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Fatigue Dimensions among AMT Operators in Mexico

JL Hernandez-Arellano, G Ibarra-Mejía

Universidad Autónoma de Ciudad Juárez
Instituto de Ingeniería y Tecnología

Corresponding author's Email: luis.hernandez@uacj.mx

Author Note: Juan-Luis Hernandez-Arellano has an Industrial Engineering degree from Instituto Tecnológico de Celaya, he also has a MS degree on Industrial Engineering from Instituto Tecnológico de Celaya, actually is PhD. candidate at Universidad Autónoma de Ciudad Juárez, with interest area in ergonomic design of products, human fatigue, and structural equation models (SEM). Dr. Gabriel Ibarra-Mejia has a MD and MS degree from Universidad Autónoma de Ciudad Juárez, he also has an MS degree in Ergonomics from Lulea Tekniska Universitet in Sweden, and a PhD in Environmental Science and Engineering from the University of Texas at El Paso, currently works in the Department of Industrial Engineering at the Universidad Autónoma de Ciudad Juárez.

Abstract: As a result of the inclusion of newer and more sophisticated technologies physical and mental demands imposed on Computer Numerical Control (CNC) machine operators have changed reducing physical effort and increasing mental effort. A fatigue assessment instrument that has shown high rates of reliability and internal consistency has been the Swedish Occupational Fatigue Inventory (SOFI). Its original version determined five dimensions of fatigue: lack of energy, physical effort, lack of motivation", physical discomfort, and sleepiness. Later, the inventory was translated and applied to Chinese computer users and Spanish nurses using the same fatigue construct dimensions. The objective of this research was to determine if the five dimensions of fatigue changed when applied to CNC lathe operators in three automotive parts manufacturing companies located in Central Mexico. A modified questionnaire translated into Mexican Spanish was then administered to a random sample of 263 workers. In order to determine the appropriateness of the established fatigue dimensions, Factor Analysis and Principal Components Analysis with Varimax Rotation were applied. Results indicate two significant changes: 1) due to the physical work environment, the variable warm became part of the lack of energy dimension instead of the physical effort dimension, and 2) the physical discomfort and physical effort dimensions merged as a new dimension. As a result, the modified SOFI's questionnaire 15 fatigue variables were grouped into four dimensions, making different from the five-dimensions SOFI applied in Sweden, Spain, and China. These four new dimensions are "lack of energy", "discomfort and physical effort", "sleepiness" and "lack of motivation".

Keywords: Fatigue dimensions, AMT, Operators, Mexico