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# THE EFFECTS OF WORKLOAD AND JOB STRESS ON FATIGUE AND ITS IMPACT ON THE PRODUCTIVITY OF COMPUTER OPERATOR EMPLOYEES: A CONCEPTUAL MODEL

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## ABSTRACT

Computer operator employees at the Inspectorate General of the Ministry of Manpower have high workload. This situation every computer employee have to try to increase his productivity for the sake of the implementation of effective and efficient internal supervision within the Ministry of Manpower. The situation at the Inspectorate General of the Ministry of Manpower in Indonesia shows that workload, physical and mental exhaustion are factors causing fatigue those results in a decrease in labor productivity. Workload and job stress on employees can also affect fatigue. This paper set out to develop a conceptual model for testing the effect of workload and job stress on fatigue and its impact on the productivity of computer employees. Literature review, conceptual model, hypotheses development and research methodology are discussed. Practicing this paper instantly would provide information about the relationship of workload, job stress, and fatigue on employee performance at the Inspectorate General of the Ministry of Manpower in the Republic of Indonesia.

## KeyWords

Productivity, Workload, Job Stress, Fatigue, Conceptual Model

## INTRODUCTION

Computer operator employees at the Inspectorate General of the Ministry of Manpower play an important role in conducting data input and processing data related to the duties and functions of the Inspectorate General of the Ministry of Manpower. The high workload on the Inspectorate General of the Ministry of Manpower makes every employee have to try to increase his productivity for the sake of the implementation of effective and efficient internal supervision within the Ministry of Manpower. Productivity, according to Danang Sunyoto (2012: 202) in his book titled Human Resource Management, states that: "Productivity is a mental attitude that always tries and has the view that a life today is better than yesterday and tomorrow is better than today" .

Physical and mental exhaustion are factors causing fatigue those results in a decrease in labor productivity in carrying out their duties. Hasibuan (2010) said that the higher the level of physical and mental fatigue of a person, the productivity can decrease. This means that if an employee experiences physical or psychological exhaustion, it will have an impact on labor productivity, especially on the decreasing of agency productivity.

Tarwaka (2015) states that workload is something that arises from interactions between the demands of tasks, work environment, skills, behavior and perceptions of employees. Workload and job stress on employees can affect fatigue and work productivity. One factor in the success rate of a company or organization is work productivity. Inability to cope with the threat of stress can affect human mental, physical, emotional and spiritual health (Datunsolang, et al., 2018). Pongantung (2018) proves that there is a meaningful relationship between workload and fatigue, this is because the heavier the workload of a person, the higher the fatigue in each workforce. Widyastuti's (2017) research results prove a significant relationship between job stress and fatigue. This is because the higher the stress of work, it can affect fatigue so that fatigue experienced will be higher.

## LITERATURE REVIEW

Productivity according to Danang Sunyoto (2012: 202) in his book titled Human Resource Management states that: "Productivity is a mental attitude that always tries and has the view that a life today is better than yesterday and tomorrow is better than today this". So in the company there is a need to increase the results of someone at work but in reality many do not achieve the desired target by the company because there is often a disturbance in a prolonged individual who is considered small, the problem is that the burden is too heavy and that has too high productivity. Tiffin and Cormick in Sutrisno (2010: 103) say that the factors that affect work productivity can be concluded into two groups, namely factors that exist in individuals and factors that exist outside the individual. Siagian (2014) states that work productivity in companies can be achieved if three factors are met, which are productivity associated with time, productivity associated with human resources, and productivity associated with job facilities and infrastructure. According to Simamora (2009: 612) in Ulinnuha (2016: 509) factors used in measuring work productivity include quantity, quality, and timeliness.

Fatigue is generally complained of as exhaustion in the attitude, orientation, and adjustment of workers who experience fatigue in work. Glimer and Cameron, said that the symptoms of work fatigue, namely:

1. Decreased alertness and attention, decreased perception barriers, thinking or antisocial actions, not compatible with the environment, depression, lack of energy, and loss of initiative.
2. Common symptoms are headache, vertigo, impaired lung and heart function, loss of appetite and digestive disorders (Lientje Setyawati KM, 2011: 27).

Grandjean classify fatigue measurement methods into two groups (Tarwaka, 2014: 368), namely the quality and quantity methods of work and psychomotor test methods. A.M. Sugeng Budiono, et al. (2003: 90) states that generally the methods of measuring fatigue are divided into six different groups, which are (1) quality and quantity of performance, (2) recording of fatigue according to subjective impressions, (3) Electroencephalography (EEG), ( 4) Flicker Fusion Eyes (measuring the subjective frequency of eye blinks), (5) psychomotor testing, and (6) mental testing. Indicator of fatigue according to Suma'mur (1996) in Tarwaka (2015: 371) consists of weakening activities, weakening motivation, and physical weakness.

According to the Decree of the Minister of Manpower of the Republic of Indonesia Number 128 Year 2016 on Guidelines for Workload Analysis at the Ministry of Manpower, what is meant by workload is "the amount of work that must be borne by a position or organizational unit and is a product of work volume and time norms". Tarwaka states that workload is influenced by external factors (outside the worker's body) and internal factors (inside the worker's body). The workload indicator used in this study was adopted from Wihara and Riati (2018: 26) which includes Targets To Be Achieved, Working Conditions, and Work Standards.

Robbins and Judge (2014: 368) states that "stress is a dynamic condition in which an individual is faced with opportunities, demands, or resources related to what is desired by that individual and whose results are seen as uncertain and important". According to Robbins (2014: 306), there are three main sources that can cause stress, namely environmental factors, organizational factors,

and individual factors. Job stress indicators according to Stephen P. Robbins (2008: 375) which were translated by Hadyana Pujaat-maka, can be divided into three aspects, which are psychological indicators, physical indicators, and behavioral indicators.

## CONCEPTUAL MODEL

Based on a literature review has been done, conceptual model that can be generated in this study is as follows:

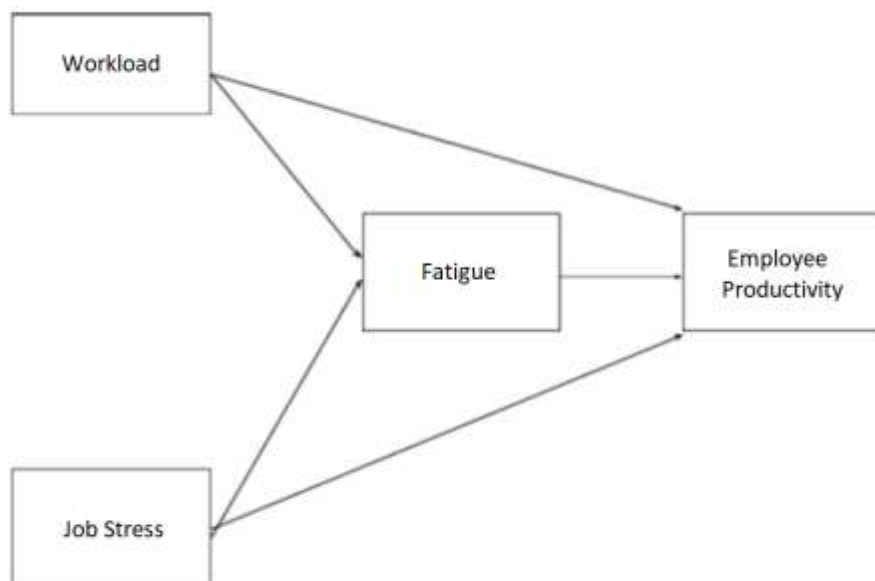


Figure 1: The Conceptual Model

## HYPOTHESIS DEVELOPMENT

### 1. The Relationship between Workload and Employee Fatigue

Delima's research result (2018) proves that the workload has an influence on employee fatigue. Thus, the higher workload provided by the company will increase employee fatigue. Hasibuan (2006) states that fatigue is one indicator of the amount of workload that must be borne by an employee. Many cases occur in Indonesia where the company is not able to calculate the ability that can be borne by an employee to complete his work. The leadership does not realize that heavy workloads negatively affect employee performance. The negative impacts of the workload include not achieving the set targets, the low quality of employee work, increasing the level of employee fatigue which will subsequently have an impact on absenteeism or even increasing employee turnover.

Likewise, Pongantung (2018) proves that there is a significant relationship between workload and fatigue, this is because the heavier the workload, the higher the fatigue in each workforce. Achieving the optimum level of intensity of workload can be obtained if there is no excessive pressure and tension both physically and mentally. Workload received by a person must be in accordance or balanced with the physical abilities of cognitive abilities and the limitations of humans who accept these burdens. Based on those results, the following research hypothesis is proposed:

H<sub>1</sub>: Workload affects employee fatigue.

### 2. The Relationship between Job Stress and Work Fatigue

Results of Widyastuti's (2017) research proves that there is a significant relationship between job stress and fatigue. This is because the higher the stress of work, it can affect fatigue so that fatigue experienced will be higher. Besides, job stress can also be influenced by factors outside the work such as problems outside the office. In addition, the large number of box truck construction orders *box* that must be completed with short deadlines between orders makes workers have to take overtime, both in working days with additional hours of work or holidays such as on Saturdays, making working time for workers increased to complete the work. This could also cause the increase in fatigue of workers.

Likewise, Pongantung et al (2018) explained that there was a significant relationship between job stress and fatigue. The stress that occurs for each individual varies depending on the level of work and problems. Based on those results, the following research hypothesis is proposed:

H<sub>2</sub>: Job stress affects employee fatigue.

### **3. The Relationship between Workload and Productivity**

Samrin (2018) proves that workload has a negative effect on work productivity, which means that the higher the workload, the lower the productivity. Workload is the extent to which an individual employee is needed in completing the tasks assigned to him, identified from the amount of work done, the time limit owned by the work in completing their duties, as well as the individual's subjective view of the work assigned to him. Excessive workload can cause collisions or pressures that occur on a person and can cause a decrease in employee productivity. Based on those reasons, the following research hypothesis is proposed:

H<sub>3</sub>: Workload affects employee productivity.

### **4. The Relationship between Job stress and Productivity**

The results of Tanjung and Hutagalung's research (2018) prove that there is an influence of job stress factors on employee work productivity. Similarly Saefullah et al's (2017) research proves the influence of job stress on employee work productivity. Stress can help or damage the productivity of his work, depending on how much stress he is experiencing. If there is no stress, work challenges are also absent and work productivity tends to decrease, along with the increase of stress, work productivity tends to increase because job stress helps employees to direct all resources in order to meet work needs. If job stress is too high, work productivity tends to decrease because stress interferes with work performance. Based on those results, the following research hypothesis is proposed:

H<sub>4</sub>: Job stress affects employee productivity.

### **5. The Relationship between Fatigue and Productivity**

The result of Sidiq's research (2019) proves the influence between fatigue and employee work productivity. The level of fatigue due to work experienced by workers can cause decreased work productivity, discomfort, disruption and reduce satisfaction and decreased productivity as indicated by reduced speed of performance, decreased quality of products, loss of originality, increased errors and damage, accidents that often occur, lack of attention and lack of attention, inaccuracy in carrying out work. Verawati's research (2016) proved the influence between fatigue and employee work productivity. Work productivity that is not on target can be caused by fatigue in the workforce which can affect work productivity itself. Physical and mental exhaustion is a factor causing fatigue that result in a decrease in labor productivity in carrying out their duties. Those results shows that the higher the level of physical and mental exhaustion of a person, the higher the chance of productivity to decrease. Based on those results, the following research hypothesis is proposed:

H<sub>5</sub>: Fatigue affects employee productivity.

### **6. The Effect of Workload on Productivity through Fatigue**

Past research proves that the workload has an influence on employee fatigue (Delima, 2018). Another research proves the influence of fatigue on employee work productivity (Sidiq, 2019). The result of Samrin's results (2018) shows that workload has a negative effect on work productivity, which means that the higher the workload, the lower the productivity. Based on those results, the following research hypothesis is proposed:

H<sub>6</sub>: Workload affects employee productivity through fatigue.

### **7. The Effect of Job stress on Productivity through Fatigue**

Past research proves that there is an influence of job stress factors on employee work productivity (Tanjung & Hutagalung, 2018). Similarly, another research proves the influence of job stress on employee work productivity (Saefullah et al., 2017). A research proves that there is a significant relationship between job stress and fatigue (Widyastuti, 2017). Another research proves the influence of fatigue on employee work productivity (Sidiq, 2019). The result of Samrin's research (2018) shows that workload has a negative effect on work productivity, which means that the higher the workload, the lower the productivity. Based on those results, the following research hypothesis is proposed:

H<sub>7</sub>: Job stress influences employee productivity through fatigue.

## METHODOLOGY

This research uses quantitative methods. This research will examine associative problems in a causal form. The population of this study is employees of computer operators in the Inspectorate General of the Indonesian Ministry of Manpower in 2019, amounting to 153 employees. Samples will be taken using simple random sampling which is calculated based on the Slovin formula in determining the respondents' sample. The result of the calculation is 60.47 but the sample will be rounded to 61 samples to facilitate this research.

The method of data collection is done through a questionnaire that uses a Likert scale, observation and interviews, and literature studies. The results of data collection will be measured using a validity and reliability test. The data analysis technique used in this study is path analysis by using the SEM model or Structural Equation Modeling with the WarpPLS 4.0 program.

## CONCLUSION

The high workload of computer operators on the Inspectorate General of the Ministry of Manpower makes every employee have to try to increase his productivity. This paper has discussed the background of the research problem at the Inspectorate General of the Ministry of Manpower in the Republic of Indonesia; Literature Review on productivity, work load, job stress, fatigue, relationships among them; the conceptual model; hypotheses development, and methodology. Practicing this paper instantly will find out the relationships among variables in the conceptual model.

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