



THE EFFECT OF WORKLOAD ON EMPLOYEE PRODUCTIVITY WITH WORK FATIGUE AND WORK STRESS AS MEDIATORS AT PT KARYA TUNGGAL PROPERTI: A CONCEPTUAL MODEL

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ABSTRACT

PT. Karya Tunggal Properti is a state-owned company that has recently experienced a decline in productivity. The 2020 productivity is dropping by 67.2%, a huge drop in manpower productivity compared with the year before. The researcher is interested to know the variables causing this issue. This paper is intended to develop a conceptual model to determine the effect of workload on employee productivity by using work fatigue and work stress as mediators. This paper proposes a conceptual model for decreasing employee productivity, along with literature review, hypotheses, and research methodology. The implementation of this paper can provide information about the effects of workload on work fatigue and work stress with a case study of employees at the PT. Karya Tunggal Properti.

Keywords

Productivity, Workload, Work Fatigue, Work Stress, Conceptual Model.

INTRODUCTION

PT. Karya Tunggal Properti is a company in the field of construction subsidized, commercial, and medium-class houses. Lately, this company is experiencing a decline in productivity. Below is the data of subsidized and commercial houses that are made by this company:

Table 1 House Construction at PT. Karya Tunggal Properti

Year	Number of units made	Amount of employees
2018	21 Units	112 Employees
2019	196 Units	108 Employees
2020	72 Units	121 Employees

Source: PT. Karya Tunggal Properti

In 2018, 6 house units are finished and 21 house units are made, making the manpower productivity $21/112 = 18.75\%$. Whereas the 2019 manpower productivity is $196/108 = 181.48\%$ and in 2020 it is $72/121 = 59.50\%$. The 2020 productivity is experiencing a huge drop amounted to $(181.48-59.50)/181.48 = 67.2\%$.

Based on information from PT Karya Tunggal Properti’s Human Resources, it turns out that employees work on average above the predetermined optimum hours that have been regulated in employment. The regulation about employment can be found in Law No. 13 of 2003 Article 77 - 85. Article 77 Paragraph 1 on Law No. 13 of 2003 obliges every entrepreneur to carry out the regulated working hours conditions. The terms of working hours are set into two systems, namely:

1. 7 hours of work in 1 day or 40 hours of work in 1 week for 6 days of work within 1 week; or
2. 8 hours of work in 1 day or 40 hours of work in 1 week for 5 days of work in 1 week.

Table 2 below shows the average working hours of employees per week that exceeds provisions on the regulations about employment that have been set by Law No. 13 of 2003 Article 77 Paragraph 1 which states the number of hours worked in 1 week is 40 hours of work.

Table 2 Average Working Hours of Employees Per week

No	Job desk or person in charge	Optimum	Working hours	Working Hours per week	Amount of employees
1	Finance	7	10	50 Hours	18 Employees
2	Engineering/Civil	7	10	60 Hours	16 Employees
3	Logistics	7	9	62 Hours	17 Employees
4	Legality	7	9	54 Hours	14 Employees
5	Marketing	7	10	65 Hours	20 Employees
6	Digital Marketing	7	9	59 Hours	15 Employees

Source: HR of PT. Karya Tunggal Properti

The Engineering/Civil, Logistics, Digital Marketing, and Marketing divisions sometimes work up to Saturday, accumulating six days of working every week. From Table 2, it is suspected there is work fatigue and work-related stress due to fatigue from working more than the regulated hours that are experienced by the employees of PT. Karya Tunggal Properti .

Results from psychological consultation show that work fatigue and work stress can be seen in Table 3 below.

Table 3 Work Fatigue and Work Stress Table

No	Job	Work Fatigue			Work Stress		
		2018	2019	2020	2018	2019	2020
1	Finance	3 Employees	5 Employees	4 Employees	3 Employees	3 Employees	2 Employees
2	Engineering/Civil	2 Employees	2 Employees	3 Employees	3 Employees	1 Employee	1 Employee
3	Logistics	1 Employee	3 Employees	2 Employees	2 Employees	4 Employees	1 Employee
4	Legality	2 Employees	4 Employees	3 Employees	4 Employees	2 Employees	0 Employees
5	Marketing	3 Employees	3 Employees	4 Employees	3 Employees	4 Employees	3 Employees
6	Digital Marketing	2 Employees	5 Employees	4 Employees	2 Employees	2 Employees	2 Employees

Source: HR of PT. Karya Tunggal Properti Group

Workers who are experiencing work stress will show a change of behaviour. Change occurs as a form of effort in overcoming stress experienced at work. Robbins (2007:375-377) divided three consequences of work stress:

1. Physiological Symptoms: Stress creates diseases in the body as it's marked by increased blood pressure, headache, heart-pounding, and heart diseases.
2. Psychological Symptoms: Stress is shown through tension, anxiety, easily angry, bored, procrastination, etc. These stress symptoms could spur into dissatisfaction.
3. Behaviour Associated Symptoms: Stress could affect behaviour changes in productivity, absenteeism, and employee turnover rate. Other effects also include changes in daily habits such as eating, alcohol consumption, sleep disturbance, etc.

Based on the background, this conceptual paper will discuss the influence of work burden on productivity with work fatigue and work stress as mediators.

LITERATURE REVIEW

A. Productivity

Productivity is the connection between several produced outputs and several needed inputs to produce mentioned outputs (Suparno, 2015). According to Hasibuan (1999), productivity means a ratio among achieved results (output) with the whole used resource (input). Productivity is interpreted as a ratio between output and input (Hasibuan, 2014:126). If productivity increases, this is only made possible by increasing efficiency (time-material-labour) and work system, production technique, and the existence of manpower's skill increment. Productivity fundamentally covers a mental attitude that always views life as today should be better than yesterday and tomorrow should be better than today (Sutrisno, 2015:100). From these experts' opinions, we can conclude that work productivity is the output generated from the usage of manpower and work equipment within the required time.

According to Sutrisno (2015:103), some factors can influence employees' work productivity, namely:

- a. Training
Job training is meant to complement employees with the right skills and methods when using work equipment. Hence, job training is needed not only complementary but to give basic knowledge as well. Through training, employees learn to do something correctly and precisely. According to Stoner, productivity increment is not regarding equipment upgrades, but rather mainly on developing employees. His research study showed that 75% of productivity increments are resulted from improving job training and knowledge, health, and task allocation.
- b. Employees' Mental and Physical Abilities
The mental state and physical abilities of the employees are a highly important achievement for organizations as this is closely related to employees' work productivity.
- c. Connection Among Superior and Subordinate Positions
The connection between the superior and subordinate positions will influence daily activities, such as how the superior view the subordinates and to what extent are subordinates included in goal determination. A mutually intertwined attitude has the ability to increase employees' work productivity. Hence, if employees are treated decently, then employees will also participate decently in the production process, affecting work productivity.

According to Sedarmayanti (2011), Work productivity dimension covers effectiveness and efficiency that can be explained as the following:

- a. Effectiveness is a level where organizations could realize their goals. In other words, effectivity measurement could be done by seeing the extent of the organizations in their capability to reach their desired level.
- b. Efficiency is the ratio of results achieved with the amount of resources used. Input and output are productivity aspects that have a certain influence on employees.

B. Work Fatigue

Fatigue shows a different physical and mental state yet it affects the decrement in work and body endurance (Suma'mur, 2014). Fatigue is also a process of decline in work implementation efficiency and a decrease in human body strength or endurance in continuing carried out activities (Soedirman & Suma'mur, 2014: 150).

Fatigue is experienced differently by every individual but all individuals experience declines in work efficiency and body endurance. Fatigue is set centrally by the brain as in the central neuron there are sympathetic activation systems and parasympathetic inhibition (Tarwaka, 2014:363). There are several definitions of work fatigue such as a feeling of tiredness and the decrease in alert of the central neuron system due to the fundamentally prolonged activity and controlled by the opposition of the activation system and inhibition on the brain stem (Setiawati, 2011: 23). A feeling of tiredness is an unenjoyable feeling that is experienced by employees and is a psychosocial phenomenon.

There are two methods of fatigue measurement: quality and quantity (Tarwaka, 2014: 368). Quality is depicted as a work process or an operation that is carried out in each unit of time. Many factors have to be considered such as production targets, and social and psychological factors at work. The quantity of fatigue is seen through damaged products, product rejection, or accident frequency; however, these factors are no causal factors.

C. Work Stress

Work stress is a condition that influences someone's emotion, way of thinking, and physical conditions (Siagian, 2014:300). Work stress is some tense condition that creates the existence of imbalance of physical and psychological influences on emotions, thought processes, and conditions of an employee (Rivai, 2015). According to Robbins and Judge (2017), work stress is a dynamic condition where an individual is faced with opportunities, demands, or resources that are related to what the individual desires with the result perceived as uncertain yet important. Based on these definitions, it could be concluded that work stress is someone's state of condition experiencing tension due to the existence of conditions affecting his/her emotions and thought processes.

Work stress dimension, according to Handoko (2011:200), covers among others:

- a. **Workload:** The mismatching existence regarding the availability of expected roles, amount of time, and amount of resources in order to fulfil such conditions. The workload is related to the huge amount of tasks that must be implemented, time availability, as well as resource availability. If the proposition of all three is not balanced, the possibility that the task could not be finished will be high. This imbalance can cause somebody to experience stress.
- b. **Conflicting roles:** Conflicting roles refer to the different concepts among employees with their superiors regarding the related tasks. Conflicting roles, in general, could be defined as the establishment of two or more pressure happening simultaneously so that fulfilment of one of the demands will make the fulfilment of the other demands difficult. Conflicting roles is related to the difference in concept among employees and supervisors or superiors regarding contents and the importance of certain required tasks. The contradiction between an employee's commitment to multiple supervisors and the employee's personal values related to the organization's qualifications could cause conflict with an employee.
- c. **Role ambiguity:** Role ambiguity is related to the obscurity of tasks that needs to be conducted by employees. One of the reasons this happened is because of the unclear job description that was given by the superior, resulting in employees not understanding which roles that he/she needs to do and the goals that are desired to be achieved through the said role.

Several factors cause work stress, including interpersonal conflicts with the superior, difficult and excessive workload, time limitation to complete work, pressure, and unfair and unreasonable leadership (Robbins, 2014:373). There are three potential sources of work stress, which are (Robbins, 2014:370):

- a. **Environmental Factor:** Environment uncertainty influences the design of the organization's structure. Uncertainty could also affect the level of work stress experienced by employees in an organization. Changes in the business cycle create an uncertain economy. If the economy shrivels up, employees will begin to worry about their security. These kinds of issues could be sources of stress among employees.
- b. **Organizational Factor:** Lots of organizational factors in the organization could cause work stress, such as pressure to avoid confusion or finishing a task in a limited time frame, excessive workload, and unfriendly colleagues. These factors could be categorized as task demands, role demands, interpersonal, organizational structure, and organizational leadership demands. Several factors that are related to work that is experienced by someone could cause excessive stress.
- c. **Individual Factors:** Usually individuals only work 40 to 50 hours a week. However, experiences and problems that employees encounter outside of working hours, exceeding 120 hours per week, are exceeding the original work. Therefore, this category covers employees' personal life factors, mainly family issues, personal financial issues, and inherent personal characteristics.

D. Workload

The workload is a bunch or amount of activities that need to be solved by an organization or position holder in a certain period (Hendrayanti, 2010:16). The workload is the body's ability in accepting work (Ambarwati, 2014:21). Work capacity should be customized with the number of existing personnel. Whereas according to Hariyati (2011:5), the workload is a difference between an employee's capacity or ability and the given work demands. From these experts' opinions, it can be concluded that workload is a task or a job that needs to be done personally whether quality or quantity-wise.

According to the Decree of the Minister of Administrative and Bureaucratic Reform Number: KEP/75/M.PAN/7/2004, the workload is a bunch or amount of activity that must be completed by an organizational unit or position holder in a certain period (Dhini Rama Dhania, 2010:16). Whereas according to the Rules of Minister of Home Affairs Number 12/2008, the workload is the quantity of work that needs to be done by a position or organizational unit and is an outcome of the multiplication of work volume and time norm.

There are several workload dimensions, according to Tarwaka (2012: 131), namely:

- a. Time Load: Shows the total time of planning, implementing, and monitoring tasks or work,
- b. Mental Effort Load: The amount of mental effort in carrying out a certain job, and
- c. Psychological Stress Load: This shows the level of job risk, confusion, and frustration.

Factors that are influencing workload, according to Aminah Soleman (Journal Arika, 2012:85), consist of external and internal factors. The external factor is workload originating from outside of the worker's body, such as (1) Tasks, which covers physical tasks such as work stations, workplace layout, workplace condition, work environment condition, work behaviour, lifting method, and lifted load. Whereas mental tasks include responsibility, work complexity, work emotions, etc. (2) Work organization, which covers the duration of a work period, rest period, work shift, work system, etc. (3) Work environment, could give extra burden including physical work environment, chemical work environment, biological work environment, and psychological work environment. Internal factors are factors originating from inside the body due to the reaction of external workload that has the potential to be stressors, including somatic factors (gender, age, body size, nutritional status, etc.) and psych factors (motivation, perception, faith, desires, satisfaction, etc.).

CONCEPTUAL MODEL

Based on the introduction and literature review, the following research model or theoretical framework is given in the figure below. The figure describes that the theoretical framework describes the influence of workload on work productivity with work fatigue and work stress as the variable mediators at PT. Karya Tunggal Properti.

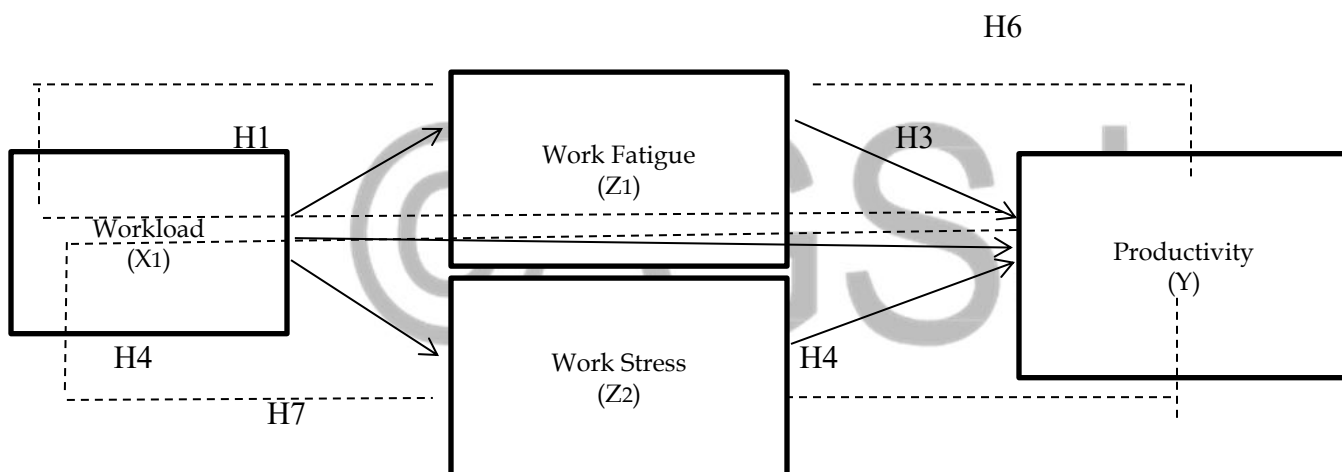


Figure 1 The Conceptual Model

Sources: Pongantung *et al.* (2018), Saefullah & Amalia (2017), and Ulfah *et al.* (2013)

Description:

- ▶ : Direct Effect
- - - -▶ : Indirect Effect (Mediated)

HYPOTHESIS DEVELOPMENT

1. The Effect of Workload on Work Fatigue

The workload is the body's ability to accept work (Ambarwati, 2014:21). The work capacity must be adjusted to the number of existing personnel. Previous research from Pongantung *et al.* (2017) shows the results that there is a significant relationship between workload and work fatigue. This is because the heavier a person's workload, the higher work fatigue in each workforce. The workload received by a person must be in accordance or balanced with the physical abilities, cognitive abilities, and human limitations that are accepted by the load.

Therefore, hypothesis H1 was developed as follows:

H1: Workload affects work fatigue.

2. The Effect of Workload on Work Stress

Fundamentally, various sources of stress can be classified as those originating from work and from outside one's work.

According to Siagian (2014), sources of stress that come from workers can vary, such as a task that is too heavy, time pressure, a work climate that creates a sense of insecurity, lack of information from feedback about one's work performance, an imbalance between authority and responsibility, unclear roles of employees in the overall activities of the organization, etc. The results of previous research conducted by Prihatini (2008) showed that there was a significant positive relationship between workload and work stress. The same research was also carried out by Dewi (2012), and the results showed that there was a relationship between workload and stress. The results of this study are also supported by the results of the same study conducted by Haryanti, et al. (2013).

Therefore, hypothesis H2 was developed as follows:

H2: Workload affects work stress.

3. The Effect of Work Fatigue on Productivity

Previous research has shown that there is an influence between work fatigue and employee work productivity (Verawati, 2016). The results of this study indicate that work productivity is not following the target due to work fatigue in the workforce itself. Physical and mental fatigue are the main factors that cause fatigue conditions that result in a decrease in work productivity in carrying out their duties. The higher the level of physical and mental fatigue of a person, the more likely productivity will decrease. The results of Saefullah & Amalia (2017) research prove that there is an influence between workload on employee work productivity.

Therefore, hypothesis H3 was developed as follows:

H3: Work fatigue affects productivity.

4. The Effect of Work Stress on Productivity

Productivity is a mental attitude that always tries and has the view that a life today is better than yesterday and today is better than before (Sunyoto, 2015). Hence, work productivity is a measurement that shows the considerations between the inputs and outputs issued by the company and the role of the workforce at that time. Job stress can cause a person to be in an emotional and tense state so that he/she cannot think properly and effectively because his rational and reasoning abilities do not function properly and normally (Datunsolang, et al., 2016). The results show that work stress has a relationship with productivity (Astuti, 2017). This means that if the employee's work stress increases, the productivity of the resulting employee will also decrease.

Therefore, hypothesis H4 was developed as follows:

H4: Work stress affects productivity.

5. The Effect of Workload on Productivity

A person's workload has been set in the form of company work standards according to the type of work (Saefullah & Amalia, 2017). A workload that is too heavy or light will have an impact on work inefficiency. Companies must assess the number of employees more compared with the same productivity or with the number of fewer employees yet can cause physical and physiological fatigue for employees. The results of Samrin's research (2018) show that workload harms employee productivity, which means that the higher the workload, the lower productivity. The workload is the extent to which individual workers are needed in completing the tasks assigned to them, identified by the number of workers they do. Excessive workloads can cause collisions or pressures that occur to these employees and can reduce employee productivity.

Therefore, hypothesis H5 was developed as follows:

H5: Workload affects productivity.

6. The Effect of Workload on Productivity mediated through Work Fatigue

Research conducted by Nur Ulfa et al. (2013) concluded that the workload carried out had a significant effect on work fatigue and this had an impact on the productivity to be achieved. The results of research by Hariyono et al. (2009) state that workload has a relationship with productivity and work fatigue has a relationship with the workload given.

Therefore, hypothesis H6 was developed as follows:

H6: Workload affects productivity mediated through work fatigue.

7. The Effect of Workload on Productivity mediated through Work Stress

Another factor that can determine whether employees have work productivity or not can also be influenced by workload. The results of Adhani's research (2013) state that workload is a collection or number of activities that must be completed by an organizational unit or position holder within a certain period. This can affect one's work productivity. Based on research conducted by Pajar (2018), the results show that workload has an effect on work productivity and work motivation has a mediating effect on work stress. Meanwhile, work stress affects work productivity and work motivation. Research conducted by Solihin (2014) states that work motivation mediates the effect of work stress on work productivity.

Therefore, hypothesis H7 was developed as follows:

H7: Workload affects productivity mediated through work stress.

METHODOLOGY

The method of this study is quantitative and will be conducted for the employees at the PT. Karya Tunggal Properti, an Indonesian state-owned company. The population of this study is all 113 employees at the PT. Karya Tunggal Properti. This research will use a saturated sampling method. Thus, all 113 employees will be taken as samples.

Data collection will be done using a 5 Likert scale questionnaire. This research will be tested for validity, reliability, and path analysis using the SPSS software and the results will also be analyzed using the same software (Sugiyono, 2019).

CONCLUSION

This paper aims to develop a conceptual model to investigate the effects of workload on productivity by using work fatigue and work stress as intervening or mediator variables. This conceptual paper consists of a research background, literature review, conceptual model, hypotheses, and research methodology of the employee productivity problem at the PT. Karya Tunggal Properti in Indonesia. The implementation of this paper can provide information about the relationship between workload on productivity by using work fatigue and work stress as mediators.

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