

Overview of Work Stress on Shift Employees

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Abstract— Work stress is a condition that can cause pressure on employees so that it can interfere with the quality and results of their work. This research was conducted on 133 employees of PT. Indofood CBP Sukses Makmur Tbk Medan per shift in one week. Data were collected using a work stress scale that measures physical, psychological, and behavioral aspects. The calculation results from the 1-way analysis of variance, obtained a coefficient value of $F = 189.98$ with $p < 0.01$, which means that there are differences in work stress in terms of work shifts. Work stress is classified as moderate with an empirical average value of 15.48 and a hypothetical value of 17.50. Work stress on the night shift is high with an empirical average value of 20.57, afternoon work stress is classified as moderate with an empirical average value of 14.84.

Keywords— Employees, work shifts, work stress.

I. INTRODUCTION

Work implies a task that ends with the fruit of the work that can be enjoyed by the person concerned. An important driving factor that causes people to work is the need that must be met. A person who performs work activities is called an employee. However, not infrequently these work demands make employees tense both physiologically and psychologically. This feeling of tension is called work stress.

According to research by Schuller (2006), the stress faced by workers will be closely related to their work performance, increase absenteeism from work and tend to have the opportunity to have work accidents. Likewise, if many of the workers in the organization experience work stress, the productivity and health of the organization will be disrupted (Retnaningtyas, in Widiana 2011). Robbins (2006) reveals that stress is characterized by physical disturbances such as headaches, muscle stiffness, and fatigue or loss of energy. Furthermore, psychological disorders are characterized by feelings of irritability, anxiety, and depression. Behavioral symptoms are characterized by the presence, increased frequency of absenteeism, easy blaming others and irregular sleep.

Low to moderate levels of stress can have a positive influence on employee performance, because it can increase motivation or enthusiasm, and increase self-motivation so as to improve performance. Prolonged high levels of stress can have a negative, damaging and potentially harmful impact. At this level, stress will interfere with the implementation of work, employees lose the ability to control it, so they are unable to make decisions and their behavior becomes irregular, the next impact is a decrease in the employee's performance (Gibson, 2006).

According to Munandar (2011) one of the factors that can cause work stress is the workload, which is included in the workload here: work shifts. According to Suma'mur (2014), work shift is a pattern of working time given to workers to do

something by the company and is usually divided into morning, afternoon and evening work. Shift work which was originally applied to work that is of a public service nature, nowadays industry players are also starting to implement working hours arrangements to meet consumer demand.

Employees who work shifts are increasing from year to year, this is due to support the increase in work results, even though they have used production support tools, employees are still needed to control the work of the machines used to complete the work. As a result workers also have to work day and night. This creates many problems, especially for workers who are not or less able to adjust to the usual working hours. The work shift system can differ between agencies or companies, although it usually uses three shifts per day with eight hours of work per shift.

PT. Indofood CBD Sukses Makmur Tbk Medan is engaged in the manufacture of noodles and food ingredients, culinary food products, biscuits, snacks, nutrition and specialty foods, packaging, trading, transportation, warehousing and cold storage, management services and research, and development. Employees who do the morning shift will work optimally because their sleep patterns and life are still running normally, they feel refreshed after getting enough rest at night, while night shift workers with situations and conditions that are not supposed to be someone doing work, this results when work at night workers feel sleepy and can not do the maximum. Not only that, when they work the night shift their daily life and sleep patterns are not normal like people in general. In addition to following the work shift schedule in the company, employees must also follow their respective job descriptions to complete work demands from the company, such as pursuing targets.

Indications of poor work shifts can be seen from the disruption of working hours which causes work stress due to shifts. The problem that is often encountered during night shift work is the lack of rest time when doing work at night. Negligence and alertness on duty often occur, for example, the most frequently encountered is negligence in putting things in the wrong place, and less than optimal in completing work, morning shift and afternoon shift employees who are often late for work and lack enthusiasm. This can be seen from the sluggishness of employees in completing tasks and carrying out instructions ordered by superiors.

II. LITERATURE REVIEW

A. Work Stress

Cartwright and Cooper (in Mauladi, 2015) argue that work stress is a tension or pressure experienced when the demands faced exceed the strengths that exist in oneself. Handoko (in Wibowo, 2014), defines work stress as a condition of tension that affects a person's thought processes, emotions, and

condition, the result is that excessive stress can threaten a person's ability to deal with the environment and will ultimately interfere with the implementation of his duties. If a person's ability is only up to 5 (five) but faces a job that demands 9 (nine) abilities, then it is very possible that that person will be exposed to work stress. This stress will arise when there are demands on someone who are felt to be challenging, pressing,

According to Munandar (2011), factors that can cause work stress include:

1. Intrinsic factors in work, namely noise, vibration (vibration), and hygiene.
2. Workload, including shift work categories, excessive workload, and appreciation of risks and dangers

The aspects that affect work stress according to Beehr and Newman (in Luthans, 2005), namely:

1. Physical aspect. Stress can cause changes in metabolism so that it can affect the physiological state of the individual. Generally, the physical symptoms seen in workers can be in the form of migraines, back pain, muscle cramps, insomnia, fatigue, digestive and respiratory disorders.
2. Psychic aspect. Work-related stress can lead to job dissatisfaction. This is the most obvious and simplest psychological effect. However, stress appears in the psychological state of workers, for example, it is easy to forget, difficult to concentrate, difficult to make decisions. Including emotional symptoms such as irritability.
3. Behavioral aspects. Symptoms of stress related to behavior in personal life will appear in workers such as not being able to relate closely to other people, not being able to trust others, withdrawing, not having control over life, making unrealistic goals, low self-esteem, and easy to fight. While in work life, workers will experience things such as loss of creativity, frequent absences, no initiative, and unable to work with others.

B. Shift Work

According to Suma'mur (1994), work shift is a pattern of working time given to workers to do something by the company and is usually divided into morning, afternoon and evening work. The work shift system, the work shift system can differ between agencies or companies, although it usually uses three shifts per day with eight hours of work per shift. Shift work has various definitions but usually shift work is equated with work that is formed outside normal working hours (08.00-17.00). These characteristics are continuity, change and special work schedules.

In general, what is meant by work shifts are all arrangements for working hours, as a substitute for or in addition to working during the day as usual. However, there is also a more operational definition by mentioning the type of work shift. Shift work is defined as work that is permanent or often at irregular working hours (Kuswadji, 2007).

In implementing the shift work system, employees usually do not work continuously for a full 24 hours, but most companies divide the 24 hours into three shifts, each of which works for 8 hours per day, namely morning shifts, afternoon/evening shifts and night shifts. . Meanwhile, based on whether or not the time in working shifts is fixed, it can be divided into two types of shifts (Nuryati, 2007), namely:

1. Fixed shift work; employees work on a certain shift or on a fixed shift with fixed working hours and working days on each working day.
2. Rotational shift work or circulating shift; employees will move from one shift to another after a certain period.

Shift work also impacts on adjustment problems. Shift workers experience many problems in physiological, psychological, and social adjustment. Physiological problems arise due to disruption of the individual's daily rhythm, and disrupt the cycle of time to eat, sleep, and work, which results in workers often having problems adjusting to physiological functions. These physiological problems can be in the form of complaints such as lack of sleep, fatigue, digestive tract disorders, and reduced appetite (Muchinsky et al, in Nuryati, 2007). Meanwhile, psychological complaints experienced by employees are depression, dissatisfaction with employee working hours, stress and being irritable (Gordon & Henefin in Nuryati, 2007). Employees who work with a shift work system also have social problems that occur because of the incompatibility of the employee's schedule with other people around him. Employees who work in the afternoon and evening for a certain period will make it difficult for employees to participate in social organization activities (Nuryati, 2007).

C. Differences in Work Stress in terms of Shift Work

Shift work is a system implemented by the company to increase production optimally and continuously by working 24 hours a day. In addition, to optimize the working power of industrial machines and to increase company profits. This will have a negative impact on employees, causing mental fatigue or stress. (Winarsunu, 2008). Adnan (2002) suggests that the shift work system can have positive and negative impacts. The positive impact is to maximize existing resources, provide a quiet work environment, especially the night shift and provide plenty of time off. While the negative impact is a decrease in performance, work safety and health problems. Not everyone can adjust to the shift work system because it requires a lot of time adjustments, such as bedtime, mealtime and family gathering time.

Employees who work at night will be in a working atmosphere but their circadian rhythm is in a relaxed phase, namely body temperature, heart rate, blood pressure, physical capacity, mental ability and decreased adrenaline production/rest. Circadian rhythms are interconnected processes in the body to adjust to changes in time for 24 hours so that a person will be disturbed if there is a change in the activity schedule such as on a work shift because the circadian rhythm or the body's biological clock is unable to cope with changes in the existing situation. In addition, working at night will also cause other problems, namely disturbing sleep and eating time, reducing work ability and increasing work errors and accidents. hinder social and family relationships which in turn cause stress and will have an impact on the performance of the company's employees (Tayyari & Smith, 1997, Bridger, in Winarsunu, 2008). There are different conditions and problems in each shift. Referring to the assumption that work stress is caused by almost all working conditions, it means that different working conditions of each shift can result in different levels of work stress on employees.

III. METHODOLOGY

This type of research is a comparative quantitative research involving 133 employees of PT. Indofood CBP Sukses Makmur Tbk-Noodle Medan per shift in one week, consisting of 44 morning shift employees, 44 afternoon shift employees, and 45 night shift employees. Data collection was carried out using a work stress scale which was arranged based on aspects according to Behr and Newman (in, Luthans, 2005) including physical aspects, psychological aspects, and behavioral aspects. The scale was compiled using the Guttman scale method which has a gradation from positive to negative, the choices are Yes and No. Each choice has its own value, for items that are favorable in the Yes option will get a score of 1 (one) and No will get a score of 0 (zero). As for the unfavorable score on the Yes option, it will get a score of 0 (zero) and No will get a score of 1 (one). The data analysis used in this research is T-test analysis.

IV. RESULT

1. Normality test

The distribution normality test was analyzed using the normality test for the distribution of research data using the Kolmogorov-Smirnov Goodness of Fit Test technique which can be seen in the following table.

TABLE 1. Distribution of Normality Test Results

Variable	Average	SD	SW	P	Information
Work Stress	15.48	4.61	0.97	0.05	Normal

Information:
 Average : Average score
 SW : Shapiro Wilk
 elementary school: Standard Deviation
 Q : Chance of error

2. Homogeneity Test

Based on the homogeneity of variance test, it is known that the research subjects came from homogeneous samples, with a different p value > 0.050. The following is a summary table of the results of the homogeneity test of variance

TABLE 2. Calculation Results of Variance Homogeneity Test

Variable	Homogeneity Test	Koef	P	Information
Work Stress	Levene Test	0.47	0.62	Homogeneous

3. Hypothesis Test

Based on the calculation results from the 1-way analysis of variance, it is known that there are differences in work stress in terms of employee work shifts, with the value or coefficient of difference, namely the coefficient F = 189.98 with p < 0.01.

TABLE 3. Results of 1-way Variance Analysis

Source	JK	Db	RK	F	P	Note:
Between Groups	2097.57	2	1048.78	189.98	<0.01	Sig
Within Groups	717.65	130	5.52	---	---	

Information:

- t : Coefficient of Difference
- p : Probability of error
- S : Significance

4. Results of Hypothetical and Empirical Mean Calculation

a. Hypothetical Mean

The work stress variable in this study was revealed using a scale of 35 items and formatted using the Guttman scale with 2 answer choices Yes and No, then the hypothetical mean was $\{(35 \times 0) + (35 \times 1)\} / 2 = 17,500$.

b. Empirical Mean

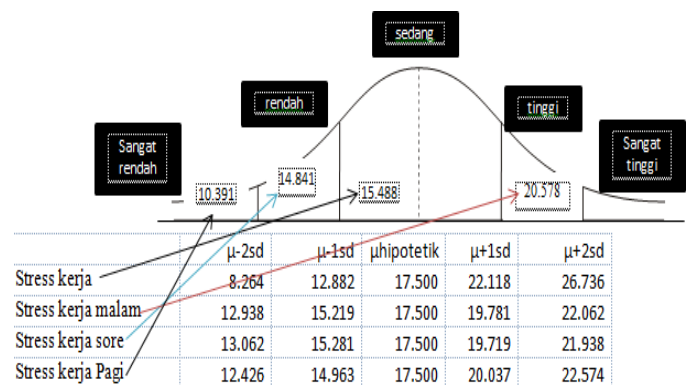
Based on data analysis, the empirical mean of the total work stress variable is 15.48. Night shift work stress is 20.57, morning shift work stress is 10.93 and afternoon shift is 14.84.

c. Criteria

The following is an employee's work stress conditions on each work shift by making a comparison between the empirical mean/average value with the hypothetical mean/average value by taking into account the size of the SD number.

TABLE 4. Calculation of Hypothetical Mean and Empirical Mean

Variable	SD	Mean		Information
		Hypothetical	Empirical	
Work Stress	17.50	15.48	4.61	Currently
Night Shift Work Stress	17.50	20.57	2.28	Tall
Morning Shift Work Stress	17.50	10.93	2.53	Very low
Shift Afternoon Job Stress	17.50	14.84	2.21	Currently



Curve 1. Normal Curve of Work Stress

V. DISCUSSION

From the results of the calculation of the 1-way analysis of variance, it is known that there are differences in work stress in terms of work shifts. This result is known by looking at the value or coefficient of difference with a coefficient of F = 189.98 with p < 0.01. In this study, the overall work stress of employees is classified as moderate with an empirical average value of 15.48 and a hypothetical average value of 17.50. Work stress on the night shift is high with an empirical average value of 20.57, work stress on the afternoon shift is moderate with an average empirical value of 14.84, and work stress on the morning shift is very low with an empirical average value of 10.93.

Research from Novitasari, et al. (2015) strengthen the results of this study, where the night shift is more risky for stress than the morning shift. Juliyati, et al (2014) in their research results also show that employees who work on night shifts tend to experience high work stress when compared to employees who work on morning and afternoon shifts. Shift workers who work outside normal working hours, namely at night or in the early morning will fight against the biological clock that is

naturally regular in the body. Several physiological functions show changes in the rhythm called circadian rhythm. Disruption of the circadian rhythm caused by the shift work system can cause disturbances in sleep patterns, neurophysiological rhythms, body metabolism and mental health.

Night shift employees of PT. Indofood CBP Sukses Makmur Tbk which has the highest stress level, because the pattern of body activity will be disrupted when working at night, because of the many effects caused by night shifts, where workers experience fatigue, limited social life, not good for family life, sleep disturbances, a lot of wasted free time, decreased physical work capacity, decreased appetite and digestive disorders.

Night shifts result in more work stress because indirectly the employees of PT. Indofood CBP Sukses Makmur Tbk who is on duty must provide good service to anyone and at any time, due to the lack of staff available on night shifts. In addition, employees of PT. Indofood CBP Sukses Makmur Tbk who received night shifts felt that their workload was heavier than the morning and evening shifts, where the night shift with minimal staff required PT. Indofood CBP Sukses Makmur Tbk completes maximum work on the production system, not to mention standby checking the condition of supporting machines and electricity, demanding a heavy responsibility, it is different in the morning and evening shifts, where during these working hours can still interact with other employees easily. During the night shift, there can be a decrease in performance and a decrease in physical work capacity due to feelings of drowsiness and fatigue.

According to Wijono (2006), ideally someone has working hours per week between 41 to 60 hours. Workers who experience work stress have working hours per week between 37 to 40 hours, while workers who experience moderate work stress have a number of working hours per week even between 61 to 71 hours. High work stress is three times longer.

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