

Conference Paper

Relationship between Fatigue and Work Performance of XYZ Employees in 2017

Pentha Mayasari, Doni Hikmat Ramdhan, Rosinta Uli

Occupational Health and Safety Department, Faculty of Public Health, Universitas Indonesia, Depok, Indonesia

Abstract

Fatigue can adversely affect safety, health, work performance, and worker productivity, and it can occur if there are risk factors in the workplace, such as monotony, workload level, and long hours, which can take a toll physically and mentally. XYZ is a government agency that educates and trains personnel in human resources in the field of quality testing of goods. In carrying out its duties, XYZ organizes programming and evaluation of employees through education/training, as well as the implementation of standard training, promotion, cooperation of education, and administrative and household affairs. Annually, XYZ organizes more than 25 training events, in which the training duration varies. The many activities that XYZ carries out encourage employees to work hard, including long hours, which can elicit fatigue. This analytical study, using a cross-sectional design, aims to analyze the relationship between fatigue and employee performance at XYZ. Fatigue was measured in 22 XYZ employees in May 2017 by using the Fatigue Assessment Scale, and the data were analyzed with a correlation test. The results indicated a statistically significant relationship between fatigue and work performance ($r = -0.771$ and $p = 0.0005$) – a very strong and inversely proportional relationship in which the higher the fatigue experienced by XYZ employees, the more their work-performance quality suffered.

Keywords: fatigue, work performance, cross-sectional, FAS

Corresponding Author:

Doni Hikmat Ramdhan
doni@ui.ac.id

Received: 15 May 2018

Accepted: 3 June 2018

Published: 19 June 2018

Publishing services provided by
Knowledge E

© Pentha Mayasari et al. This article is distributed under the terms of the [Creative Commons Attribution License](#), which permits unrestricted use and redistribution provided that the original author and source are credited.

Selection and Peer-review under the responsibility of the ICOHS 2017 Conference Committee.

 OPEN ACCESS

1. Introduction

Anyone can experience fatigue, but each person experiences it differently. Fatigue is a state of tiredness that results in reduced mental and/ or physical performance [1]. Fatigue is a state of reduced alertness and energy due to depleted bodily resources [2]. It is a common condition often present in many with physical, neurological, and

psychiatric disorders [3]. Furthermore, fatigue can take both a physical and mental toll on the body.

Fatigue is one of the biggest occupational health problems in developing countries, posing a serious threat to quality of life when it is not immediately addressed [4]. Poor sleep quality and the characteristics of a person's job can cause fatigue. However, several other factors can cause working fatigue, such as long hours, extended work periods, jobs with little autonomy, low job satisfaction, little control over overtime, noise, repetitive work tasks, a job's psychologically taxing nature, and heat [5].

Matthew said working fatigue can lead to a reduction in productivity, serious workplace injuries, gastrointestinal irregularities, heart disease, stress, hypertension, sleep complaints, injuries at home, slow recovery from illnesses, suicide due to overwork, cardiovascular disease, lack of exercise, and smoking [5]. Fatigue also can lead to a loss of alertness and concentration, causing a reduced awareness of surroundings that can lead to traffic accidents [1]. Lim and Chia said fatigue can decrease a person's alertness and compromise motor skills, reflexes, judgment, and decision-making abilities [1]. Mental fatigue can lead to over-activation in brain activity, which is related to reduced cognitive performance [6]. Severe fatigue over an extended period can lead to workers taking sick leave and disability leave [7]. Furthermore, if not immediately addressed, fatigue can inflict lethal consequences to occupational safety and health.

XYZ which is located in Depok, Indonesia, as a technical implementation unit, is in charge of carrying out education and training in human resources in the field of quality testing of goods. The agency organizes programming and evaluation of training, as well as the implementation of standard training, promotional training, cooperative education, and administrative and household affairs. From year to year, XYZ's responsibilities grow, along with numbers of permanent employees. Annually, XYZ organizes more than 25 training events, in which the duration of training varies. XYZ's many training responsibilities aim to prepare employees for hard work and long hours, which can cause fatigue.

From the initial information that the study's author obtained through interviews, some XYZ employees have experienced both physical and mental fatigue due to workplace factors. However, no studies have been done on the incidence of fatigue at XYZ. Therefore, this study's authors are interested to know the incidence of work fatigue and the presence or absence of a relationship between fatigue and work performance among XYZ employees.

2. Methods

This analytic study with cross-sectional design was conducted in the XYZ agency in May 2017 by testing 22 XYZ employees who met the following inclusion criteria: 25 to 55 years old, on the job for at least one year, no history of disease, and a willingness to participate in this study. The way the respondent was taken is the total population. The participants filled out a questionnaire to determine compliance with the inclusion criteria and exclude those who did not qualify. Participants were measured for fatigue levels using the Fatigue Assessment Scale (FAS) questionnaire. The FAS (Cronbach's alpha = 0.730) is considered to have high reliability in measuring worker fatigue [7]. The FAS consists of 10 questions using a Likert scale in which participants chose from the following to describe their fatigue levels: "never," "sometimes," "regularly felt," "often experienced," or "always experienced" [7].

Work-performance data were obtained from performance appraisals conducted by each employee's supervisor under Republic of Indonesia Government Regulation No. 46, for 2011. Work-performance appraisals consist of elements of employee-performance targets and employee behavior. Employee-performance targets include job tasks and targets that employees much achieve, and they are measured through scalable assessment for certain periods. Employee behavior is assessed by examining certain qualities, including orientation, integrity, commitment, discipline, teamwork, and leadership.

Data were analyzed with a correlation test to determine the presence or absence of any relationship between fatigue and work performance. The following hypotheses were examined:

$H_0 \mu_1 = \mu_2$ (There is no relationship between fatigue and work performance)

$H_a \mu_1 \neq \mu_2$ (There is a relationship between fatigue and work performance)

3. Results and Discussion

3.1. Participants' characteristics

Participants' characteristics included gender, age, education level, marital status, nutritional status, smoking habits, and years of service. Most respondents were male (59.09%) and over 33.5 years old (54.55%). Other measurements included: undergraduate (45.45%), married (86.36%), normal nutritional status (59.08%), non-smoker

(72.73%), and seniority of less than three years (68.18%). Participants' distribution characteristics can be seen in Table 1.

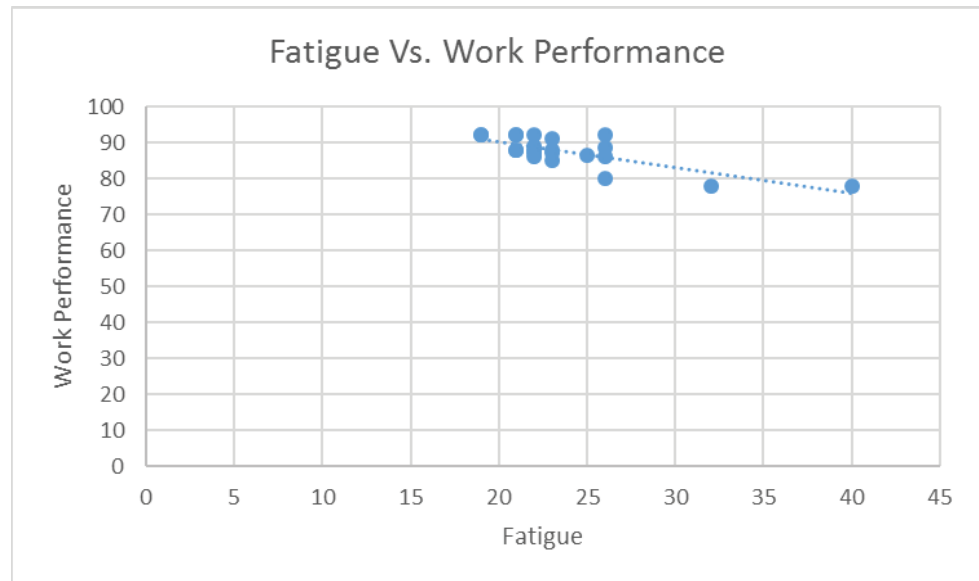


Figure 1: Fatigue vs Work Performance.

3.1.1. Fatigue rate based on total FAS score

Table 2 indicates that 72.73% of respondents experienced low fatigue, while the rest (27.27%) experienced high fatigue.

3.1.2. Bivariate Analysis

The statistical correlation test was done to determine any correlation between fatigue and work performance, with fatigue acting as an independent variable and work performance acting as a dependent variable. The test yielded a p value of 0.0005 (p value $>$ α); therefore, H_0 is rejected. It can be concluded that there is a statistically significant relationship between fatigue and work performance. The test also yielded a correlation value of -0.771. Thus, it can be concluded that statistically, this significant relationship between fatigue and work performance is very strong and patterned negatively, i.e., the higher the fatigue level, the lower the work-performance quality. These results correspond with research by Pasupathy and Barker (2012), who found a negative correlation between fatigue levels and work performance, confirming that as fatigue levels increase, work-performance quality decreases [8]. This finding also was supported by Ahmed et al. (2015), whose research found that there was a strongly

TABLE 1: Distribution of Respondent Characteristics

Characteristics of Respondents	Amount (people)	Percentage (%)
Gender		
Male	13	59.09
Female	9	40.91
Age		
< 33.5 Year	10	45.45
> 33.5 Year	12	54.55
Level of Education		
D3	3	13.64
S1	10	45.45
S2	9	40.91
Marital status		
Not married	3	13.64
Married	19	86.36
Nutritional Status		
Not Normal	9	40.91
Normal	13	59.09
Smoking Habits		
Not Smoking	16	72.73
Smoking	6	27.27
Length of Service		
≤ 3 Year	15	68.18
≥ 3 Year	7	31.82

TABLE 2: Fatigue Rate.

Fatigue Rate	n	Percentage (%)
Low (Total Score of The FAS ≤ 25)	16	72.73
High (Total Score of The FAS ≥ 26)	6	27.27

significant negative correlation between degrees of fatigue and work-performance levels [9].

4. Conclusions

From the research results, it can be concluded that fatigue affects XYZ employees' work performance, but so far, XYZ employees still have been able to manage their fatigue. Furthermore, the same research can be done using objective measurements to examine XYZ employees' fatigue levels more thoroughly so that appropriate steps can be taken to reduce fatigue problems that may hinder employee achievement and productivity.

Acknowledgement

The authors are grateful for all the ranks of The XYZ for the willingness and participation in this research.

References

- [1] Lim SM, Chia SE. The prevalence of fatigue and associated health and safety risk factors among taxi drivers in Singapore. 2015;56(2):92-7.
- [2] Gross S, Semmer NK, Meier LL, Kälin W, Jacobshagen N, Tschann F. The effect of positive events at work on after-work fatigue: They matter most in face of adversity. *J Appl Psychol* [Internet]. 2011;96(3):654-64.
- [3] Abd-Elfattah HM, Abdelazeim FH, Elshennawy S. Physical and cognitive consequences of fatigue: A review. *J Adv Res* [Internet]. 2015;6(3):351-8.
- [4] Sprigg et al. Work Characteristics, Musculoskeletal Disorders, and the Mediating Role of Psychological Strain: A Study of Call Center Employees. *J Appl Psychol* [Internet]. 2007;92(5):1456-66.
- [5] Hallowell MR. Worker Fatigue. *Prof Saf*. 2010;18-26.
- [6] Tanaka M. Effects of Mental Fatigue on Brain Activity and Cognitive Performance: A Magnetoencephalography Study. *Anat Physiol* [Internet]. 2015;54:0-4.
- [7] Michielsen et al. Psychometric qualities of a brief self-rated fatigue measure: The Fatigue Assessment Scale. *J Psychosom Res*. 2003;54(4):345-52.
- [8] Jian Ai Yeow, Poh Kiat Ng TSC and WYL. Effects of Stress , Repetition , Fatigue and Work Environment on Human Error in Manufacturing Industries. 2014.

- [9] Fekry Ahmed M, Fathi Sleem W, Hassan Kassem A. Effect of working condition and fatigue on performance of staff nurses at Mansoura University Hospital. IOSR J Nurs Heal Sci [Internet]. 2015;4(3):2320–1940.