



Determining the Effect of Ergonomic Principles of the Work Environment on the Burnout of Employees of Ilam Petrochemical Company with the Role of Safety Culture Moderator

Mohammad Reza Omid^{1,*} , Nabi Omid² , Hadi Meftahi² , Maryam Panahi² 

¹ Department of Industrial Engineering, Technical and Engineering Faculty, Hormozgan University, Bandar Abbas, Iran

² Department of Management, Payam Noor University, Tehran, Iran

Article History:

Received: 10/01/2023

Revised: 06/02/2023

Accepted: 26/02/2023

ePublished: 18/03/2023



Abstract

Objectives: Considering the role of human resources in every organization, it is very important to address issues that lead to the reduction of occupational injuries in the workplace, it is clear that preventing the occurrence of job burnout in improving people's mental health. It plays an important role. One of the topics that can be useful in reducing job burnout is the application of ergonomic knowledge and compliance with safety principles, which is the purpose of this research is to investigate the impact of workplace ergonomic principles on job burnout with the moderating role of safety culture.

Methods: The current research is descriptive survey research, the statistical population of this research is all the employees of Ilam Petrochemical Company, which was obtained by using the Cochran formula, and the sample size is equal to 310 people; The main tools for collecting information in this research include demographic profile questionnaires, ergonomic principles, job burnout, and safety culture. The validity of the questionnaire was confirmed by the professors using face and content validity methods, and the reliability was also confirmed using Cronbach's alpha coefficient. In this research, structural equations based on path analysis in SMART PLS software were used to analyze and test research hypotheses.

Results: The impact of ergonomic principles on the burnout of Ilam Petrochemical employees is negative and significant with coefficients ($T = 12.26$, $R^2 = -0.42$), and the cultural impact of safety on burnout is also negative and significant with coefficients ($T = 14.07$, $R^2 = -0.32$). is, the test of the main hypothesis shows that safety culture moderates the effect of ergonomic principles on job burnout and causes more reduction of job burnout.

Conclusion: Compliance with the principles of ergonomics in the work environment and the existence of a safety culture in Ilam Petrochemical will reduce job burnout.

Keywords: Ergonomics; Burnout; Safety culture

*Corresponding

author:

Mohammad Reza Omid,
Department of Industrial
Engineering, Technical and
Engineering Faculty, Hormozgan
University, Bandar Abbas, Iran.
Email: mromidi_91@yahoo.com



Extended Abstract

Background and Objective

Considering the role of human resources in every organization, it is very important to address issues that lead to the reduction of occupational injuries, including burnout in the workplace. One of the most important elements in relation to human resources is their ergonomic conditions while doing work. In today's industrial world, many employees are forced to adjust themselves to the inappropriate conditions imposed on them by the environment and the tools used, and cope with the created limitations in some way. The consequences of such a compromise can be very serious and have an adverse effect on a person's life, health, safety and processing. In such a situation, a person is not physically or mentally suited to the type of work or equipment used or the environment in which he lives or works. In order to prevent the emergence of such issues and ensure the health of the workforce, the principles of ergonomics help people as an effective approach. Addressing the issue of job burnout and its impact on different variables in different industries is very important. The aim of the study is to investigate the impact of ergonomics of the work environment on job burnout with the moderating role of safety culture.

Materials and Methods

The present research is a descriptive survey research. The statistical population of this research is all the employees of Ilam Petrochemical Company. The sample size is 310 people which was obtained using Cochran's formula. The main tool is to collect information includes questionnaires for demographic characteristics, ergonomic principles, job burnout and safety culture. The validity of the questionnaire was confirmed by the professors using face and content validity methods, and the reliability was also confirmed using Cronbach's alpha coefficient. In this research, structural equations based on path analysis in SMART PLS software were used to analyze and test research hypotheses.

Results

The demographic characteristics of the samples showed that 240 (77%) of the employees were male and 70 (23%) were female. 128 people (41%) of the sample were single and 182 people (58%) were married. The average age of the sample was 28 ± 4.3 , 112 people (36%) between 20 and 30 years old, 84 people (27%) between 31 and 40 years old, 81 people (26%) between 41 and 50 years old and 33 people (11%) were more than 50 years old. In terms of education, 22 people (7%) had a diploma or lower education, 264 people (85%) had a bachelor's degree, and 24 people (8%) had a master's degree or higher. Based on the results obtained from the structural equation test, the impact of ergonomic principles on job burnout has a significant coefficient of 12.26, which is higher than the critical value of 1.96, so ergonomic principles have a significant impact on job burnout. The effect coefficients for the hypothesis are

equal to -0.42. Also, safety culture has an effect on job burnout, the significant coefficient of safety culture's effect on ergonomics is equal to 14.07, which shows the significant effect of safety culture on job burnout. The analysis of the effect coefficient shows that the effect coefficient of safety culture is equal to -0.32. Due to the negative effect coefficients, with the increase of ergonomic principles and safety culture in Ilam Petrochemical, the level of job burnout will decrease. The test of the main hypothesis shows that safety culture (-0.10) moderates the effect of ergonomic principles on job burnout, and causes a further reduction of job burnout. The significant coefficient for the moderating role of safety culture between the two variables of ergonomic principles and job burnout is equal to 8.75, which shows that the main hypothesis of this research as ergonomic principles has an effect on job burnout with the moderating role of safety culture in a petrochemical company is confirmed.

Discussion

If the principles of ergonomics are considered significantly in the programs of organizations and are institutionalized within the organization, it will show its true potential better and more effectively. This research was conducted with the aim of the impact of ergonomic principles on job burnout with the moderating role of safety culture. According to the results of this research, the principles of ergonomics have a negative effect on job burnout in Ilam Petrochemical Company, and it will reduce the job burnout of petrochemical company employees. The negative impact of ergonomics on job burnout can be expressed as the principles of ergonomics provide a method to help the sustainability of work quality systems. For this reason, paying attention to ergonomics and principles of ergonomics in the work environment has a positive effect on the feelings and opinions of employees, and as a result, it increases the sense of empathy and companionship of people towards the organization and its goals. Because through this work, people realize that they are valuable for the organization and their managers. Also, he is not seen as a tool to achieve his goal, the management values him and his wishes as a human being, and the person himself is important to them. Creating this attitude in people will increase their self-esteem and mental health; and the existence of these two elements will reduce job burnout.

Conclusion

The results of this research show that the use of safety and ergonomic principles in Ilam Petrochemical has a significant and negative effect on employee burnout, and reduces employee burnout in this industrial environment. Also, the existence of a safety culture in Ilam Petrochemical is another important tool to reduce job burnout. Based on the obtained results, the simultaneous existence of ergonomic principles and safety culture has a greater effect on reducing the job burnout of petrochemical workers. Therefore, it is suggested to the managers of the petrochemical

company, in order to reduce employee burnout, to pay more attention to the observance of ergonomic principles

in different jobs of the organization, and to establish a safety culture in the body of the organization.

Please cite this article as follows: Omid MR, Omid N, Meftahi H, Panahi M. Determining the Effect of Ergonomic Principles of the Work Environment on the Burnout of Employees of Ilam Petrochemical Company with the Role of Safety Culture Moderator. *Iran J Ergon.* 2023; 10(4): 259-66.