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The Effect of Psychophysical Pressure and Work Stress on Administrative Staff Productivity through Life Equilibrium as a Mediating Variable

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ABSTRACT
Increasing work pressure in the healthcare sector has the potential to reduce employee productivity. This study aims to analyze the effect of psychophysical pressure and work stress on administrative staff productivity with Life Equilibrium as a mediating variable. The study employed a quantitative approach using Partial Least Squares-based Structural Equation Modeling (SEM-PLS). The sample consisted of 80 administrative staff members at Muhammadiyah Hospital Gresik selected through saturated sampling technique. Data were collected through questionnaires using a Likert scale and analyzed using SmartPLS 4.0. The results showed that: (1) Psychophysical pressure and work stress had a significant negative effect on productivity; (2) Both variables significantly negatively affected Life Equilibrium; (3) Life Equilibrium had a significant positive effect on productivity; and (4) Life Equilibrium significantly mediated the effect of psychophysical pressure and work stress on productivity. These findings indicate that despite high work pressure, productivity can be maintained through comprehensive management of work-life equilibrium. The practical implications of this study emphasize the importance of structured workload management policies and psychological support programs to maintain the well-being and performance of administrative staff in hospital settings.

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Psychophysical Pressure, Work Stress, Life Equilibrium, Productivity, Hospital Administrative Staff

INTRODUCTION

The transformation of the modern workplace, driven by globalization, technological disruption, and increasingly rapid service demands, has significantly heightened psychophysical pressure on employees across various sectors, including healthcare. Unmanaged pressure has the potential to trigger chronic work stress, which can ultimately reduce productivity, induce burnout, and compromise organizational service quality (Safitri, 2020; Makkira, 2022). Within the hospital context, human resource management (HRM) plays a strategic role, as the quality of healthcare services heavily depends on the competence and well-being of the workforce, including administrative staff who serve as the backbone of non-medical operational continuity (Ally, 2024).

Internal data from Muhammadiyah Hospital Gresik for the period 2022–2024 reveals a compelling phenomenon worthy of further investigation. Administrative staff productivity has remained stable and high, ranging between 91%–94%, with employee turnover consistently below 5%. However, these achievements have occurred amid a rising trend in psychophysical pressure (index increasing from 115 to 125) and work stress (index rising from 65 to 85), driven by the digitalization of administrative systems, accreditation demands, and increased service volume without proportional increases in human resources. Concurrently, indicators of Life Equilibrium have shown a declining trend. This condition creates a performance paradox: productivity remains maintained despite increasing psychological burdens and work demands, raising questions about

performance sustainability and the potential long-term risks of declining service quality and employee well-being (Simone, 2023; Asbari, 2022).

Theoretically, the relationship between work pressure, stress, and productivity has been extensively examined through the lens of Work-Life Balance (WLB). However, most prior studies have tended to limit WLB to aspects of time flexibility and organizational support (Allen et al., 2020; Haar et al., 2017). In high-intensity work environments such as hospitals, however, the required balance is multidimensional and not merely structural but also psychological. This study introduces the concept of Life Equilibrium as a more comprehensive mediating variable, encompassing balance across work aspects, availability of rest time, family and social interactions, and physical and mental health conditions. This approach aligns with Kalliath's (2021) perspective emphasizing that psychological balance serves as a fundamental foundation for sustaining performance amid high work pressure.

The novelty of this research lies in conceptualizing Life Equilibrium as a reflection of employees' actual conditions when facing work demands, rather than merely an organizational policy. By positioning Life Equilibrium as a mediator, this study seeks to explain the mechanism through which psychophysical pressure and work stress influence the productivity of administrative staff. Understanding this mechanism is crucial for developing sustainable HRM strategies, particularly in designing targeted well-being interventions. Based on this background, this study aims to analyze "The Effect of Psychophysical Pressure and Work Stress on Administrative Staff Productivity through Life Equilibrium as a Mediating Variable at Muhammadiyah Hospital Gresik."

METHOD

Research Design and Setting

This study employs a quantitative approach with an associative research design to examine the effect of psychophysical pressure and work stress on administrative staff productivity, with *Life Equilibrium* as a mediating variable. The research was conducted at Muhammadiyah Hospital Gresik, focusing on administrative staff directly involved in service delivery processes. The quantitative approach was selected because it effectively provides empirical insights into causal relationships among the studied variables through measurable hypothesis testing (Sugiyono, 2022).

Population and Sample

The population of this study comprises all administrative staff at Muhammadiyah Hospital Gresik, totaling 80 individuals. Sample selection utilized a saturated sampling (census) technique, wherein the entire population served as the research sample. This technique aligns with Sugiyono's (2023) recommendation that saturated sampling is appropriate when the population consists of fewer than 100 individuals or when researchers aim to generalize findings with minimal error. Similarly, Arikunto (2020) notes that when the population is relatively small, utilizing the entire population as the sample enhances representativeness.

Respondents were restricted to administrative staff due to the more homogeneous nature of their roles compared to medical personnel, thereby improving the consistency and validity of the findings while minimizing occupational bias. The sample comprised 32 respondents from Administration Building A and 48 respondents from Administration Building B.

Research Variables and Operational Definitions

This study involves four variables, each operationally defined to facilitate measurement and analysis (Sugiyono, 2022):

1. Psychophysical Pressure (X_1): An independent variable measuring workload based on indicators including task volume, time pressure, task complexity, and responsibility demands (Robbins & Judge, 2017).
2. Work Stress (X_2): An independent variable measuring psychological strain resulting from an imbalance between job demands and individual coping capacity, assessed through indicators of anxiety, emotional exhaustion, difficulty concentrating, and decreased work motivation (Makkira, 2022).
3. Life Equilibrium (Z): A mediating variable depicting the balance between work demands and personal life, measured through indicators of time balance, work involvement, and personal life quality (Haar et al., 2017).
4. Productivity (Y): The dependent variable measuring employees' ability to generate output effectively and efficiently, assessed through indicators of target achievement, time efficiency, and the impact of work outcomes on organizational goals (Asbari et al., 2022).

Data Collection Techniques

Data were collected using a questionnaire employing a 5-point Likert scale, distributed through in-person administration to respondents. This method was chosen to ensure proper delivery and completion by eligible participants, thereby improving the response rate and data completeness (Bougie, 2020). The measurement scale was defined as follows: 1 = Strongly Disagree (1.00–1.80), 2 = Disagree (1.81–2.60), 3 = Neutral (2.61–3.40), 4 = Agree (3.41–4.20), and 5 = Strongly Agree (4.21–5.00) (Sugiyono, 2021).

In addition to primary data from questionnaires, the study utilized secondary data from internal hospital documents, including performance reports, personnel records, and relevant prior research references (Sinambela, 2021).

Data Analysis Methods

Data analysis employed Partial Least Squares Structural Equation Modeling (PLS-SEM) assisted by SmartPLS version 4.0 software. PLS was selected due to its ability to: (1) analyze relationships among latent variables simultaneously, including direct and indirect (mediation) effects; (2) not require normally distributed data; and (3) remain robust with relatively small sample sizes (Hair et al., 2021; Latan, 2025). The analysis process involved three main stages (Ghozali & Latan, 2020):

1. Measurement Model (Outer Model) Evaluation
   Assessed through convergent validity (factor loadings > 0.70 and Average Variance Extracted > 0.50), discriminant validity (cross-loadings > 0.70), and reliability (Composite Reliability and Cronbach's Alpha > 0.70).
2. Structural Model (Inner Model) Evaluation
   Evaluated using the coefficient of determination (R^2) with thresholds of 0.75 (strong), 0.50 (moderate), and 0.25 (weak), alongside predictive relevance (Q^2) with thresholds of 0.02 (weak), 0.15 (moderate), and 0.35 (strong).

3. Hypothesis Testing
   Conducted by examining t-statistic values (> 1.96 at $\alpha = 0.05$) and p-values (< 0.05) to test direct and indirect effects. Mediation testing involved comparing t-statistic and original sample values between direct and indirect paths to determine the type of mediation (partial or full).

Additionally, descriptive statistical analysis was used to outline respondent characteristics and research variables through frequency distribution tables, mean calculations, and standard deviations (Sugiyono, 2021).

RESULTS

Research Results

This study involved 80 administrative staff members from Muhammadiyah Hospital Gresik as respondents. Data analysis was conducted using Partial Least Squares-based Structural Equation Modeling (SEM-PLS) with SmartPLS 4.0 software to examine the effect of psychophysical pressure and work stress on productivity through *Life Equilibrium* as a mediating variable.

Respondent Characteristics

Respondents' demographic characteristics are presented in Table 1. The majority of respondents were female (61.25%), aged 31–40 years (46.25%), and had 5–10 years of work experience (48.75%). This profile indicates that administrative staff at the research site are predominantly composed of productive workers with adequate professional experience.

Table 1. Respondent Characteristics (N = 80)

Characteristic	Category	Frequency	Percentage
Gender	Male	31	38.75%
	Female	49	61.25%
Age	20–30 years	24	30.00%
	31–40 years	37	46.25%
	>40 years	19	23.75%
Work Experience	<5 years	26	32.50%
	5–10 years	39	48.75%
	>10 years	15	18.75%

Source: Processed Primary Data (2025)

Descriptive Statistics of Variables

Based on respondent responses (5-point Likert scale), all research variables demonstrated mean scores in the high category (>3.40). Psychophysical pressure (mean = 4.06) and work stress (mean = 3.96) were at elevated levels, confirming preliminary findings regarding increased workload. Notably, productivity was also recorded as high (mean = 4.15), while *Life Equilibrium* remained at a moderate-to-high level (mean = 3.83). This condition reinforces the performance paradox identified in the background: productivity remains maintained despite increasing work pressure.

Evaluation of the Measurement Model (Outer Model)

Results of the outer model evaluation indicate that all research instruments met validity and reliability criteria (Table 2). All indicators exhibited factor loadings > 0.70 (range: 0.785–0.872), Average Variance Extracted (AVE) values > 0.50, and Composite Reliability and Cronbach's Alpha values > 0.70. Thus, the research instruments were deemed suitable for hypothesis testing (Ghozali & Latan, 2020).

Table 2. Summary of Outer Model Evaluation

Variable	Factor Loadings	AVE	Composite Reliability	Cronbach's Alpha
Psychophysical Pressure (X_1)	0.796–0.841	0.688	0.903	0.851
Work Stress (X_2)	0.785–0.857	0.701	0.911	0.874
Life Equilibrium (Z)	0.819–0.846	0.714	0.892	0.819
Productivity (Y)	0.834–0.872	0.742	0.921	0.887

Criteria: Loadings > 0.70; AVE > 0.50; CR & CA > 0.70 (Ghozali & Latan, 2020)

Evaluation of the Structural Model (Inner Model) and Hypothesis Testing

The coefficient of determination (R^2) for *Life Equilibrium* was 0.648 and for Productivity was 0.771, indicating that the model possesses strong predictive capability (Hair et al., 2021). Hypothesis testing results are presented in Table 3.

Table 3. Hypothesis Testing Results (Direct & Indirect Effects)

Relationship	Original Sample	T-Statistic	P-Value	Conclusion
Direct Effects				
$X_1 \rightarrow Y$ (Psychophysical Pressure → Productivity)	-0.246	3.112	0.002	Significant
$X_2 \rightarrow Y$ (Work Stress → Productivity)	-0.361	4.287	0.000	Significant
$X_1 \rightarrow Z$ (Psychophysical Pressure → Life Equilibrium)	-0.536	6.884	0.000	Significant
$X_2 \rightarrow Z$ (Work Stress → Life Equilibrium)	-0.452	5.992	0.000	Significant
$Z \rightarrow Y$ (Life Equilibrium → Productivity)	0.591	7.444	0.000	Significant
Indirect Effects (Mediation)				
$X_1 \rightarrow Z \rightarrow Y$	-0.317	3.774	0.000	Significant Mediation
$X_2 \rightarrow Z \rightarrow Y$	-0.267	3.286	0.001	Significant Mediation

Significance criteria: T > 1.96 and P < 0.05 (a = 0.05)

DISCUSSION

The Effect of Psychophysical Pressure and Work Stress on Productivity

The results indicate that psychophysical pressure (β = -0.246; p = 0.002) and work stress (β = -0.361; p = 0.000) exert significant negative effects on administrative staff productivity. These findings align with the Job Demands-Resources (JD-R) theory, which posits that work demands exceeding individual capacity deplete psychophysical energy and impair performance (Bakker & Demerouti, 2017). Within the hospital context, high complexity of administrative tasks, service time pressure, and accreditation demands create cognitive burdens that may disrupt focus and work efficiency (Yulianty, 2024).

However, it is noteworthy that despite these statistically significant negative effects, the average productivity score among respondents remained high (mean = 4.15). This suggests the presence of compensatory mechanisms enabling staff to maintain performance under pressure, such as organizational loyalty, professional commitment, or peer support factors warranting exploration in future research.

The Role of Life Equilibrium as a Mediating Variable

A key finding of this study is the significant mediating role of *Life Equilibrium*. Psychophysical pressure and work stress were shown to reduce work-life balance (β = -0.536 and -0.452; p < 0.001), subsequently impacting productivity negatively. Conversely, strong *Life Equilibrium* exerted a robust positive effect on productivity (β = 0.591; p < 0.001).

These results reinforce the theoretical argument that work-life balance is not merely a structural policy (time flexibility) but a multidimensional psychological condition encompassing rest time availability, quality of social interactions, and mental health (Kalliath, 2021). In high-intensity work environments such as hospitals, interventions focusing solely on workload reduction without addressing the psychological dimensions of life balance may prove less effective.

Theoretical and Practical Implications

Theoretically, this study contributes to advancing the concept of *Life Equilibrium* as a more holistic construct compared to conventional Work-Life Balance. By integrating work, personal, social, and health dimensions, this concept offers greater relevance for explaining employee well-being dynamics in the healthcare service sector.

Practically, these findings provide strategic recommendations for Muhammadiyah Hospital Gresik management:

1. Strengthening Well-being Programs: Initiatives such as stress management training, counseling services, and family-oriented activities should be maintained and periodically evaluated for effectiveness.
2. Workload Redesign: Evaluation of task distribution and augmentation of administrative resources are necessary to prevent long-term burnout.
3. Supportive Organizational Culture: Fostering a work environment that respects boundaries between professional and personal life can serve as a strategic investment for sustaining long-term productivity.

Research Limitations

This study has several limitations. First, the cross-sectional design restricts the ability to draw definitive causal inferences. Second, variable measurement relied on self-reported data, which may be subject to social desirability bias. Third, generalization of findings should be approached cautiously given the specific context of a private hospital affiliated with a religious organization.

Future research is recommended to employ longitudinal designs and integrate objective performance metrics to strengthen the validity of findings.

CONCLUSION AND RECOMMENDATIONS

Conclusion

Based on hypothesis testing using SEM-PLS, this study concludes that: (1) Psychophysical pressure and work stress exert significant partial negative effects on administrative staff productivity, indicating that increased work demands and emotional strain directly reduce work efficiency and performance outcomes; (2) Both independent variables also demonstrate significant negative effects on *Life Equilibrium*, suggesting that high workload tends to erode the balance between employees' professional and personal life domains; (3) *Life Equilibrium* exerts a significant positive effect on productivity and functions as a significant mediator capable of mitigating the negative impacts of psychophysical pressure and work stress on performance. These findings affirm that maintaining work-life balance is not merely a normative policy but a strategic mechanism serving as a psychological buffer. Consequently, healthcare organizations can sustain long-term productivity despite high work pressure, provided that work-life balance dimensions are managed comprehensively.

Recommendations

Based on these empirical findings, several practical and academic recommendations are proposed as follows:

1. For Hospital Management: It is recommended to implement more structured workload management policies, such as task redistribution based on individual capacity, optimization of digital workflow systems, and establishment of realistic administrative response time boundaries (*service level agreements*). Furthermore, psychological support through *Employee Assistance Programs* (EAP), periodic counseling services, and strengthening an organizational culture that respects the separation between work and personal time (*right to disconnect*) should be sustainably integrated into human resource policies.
2. For Administrative Staff: It is recommended to proactively apply *boundary management* strategies between work and personal life, utilize available work-life balance facilities, and develop *recovery practices* such as time management, regular physical activity, and social support to maintain optimal *Life Equilibrium* conditions.
3. For Future Researchers: It is recommended to expand the research model by integrating contextual variables such as *job resources* (organizational support, transformational leadership, work climate), burnout, or job satisfaction to examine Job Demands-Resources model dynamics more holistically. The use of longitudinal designs or mixed-methods approaches, as well as replacing self-reported productivity measures with objective performance indicators, is also recommended to enhance external validity and broaden the generalizability of findings to other healthcare facility contexts.

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