

Research Article

The Effect of Work-Life Balance and Psychological Capital on Employee Engagement among Manufacturing Employees in Surabaya, Indonesia

Ema Yudianti^{1*}, Dianti Ria Saputri², Annisa Rizka Kusuma³

¹⁻² Universitas Islam Negeri Raden Fatah Palembang, Indonesia

³ Universitas Sriwijaya Palembang, Indonesia

* Corresponding Author: emayudianti_uin@radenfatah.ac.id

Abstract. Employee engagement is a key psychological resource for organizational performance, yet many manufacturing firms in emerging economies struggle to sustain it under demanding production schedules. This study examined the effect of work-life balance and psychological capital on employee engagement among manufacturing employees in Surabaya, Indonesia. A quantitative, cross-sectional survey design was used with 210 employees selected through proportionate stratified random sampling. Data were collected using adapted versions of a work-life balance scale, the Psychological Capital Questionnaire, and the Utrecht Work Engagement Scale (UWES-9), and analyzed using Pearson correlation and multiple linear regression. All instruments showed good reliability (Cronbach's alpha from .84 to .91). Work-life balance ($\beta = .30, p < .001$) and psychological capital ($\beta = .47, p < .001$) each predicted engagement, and together they explained 44.5% of its variance, $F(2, 207) = 83.00, p < .001$. Psychological capital was the stronger predictor. The findings support the Job Demands-Resources model and Conservation of Resources theory, and suggest that organizations should combine family-supportive work arrangements with programs that develop hope, efficacy, resilience, and optimism. Practical implications, limitations, and directions for future research are discussed.

Keywords: Employee Engagement; Human Resource Management; Manufacturing; Psychological Capital; Work-Life Balance.

1. Introduction

Manufacturing remains one of the largest contributors to the Indonesian economy, and East Java, with Surabaya as its industrial center, hosts a dense concentration of factories producing food, metal, chemical, and consumer goods. Firms in this sector operate under strict output targets, rotating shifts, and frequent overtime. These conditions place sustained demands on employees and blur the boundary between work and private life. In such settings, human resource management increasingly depends on the ability of organizations to keep employees energized, dedicated, and absorbed in their work, a state commonly described as work engagement.

Work engagement is defined as a positive, fulfilling, work-related state of mind characterized by vigor, dedication, and absorption (Schaufeli et al., 2002). Engaged employees show higher task and contextual performance, stronger commitment, and lower intention to leave the organization (Christian et al., 2011). Because engagement is linked to productivity and retention, it has become a strategic concern in talent management. Despite this, survey evidence from many emerging economies suggests that a substantial share of employees are only partially engaged, especially in production roles where autonomy is limited and physical workload is high (Bakker & Albrecht, 2018).

Two factors have received considerable attention as antecedents of engagement. The first is work-life balance, which reflects the extent to which individuals are equally engaged in and satisfied with their work and non-work roles (Greenhaus & Allen, 2011). When employees can meet family, social, and personal obligations without persistent conflict, they retain the energy needed to invest in their jobs. The second is psychological capital (PsyCap), a positive psychological state composed of self-efficacy, hope, optimism, and resilience (Luthans et al., 2007). PsyCap is a personal resource that helps employees interpret demands as manageable challenges and persist when facing setbacks.

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Although both constructs are well studied in Western and East Asian samples, research that examines them simultaneously among blue-collar and operational employees in Indonesia is still limited. Cultural context matters here. Indonesian society is collectivist, family obligations are strong, and extended family support is common, which may change how work-life balance relates to job attitudes. In addition, most engagement studies focus on white-collar or service workers, so evidence from manufacturing settings remains scarce. Examining the joint effect of a job-external resource (work-life balance) and a personal resource (PsyCap) also allows a comparison of their relative contributions, which is useful for prioritizing organizational interventions.

The present study therefore addresses the following research questions: (a) Does work-life balance predict employee engagement? (b) Does psychological capital predict employee engagement? (c) To what extent do both variables jointly explain engagement among manufacturing employees in Surabaya? The study contributes to the psychology of human resource management by testing a resource-based explanation of engagement in an underrepresented occupational and cultural setting, and by offering evidence that can guide the design of employee well-being and development programs.

2. Literature Review

Employee Engagement

Kahn (1990) introduced personal engagement as the harnessing of organization members' selves to their work roles, in which people express themselves physically, cognitively, and emotionally during role performance. He proposed that meaningfulness, safety, and availability are the psychological conditions that enable engagement. Later, Schaufeli et al. (2002) conceptualized work engagement as a distinct motivational construct with three dimensions. Vigor refers to high energy and mental resilience while working, dedication refers to a sense of significance, enthusiasm, and pride, and absorption refers to being fully concentrated and happily engrossed in work. This conceptualization is operationalized in the Utrecht Work Engagement Scale, which has shown stable factor structure and reliability across many countries and occupations (Schaufeli et al., 2006).

Meta-analytic evidence indicates that engagement is positively related to job performance, organizational citizenship behavior, and financial outcomes, and negatively related to burnout and turnover intention (Christian et al., 2011; Xanthopoulou et al., 2009). These findings explain why organizations invest in identifying the antecedents of engagement, which are commonly grouped into job resources and personal resources.

Work-Life Balance

Work-life balance has been defined in several ways. Greenhaus and Allen (2011) describe it as the extent to which an individual's effectiveness and satisfaction in work and family roles are compatible with his or her life priorities. Other scholars emphasize the absence of interference between work and non-work domains and the presence of enhancement across domains (Fisher et al., 2009). Employees who experience balance report better mental health, greater job and life satisfaction, and less exhaustion (Haar et al., 2014). Balance is not only a matter of working hours. It also depends on schedule predictability, supervisor support, and the psychological ability to detach from work during off-job time.

In manufacturing, long shifts, mandatory overtime, and rotating schedules can erode recovery time and reduce participation in family life. When these conditions persist, employees may adopt a defensive stance toward work, investing only the minimum effort required. Conversely, when organizations provide predictable schedules, reasonable leave, and supportive supervision, employees are more likely to bring energy and enthusiasm to their tasks.

Psychological Capital

Psychological capital extends positive organizational behavior by identifying a higher-order construct that consists of four state-like capacities (Luthans et al., 2007). Self-efficacy is confidence in one's ability to mobilize effort to succeed at challenging tasks. Hope is the willpower and pathways to pursue goals. Optimism is a positive attribution about succeeding now and in the future. Resilience is the capacity to bounce back from adversity, conflict, or failure. Because these capacities are open to development, PsyCap is considered trainable, which makes it attractive for human resource development. A meta-analysis by Avey et al. (2011) found that PsyCap is positively associated with desirable attitudes, behaviors, and performance, and negatively associated with cynicism, turnover intention, and stress.

Theoretical Framework

The Job Demands-Resources (JD-R) model proposes that job demands trigger a health-impairment process, whereas job and personal resources trigger a motivational process that leads to engagement (Bakker & Demerouti, 2007, 2017). Personal resources such as optimism and self-efficacy are positively related to engagement, partly because they help employees perceive and mobilize job resources. Conservation of Resources (COR) theory offers a complementary explanation. Hobfoll (1989) argued that people strive to obtain, retain, and protect resources, and that resource gain spirals develop when individuals hold a rich resource base (Hobfoll et al., 2018). Within this framework, work-life balance can be viewed as a contextual resource that preserves energy, and PsyCap as a personal resource that helps employees invest that energy productively.

Hypotheses

Based on the theoretical reasoning above, the following hypotheses were proposed. H1: Work-life balance has a positive effect on employee engagement. H2: Psychological capital has a positive effect on employee engagement. H3: Work-life balance and psychological capital jointly have a significant effect on employee engagement.

3. Research Method

Research Design

This study used a quantitative, cross-sectional, explanatory survey design. Work-life balance and psychological capital were treated as independent variables and employee engagement as the dependent variable.

Participants and Procedure

The population consisted of permanent operational and staff-level employees of a medium-sized manufacturing company in Surabaya, East Java, with approximately 850 employees. Using the Slovin formula with a 6% margin of error, the minimum sample size was 267. Because the response rate was expected to be lower, 240 questionnaires were distributed through proportionate stratified random sampling based on department. A total of 210 complete and valid responses were returned (response rate 87.5%). Inclusion criteria were permanent employment status and a minimum tenure of one year.

Of the 210 participants, 118 (56.2%) were male and 92 (43.8%) were female. The age distribution was 20 to 29 years ($n = 71$, 33.8%), 30 to 39 years ($n = 84$, 40.0%), 40 to 49 years ($n = 43$, 20.5%), and 50 years or older ($n = 12$, 5.7%). Educational attainment was senior high school ($n = 96$, 45.7%), diploma ($n = 48$, 22.9%), and bachelor's degree ($n = 66$, 31.4%). The mean organizational tenure was 6.4 years ($SD = 3.8$). Participation was voluntary, and participants gave written informed consent. Responses were anonymous and were used for research purposes only.

Instruments

Employee engagement was measured with the nine-item Utrecht Work Engagement Scale (UWES-9; Schaufeli et al., 2006), covering vigor, dedication, and absorption (sample item: "At my work, I feel bursting with energy"). Work-life balance was measured with a four-item scale adapted from Brough et al. (2014) that assesses perceived balance between work and personal life (sample item: "I currently have a good balance between the time I spend at work and the time I have available for non-work activities"). Psychological capital was measured with a 12-item short form adapted from the Psychological Capital Questionnaire (Luthans et al., 2007), with three items each for self-efficacy, hope, resilience, and optimism.

All instruments were translated into Indonesian using forward and back translation and reviewed by two industrial and organizational psychologists for content validity. A pilot test with 30 employees from a different company confirmed item clarity. All items were rated on a five-point Likert scale from 1 (strongly disagree) to 5 (strongly agree). Corrected item-total correlations ranged from .41 to .78, indicating acceptable item discrimination.

Data Analysis

Data were analyzed with IBM SPSS Statistics. Reliability was assessed using Cronbach's alpha, with values of .70 or above considered acceptable (Nunnally & Bernstein, 1994). Descriptive statistics and Pearson correlations were computed first. Classical assumptions of normality, linearity, homoscedasticity, and multicollinearity were then checked, and multiple linear regression was used to test the hypotheses at a significance level of .05. Effect sizes were interpreted following Cohen (1988). Because all data came from self-reports, Harman's single-factor test was conducted to examine common method bias (Podsakoff et al., 2003).

4. Results and Discussion

Preliminary Analyses

Harman's single-factor test showed that the first unrotated factor accounted for 31.8% of the total variance, below the 50% threshold, suggesting that common method bias was not a serious concern. Skewness and kurtosis values for all variables were within ± 1.0 , and the Kolmogorov-Smirnov test indicated approximately normal residuals ($p = .200$). Scatterplots showed linear relationships and no clear pattern of heteroscedasticity. Tolerance values were .79 and variance inflation factors were 1.27, well below the cutoff of 10 (Hair et al., 2019), so multicollinearity was not a problem.

Descriptive Statistics and Correlations

Table 1 presents the means, standard deviations, reliability coefficients, and intercorrelations. All three variables were at moderately high to high levels, and all instruments demonstrated good internal consistency. Work-life balance, psychological capital, and engagement were significantly and positively correlated. The strongest bivariate relationship was between psychological capital and engagement ($r = .61$), followed by work-life balance and engagement ($r = .52$). By Cohen's (1988) criteria, these are large effects.

Table 1. Descriptive Statistics, Reliability, and Correlations (N = 210)

Variable	M	SD	α	1	2	3
1. Work-life balance	3.68	0.61	.84	1		
2. Psychological capital	3.92	0.55	.89	.46**	1	
3. Employee engagement	3.85	0.58	.91	.52**	.61**	1

Note. ** $p < .01$ (two-tailed).

Regression analysis

Multiple regression was performed to test the hypotheses, and the results are summarized in Table 2. The overall model was significant, $F(2, 207) = 83.00$, $p < .001$, with $R^2 = .445$ (adjusted $R^2 = .440$). This means that work-life balance and psychological capital together explained 44.5% of the variance in employee engagement, which supports H3. The remaining 55.5% is attributable to other factors not examined here, such as leadership style, job autonomy, compensation, and organizational climate.

Table 2. Multiple Regression Predicting Employee Engagement (N = 210)

Predictor	B	SE B	β	t	p	95% CI
Constant	0.84	0.24		3.51	.001	[0.37, 1.31]
Work-life balance	0.29	0.06	.30	5.21	< .001	[0.18, 0.40]
Psychological capital	0.50	0.06	.47	8.06	< .001	[0.38, 0.62]

Note. $R = .667$, $R^2 = .445$, adjusted $R^2 = .440$, $F(2, 207) = 83.00$, $p < .001$. CI = confidence interval for B.

Work-life balance had a significant positive effect on engagement ($\beta = .30$, $t = 5.21$, $p < .001$), so H1 was supported. Psychological capital also had a significant positive effect ($\beta = .47$, $t = 8.06$, $p < .001$), so H2 was supported. Comparison of standardized coefficients shows that psychological capital contributed about 1.5 times more than work-life balance to the prediction of engagement.

Discussion

The finding that work-life balance predicts engagement is consistent with the JD-R model and COR theory. Employees who can meet their family and personal responsibilities are less likely to experience resource depletion, so they can devote more vigor and dedication to their tasks. This result agrees with earlier evidence that balance is associated with better well-being and more positive work attitudes across cultures (Haar et al., 2014). In the Indonesian manufacturing setting, the result is particularly meaningful. Overtime and shift rotation are routine, and family and community obligations, such as religious activities and extended family gatherings, carry high social value. When work schedules make it difficult to fulfill these roles, role strain may reduce enthusiasm for work. Predictable schedules, fair overtime arrangements, and respect for leave therefore appear to be practical ways of preserving engagement.

Psychological capital emerged as the stronger predictor. This supports the view that personal resources are central to the motivational process of engagement (Bakker & Demerouti, 2017) and is in line with meta-analytic evidence on the benefits of PsyCap (Avey et al., 2011). Employees who are confident, hopeful, optimistic, and resilient tend to interpret production pressure and setbacks as challenges to be overcome rather than threats, and they are more inclined to persist and to find meaning in their tasks. Because PsyCap partly reflects the way people appraise demands, it can operate even when external conditions are not ideal,

which may explain why its effect was larger than that of work-life balance in a high-demand industrial environment.

The moderate positive correlation between work-life balance and PsyCap ($r = .46$) is also worth noting. It is consistent with the idea of resource caravans and gain spirals proposed by COR theory, in which one resource tends to accompany or generate another (Hobfoll et al., 2018). Employees with adequate time for rest and family may recover psychological energy that supports hope and resilience, and those with higher PsyCap may craft their routines more effectively to maintain balance. Although the present cross-sectional design cannot establish the direction of this relationship, the pattern suggests that interventions targeting both resources may reinforce one another.

Practical Implications

For human resource practitioners, the results suggest a two-track strategy. On the contextual side, companies can improve work-life balance through transparent shift planning with advance notice, caps on overtime, protected leave, and supervisors trained to support employees' family needs. On the personal side, companies can implement short PsyCap development programs that use goal-setting workshops for hope, mastery experiences and mentoring for self-efficacy, reflective exercises for optimism, and coping and stress-recovery training for resilience. Such programs are relatively low cost and can be integrated into regular safety briefings or training days. Engagement surveys should also monitor both resources, so that interventions can be targeted to departments with the lowest scores.

Limitations and Future Research

Several limitations should be acknowledged. First, the cross-sectional design prevents causal inference, and reverse or reciprocal relationships are plausible because highly engaged employees may also craft their jobs to achieve better balance. Longitudinal or experimental designs are needed. Second, data were self-reported, and although Harman's test suggested limited common method bias, social desirability may still have influenced responses. Third, the sample came from a single company in one city, which limits generalizability to other industries and regions. Future studies could include multiple firms, incorporate supervisor ratings or objective performance data, and test additional variables such as perceived organizational support, leadership, and job crafting as mediators or moderators. Multi-group analyses comparing shift and non-shift workers, or male and female employees, would also clarify whether the effects differ by work arrangement or gender role expectations.

5. Conclusions

This study shows that both work-life balance and psychological capital are significant positive predictors of employee engagement among manufacturing employees in Surabaya, Indonesia, and that together they explain a substantial proportion of its variance. Psychological capital had the larger effect, but work-life balance made an independent contribution. The results support the JD-R model and COR theory in a collectivist, high-demand industrial context. Organizations that wish to strengthen engagement should not rely on a single lever. Instead, they should combine supportive work arrangements that protect employees' time and energy with development programs that build hope, efficacy, resilience, and optimism. Further research using longitudinal and multi-organization designs will help confirm these relationships and clarify the mechanisms through which they operate.

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