

# Analysis of Stressors Factors on Occupational Stress and Performance Blue Collar Employees in Pharmaceutical Manufacturing

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## Abstract

The role of stressors is recognized as critical for human resource development and management issues where it can have an impact on occupational stress and performance blue-collar employees in the pharma manufacturer division. The employees themselves developing various kinds of stress factors that may interfere with the implementation of the work. According to these conditions, the role of an organizational change related to work pattern hours, shift handover and workdays is an unavoidable policy of management change. This study was conducted to determine the effect of several stress factors, especially for the policy of management change on occupational stress and performance blue-collar employees in the production division. The outcomes of Smart PLS 3.2.9 path model revealed findings for blue-collar employees (360 respondents) role in the organization significantly correlated with employee's stress ( $T = 3.305$ ;  $p\text{-value} = 0.001$ ) and also significantly correlated with performance ( $T = 3.268$ ;  $p\text{-value} = 0.001$ ). The indicator that has the highest factor loading value of the role of the organization is the work pattern hours. A negative relationship was established between stress to performance of blue-collar employees.

## Keywords

Stress, Performance, Blue-collar Employees, Role of The Organization, Work Pattern Hours.

## 1. Introduction

Research related to work stress that affects the performance of workers is increasingly being done. Work conditions, resources, characteristics, and social environment of an individual can become stressors which trigger in an occupational stress (Baba et al. 1998). Job stress is a condition of tension experienced by employees in the face of the work that can affect emotions, and conditions of a person's thought processes. Emotions and conditions of thinking of workers are influenced by experiences that tension of job stress at work. Job stress can be caused by several sources of problems, for example is the conditions at work. Narayana and Lakshmi (2000) informs that comparisons of stressors and coping techniques are reported on different types of occupations.

Management of work stress is a challenge for organizations to increase productivity and improve employee health which will indirectly reduce health costs, so in this case the handling of occupational stress is a serious problem that must be done. Dulger (2009) prove that there are six OSI (Work Stress Indicators) sources that are valid in measuring work stress, namely career and achievement, relationships with others, organizational roles, organizational structure and climate, intrinsic to the job and home / work interface. Card (2002) distinguishing stressors consists of six types, namely Relationships in the organization, Career Development, Personality Factor, Factors Intrinsic to job, Organizational climate, and also Role in the Organization.

Joy and Radhakrishnan (2013) found four items of the stressors at work, as career development, relationships at work, organization related, and work related. Psychological workers can be affected by relationships of job stress and worker performance (Beehr and Newman 1978). Impact of occupational stress on employee performance has been recognized as an important area of concern for organizations. The extreme work stress also makes an employee feel do not valued and cause performance to decline. This is because employees can't think well and get lazy to work. The enough stress can inspire employees' potential and the job performance will increase. The impact of work stress should be an important concern in organizational management. Work stress can cause decrease in discipline, increasing lazy working and decrease performance. If the management of organizational work stress management is at the optimal level of worker stress, it can be expected to improve employee performance and talent development. Occupational stress affects employee performance which ultimately affects job satisfaction.

Present study analysed the stressor factors that impact on occupational stress and employee performance in manufacture division of the pharmaceutical industry in Central Java. One pharmaceutical company in Central Java has a condition of increasing employee delays when entering work in the 2016 to 2019 period, an increase in the trend of diagnostic fatigue or myalgia, as well as increasing workplace accidents after a change in company policy. There is an organizational policy to optimize production capacity so that changes are made related to the pattern of working hours, shift handovers and workdays. The previous work pattern applies the work pattern of shift meetings and five working days. The new work pattern eliminates shift meetings and makes workdays become six working days. The difference with previous research is to analyse the influence of stressor factors with new dimensions, especially related to the role in the organizational change related to work pattern hours, shift handover and workdays on stress and performance blue collars.

## **2. Literature Review**

### **2.1. Job Stressor**

Levinson et al. (1965) examine several types of job stressor such as role conflict, excessive workload, and role of the ambiguity. Interaction with related parties in the process of times, for example co-workers, supervisors, superiors and customers to obtain assistance and direction while doing work can be a source of work stress. The effects of prolonged stress can cause a decrease in a person's health in the form of illness to the occurrence of work accidents. Starting from the appearance of symptoms as saturation, irritability, anger, tension, anxiety and depression. A more serious diseases can look like stomach pain, allergies, high blood pressure and migraine (Luthans 1998).

#### **2.1.1. Role in The Organizational**

Organizational change is a complex challenge for employees and organization. The concept of related to organizational change usually occur when there is a change in vision, mission, acquisition, mergers, collaborations, restructuring related to system operations and others. Kotter and Schlesinger (1989) concludes that the existence of organization transformation indicates a change in the organization. Changes in the organization such as merging, downsizing as a result of restructuring can cause a lack of self-confidence, feeling nervousness to stress on workers (Nicolaidis and Katsaros 2007). Pritchett and Pound (1995) declare that organizational change is the most common cause of worker stress. Pietersen study Dulger (2009) state that the factor of uncertainty, doubt and fear for many people is a result of the transformation of changes in policy or the role of the organizational.

#### **2.1.2. Intrinsic to Job**

Procedures for health and safety have been implemented by several companies, but for smaller companies they do not have them. Conditions of the work environment with poor light, high noise levels, damaged equipment, uncomfortable temperature and workspaces can trigger worker stress. The development of individual behaviour can change along with the physical environment on the actual intrinsic work. Many studies explore the relationship of work stress between work environment and workers. Ibrahim and Nurul (2013) declare that noise at levels above the threshold will induce stress on workers, this reduces feelings of control and leads to worse performance and tasks. Stress is a reaction to the physical environment as an intrinsic factor impacting on job performance (Kasl 1973).

#### **2.1.3. Relationships in The Organization**

Positive relationships with other people at work are expected to be built and maintain by each related individual (Baumeister and Leary 2017). The relationships in the workplace are defined as the exchange of information or

communication between individuals and groups in the process of achieving goals (Ferris et al. 2009). Various studies have been carried out in evaluating the impact of relationship quality to find a beneficial impact on the quality of employee workplace relationships with superiors and their colleagues in the organization. Knowledge of information in a good relationship between personnel can improve performance in completing organization goals (Sharda et al. 1999). Certainly, the good quality of their relationship with their supervisors and co-workers can improve the understanding of work information submitted. Two types of relationships that are often examined in the workplace are superior-subordinate and peer relationships. In the other hand, the support and appreciation of employee contributions and care about welfare from the superiors will improve the high-quality of workplace relationships is inconsistently correlate with work-stress (Kottke and Sharafinski 1988). Chen and Chiu (2008) several studies related to the desire to change work or turnover intentions, less job and job overload (Brotheridge and Lee 2005), are not related to job stress (Hammer et al. 2004).

#### **2.1.4. Career Factor**

Performance measurement is a scheme that influences the achievement of performance and targets (Cavalieri et al. 2007; Jusoh and Parnell 2008). The stress factor causing at the higher employee level is due to uncertainty about performance evaluation. Stress caused by performance evaluation usually occurs at the leadership level of workers, this is related to the acquisition of promotional opportunities needed in a career. Key performance indicators are formal assessments that are generally carried out by management (Tan 2008). According to Price (2001) opportunity for promotion brings satisfaction among the employees and reduces their intention of leaving the organization. Previous research found that a valid linear relationship was obtained between promotion and employee performance in university teachers (Shahzad et al. 2008). Kuvaas (2006) get that the performance appraisal system can function as a mechanism for developing, motivating and retaining employees.

#### **2.2. Performance**

An employee's performance at work is the focus of attention for all organizations regardless of all factors and conditions. As a result, employees are considered as a very important asset for their companies (Qureshi and Ramay 2006). A good organizational performance is built by the good performance of employees with the ultimate goal of the continuous and effective improvement process (Armstrong and Baron 2000). For further investigation, consistency in reporting performance and supervision is a form of strong commitment between the organization and workers. In terms of reporting performance will lead to new problems, if the organization already feels efficient and does not need continues improvement in their organization (Summers and Hyman 2005). Therefore, the existence of job stress can cause decreased work performance, decreased competence and ultimately not achieved effectiveness in the organization. The main success or failure of an organization is largely determined by the performance of their employees (Bartlett and Ghosal 1995).

#### **2.3. Impact of Stress on Job Performance**

The majority of the articles reviewed by this researcher mention the impact of stress but many of them only talk about the impact of stress on certain aspects or dimensions of work, which means researchers have not yet found an article or report that has a comprehensive view. Therefore, it is important to understand whether there is a significant stress effect on job performance. Job performance consists of four performances such as human, general, administrative and technical performance. Employee performance is the result of a combination of effort, skills, and the nature of work conditions. Effort is the level of motivation that employees do to complete work; Skills include employee abilities, competencies and knowledge; and the nature of work conditions is the level of accommodation that supports conditions of employee performance (Rubina et al. 2008).

### **3. Research Methodology**

Standard questionnaire on stressor factors and occupational stress was identified for the study. Purposive sampling method was used. Sample frame consisted of 360 blue collar employees in manufacture divisions in PT XXX Pharmaceutical Industry in Central Java. Stressor Factors (Role in the Organizational, Intrinsic to job, Relationship in the organization, Career Factor), Occupational stress and Performance questionnaire (Figure 1 and Table 1) was analysed by using Smart PLS version 3.2.9. The questionnaire was consisted of 25 items on four-point scale. Test of reliability of scale was done using Cronbach alpha method and composite reliability of scale was done through SmartPLS. SmartPLS was used to test the hypothesis by exploring the model's predictive validity. An initial path

model was formulated. Bootstrapping was conducted in the initial path model for model analysis in terms of its predictive ability.

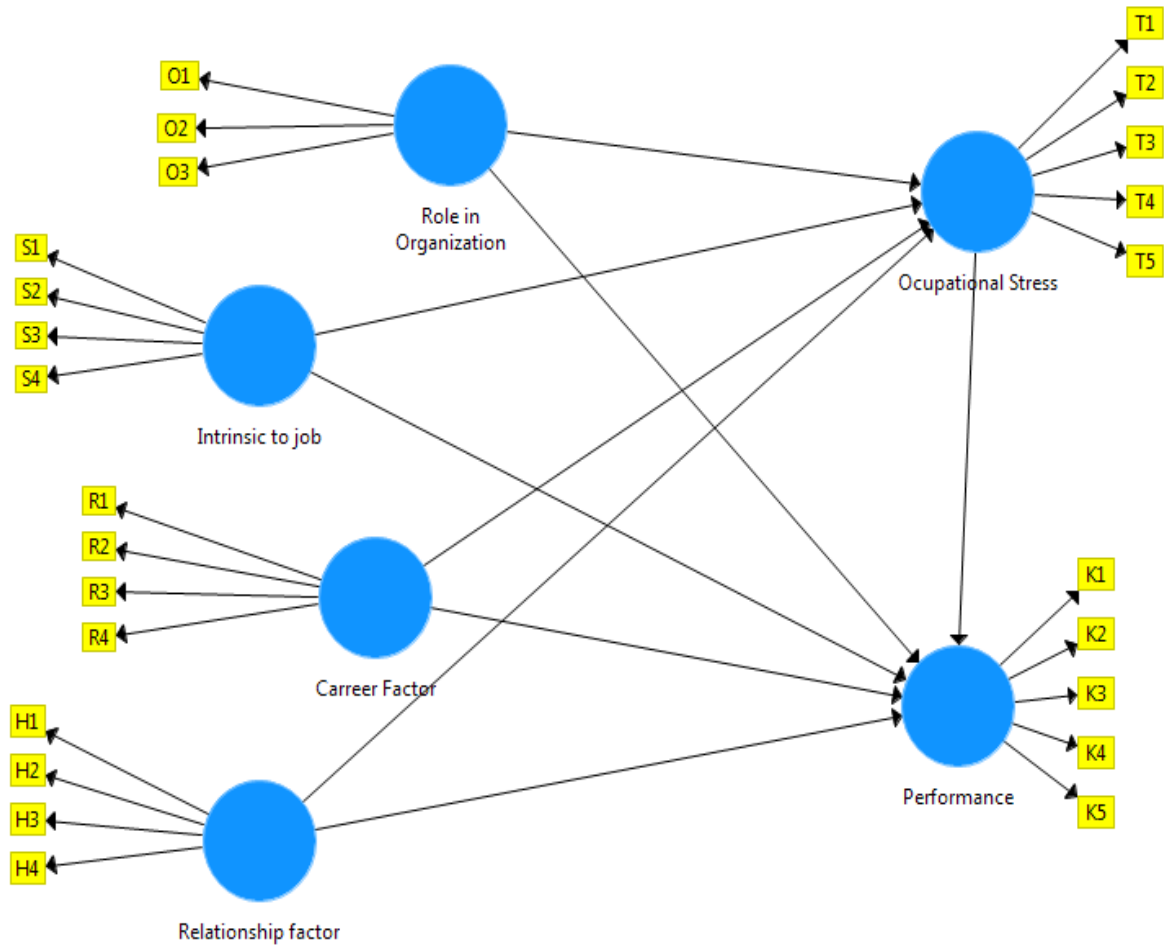


Figure 1. Conceptual design.

Table 1. Research variable.

Latent Variable	Indicator	Operational Definition	References
Role in the Organization (O)	Work-weekdays (O1)	Any day of the working week	(Agyemang et al. 2014)
	Pattern of working hours (O2)	The standard working time for work in every shift	(Agyemang et al. 2014)
	No shift handover (O3)	Meet person to carry over the job	(Manzoor et al. 2011)
Intrinsic to job (S)	Poor Light and temperature working conditions (S1)	The physical environment of work which may include poor lighting and temperature of working conditions	(Card 2002)
	Poor Sound level working conditions (S2)	The physical environment of work which may include noise above the threshold	(Manzoor et al. 2011; Card 2002)
	Time pressure (S3)	Psychological stress when a person has a limited amount of time available (real or felt) than is needed to complete work or get results	(Card 2002)
	Poor layout of room (S4)	Poor space allocation for working.	(Manzoor et al. 2011; Card 2002)
Career Factor (R)	Imbalance salary (R1)	The gap between salary and obligation in job	(Card 2002)
	Uncertainty promotion (R2)	Employee promotion procedures that are not clear and are still based on subjective assessments	(Card 2002)
	Promotion Opportunity (R3)	Opportunities for people to get promoted	(Card 2002)
	Career path (R4)	Career paths that are not appropriate	(Card 2002)
Relationship in the Organization (H)	Relations with boss (H1)	Harmonious relationship with superiors	(Card 2002; Rubina et al. 2008)
	Relations with colleagues (H2)	Harmonious relationship with colleagues	(Card 2002)
	Personality conflict (H3)	Equitable distribution of workload among employees	(Card 2002)
	Good motivation (H4)	Motivational support from the boss	(Card 2002)
Performance (K)	Excellent work (K1)	Extra effort in completing work properly	(Manzoor et al. 2011)
	Professional (K2)	The use of expertise with good knowledge and skills	(Agyemang et al. 2014)
	High quality results (K3)	Work with results that exceed the standard	(Manzoor et al. 2011)
	Time management strategy (K4)	Completion of work on time	(Manzoor et al. 2011)
	Innovative (K5)	Initiative and innovative while working to create new concepts or solving the problems	(Manzoor et al. 2011)
Stress (T)	Overload (T1)	Completing various jobs in the same time	(Manzoor et al. 2011)
	Lack of rest time (T2)	Reduced periodic breaks	(Manzoor et al. 2011)
	Fatigue (T3)	Decreased mental health and fatigue	(Manzoor et al. 2011)
	Lack of focus (T4)	Decreased focus and health problems	(Manzoor et al. 2011)
	Lack of spirit to work (T5)	Decreased motivation at work	(Manzoor et al. 2011)

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4. Results and Discussions

Conceptual framework between stressor factors, occupational stress and performance was verified by Smart PLS version 3.2.9 in order to test the hypothesis under conclusive research design. Reliability tests were carried out to verify items and the reliability scale used in research for further analysis using Smart PLS.

4.1 Reliability Analysis

The reliability of all items in the questionnaire was examined using the Cronbach’s Alpha reliability test. SPSS 20 is used for reliability testing and the reliability results are given in Table 2. The results of the reliability coefficient were found as 0.753.

Table 2. Cronbach’s alpha reliability of the measure with SPSS 20.

		N	%	Cronbach’s Alpha	N of item
Cases	Valid	360	100	0.753	25
	Excluded	0	0.0		
	Total	360	100		

The relationship between manifest variables (observed objects) and latent variables both exogenous and endogenous was evaluated by the measurement method on the loading factor in each construct (Hulland 1999). The structural model examines the relationship between endogenous latent variables and exogenous latent variables by assessing the path coefficients. Better model predictions are expressed as indicators of higher path coefficients and the R2 values obtained. The measurement of structural models simultaneously in this study using smart PLS (Ringle et al. 2005). Figure 1 shows the model studied.

The suggested model has six latent constructs as Stressor Factor (Role in Organization, Intrinsic to job, Career Factor, Relationship Factor), Occupational Stress and Performance. The PLS algorithm is expressed in terms of the resulting relationship, the coefficient and the value of loading were analysed. A final path model was determined without removing the items which had the loading below 0.5, as can be seen in Table 2.

The final path model is show in Figure 2. Path coefficient was reported negative as relation occupational stress to performance. It was -0.156.

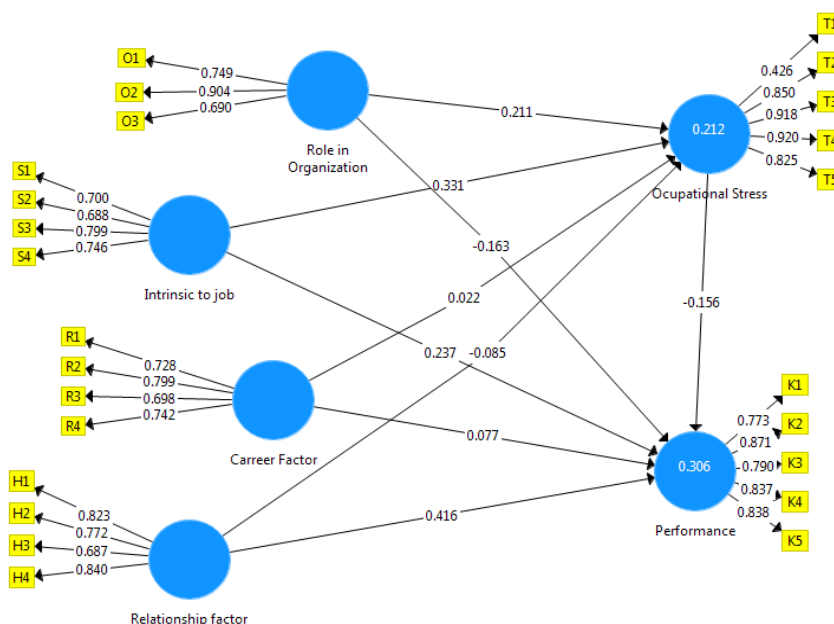


Figure 2. Final path of stressors of blue-collar employee path.

### 4.2 Convergent Validity

The degree of agreement in two or more measures of same construct refers to convergent validity. Chin (1998) state that convergent validity is found because variance extracted values are more than 0.5 (Table 3).

Table 3. Cronbach's alpha, composite reliability and AVE.

Latent Variables	Cronbach's Alpha	<i>rhoA</i>	Composite Reliability	Average Variance Extracted (AVE)
Career Factor	0.754	0.792	0.831	0.551
Intrinsic to job	0.719	0.742	0.823	0.539
Occupational stress	0.853	0.903	0.900	0.654
Performance	0.880	0.882	0.912	0.676
Relationship factor	0.791	0.811	0.863	0.613
Role in Organization	0.709	0.873	0.827	0.618

### 4.3 Discriminant Validity

When construction has an AVE loading greater than 0.5 which means that at least 50% of the measurement variance is captured by the construct, then the discriminant validity can be concluded to be adequate (Chin 1998).

### 4.4 Structural Model Analysis

The path coefficient ( $\beta$ ) as the value of R<sup>2</sup> calculates the variation in the percentage of construct's explained by the model used as the results of calculating the hypothesis test. Conceptual model hypothesized that Occupational stress is negatively impacting the Performance of blue-collar employee in manufacture division (R<sup>2</sup>) was reported as - 0.156. The T statistic reported in the bootstrap measures the statistical significance of the path coefficient ( $\beta$ ) between two latent constructs.

Prediction-oriented calculate such as (R<sup>2</sup>) are used to analyse the PLS model and the purpose of the PLS is to maximize the variance described rather than fit. A bootstrap procedure using 1000/5000 sub samples was performed to evaluate the statistical significance of path coefficient according to Chin's [38]. The following Table 4 showed hypothesized path coefficient along with their bootstrap values, "T" values.

The relationship of between intrinsic job and occupational stress was significant because path coefficient between these latent constructs are as T= 4.527, p-value 0.000; Role in the organization and occupational stress was significant because path coefficient between these latent constructs are as T= 3.305, p-value = 0.001. The relationship between intrinsic to job and performance was significant because path coefficient between these two latent constructs are as T= 4.527, p-value = 0.000, also relationship between relationship factor and performance (T = 7.528, p-value = 0.000), role in the organization was significant with T= 3.268, p-value = 0.001 (Table value is supposed to be significant if it is more than 1.96 at  $\alpha$  (significance level) of 0.05). The old work pattern is from 07.00 - 16.00, 13.00 - 22.00, 21.00 - 06.00 with a shift meeting for 5 working days. The new work patterns are 06.30 - 14.30, 14.30 - 22.30, 22.30 - 06.30 without shift meetings for 6 working days in the hope of increasing productive hours.

This change in work patterns affects the stress of workers which has the potential to impact the decline in work spirit which ultimately affects productivity. The challenge of eliminating shift meetings is the potential for miscommunication that can cause process errors that are detrimental to the company as well as allowing the machine to die due to waiting for operator changes. The results of previous studies in various professions states that major stress is categorized into several factors such as fewer opportunities of career growth, lack of resources and opportunities to improve their job skills, jobs insecurity, long working hours, low income, inadequate resources to complete the allotted task, workload (overloads and under load), role conflict (conflicting job demands, multiple supervisors), poor physical environment (noise, air quality, etc.), unsound organizational policies and practices, role ambiguity (lack of clarity about responsibilities, expectations), poor individual beliefs and values, unsupportive spouse/ family, role ambiguity, poor peer relations, job dissatisfaction and poor performance (Burman and Goswami 2018). This study shows the difference with previous research that the criteria for the role in the organization associated with changes in organizational policies related to work pattern hours, shift handover and workdays can

affect the stress and performance of blue collars in the manufacturing industry. This study has found that the effects of work stress not only affect physical and psychological conditions but also affect employee performance.

Table 4. Path coefficient along with their bootstrap values, “T” values.

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (O/STDEV)	P Values
Career Factor -> Occupational Stress	0.022	0.031	0.068	0.324	0.746
Career Factor -> Performance	0.077	0.075	0.058	1.328	0.185
Intrinsic to job -> Occupational Stress	0.331	0.327	0.073	4.527	0.000
Intrinsic to job -> Performance	0.237	0.240	0.056	4.232	0.000
Occupational Stress -> Performance	-0.156	-0.154	0.049	3.164	0.002
Relationship factor -> Occupational Stress	-0.085	-0.084	0.060	1.398	0.163
Relationship factor -> Performance	0.416	0.418	0.055	7.528	0.000
Role in Organization -> Occupational Stress	0.211	0.212	0.064	3.305	0.001
Role in Organization -> Performance	-0.163	-0.160	0.050	3.268	0.001

## 5. Conclusions

The desire of companies to change working hours patterns and eliminate shift meetings requires further study. Based on the results of the analysis on blue-collar pharmaceutical employees obtained a significant effect on employee stress which has a negative effect on performance. This allows the study to optimize the pattern of working hours that are appropriate to maintain employee morale in achieving company targets specifically related to productivity.

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