

The Impact of Safety Climate and Work-Family Conflict on Fatigue: A Survey on Turkish Marine Pilots

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Extensive Summary

Introduction

When ship masters berth to an unknown ports or pas through narrow waterways, straits and canals they cannot know all information related with that region and cannot predict traffic situation, weather condition, legal regulation, technical and environmental risks. In that time marine pilots become part of the activity as a guide. Marine pilot can be defined as an expert and qualified master who control the vessel while berthing, departing and sailing. However this occupation includes more complicated duties, risks, stress and fatigue factors.

Especially shifting requires to awake from deep sleep and to start duty accordingly. Working at nights against biological rhythm and decreasing of sleep quality cause stress and fatigue on marine pilots. AMSA (Australian Maritime Safety Authority)'s research on Australian marine pilots (1999) has proved that irregular working hours, shifting, working at nights and bad weather conditions have negative effect on marine pilots. This working system usually cause marine pilots to work away from family on the weekends, special days and holidays. Therefore it is predicted that this case may cause work family conflict on marine pilots.

On the other hand, safety climate related with marine pilot's occupation that affects fatigue in this risky job is very crucial both personnel and organizational level. Due to all of these mentioned reasons it is worth investigating to determine the impact of work-family conflict and safety climate on fatigue. This research is the first study in Turkey which specifies the impact of work-family conflict and safety climate on fatigue for Turkish Marine Pilots.

Methodology

The paper is empirically based on the primary data collected from 100 marine pilots' in Turkey. Data obtained from questionnaires have been analyzed through the SPSS 11,0 statistical packet program, correlation and hierarchical regression analysis.

The results of the survey confirmed the following hypothesis:

H1: Safety climate is negatively correlated with fatigue.

H2: Work – family conflict is positively correlated with fatigue.

After confirming adequate sample, exploratory factor analyze was conducted by using SPSS 11,0 statistical packet program. Factor analyze was implemented with Principal Component Analyze method and Varimax rotation techniques were implemented to identify the underlying structure of various measures. Most factor loadings were above 0.50 which can be assumed a high level of significance.

Then, means and standart deviations for each variable and correlation matrix of all variables were calculated. It is found that safety climate is negatively correlated with fatigue (0,01 level). On the other hand there is positive relationship between work – family conflict and fatigue (0,01 level).

In order to test hypothesis of this research regression analyze was conducted. The results revealed that safety climate negatively affects fatigue ($\beta = -.387$; $p < .01$). While corrected R^2 was .141 in the first model, R^2 was .294 in the second model by adding work – family conflict. Besides work – family conflict affects fatigue positively ($\beta = .403$; $p < .01$). Finally the results of the survey confirmed the two hypotheses accordingly.

Discussion and Conclusions

This study determines the impact of work-family conflict and safety climate on fatigue. An investigation implemented on Turkish marine pilots for this purpose and mentioned relationship was explained with hypotheses. The results of the research showed conspicuous findings regarding with Turkish marine pilots and the hypotheses were confirmed.

The first hypothesis that confirmed within the scope of the study was “safety climate is negatively correlated with fatigue”. This finding is consistent with previous studies that prove the relationship between safety climate and organizational stress and burnout (Schaefer and Moos, 1996; Morrow and Crum, 1998; Opie et al., 2012). In addition to previous studies, this research is important as directly presents the relationship between safety climate and fatigue. Hence this research contributes the literature with this aspect. Especially, it is predicted that there is no any study in Turkish literature related with marine pilots' safety climate and fatigue.

The second hypothesis that confirmed within the scope of the study was work – family conflict is positively correlated with fatigue. Due to prior studies demonstrate that work – family conflict was related with negative conditions as stress, fatigue and low job satisfaction (Burke, 1988; Higgins & Duxbury, 1992; Netemeyer et al., 1996; Boles et al., 1997; Kossek & Ozeki, 1998; Boles et al., 2001; Geurts & Demerouti,

2003), this hypothesis is also consistent with former researches. In other words, the more work – family conflict causes more fatigue of marine pilots.

As a result it is significant the negative relationship between safety climate and fatigue form marine pilot occupation that has high risks. When a marine pilot's safety perception related with the company and with the ship that under his command is positive, his fatigue degree should be low accordingly. As safety perception becomes higher, policies, procedures and organizational norms improve more. In this way, management takes more precaution for the risks and this situation decreases fatigue. As safety perception becomes lower, working conditions become worse and this situation leads fatigue related accidents, financial loss, even loss of lives. Within this scope, managers should make tiny distinctions related with safety climate by giving importance to safety related trainings, taking care of occupational risks of marine pilots. Safety related views of managers, organizational safety norms, practices and policies affect organizational commitment and motivation of employees. Hence, the employees who have high safety perception tend to find positive solutions to fatigue related problems. That's why managers provide decreasing of fatigue related accidents and cases by decreasing fatigue factors in the organizations that have high safety climate.

Besides, irregular working hours of marine pilots is a good example of work – family conflict case and this leads fatigue. As part of this occupation, marine pilots work away from family for 3, 4, 7 or 10 days and this increases fatigue. Due to being away from home, marine pilot may not discharge his/her responsibility to the family and this case induces fatigue. Reducing work – family conflicts provide balance both in the work life and family life. Not having work related fatigue supports positive family life and not having family related fatigue supports positive work life. Hence, it is crucial for managers to take precautions in order to prevent work – family conflict. Within this scope managers sometimes should revise shifting system according to employees' demand. Whenever an employee needs to be near his/her family, managers should give permission. In this way, employees may discharge the responsibility to his/her family and one of the the negative effects of work – family conflicts may be eliminated.

This study has two limitations. The first limitation is participant number of study. Although 320 Turkish marine pilots are under record, only the 100 of them took an interest to this study. Future researches should include more participants. Secondly, the occupation of marine pilot is an international working area. Hence next studies may be implemented internationally and interesting results may be acquired.