

# Investigation the Root Causes of Seafarers' Turnover and its Impact on the Safe Operation of the Ship

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**ABSTRACT:** Thus, the importance of turnover from the point of view of managers' is that a high rate of turnover not only necessitates a costly personnel replacement, recruitment, selection and training of new personnel but also disrupts normal operations resulting in a loss of productivity and safety. Besides a loss of critical personnel who is carrying out core activities, like master, chief engineer or chief officer that can not be compensated easily with an other competent alternative, it could definitely result in a loss of production and loss of a skilled worker who is competent and reliable with safety precautions and company politics which means loss of thousands of dollars in maritime transportation.

This study concentrates on making an investigation on "intention to quit" and its antecedents. Consequently the effects of turnover on both organizational and safety aspects and their countermeasures are discussed in advanced.

## 1 INTRODUCTION

Work has been at the centre of the human life since the beginning of the settled societies. From the times of the industrial revolution and onwards work has become a central issue in the human life.

The more economic life organized itself in terms of improved economic activities, the more the role played by regular work in economic life became.

With the increases importance of work life in the social life of people, the satisfaction taken from the job a person performs has become an important issue. The attitude of the employees toward work and the satisfaction they get from their work has been crucial element for work places - especially for the crew onboard a ship where the seafarers are lack of common social activities that the workers have in other jobs.

Today the term job satisfaction is a key element of the human resources management context. Many multi-national firms in the global market are giving utmost care to this subject and researchers are conducting empirical studies to find out the various determinants of employee satisfaction from the job. However maritime industry research is relatively new in this field of studies.

Studies shows that highly satisfied employees tend to have better mental and physical health, learn new job related tasks more quickly, have fewer on the job accidents. Regarding the maritime accidents for the last 15 years, statistics shows that 80% of them is connected to human errors. Therefore International Maritime Organization (IMO)

encourages studies on human element and human errors to eliminate the error caused by seafarers and decrease the accidents in maritime transportation.

Staffing and training qualified crew is the key element in this issue. Hence Maritime Transportation Companies are giving long term based training to their seafarers which are expensive to increase the quality of the work force which will surely result in high performance and low human error. The main problem here is high turnover rates due to the structure of the work force of seafarers.

The determinants of intention to turnover and decrease in performance in the organizations and their impacts on turnover and productivity are very important for the healthy operation of the organization. When taken separately both job satisfaction and organizational commitment have significant impact on both intention to turnover and job performance. Here job satisfaction is in general, the degree to which an individual feels positively or negatively about the various facets of the job tasks, the work settings and relationships with supervisors and co-workers and organizational commitment refers to the strength of the employee's involvement and identification with the organization

In this study we have conducted an empirical research to evaluate the effect of job satisfaction and organizational commitment on intention to quit (turnover) on Turkish seafarers. The Statistical Package for Social Sciences (SPSS) program was used to analyse the data of the study. Simple correlation, multiple regression analysis Anova analysis are performed through the use of SPSS to

see the relationship between the independent and the dependent variable of job satisfaction, organizational commitment and intention to turnover.

## 2 LITERATURE REVIEW

### 2.1 Job Satisfaction

Job satisfaction has certain *sine qua son dimensions*, without which satisfaction obtained from the job can not be accurately understood. Based on these dimensions job satisfaction is said to be:

- An emotional response to a job situation which makes it unobservable, but which can only be inferred.
- Often determined by how well outcomes meet or exceed the expectations.
- A representation of several related attitudes (Luthans, 1992).

In the literature, job satisfaction has traditionally been tied to the satisfaction of employees' both economic and non-economic needs. The empirical analysis done by Hallowell, et al. (1996) suggests that the non-economic need satisfaction is more important than economic needs satisfaction.

Many studies propose that, although very important, job satisfaction is not broad as organizational commitment. Lum, et. al. (1998) see job satisfaction as a mediator between environmental and personal characteristics and organizational commitment.

It is difficult to be precise about the sources of job satisfaction since there are many variables that are being influential. Today the main debate is being carried around the issue of determination of the factor themselves. There are several researchers who have studied the sources of job satisfaction.

Arnold and Feldman (1986), McAfee and Champagne(1987) had determined six sources of job satisfaction to use in their research, which are namely pay, supervision, the firm as a whole, the work itself, co-workers and advancement as the most frequently studied.

Job satisfaction is important for its various outcomes, but first of all it is important since "job satisfaction in and of itself is a desirable outcome" (Luthans, 1992). According to Mitchell (1982), there are four main topics, which separated satisfied and dissatisfied employees. These are turnover, absence, health and productivity. From the point of seafarers "absence" can not be count as main topic because of the work place conditions "being absent" can not be occurred. However being late to watch keeping shifts may exist which can be identified quickly. Hellrieger et. al. (1995) added that, these four behavioural consequences give an idea to management about the problem at work.

Many researchers analyzed the link between job satisfaction and turnover and in most of them it is found that the relation is low (McAfee and Champagne, 1987). A great deal of research is conducted about the relationship between job satisfaction and turnover and it is concluded that, satisfaction and turnover are negatively correlated. The greater the satisfaction, the lower the turnover rate (Mitchell, 1982). Job satisfaction is related to turnover rates where a high turnover rate may be highly costly for the organization since it requires selection of the new personnel, their training and orientation to the company.

Arnold and Feldman (1986) offer that it is difficult and costly to replace the employees and it causes direct and indirect cost to the company. The remaining employees may be demoralized following these losses (Davis and Newstorm, 1998). Of course, job satisfaction should not to be seen as the sole determinant of turnover. It may be better to define the relationship between job satisfaction and turnover as follows: High job satisfaction does not guarantee low turnover but low job satisfaction creates intentions to turnover.

### 2.2 Organizational Commitment

The concern with the organizational commitment came from its impact on turnover and the beliefs that it is a better predictor of turnover than job satisfaction (Ko et. al., 1997).

"Organizational Commitment refers to the strength of an employee's involvement in and identification with the organization" (Hellrieger et. al., 1995) Mitchell (1982) gave the same definition in terms of employee's loyalty and identification with the organization. Luthans (1982), Hellrieger et. al. (1995), Scandura and Lankau (1997) used Mowday, Steers and Porter's classification on organizational commitment as:

- Employee's strong belief in and acceptance of goals of the company and its values.
- Employee's great effort on behalf of the organization.
- A strong desire to continue his membership for the particular organization (Mowday, et. al. 1979).

School (1981) determines four mechanisms through which commitment evolves. These mechanisms are: (1) investments, (2) reciprocity, (3) lack of alternatives, (4) identification. Investment refers to any kind of investment the employee thinks he/she has made in present job. If these investments' values are high for the employee, he/she will not be willing to quit even if he/she has dissatisfied expectations. One of the most common this kind of investments from the view of the seafarer is the expectation of being promoted to the shore based

staff of the shipping company. Reciprocity works through making the employees feeling themselves in debt to the employing company by rewarding them higher than their expectations. This kind of behaviour is very common at officers who are promoted to chief officer or chief officers who are promoted to captains by their companies before they have expected. Feeling in debt draws them away from the idea of quitting even if they would like to do so in other circumstances. Another mechanism is lack of alternatives which may also stop employees from quitting even if they are dissatisfied with their jobs. Identification is a moral tie rather than a calculative one that prevents an employee from leaving. It works through linking one's social identity with his/her role in the employing company.

Very similar to Shermerhorn, et. al. (1994), Hellrieger, et. al. (1995) define organizational commitment as "the strength of an employee's involvement in and identification with the organization" as we mentioned before. According to this definition, a strong organizational commitment involves dedication to organization's goal and values, a desire to show effort for the organization and a strong willingness to stay on the job as a member of the organization. It is not simply loyalty since loyalty to the organization does not include dedication to organizational values and goals. Another characteristic of organizational commitment that Hellrieger et. al. mention is its broadness which comes from the fact that organizational commitment applies to the whole organization rather than the job itself (Hellrieger et. al. 1995).

Organizational commitment is an attitude about employees' loyalty to their company and it is an ongoing process through which organizational participants express their concern for the organization and its continued success and well-being. Lum et. al. (1998) cited DeCoutis and Summers' (1987) strong emphasis on the broadness and importance of the concept of organizational commitment as a global attitude acting as a stabilizer of behaviour direction when expectancy/equity conditions are not met.

Mowday, et. al. (1982) categorised factors influencing organizational commitment which involves investigating the factors in broad categories that they name personal factors, organizational factors and non-organizational factors.

The consequences of organizational commitment can be identified under four topics:

- Committed workers contribute to innovations and creativity (Aven, 1993).
- Committed are willing to work more to serve their organization, contributing to greater effectiveness in their organization. (Ostroff, 1992).

- Committed employees perform better (Jaush and Glueck, 1978).
- Commitment predicts turnover which is very costly for organization (Porter et. al., 1974).

Since turnover is costly to an organization, this relation has been studied thoroughly. A negative relation between organizational commitment and turnover was found by Porter et. al. (1974), where the more committed the employee is, the less turnover the organization has. This findings was supported by Allen and Meyer (1990), Angle and Perry (1981), Koch and Steers (1976), Aven et. al. (1993).

Consequently of all above findings, it can be said that organizational commitment influences maritime companies in two ways: benefiting more from seafarers because of their presence, they perform better and contribute more than individuals who are not committed which shows its effect with less accidents therefore safe ship operations and more involved to company values and goals that results in successful inspections, and the other benefit is not losing such a good seafarer.

### 2.3 Turnover

"Turnover" is the loss of employees by the organization for variety of reasons (Werther and Davis, 1989). There are two kinds of turnover. Those are voluntary turnover which seen through resignation or retirement and the involuntary turnover seen through layoff or discharge (French, 1994). Either voluntary or involuntary employee turnover should be analyzed because each one has an impact on the organization. Unexpected turnovers can be difficult for the organization to fullfill the empty position.

Lum et. al. (1998) stated that many researchers have developed models to explain turnover behaviour. In general, such models suggest that turnover behaviour can not be explained without employing attitudinal, decisional and behavioural components. They also suggest that turnover is a multistage process, which involves three main determinants: individual factors, economic opportunity and work-related factors. Curran (1980) investigates turnover as a function of the job, which represents the job characteristics of the industry and an average employee; the employee characteristics in that industry and labor market conditions. She find out a significant relationship between turnover and unemployment as well as wage levels.

Traditionally, researchers focused on job satisfaction and organizational commitment which are predictors of intention to turnover, as primary precursors of voluntary turnover. The higher the job satisfaction and the organizational commitment of the employees, the less the turnover is. Today, many

of the studies are done by investigating personal variables which have significant impact on voluntary turnover (Jenkins, 1993).

### 3 METHODOLOGY

For the study a total of 77 seafarers was utilised on a voluntary basis. The analysis has been carried out for active seafarers who are still working onboard the ship.

The questionnaire form has three main instruments. The job satisfaction instrument was mainly adopted from Minnesota Satisfaction Questionnaire (MSQ) which was developed by Weiss, Dawis, England and Lofquist (1967) cited in Cook et. al. (1981) and developed by the researchers based on seafarers. Organizational commitment instrument was designed by the researchers through analysing many related topics and questionnaires and adapted mainly from work by Cook and Wall (1980) and Cook et. al. (1981). The questionnaire is prepared by taking the identification involvement and loyalty dimensions into consideration. Intention to turnover instrument included two-items and was designed by the researchers. These two-items are presented after the organizational commitment instrument. Responses to all the items in the questionnaire are given on a six-point likert scale.

### 4 ANALYSIS OF THE DATA AND FINDINGS

In order to test the internal consistency of the instruments used in the study, the Cronbach alpha formula was used and the coefficient of internal consistency found to be acceptable as seen in Table 1 which means that the instruments are reliable.

Table 1. Internal consistency of the instruments

Instruments	Cronbach $\alpha$
Organizational Commitment	.780
Intention to turnover	.819
Job Satisfaction	.932

Factor analysis is applied to each instrument to identify the main factors of the related instrument.

The analysis of commitment instrument resulted parallel to the three-component model of commitment which is developed by Allen and Meyer (1990). Table 2 shows the factors and their consistency.

Table 2. Consistency of the sub-scales of the commitment

Commitment	Cronbach $\alpha$
Factor 1: Affective Commitment	.74
Factor 2: Normative Commitment	.92
Factor 3: Continuance Commitment	.87

The analysis of job satisfaction resulted in a 3 factors. The items that have factor loading lower than 0.50 has been eliminated. Remaining three factors a named according to the items they involved. Table 3 shows the factors and their consistency.

Table 3. Consistency of the sub-scales of the job satisfaction

Job Satisfaction	Cronbach $\alpha$
Factor 1: Satisfaction regarding to the co-worker relations	0,97
Factor 2: Satisfaction regarding to the achievement	0,86
Factor 3: Satisfaction regarding to the pay	0,80

After the analysis of the intention to turnover instrument one factor had been determined as expected. The internal consistency of the factor is 0.82 and explained the total variance of 76,1%.

Corelation analysis is carried out between the independent variables of the study (affective commitment, normative commitment, continuance commitment, satisfaction regarding to the co-worker relations, satisfaction regarding to the achievement and satisfaction regarding to the pay) and the dependent variable intention to turnover. Corelation analysis of the variables are shown in table 4.

Table 4. Correlation Matrix of Variables and Significance

	cf1	cf2	cf3	Jf1	ji2	ji3	Tf
cf1 Pearson Correlation	1	,793(**)	-,498(**)	,617(**)	,767(**)	,371(*)	-,724(**)
Sig. (1-tailed)		,000	,006	,001	,000	,034	,000
cf2 Pearson Correlation	,793(**)	1	-,491(**)	,741(**)	,584(**)	,192	-,934(**)
Sig. (1-tailed)	,000		,006	,000	,001	,179	,000
cf3 Pearson Correlation	-,498(**)	-,491(**)	1	-,628(**)	-,146	-,314	-,426(*)
Sig. (1-tailed)	,006	,006		,000	,243	,063	,017
jf1 Pearson Correlation	,617(**)	,741(**)	-,628(**)	1	,504(**)	,443(*)	-,643(**)
Sig. (1-tailed)	,001	,000	,000		,005	,013	,000
ji2 Pearson Correlation	,767(**)	,584(**)	-,146	,504(**)	1	,377(*)	-,542(**)
Sig. (1-tailed)	,000	,001	,243	,005		,032	,003
ji3 Pearson Correlation	,371(*)	,192	-,314	,443(*)	,377(*)	1	-,279
Sig. (1-tailed)	,034	,179	,063	,013	,032		,088
Tf Pearson Correlation	-,724(**)	-,934(**)	,426(*)	-,643(**)	-,542(**)	-,279	1
Sig. (1-tailed)	,000	,000	,017	,000	,003	,028	

\*Significant at  $p < 0.05$

The correlation analysis shows that affective commitment (cf1) and normative commitment (cf2) has a strong negative correlation with turnover where continuance commitment (cf3) has a positive correlation. On the other hand all factors of job satisfaction has negative correlation with turnover.

Lastly the data subjected to multiple regression analysis. The results of model summary, Anova tests and regression coefficients are shown in table 5, table 6 and table 7 respectively.

Table 5. Model Summary of Regresyon Analysis

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,953(a)	,907	,877	,52355

Here R square represents explanation of the dependent variables by the independent variable, which is 0,877.

Table 6. Anova Results of Regression Analysis

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	48,373	6,00	8,062	29,412	0,000
	Residual	4,934	18,00	0,274		
	Total	53,307	24,00			

The last column in table 6 represents the significance of the model which in this case significant (Significant at  $p < 0.05$ ).

From the results of the Table 7 it can be seen that only normative commitment and satisfaction regarding to the pay have a significant relation with intention to turnover. The other factors of both organizational commitment and job satisfaction is found to be not explanatory in this study.

Remember that in the correlation analysis we have determined a strong yet negative correlation between turnover and affective commitment however regression analysis shows that this correlation is not an explanatory between turnover and affective commitment.

Table 7. Coefficients of Regression analysis

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
	B	Std. Error	Beta		
1 (Constant)	8,011	1,100		7,286	0,000
bf1	0,288	0,320	0,158	0,903	0,379
bf2	-1,294	0,166	-1,191	-7,776	0,000
bf3	0,008	0,195	0,005	0,041	0,968
if1	0,277	0,158	0,244	1,760	0,095
if2	-0,015	0,218	-0,009	-0,069	0,946
if3	-0,348	0,146	-0,212	-2,376	0,029

## 5 CONCLUSION

The study shows that from the view of the Turkish seafarers the most important factors affecting their intention to quit are satisfaction regarding to the pay and especially normative commitment.

Normative commitment is eliminated although other studies in the field point it as the most important factor affecting the intention to quit. This difference can be explained by the social structure of

the Turkish people in our case Turkish seafarers. Normative commitment has a very important role on the social structure and the relationships between the people. Hence this importance is affecting the work life. Also satisfaction regarding to the pay has an impact on intention to quit.

HRM departments of the shipping companies should dwell on to the turnover rates and factors that are affecting it. Its importance not only comes from the heavy cost of training and employing a new crew but rather losing an dependent, safe worker who knows, understands and obeys the regulation and company policies on safety and operation of the ship.

A 15-year of major claims (costing over US\$ 100,000) by the UK P&I Club (1987-2003) found that the human element was contributory factor in 54% of these by number, or 62% by cost. Extrapolating this across the worldwide industry gives a direct attributable cost of US\$ 2.6 billion (UK P&I Club, 2004).

The key to eliminate the human error in a company is employing well-qualified crew. However these “well-qualified crews” are not easily found which fits your company needs and can easily be lost. Therefore shipping companies in Turkey prefer to take new graduates and train them according to their needs. But what if they “intent to quit”? All those expensive trainings are lost and the company, to keep the ship running, employees who ever it finds, whether qualified or not. This kind of scenarios generally ends with the name of the insurances companies.

Therefore to ensure safe operation of the ship and eliminate human error, companies should employ qualified personal or rather employ and training them according to their needs. But moreover they should keep them within the company.

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