

The Effects of Stress on Job Satisfaction: A Study on Pilots

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Abstract

Aviation is a form of transportation that is developing rapidly. The rapidly growing aviation sector has started to be preferred by people because it is advantageous compared to other modes of transportation in terms of both time and passenger comfort. As people prefer aircrafts more as a means of transportation, airline companies have started to grow, have placed new aircraft orders and continue to give. However, the most important issue that will never be compromised in the face of this rapid growth is undoubtedly flight safety. Studies have shown that, the human factor is around 70% is affected the accidents and incidents in aviation. For this reason, the human factor is important in aviation, and everything from the working hours of the employees, the time to spend on the way to and from work, and even the rest time, has become a rule by international aviation organizations. For this reason, in this thesis, it is aimed to measure the stress levels of pilots, which are one of the most important parts of the aviation industry, to observe how their inner world is in business life and also to measure how these levels affect pilots' job satisfaction. As a result of the research, a significant relationship was found between the stress levels of the pilots and their job satisfaction levels.

Keywords: Stress, Job Satisfaction, Pilot, Aviation, CRM.

1. Introduction

Aviation has continued and continues to develop and grow continuously since its first appearance. During this development and growth, due to bad experiences, necessary rules emerged and precautions were taken. Studies have shown that the human factor is 70-80% in aviation accidents/incidents. For this reason, the importance of human factor in the aviation industry is very great. Various measures have been taken to keep the human factor at the lowest level in aviation. The

most important of these measures is CRM. Due to the intense and stressful work done, the stress factor has a serious effect on the pilots. With this study, it has been shown how the stress factor on the pilots affects the job satisfaction levels of the pilots.

The aim of this study is to measure the stress levels of pilots, one of the most important parts of the aviation industry, and to measure how much these levels affect the job satisfaction of the pilots. The importance of this study is that it is an assistant

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that will guide the measures to be taken by airline companies or authorized authorities in line with the data obtained.

2. Literature Review

2.1. Job Satisfaction and Its Importance

Various studies and definitions have been made for Job Satisfaction, which was first put forward by Hawthorne studies [1] between 1924-1933 [2]. While Koustelios defines job satisfaction as the satisfaction of employees with their work [3] Luthans defines it as “a person's appreciation of his/her job or work-related life as an event that results in a pleasing or positive feeling” [4]. According to the definition made by Weis in 2002, job satisfaction is an emotional reaction to the job situation [5]. In 2011, Aziri explained job satisfaction as “the success of the employee on the work he/she has done and the sense of success he/she feels as a result of success” [6].

Job satisfaction is important because of the results obtained in working life. As a result of the researches, it has been seen that not only the work life but also the personal life of the person is negatively affected by the low level of job satisfaction, that is, being dissatisfied with the work done [7].

The most important accumulation of an enterprise has been the human resources working within it. The suitability of the human resources working in the enterprise in terms of quantity and quality is also important in terms of the employment policies implemented by the company, as it will positively or negatively affect the job satisfaction levels of the individuals [8].

2.2. Results of Job Satisfaction

Positive or negative results emerge in the face of the job satisfaction levels that the employees feel in line with the work they do. Job satisfaction is also important for the company, as these results will affect not only the employee but also the company. Although it seems that job satisfaction only affects the employee when observed from the outside, it is known that the workplace is also affected [9].

Studies have shown that employees are both satisfied with their work and have a high level of job satisfaction, and that both the health status of the employees are good and their stress levels are low.

However, with the low level of job satisfaction, that is, the employees are not satisfied with the work done, it has been observed that the employees have physical symptoms such as headache, nausea and fatigue. If this negative situation continues, it has been observed that serious consequences such as heart attack, ulcer and high blood pressure occur [9].

Apart from their health status, it has been observed that the intention to leave the job increases when the job satisfaction level is low. It has been observed that if the employees are satisfied with and love their job, they do the job with pleasure and do not want to be away from the job for a long time. However, with job dissatisfaction, it has been observed that they do not do their jobs with pleasure and they intend to leave as soon as possible. It has been observed that after an employee leaves the job as a result of job dissatisfaction, there is uneasiness and enervation among the remaining employees, and as a result of this situation, the company has cost problems [8].

It has been observed that with the increase in the level of job satisfaction, the success levels of the employees also increase. As a result of the increase in the success of the employees, it has been observed that their job satisfaction levels have increased thanks to the high wages, promotions or awards they have received, and that they have worked more faithfully in their workplaces and they do not want to leave the job [10].

2.3. Job Satisfaction in Aviation

The existing and strictly enforced rules in aviation have emerged as a result of bad experiences as a result of accidents/incidents or other events in the past years and continue to be applied in this direction. There is a saying, "The rules in aviation are written in blood", which shows that the rules applied in aviation were obtained as a result of bad experiences. Aviation is a sector with high stress level and workload due to its structure. According to the researches, it is shown that 70% to 80% of the accidents in aviation are caused by human beings [11].

In a 2003 study on job satisfaction in aviation, it was shown that those working in large airlines had higher job satisfaction levels than those working in small airlines. The reason for this situation is that employees of major airlines get promoted faster, earn more money, have higher job guarantees and

have a higher sense of trust in the companies they work for [12].

In a study conducted in 2012, it was shown that there is a negative relationship between the stress levels of Air Traffic Controllers and their job satisfaction levels, and that the level of job satisfaction decreases with the increase in the stress level [13]. In another study, it has been shown that the level of job satisfaction is higher due to the fact that aviation sector employees receive more salaries than other sectors, and the roles and duties of the employees are clearer [14].

2.4. The Concept of Stress and Its Importance

In today's modern world, people have brought a serious amount of movement and speed in their working and social lives. In this way, stress has become inevitable as a result of an active and fast-paced life. Among the problems caused by the working life of the modern world, stress has been the most important issue since it affects everyone in working life [15].

Various definitions of the concept of stress have been made. While Ivancevich and Matteson explain the stress as “an adaptation reaction that results from a random influence, dimension, or event that has physical or mental consequences on the person, and is revealed by personal characteristics or mental processes” [16], Cüceloğlu explained it as “the physical and mental straining of one's limits due to the negative conditions coming from the environment” [17].

2.5. Work Life and Stress

With stress being inevitable in the modern world, it has been stated that the source of stress is the work environment where employees spend all their days. It is seen that employees in stressful work environments are mentally tense, cannot get along with their colleagues, and show maladaptive personality traits. For this reason, there are features such as worrying, being unhappy, being in the middle of making decisions, acting impatiently, being touchy, always being critical, not being able to offer constructive suggestions, not showing priority, not working in depth, not showing empathy, and forgetfulness in people with high stress levels [15].

When the stress factor is evaluated in terms of the success of the employees in their business life,

it is seen that there are four basic factors. These four factors [18];

- Since work life is a major source of stress, it has a negative impact on employees.
- Stress sources outside of business life begin to affect business life over time.
- While continuing the job, the employee tries to get out of the stressful environment he is in at the same time.
- Success or low level of success at work can be a cause of stress. It is possible for the employee to see his/her work as a direct source of stress.

2.6. Relationship Between Stress and Job Performance

When the employees experience stress in their work lives, a negative effect begins to occur on the employees and causes the employees to be less productive at their work. As a result of the stress experienced, both the employee and the company are negatively affected and work efficiency decreases. As a result of the decrease in work efficiency, it is observed that the job satisfaction level of the employees decreases [19]. It has been observed that employees at work environments with high stress levels are mentally tense, cannot get along with the people around them, and are incompatible. As a result, it was stated that job dissatisfaction emerged [15].

Studies have shown that with the increase in the level of stress experienced in the work environment, the level of job satisfaction felt decreases [20]. As a result of the research conducted by Zincirkıran and others, a significant relationship was found between stress and job satisfaction [21]. On the other hand, in a study conducted among research assistants in 2017, the relationship between stress and job satisfaction was investigated, and as a result of the research, it was shown that stressful working environments negatively affect the level of job satisfaction [22].

2.7. Stress factor in Aviation

In the study, in which stress sources affecting flight crews were investigated and how stress affects flight crews, the characteristics of the job, being appreciated or promoted, relationship with the manager, financial opportunities, relationship with the team and family life were shown as sources of stress. Among these stress sources, the highest rate

was financial situation and lack of appreciation. In addition, it was observed that job satisfaction levels decreased as a result of the stress of the flight crew as a result of these situations [23].

According to another study, it has been shown that pilots cannot fully use the knowledge and skills they have under stress and flight safety is endangered. In addition, it has been shown that this situation negatively affects the Crew Resource Management (CRM) of the pilots and causes disruption of the order among the crew. CRM deficiency was also cited as the cause of the Tenerife accident, which was the biggest accident in the history of civil aviation and caused the death of 583 people in 1997 [24].

In another study on pilots, it has been shown that the reasons such as monitoring all the systems at the same time, controlling and managing the crew, and providing continuous communication, all the controls of a passenger and fuel-filled aircraft flying thousands of feet high and flying at a speed of hundreds of knots, are a source of stress on the pilots. It has been stated that as a result of this situation, which causes stress on the pilot, the performances of the pilots are negatively affected [25].

In a study conducted with 101 airline pilots, it was shown that the stress levels of pilots with 8 or more years of experience were higher. In addition, workload redundancy and task conflict have also been shown as sources of work stress. In addition, in the same study, it was shown that the work performance of the pilots was negatively affected by the stress they experienced [26].

3. Methodology

In this study, in which data were collected by questionnaire (survey) method, a 7-question scale developed by House and Rizzo was used as a stress questionnaire. As a result of the confidence analysis for stress questionnaire, the Cronbach Alpha value was found as 0.861. The questions used in the stress scale are as follows;

- My job is prone to directly affect my health.
- I work under quite a lot of tension.
- I feel irritable because of my job.
- My health would probably be better if I had a different job.
- Problems with my job are causing me to have trouble sleeping.

- I feel nervous before meetings held at my company.
- Even though I am doing other things when I am at home, I often think about work-related issues.

Minnesota Job Satisfaction Scale was used for job satisfaction. As a result of the confidence analysis for job satisfaction questionnaire, the Cronbach Alpha value was found as 0.956. The questions used in the job satisfaction scale are as follows;

From my current job, in terms of,

- always pleasing me,
- being able to work alone,
- the chance to do different things from time to time,
- giving a chance to be a respective person in society,
- the way my manager handles people on his team,
- my manager's ability to make decisions,
- having a chance to do things that are not against my conscience,
- giving me a steady job,
- giving me the opportunity to do things for others,
- having a chance to tell people what to do,
- having a chance to do something using my own skills,
- implementation of business decisions,
- the work I do and the wages I get for it,
- having the opportunity to be promoted in the job,
- giving me the freedom to make my own decisions,
- giving me the chance to use my own methods while doing my job,
- working conditions,
- my co-workers' agreement with each other,
- recognizing for a job well done,
- feeling of success in return for what I have done.

As the universe of the research, pilot license was given by the General Directorate of Civil Aviation under the Ministry of Transport and Infrastructure of the Republic of Turkey and the pilots actively working in the airlines were determined. A total of 119 returns were made to the questionnaires sent, and the results of the research were reached with a sample of 119 people. This number was found to be

sufficient due to the time limitation of the research and the inaccessibility of all pilots in Turkey. The data obtained by the questionnaires were analyzed in the SPSS 22 program and ANOVA, Correlation and Regression Tests were applied. As a result of the tests, if the p value is greater than the alpha value of 0.05, it is said that there is a significant relationship between the two variables.

It is known that the stress experienced in the work environment causes job dissatisfaction in people. When it is known that pilots also experience serious stress throughout their work lives, the hypothesis was as follows;

- Ho: There is no significant relationship between the Stress level of the pilots and the level of Job Satisfaction.
- H1: There is a significant relationship between the Stress level of the pilots and the level of Job Satisfaction.

4. Findings

4.1. Demographic Results

Looking at the demographic data of the 119 people who participated in the study, it was seen that 97.5% of the pilots were male and 2.5% were female. According to the Twitter post of Turkish Airlines General Manager Bilal EKŞİ on 8 August 2018, considering that 3.8% of the pilots in THY are female pilots, it is considered normal to have such a small number of female pilots in this study. The distribution of the participants according to age data is that 10.9% of them are in the 18-27 age range, 37.8% are in the 28-37 age range, 24.4% are in the 38-47 age range, 23.5% are in the 48-57 age range. It was observed that 3.4% were 58 years old and above. When the education levels are examined, it is seen that 1.7% of them are high school graduates, 65.5% of them are undergraduate, 31.1% of them are postgraduates and 1.7% of them are doctoral graduates. Looking at the seniority of the pilots, it was seen that 58% were F/O-First Officers and 61% were Captain Pilots. Finally, when we look at the duration of experience, 24.4% of them are 2 or less years, 21% are 3-5 years, 7.6% are 6-10 years, 16.8% are 11-15 years and 30.3% of them had 16 years or more of work experience.

4.2. Survey Results

In this part of the study, the relationship between stress and job satisfaction is shown. Before the

correlation analysis, normality control was made and Skewness and Kurtosis values were checked. According to the study conducted by Hair et al in 2013, if the Skewness value is between -1 and +1, it is considered to be normally distributed [27]. In addition, as a result of the study conducted by George and Marrayley, it was shown that the Kurtosis value between -1 and +1 indicates the normality of the data [28].

Table 1. Representation of the normal distribution of stress

Stress	Statistic	Std. Error
X	3,4346	0,08429
95% Confidence Interval for Mean	Lower Bound	3,2677
	Upper Bound	3,6015
5% Trimmed Mean	3,4632	
Median	3,4286	
Variance	,845	
S	,91952	
Min.	1,00	
Max.	5,00	
Range	4,00	
Interquartile Range	1,14	
Skewness	-,429	,222
Kurtosis	-,066	,440

As can be seen from Table 1, as a result of the normality test for the stress factor, it was seen that the Skewness and Kurtosis values were within the limits and were found to be normally distributed.

Table 2. Representation of the normal distribution of job satisfaction

Job Satisfaction	Statistic	Std. Error
X	3,7444	,08243
95% Confidence Interval for Mean	Lower Bound	3,2111
	Upper Bound	3,5376
5% Trimmed Mean	3,4142	
Median	3,4500	
Variance	,809	
S	,89922	
Min.	1,00	
Max.	5,00	
Range	4,00	
Interquartile Range	1,20	
Skewness	-,540	,222
Kurtosis	,074	,440

As can be seen from Table 2, as a result of the normality test for the job satisfaction factor, it was

seen that the Skewness and Kurtosis values were within the limits and were found to be normally distributed.

Table 3. Stress and Job Satisfaction Correlation Analysis

		Job Satisfaction
Stress	Pearson Corr.	-,506**
	Sig (2 way)	,000
	N	119

As can be seen in Table 3, as a result of the correlation analysis, it has been observed that stress has a negative relationship with job satisfaction.

Table 4. Stress and job Satisfaction ANOVA Test

ANOVA	Sum of Sq.	Df	Mean Sq.	F	Sig.
Regression	24,42	1	24,427	40,261	,000 ^b
Residual	70,98	117	,607		
Total	95,41	118			

- a. Dependent Variable: Job Satisfaction
- b. Predictors (Constant): Stress

Table 5. Stress and Job Satisfaction Regression Analyse

Model ^a	Unstd. Coeff.		Stand. Coeff.	t	Sig
	B	Std. Error	Beta		
Constant	5,074	,277		18,35	,000
Stress	-,495	,078	-,506	-6,34	,000

As a result of regression test performed after finding a significant relationship between stress and job satisfaction, it was found that the stress factor has a negative effect of 49.5% on the job satisfaction factor, as can be seen from talbo 4 and 5.

5. Result

Aviation is a form of transportation that is developing rapidly. The rapidly growing aviation sector has started to be preferred by people frequently, as it is advantageous compared to other modes of transportation in terms of both time and passenger comfort. As people prefer aircraft as a means of transportation, airline companies have started to grow, have placed new aircraft orders and continue to do so. However, the most important issue that will never be compromised in the face of this rapid growth is undoubtedly flight safety. Although aircraft are seen as the safest means of

transportation in the world, they can also experience accidents / incidents, although not very often.

The greatest wealth a business has is its human resources. Because with the employee profile, the business either succeeds or fails. For this reason, the employee profile is a point that the business should pay attention to and constantly follow. The best method to follow the employee profile would be to measure the job satisfaction levels of the employees. Because, according to the results obtained when the studies in the literature are examined, the job performance decreases with the decrease in the job satisfaction levels of the employees, and as a result, the work done is negatively affected. Considering the stress situation in working life, working life is a situation in itself that puts employees stressed. The job satisfaction levels of employees with high stress levels were negatively affected.

As a result of the analysis, it was found that there is a negative relationship between stress and job satisfaction. In other words, it is expected that the job satisfaction level of a pilot with a high stress level will decrease. When we look at how much stress affects job satisfaction, it has been seen that it has a negative effect of 49.5%. In other words, it is seen that with 1 unit increase in the stress level of the pilots, their job satisfaction level decreases by 49.5%.

To make suggestions to researchers who want to conduct research on these issues in the future, the universe and sample can be expanded further as a continuation of this research, and if necessary, data can be collected from pilots working both in Turkey and abroad, and they can reach a wider range of results.

It is thought that this study may be useful in the human resources planning of airline companies, as well as suggestions to airlines. It is thought that it can be beneficial in the selection of pilots in the pilot recruitment process, according to the reactions of the candidates or the attitudes and attitudes they show during the selection stages of the interview or post-interview. Flight safety should never be overlooked when selecting a pilot for airlines. For this reason, based on the data obtained as a result of this research, it is necessary to be more careful about the features that can be understood during the interview, such as human resources and stress management of the candidates. Apart from recruitment, it should also be checked whether the

pilots who are already within the body are performing their duties within the framework of the CRM rules. Flight safety can be compromised in a cockpit with high stress levels due to lack of communication or disagreement between the crew. For this reason, companies should check whether flights take place within the framework of CRM. In case of any problem, necessary interventions should be made.

In this context, airline companies should prepare their human resources departments well when planning their personnel, ensure that they manage the processes by foreseeing the problems that may be encountered in the future while managing the recruitment processes, and hire the appropriate people. Otherwise, an accident-incident may occur due to a stress-induced personality disorder or job dissatisfaction in the future, and irreparable damages may occur.

Ethical Approval

The survey study was carried out with the approval number 2021/01 of Istanbul Aydın University Ethics Commission.

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