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WORK STRESS AND EMPLOYEE PRODUCTIVITY IN STARTUP ENVIRONMENTS: A CASE STUDY OF PT. XYZ

Agung Permana[1], Yulia Destiani[2]
[1,2]Master of Management, Widyatama University, Jalan PHH Mustafa No. 59 Bandung 40124
E-mail: agung.8718@widyatama.ac.id; destiani.yulia@widyatama.ac.id

ABSTRACT
This research is motivated by the growing phenomenon of work stress among employees in startup companies, where a fast-paced environment, high performance demands, and unpredictable workloads can potentially reduce productivity. As a technology-driven startup, PT. XYZ requires employees to be adaptive and innovative, yet such conditions often create pressure that may hinder long-term performance. The purpose of this study is to examine the effect of work stress on employee productivity at PT. XYZ. The population of this study consists of all employees of PT. XYZ, with a sample of 50 respondents selected using purposive sampling. Data were collected using a structured questionnaire with a Likert scale and analyzed with simple linear regression using SPSS version 26. The results indicate that work stress has a significant negative effect on employee productivity, with $R = 0.611$; $R^2 = 0.373$; $F = 28.594$; and Sig. = 0.000. The regression coefficient of –0.511 reveals that each one-unit increase in work stress decreases productivity by 0.511. This means that work stress accounts for 37.3% of the variance in productivity, while other factors explain the remaining proportion. These findings confirm that excessive work stress in startup environments significantly reduces productivity. Therefore, management should design effective stress management strategies, including workload adjustment, work–life balance support, and employee wellness initiatives, to ensure sustainable productivity and organizational growth.

Key words: work stress; employee productivity; startup; linear regression; human resource management

INTRODUCTION

In recent years, the rapid growth of startup companies has transformed both the global and national business landscape, presenting opportunities for innovation as well as new challenges in human resource management. The startup work environment is characterized by fast-paced dynamics, flexible structures, ambitious targets, and a high degree of uncertainty distinguishing it from conventional organizations. These conditions require employees to remain adaptive, creative, and responsive to change, yet they also generate significant psychological pressure. When work stress is not properly managed, it can decrease productivity, hinder team performance, and ultimately threaten organizational sustainability.

Work stress has become a major concern in organizational behavior and human resource management studies. Global data indicate that job stress contributes substantially to reduced work effectiveness and increased employee absenteeism. According to the World Organization for National Employment (2025), employees with high stress levels are eight times more likely to take sick leave and 2.5 times more likely to file health claims compared to employees with low stress levels. In the context of startups, this issue becomes even more critical because human capital serves as the primary asset and innovation driver. Prolonged pressure leads to decreased productivity, diminished creativity, and higher turnover risk conditions that may jeopardize competitiveness and business continuity (Bort, 2025).

The hard-working culture commonly known as *hustle culture* within startup ecosystems further exacerbates job stress. Hughes (2024) found that work effectiveness declines sharply once weekly working hours exceed 50, even though overworking is still perceived as normal in many startups. Likewise, Bort (2025) revealed that behind the success narrative of startups lies a “non-financial debt” in the form of psychological exhaustion and emotional strain on employees. In workplaces such as PT. XYZ, project deadlines and continuous innovation demands create additional pressure, especially when workloads are not aligned with individual capacities.

Recent studies have demonstrated a strong relationship between work stress and productivity, particularly in technology-based industries and startups. Weichbroth et al. (2025) found that employees’ emotional conditions significantly affect perceived productivity among software developers. Michels et al. (2024) emphasized that feeling overwhelmed due to time pressure, work interruptions, and organizational demands directly reduces task performance. Furthermore, Vinson et al. (2024) suggested the importance of early stress detection through sustainable work systems to maintain employee well-being. On the other hand, Kasperczuk et al. (2025) showed that flexible work policies significantly enhance motivation and organizational performance. These findings reinforce the crucial role of psychological factors in sustaining employee productivity, especially in dynamic and high-pressure environments.

However, several research gaps remain to be addressed. First, most previous studies were conducted in developed countries or large corporations, while empirical research specifically examining the relationship

between job stress and productivity in Indonesian startups remains limited. Second, many prior studies included multiple mediating or moderating variables such as workload, work–life balance, or job satisfaction, which means the direct relationship between job stress and productivity has not been examined in sufficient detail. Third, few studies have been conducted within real organizational contexts, particularly in actively operating startups, even though real-life conditions can provide more valid and contextual empirical insights.

These gaps highlight the need for research that directly examines the impact of work stress on employee productivity within real startup environments. This is essential not only from a theoretical perspective but also from a practical one. Theoretically, this study contributes to the enrichment of human resource management and organizational psychology literature, particularly within the Indonesian startup context. Practically, the results can serve as a foundation for startup management including PT. XYZ to design effective stress management strategies, such as workload adjustment, work–life balance initiatives, and employee well-being programs, to sustain productivity over time.

Based on the aforementioned background, this study aims to analyze the effect of work stress on employee productivity within a startup environment, using PT. XYZ as a case study. Employing a quantitative approach with simple linear regression analysis, this study is expected to provide empirical evidence regarding the relationship between job stress and employee productivity, as well as offer relevant managerial recommendations for human resource policy development in the startup sector.

METHOD

This study employed a quantitative approach with descriptive and causal research designs to examine the effect of work stress on employee productivity in a startup environment. The research was conducted at PT. XYZ, a technology-based startup in Indonesia. The population consisted of 50 employees, from which a portion was selected as the research sample using purposive sampling. The inclusion criteria required respondents to be permanent employees who had worked for at least six months and were directly involved in the company's operational activities. Data were collected using a structured questionnaire distributed both online and offline, employing a five-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). The study measured two main variables: work stress (X), adapted from Robbins and Judge (2019), which included psychological, physical, and behavioral stress indicators; and employee productivity (Y), adapted from Mangkunegara (2017), which covered efficiency, work quality, and timeliness.

Data analysis was conducted using IBM SPSS Statistics version 26, consisting of both descriptive and inferential analyses. Descriptive analysis was used to summarize the data distribution of each variable through measures such as mean, standard deviation, minimum, and maximum values. Classical assumption tests were performed using the Kolmogorov–Smirnov test and Normal P–P Plot for normality, as well as the Glejser test and scatterplot for heteroscedasticity, ensuring that the regression model met statistical assumptions. A simple linear regression analysis was then used to determine the direction and magnitude of the influence of work stress on employee productivity. Hypothesis testing was carried out using the t-test at a significance level of $\alpha = 0.05$, and the coefficient of determination (R^2) was calculated to assess the explanatory power of the model. All analyses were conducted at a 95% confidence level, and the results were interpreted in reference to relevant theories and prior empirical studies to ensure comprehensive and valid conclusions.

RESULTS AND DISCUSSION

Descriptive Analysis

Based on the results of the descriptive analysis (Table 1), the work stress variable had a mean score of 32.64 with a standard deviation of 5.21, while the work productivity variable had a mean of 49.66 with a standard deviation of 4.35. The average work stress level, categorized as moderate, indicates that most employees at PT. XYZ experience a fairly high degree of work pressure due to the dynamic nature of the startup environment. Meanwhile, employee productivity remains at a relatively good, though not optimal, level. This condition suggests a potential decline in performance if work stress is not managed effectively.

Table 1. Results of Descriptive Analysis

Variable	Minimum	Maximum	Mean	Std. Deviation
Work Stress	24	44	32.64	5.21
Work Productivity	39	58	49.66	4.35

Source: SPSS Output, 2025

Classical Assumption Tests

The normality test was conducted using the Kolmogorov–Smirnov method and a Normal P–P Plot visualization (Figure 1). The results show a significance value of $0.200 > 0.05$, indicating that the residuals are normally distributed. This finding is further supported by the P–P Plot, where the data points follow the diagonal line, suggesting a symmetrical distribution along the normality line.

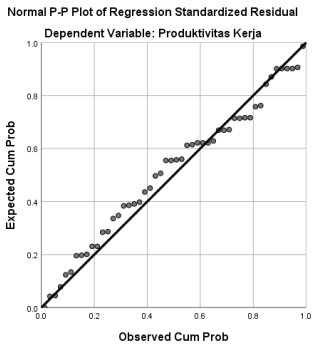

Figure 1. Normal P-P Plot of Regression Standardized Residual

The heteroscedasticity test was performed using the Glejser method and a residual scatterplot (Figure 2). The significance value for the relationship between work stress and absolute residuals was 0.972 > 0.05, indicating no heteroscedasticity symptoms. The scatterplot shows that data points are randomly distributed around the zero axis without forming a specific pattern, confirming that the regression model is appropriate for use.

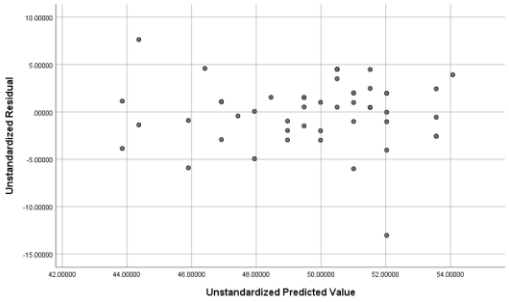

Figure 2. Scatterplot of Unstandardized Residual vs Unstandardized Predictive

Simple Linear Regression Analysis

Simple linear regression analysis was used to examine the effect of work stress on employee productivity. The results show a correlation coefficient (R) of 0.611, indicating a strong relationship between the two variables. The coefficient of determination (R^2) of 0.373 implies that work stress explains 37.3% of the variance in work productivity, while the remaining 62.7% is influenced by other factors outside this research model.

The F-test results show an F-value of 28.594 with a significance level of 0.000 < 0.05, meaning that the regression model is statistically significant and suitable for explaining the relationship between work stress and work productivity.

Table 3. Coefficients and t-test results

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.611	0.373	0.360	3.483

Source: SPSS Output, 2025

t-Test and Interpretation of Regression Coefficients

The t-test results show that the work stress variable has a t-value of –5.347 with a significance level of 0.000 < 0.05. This indicates that work stress has a negative and significant effect on employee productivity. The regression equation is as follows:

$$Y = 66.333 - 0.511X$$

The regression coefficient of –0.511 suggests that every one-unit increase in work stress will decrease employee productivity by 0.511 points. This finding indicates that work stress is a crucial factor to consider in human resource management within startups, as increasing work pressure directly affects individual performance

Discussion

These findings reinforce the work stress theory proposed by Robbins and Judge (2019), which states that excessive stress can reduce individual efficiency, concentration, and performance. In the startup context, the demand for speed and high creativity is a primary factor contributing to increased employee stress. Startups typically have flat organizational structures and aggressive targets, forcing employees to work under tight time constraints and limited resources (Hughes, 2024).

The significant negative relationship between work stress and productivity aligns with the findings of Michels et al. (2024), who reported that time pressure and work interruptions directly decrease work quality and efficiency.

Similarly, Weichbroth et al. (2025) found that employees' emotional conditions play a crucial role in determining team productivity within the digital technology industry. The higher the psychological pressure experienced by employees, the lower the productivity levels achieved.

Furthermore, Vinson et al. (2024) emphasized the importance of early detection systems for work stress in technology-based companies to sustain productivity. This is consistent with conditions at PT. XYZ, where intensive work patterns and ongoing innovation demands often lead to emotional exhaustion. If left unmanaged, such conditions may increase the risk of burnout and turnover intention (Bort, 2025).

On the other hand, the results also show that work stress accounts for only 37.3% of productivity variation, indicating that other factors—such as intrinsic motivation, leadership style, and collaborative work culture—also play significant roles (Kasperczuk et al., 2025; Raharjo & Wicaksono, 2023). Kasperczuk et al. (2025) highlighted that work flexibility and individual autonomy can act as protective factors against stress, ultimately enhancing motivation and performance.

Therefore, this study provides empirical evidence that in the context of Indonesian startups, work stress is a key determinant of productivity. However, its adverse impact can be mitigated through human resource management policies focused on employee well-being, such as balanced workload distribution, sufficient rest periods, and work–life balance programs (Chen et al., 2022; Bort, 2025).

From a theoretical standpoint, these findings strengthen the model of a negative relationship between work stress and productivity in contemporary management literature. Practically, the results can serve as a foundation for PT. XYZ's management to design organizational stress management strategies, such as employee assistance programs and time management training. These efforts are expected to reduce stress levels, improve job satisfaction, and sustain long-term productivity

CONCLUSION

This study concludes that work stress has a significant negative effect on employee productivity in startup environments, as evidenced by the findings at PT. XYZ. The statistical results demonstrate that increasing levels of work stress lead to a decline in employee productivity, with stress explaining 37.3% of the variance in performance outcomes. These findings confirm that the fast-paced, high-pressure, and innovation-driven nature of startup work environments contributes to elevated stress levels, which in turn hinder efficiency, focus, and output quality. Theoretically, this research strengthens existing organizational behavior and human resource management literature that emphasizes the detrimental impact of excessive stress on individual and organizational performance. Practically, the results highlight the importance for startups to implement comprehensive stress management strategies such as workload adjustment, flexible working arrangements, and employee well-being programs—to sustain productivity and reduce burnout risks. Future research is recommended to include additional psychological and organizational variables, such as motivation, leadership style, and work engagement, to provide a broader understanding of the mechanisms linking work stress and employee productivity in startup contexts.

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