

Effect of Work Stress on the Productivity of Shift Workers in Production Department at Pt.x Makassar City

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Abstract

Productivity can be defined as worker's performance in terms of quantity, quality and timeliness. There are several factors that can affect productivity. This study aims to determine the effect of monotony and work stress on production department's shift workers at PT. X with age, sex, years of service and quality of sleep as a control variables.

This study was an analytic observational study with cross sectional design. The number of respondents was 49 people which were determined using purposive sampling technique. Data were obtained using online questionnaires. Chi square was used for bivariate data analysis and multiple logistic regression for multivariate data analysis.

From the results of bivariate data analysis, it was found that work stress had an effect on productivity with a value of $p = 0.001$ (<0.05). For the analysis of work stress based on age, it affected older workers with a value of $p = 0.004$, while based on gender, it affected the female workers with a value of $p = 0.001$, based on years service, it had effect on long service years with a value of $p = 0.018$ and based on sleep quality, it affected on poor sleep quality with a value of $p = 0.003$. The results of multivariate analysis showed that work stress affected the productivity with a value of $p = 0.001$ ($p < 0.05$) with gender and sleep quality as variable controls. It was suggested for workers to maximize the rest time after serviced a night shift in order to restore their physical condition and for company leaders to establish good communication towards workers in order to find out critics or suggestion related to the job.

Keywords : *productivity, work stress, age, sex, working period, sleep quality.*

Background

Employees are the major part of a company or organization. Companies that have qualified

employees would likely run optimally. Employee quality can be measured through work productivity. The concept of productivity can be seen from two dimensions, namely the individual dimension and the organizational dimension. Individual productivity is a mental attitude which perceive that today's life quality must be better than yesterday, and tomorrow must be better than today¹. Meanwhile, according to Gaol², employee productivity is the actual behavior

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that is displayed by each person as work performance in accordance with their role in the organization or company.

The objects of this research were shift workers at PT. X in Makassar city. During the initial observation, it was found that the level of absenteeism at PT. X was quite high. This certainly affected employee productivity because not coming to work, means no productivity. Research conducted by Rina Fitiriana³ suggested that attendance had an effect on employee productivity. Having employees absent from work will also increase the workload for other employees where it could lead to fatigue which would affect employee productivity. From secondary data, it was found that 20 employees of PT.X generally experienced work fatigue.

Work accidents might also affect employee productivity. Work accidents such as getting cuts by scissors and knives often occur in shift workers, where these would hinder the production process. One of the factor causing work accidents is fatigue which mainly due to excessive working time⁴.

In meeting market demand, PT. Cahaya Anugerah Sentosa applies a shift work system. Extending working time more than the ability to work long hours is usually not accompanied by optimal efficiency, effectiveness and work productivity. Decrease in quality and work results and work for a long time creates a tendency to fatigue, health problems, illness and accidents as well as dissatisfaction⁵.

Based on these preliminary observations, the researcher assumed that absenteeism, work fatigue and work accidents that occurred at PT. X which affected employee productivity might be caused by work stress experienced by shift workers.

Many factors can affect worker productivity. This study aims to see the effect of work stress on productivity with age, sex, years of service and sleep quality as control variables.

Work stress can affect employee productivity. Stress is a condition of tension that affects a person's emotions, thought processes, and conditions⁶. Work stress eventually might cause financial losses to organizations which are not small in number. Stress is an important problem because this situation may affect job satisfaction and productivity⁷. Research conducted by Zuhroh Fatimatuz, et al⁸, also suggests that there was a significant correlation between work stress and work productivity.

Gender can affect a person's productivity level. In general, the productivity level of men is higher than women. This is influenced by factors possessed by women such as being physically weak, tend to use more feelings or biological factors such as having to leave when giving birth. Ukkas Imran⁹ in his research stated that gender affects worker productivity.

Age and years of service can affect worker productivity. Amron and Taufik¹⁰ stated that older workers have weak and limited physical energy, while young workers have strong physical abilities. A worker who has worked for a long time, had possessed experience in carrying out work and was able to increase his technical maturity which would support his productivity¹¹. On the other hand, workers who have a long working period also have greater potential to be exposed to occupational diseases which, if not handled properly, will reduce worker productivity.

The sleep quality of workers with work shifts is different from workers who do not carry out work shifts. If the sleep adequacy of workers is disturbed, it will cause work fatigue. Sleep problems experienced by a person can interfere with daily activities, and can even be life-threatening either directly (such as insomnia) or indirectly (such as accidents due to sleep disorders)¹². Park, Eunok, PhD, RN, et al¹³, stated that poor sleep quality affects nurse productivity.

Research Method

Type of research used in this thesis was quantitative with the research design used was analytic

observational with cross sectional study approach. Samples were taken by using exhaustive sampling method, where the population was designated as the research sample, amounting to 49 shift workers in production department at PT. X in Makassar city. Fishers's exact test was used for bivariate data analysis and multiple logistic regression for multivariate data analysis.

Univariate analysis was carried out to determine the frequency distribution of respondents based on research variables which as seen in the following table :

Results of Univariate Test Analysis based On the Studied Varibales On Shift Workers At Production Department of PT. X Makassar City, 2021

Results and Discussions

A. Univariate Analysis

Variables	Frequency (n)	Percentage (%)
Work Stress		
Moderate/Severe	35	71.4
Mild	14	28.6
Age		
Old	27	55.1
Young	22	44.9
Sex		
Male	22	44.9
Female	27	55.1
Working Periode		
Long	29	59.2
Short (New)	20	40.8
Sleep Quality		
Poor	31	63.3
Good	18	36.7
Productivity		
Less	35	71.4
Good	14	28.6

Based on the results of univariate analysis, stated that respondents who experienced moderate/severe were 35 people (71.4%) and mild stress were 14 people (28.6%). Respondents who included into the old age category were 27 people (55.1%) and 22 people were in the young age category (44.9%) with 22 men (44.9%) and 27 women (55.1%). Respondents

who included into the category of long working period were 29 people (59.2%) and 22 people were in the short working period category (40.8%). There were 31 people have a poor sleep quality (63.3%) and good sleep quality were 18 people (36.7%). The worker who had less productivity were 35 people (71.4 %) and good productivity were 14 people (28.6%).

B. Bivariate Analysis

1. Correlation Between Work Stress and Productivity

The analysis results of work stress on productivity, it was found that the value of $p = 0.001$ ($p < 0.05$). These results showed that work stress had a significant correlation to worker productivity. This was in line with research conducted by Jemilohun, V.G, et al¹⁴ on 250 insurance employees who stated that stress had an effect on worker productivity.

2. Correlation Between Work Stress and Productivity with Base on Age.

The age of the employees is quite crucial in determining a good working outcome, both physical and non-physical. Generally, older workers were weaker and had limited physical energy, on the other hand, young workers tend to have stronger physical abilities.

In this study, the effect of work stress on productivity based on age had a significant correlation with the old workers group with a value of $p = 0.004$ (< 0.05). This was because the more we age, the more organ abilities degraded which would make us prone to experience fatigue where it would decrease the productivity. This was in line with research conducted by Rizki Aulia Dina Safira and Ela Nurdiawati¹⁵ which stated that age affects the productivity of workers at PT. KHI Pipe Industries with p value = 0.000.

3. Correlation Between Work Stress and Productivity Based on Sex

Gender can affect a person's productivity level, where the productivity of men is higher than women. This is influenced by factors possessed by women such as being physically weak, and tend to use feelings at work¹⁰. The analysis results were not in accordance with the theory stated above. The indicated that there was an effect of work stress on productivity on female gender with a value of $p = 0.001$ (< 0.05).

4. Correlation Between Work Stress and Productivity Based on Sex

Workers who had a longer working period had advantages in detecting, understanding and finding the causes of errors in work, so as to minimize errors in the production process. However, as the working period increases, the worker was at risk of being exposed to illness in the workplace.

The analysis results indicated that there was a correlation between work stress and productivity in workers who had long working periods with a value of $p = 0.000 < 0.05$. This was due to the fact that the longer a person works in the same company, the more feeling of boredom piled up which, if not resolved immediately, could affect their productivity.

This research was in line with research conducted by Fajar Pasaribu¹⁶ which stated that working period affected employee productivity. Working period was also related to the age of the worker. The longer the work period, the older the worker got where their physical abilities would tend to decrease.

5. Correlation Between Work Stress and Productivity Based on Sleep Quality

Good and regular sleep quality causes body activities and daily activities to run normally. People who have good quality sleep and healthy help maintain physical health, mental health and quality of life in general. Fatigue due to excessive activity or stress can interfere with sleep. A person's sleep quality is said to be good if he does not show signs of sleep deprivation and does not experience sleep problems.

The results of the analysis in this study stated that stress had a significant relationship with productivity in workers who had poor sleep quality with p value = 0.003 (< 0.05). In line with research conducted by Yoshiki Ishibashi and Akiyoshi Shimura¹⁷ with a cross sectional design, on 2897 respondents in Japan, stated that poor sleep quality has a significant relationship to worker productivity. Respondents who have poor

sleep quality will affect the level of attendance at work so that it can affect productivity.

Sleeping at night is one way to restore a person's physical condition to be fit to work the next day. Workers who experience sleep disturbances at night will feel tired the next day even if it lasts a long time can experience health problems which in turn can affect worker productivity.

C. Multivariate Analysis

The results of multivariate analysis show that work stress affects the productivity of shift workers at PT.X, Makassar City with gender and sleep quality as confounding variables that have changes in OR values above 10%.

Conclusion

Based on the research results conducted at PT. X shift workers at Makassar city can be concluded that work stress variables had a significant effect on productivity among older workers, female gender, workers with long working period and poor sleep quality. It was suggested for workers to maximize the rest time after serviced a night shift in order to restore their physical condition and for company leaders to establish good communication towards workers in order to find out critics or suggestion related to the job and not to mention to give more attention about the workload of older workers and give awards to employees who excel so as to stimulate the enthusiasm of other workers to increase worker productivity.

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