job satisfaction levels increase, burnout levels decrease ($r = -0.459$). A moderate relationship was determined between fatigue and burnout levels; as fatigue levels increase, burnout levels increase ($r = 0.621$).

In addition, no relationship was found between the age of the masters and their job satisfaction or burnout levels. Also, no statistical relationship was found between professional seniority and job satisfaction, fatigue levels or burnout levels. Similarly, no relationship was found between the education levels of the masters and their job satisfaction, burnout and fatigue levels.

RESULTS AND DISCUSSION

This study was aimed to evaluate the relationship between fatigue, job satisfaction and burnout levels among yacht masters and offer solutions based on the findings.

Table 6. Descriptive statistics of the participants' levels of burnout according to the Maslach Burnout Scale and its subscales

Burnout and subscales	N	SD	\bar{X}
Emotional exhaustion	68	1.14	3.06
Depersonalisation	68	0.90	2.38
Personal success	68	0.64	4.11
Maslach Burnout Inventory	68	0.62	3.18

Table 7. Descriptive statistics of participants' job satisfaction levels according to the Minnesota Job Satisfaction Scale and its subscales

Job satisfaction and subscales	N	SD	\bar{X}
Internal factors	68	0.86	3.66
External factors	68	0.87	3.21
Minnesota Job Satisfaction Scale	68	0.83	3.44

Table 8. Descriptive statistics of participants' levels of fatigue according to the Piper Fatigue Scale and subscales

Fatigue and subscales	N	SD	\bar{X}
Behavioural violence	68	2.40	5.75
Emotional	68	2.06	6.38
Sensory	68	2.44	5.33
Cognitive mood	68	2.58	5.03
Piper Fatigue Scale	68	2.30	5.62

Table 9. Correlation analyses between participants' demographic characteristics, burnout, job satisfaction and fatigue

	1	2	3	4	5
1. Age	1				
2. Education status	-0.057	1			
3. Seniority in the profession	0.673**	-0.052	1		
4. Burnout	-0.184	-0.002	-0.014	1	
5. Job satisfaction	0.223	-0.094	0.173	-0.459**	1
6. Fatigue	-0.264*	0.102	-0.145	0.621**	-0.616**

* $p < 0.05$; ** $p < 0.01$

Table 10. Supported/unsupported status of research hypotheses

Hypotheses	Supported/unsupported	Significance level
H1: The relationship between age and job satisfaction level	Unsupported	
H2: The relationship between age and fatigue level	Negatively supported	$p < 0.05$
H3: The relationship between age and burnout level	Unsupported	
H4: The relationship between seniority in the profession and job satisfaction	Unsupported	
H5: The relationship between seniority in the profession and the level of fatigue	Unsupported	
H6: The relationship between seniority in the profession and the level of burnout	Unsupported	
H7: The relationship between education level and job satisfaction, burnout, fatigue levels	Unsupported	
H8: The relationship between job satisfaction level and fatigue level	Negatively supported	$p < 0.01$
H9: The relationship between job satisfaction and burnout	Negatively supported	$p < 0.01$
H10: The relationship between the level of fatigue and the level of burnout	Supported	$p < 0.01$

In the study, yacht masters' perceptions of emotional burnout due to their long-term interactions with other people were found to be high ($\bar{X} = 3.06$, $SD = 1.14$), while their perceptions of competence and success in their jobs were found to be very high ($\bar{X} = 4.11$, $SD = 0.64$). The levels of treating the people they serve like objects, making derogatory remarks, and displaying an indifferent and sarcastic attitude was low ($\bar{X} = 2.38$, $SD = 0.90$), while their general burnout level was high ($\bar{X} = 3.18$, $SD = 0.62$).

Due to the nature of the yachting business, yacht masters have more relationships with the crew and guests on board the yacht than with the yacht operators. As a result, external factors related to the business less affect the masters' job satisfaction. The general job satisfaction ($\bar{X} = 3.44$, $SD = 0.83$) of the yacht masters subjected to the research was found to be at a high level. What they feel about the job itself, namely internal factors ($\bar{X} = 3.66$, $SD = 0.86$), affects their job satisfaction more than how masters feel about the business, namely external factors ($\bar{X} = 3.21$, $SD = 0.87$). It is recommended that yacht owners or yacht operators focus on improving the quality of the work environment onboard in order to increase their captain's job satisfaction.

The general fatigue levels of the masters ($\bar{X} = 5.62$, $SD = 2.30$) were found to be moderate. Among the subscales that make up the general fatigue levels, emotional levels ($\bar{X} = 6.38$, $SD = 2.06$) were found to be close to high, and behavioural violence levels ($\bar{X} = 5.75$, $SD = 2.40$), sensory levels ($\bar{X} = 5.33$, $SD = 2.44$) and cognitive mood levels ($\bar{X} = 5.03$, $SD = 2.58$) were found to be moderate.

Wu et al. (2014) [51] stated that being away from home and loved ones, fatigue, long working hours, limited space, insufficient sleep and multinational factors made working on a yacht difficult and complex. Sanchez-Beaskoetxea and Garcia (2015) [52] stated that an employee who was

satisfied with his job would outperform his dissatisfied colleague. Furthermore, according to their research, a satisfied employee makes fewer mistakes at work, is more productive, and is more likely to stay with the organization [52]. According to other results of this research, as the satisfaction rates of yacht masters increase, their perceived fatigue levels decrease. In other words, low burnout tendencies have a positive effect on seafarers' job satisfaction. Other studies in the literature also support this [23, 28, 33]. Yacht owners should make the necessary efforts and provide the necessary opportunities to have yacht masters who are satisfied with their jobs.

As masters' professional experience increases, their ability to manage fatigue and professionally accept fatigue can increase. This is also effective in reducing the fatigue perception levels of masters at advanced ages. Bridger et al. (2010) [53] also concluded that similar to the findings of this study, older staff could cope with the daily demands of working life compared to younger staff, possibly due to a "survival effect". It will be beneficial for the sector to ensure that the masters perform their profession for a long time. In order to achieve this goal, it is necessary to increase the satisfaction of the employees in their jobs.

For the sake of work efficiency, yachts often operate with a minimum crew level, which means that yacht personnel, including the captain, have to work long hours. As a result, the minimum crew level on yachts is causing seafarers fatigue in conjunction with the busy working hours. According to another finding of the study, in parallel with other studies in the literature [54–56], the burnout levels of yacht masters increase as their fatigue levels increase. In order to reduce fatigue levels, it is necessary to increase the rest periods of all yacht personnel, including the captain, and to make the daily working hours comply with the International Labour Organization (ILO) and IMO norms.

CONCLUSIONS

In future studies, it is recommended to use other multi-criteria decision-making models and different scales to determine the fatigue levels, job satisfaction and burnout levels of yacht masters, and to evaluate these studies on a larger group of yacht masters with more female masters participating in different yacht types. Thus, more reliable results can be revealed through comparative analysis and the problems will be more clearly understood.

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