

JOB SATISFACTION AS A PSYCHOLOGICAL PATHWAY LINKING PERCEIVED OCCUPATIONAL HEALTH AND SAFETY TO INDIVIDUAL PERFORMANCE AMONG CONSTRUCTION WORKERS

M. Zakie Mubarak¹, Maya Sari Dewi²

¹ Master of Management Program, Faculty of Economics and Business, Universitas Lambung Mangkurat, Banjarmasin, Indonesia

² Department of Management, Faculty of Economics and Business, Universitas Lambung Mangkurat, Banjarmasin, Indonesia

Correspondensi author email: Zakiemzm@gmail.com

Abstract

This study examines Job Satisfaction as a psychological pathway linking Perceived Occupational Health and Safety to Individual Performance among frontline construction workers in Indonesia. The study addresses inconsistent evidence regarding whether occupational health and safety is directly associated with employee performance by testing both direct and indirect relationships within a Job Demands–Resources perspective. A quantitative cross-sectional design was employed using data from 114 skilled construction workers involved in a subsidized housing project in Hulu Sungai Utara. Perceived Occupational Health and Safety and Job Satisfaction were reported by workers, while Individual Performance was rated by direct supervisors. Data were analyzed using PLS-SEM with SmartPLS 4. The results show that Perceived Occupational Health and Safety was positively associated with Job Satisfaction ($\beta = 0.761, p < .001$), but its direct relationship with Individual Performance was not statistically significant ($\beta = 0.199, p = .106$). Job Satisfaction was positively associated with Individual Performance ($\beta = 0.454, p < .001$) and significantly mediated the relationship between Perceived Occupational Health and Safety and Individual Performance ($\beta = 0.346, p < .001$). These findings highlight Job Satisfaction as an important psychological pathway connecting perceived safety-related working conditions with supervisor-rated performance.

Keywords: Construction workers; Individual performance; Job satisfaction; Perceived occupational health and safety; PLS-SEM

INTRODUCTION

The construction industry is widely recognized as a high-risk work environment because employees are routinely exposed to multiple occupational hazards arising from physical work, machinery and equipment, work at height, dust, noise, hazardous substances, electrical installations, and other project-related conditions. These characteristics make occupational health and safety (OHS) important not only for preventing work-related accidents and illnesses but also for supporting employees in performing their work effectively. Segbenya & Yeboah (2022) showed that construction workers are exposed to various physical, chemical, ergonomic, and operational hazards and reported a significant relationship between OHS practices and employee

performance in the construction sector. Similar evidence was reported by Birowo & Putra (2023) , who found that perceived safety climate was positively associated with both task and contextual performance among employees in a construction company. These findings suggest that occupational safety should not be viewed solely as a regulatory obligation or accident-prevention mechanism, but also as an important aspect of the work environment that may contribute to individual performance.

However, the formal existence of safety policies, procedures, training programs, and protective facilities does not necessarily reflect how occupational health and safety is actually experienced by workers in their daily activities. Employees may evaluate the same safety system differently depending on how they perceive management commitment, safety communication, the clarity and practicality of safety procedures, supervisory support, training adequacy, and opportunities to participate in or report safety-related concerns. In the Indonesian construction context, Lestari et al. (2020) identified management commitment, communication, rules and procedures, supportive environment, personal accountability, and training as major dimensions of safety climate. Their findings also revealed that, despite relatively positive perceptions of management commitment, weaknesses remained in areas such as communication, working conditions, training, reporting, and workers' involvement in safety practices. The study further indicated that workers did not always perceive themselves as having sufficient influence over workplace safety or feel willing to report unsafe practices. Consistent with this employee-centered perspective, Birowo & Putra (2023) conceptualized perceived safety climate as an individual employee's perception of the extent to which safety is prioritized in the workplace. Accordingly, examining *Perceived Occupational Health and Safety* is important because it shifts attention from the mere presence of formal OHS arrangements toward how workers personally evaluate the protection, communication, support, and safety practices they experience at work.

This perception-based perspective can be situated within the Job Demands–Resources (JD-R) theory, which distinguishes working conditions into job demands and job resources based on how they affect employees' functioning at work. Job demands refer to physical, psychological, social, or organizational aspects of work that require sustained effort and are therefore associated with physiological or psychological costs, whereas job resources facilitate the achievement of work goals, help reduce demands and their associated costs, and support employee growth and development (Bakker & Demerouti, 2017) . In occupational safety settings, these two categories are particularly relevant because risks and hazards, physical demands, and work complexity may operate as safety-related job demands, while safety knowledge, autonomy, leadership, social support, and a supportive safety climate may function as job resources (Nahrgang et al., 2011). Accordingly, *Perceived Occupational Health and Safety* should not be reduced to a single job resource. Rather, it reflects workers' evaluation of a work environment in which safety-related resources are available and occupational hazards

and demands are effectively managed. Such evaluations may shape how workers experience their jobs and allocate their physical and psychological resources when performing demanding construction activities.

The potential performance consequences of such safety-related working conditions have received increasing empirical attention, although the findings do not indicate a uniformly direct relationship. In the construction sector, Segbenya & Yeboah (2022) reported a significant relationship between OHS practices and employee performance, while Birowo & Putra (2023) found that perceived safety climate was positively associated with both task and contextual performance. However, evidence from other settings suggests that improvements in safety-related conditions do not necessarily translate directly into higher employee performance. Gamal et al. (2018), for example, found no significant direct relationship between occupational safety and health and employee performance, whereas Perera (2019) reported that the initially significant relationship between occupational health and safety practices and job performance became non-significant after Job Satisfaction was incorporated into the model. Differences in occupational contexts, safety constructs, performance measures, and sources of performance ratings may partly account for these varying findings. More importantly, this pattern raises the possibility that the contribution of occupational health and safety to individual performance may operate through employees' psychological evaluations of their work experience rather than through a consistently direct pathway.

One psychological evaluation that may help explain this indirect process is *Job Satisfaction*, which reflects employees' overall appraisal of their work and work experiences. Although Job Satisfaction is not specified as the central mediating mechanism in JD-R theory, the theory provides a compatible basis for understanding how favorable working conditions can shape positive psychological states that are subsequently associated with work outcomes. The relationship between Job Satisfaction and performance has been supported across occupational settings; Judge et al. (2001), in their meta-analytic review, reported a positive overall association between Job Satisfaction and job performance, while more recent evidence from the construction sector has shown a similar pattern. Egemen (2024), for instance, found that overall Job Satisfaction was positively related to both task and contextual performance among construction employees, including skilled laborers, and Goetz & Wald (2022) similarly reported a positive relationship between Job Satisfaction and task performance in project-based work. In construction environments where employees must continuously respond to physical risks, supervisory practices, safety procedures, and demanding project conditions, workers' evaluations of how adequately these conditions support and protect them may therefore be reflected in their level of Job Satisfaction, which can in turn become relevant to how they perform their work.

Empirical evidence has begun to examine this mediating role of Job Satisfaction in relationships involving occupational safety, although the closest studies have largely been conducted outside frontline construction settings. Perera (2019) found that occupational health and safety practices were positively related to Job Satisfaction among machine operators in Sri Lankan manufacturing firms and reported that Job Satisfaction fully mediated the relationship between occupational health and safety practices and job performance. Similarly, Morgan et al. (2021) reported a significant mediating role of Job Satisfaction in the relationship between health and safety policy management and employee productivity in Nigerian manufacturing firms. These studies provide important evidence that safety-related working conditions may be translated into work outcomes through employees' psychological evaluations of their jobs, yet both relied on manufacturing contexts and measured the focal variables from the same respondent source. Evidence from construction research has also demonstrated the relevance of Job Satisfaction as an intervening mechanism; Aung et al. (2023), for example, found that Job Satisfaction mediated the relationship between inadequate reward and recognition and Job Performance among non-managerial construction professionals. However, this study did not examine occupational safety as the antecedent, leaving the specific pathway from workers' perceived OHS conditions through Job Satisfaction to Individual Performance less directly examined within frontline construction work.

Taken together, the existing literature indicates that occupational safety, Job Satisfaction, and Individual Performance are closely related, yet several aspects of this relationship remain insufficiently integrated in construction research. Previous construction studies have generally examined either the direct relationship between safety conditions and performance or the relationship between Job Satisfaction and performance, while studies that explicitly position Job Satisfaction as a mediator between occupational safety and performance have predominantly been conducted in manufacturing settings. Moreover, much of the available evidence has relied on self-reported performance, which may increase concerns regarding common method bias when employees evaluate both their work environment and their own performance. This limitation is particularly relevant because Individual Performance extends beyond task accomplishment to include contextual behaviors and, in safety-critical occupations, safety-related performance. The present study therefore focuses on frontline construction workers and distinguishes the source of the outcome measurement by assessing *Perceived Occupational Health and Safety* and *Job Satisfaction* from workers while obtaining *Individual Performance* ratings from their direct supervisors. This approach allows the psychological pathway linking perceived safety conditions to performance to be examined while reducing same-source concerns between the explanatory variables and the performance outcome.

Building on the JD-R perspective and the empirical evidence discussed above, this study examines the relationship between *Perceived Occupational Health and Safety*, *Job Satisfaction*, and *Individual Performance* among frontline workers in a housing construction project in Indonesia. Specifically, the study investigates whether workers' perceptions of occupational health and safety are associated with their Job Satisfaction and Individual Performance, whether Job Satisfaction is associated with Individual Performance, and whether Job Satisfaction mediates the relationship between *Perceived Occupational Health and Safety* and *Individual Performance*. By integrating a worker-centered assessment of OHS with supervisor-rated multidimensional performance, the study seeks to extend existing research beyond formal safety systems and direct safety–performance relationships toward a psychological explanation of how perceived safety-related working conditions may be translated into individual work outcomes. In doing so, the study contributes to the construction management and occupational safety literature by examining this mechanism within a frontline Indonesian construction context, where physical risks, project demands, supervisory practices, and workers' day-to-day safety experiences intersect.

RESEARCH METHOD

This study employed a quantitative explanatory research design to examine the direct and indirect relationships among *Perceived Occupational Health and Safety*, *Job Satisfaction*, and *Individual Performance*. A cross-sectional approach was used because the data were collected within a single period of the housing construction project. The unit of analysis was the individual worker, consistent with the study's focus on workers' perceptions of occupational health and safety, their evaluation of job satisfaction, and their individual work performance. The research was conducted among field construction workers involved in a subsidized housing project managed by PT Arraazak Bangun Mandiri in Hulu Sungai Utara Regency, Indonesia. This setting was selected because the project involved labor-intensive field activities in which workers were directly exposed to construction tasks, safety procedures, work equipment, supervisory practices, and project completion demands.

The study population consisted of 152 field construction workers, comprising skilled construction workers (*tukang*) and supporting workers who assisted with material distribution and other field activities. The sample was selected using non-probability purposive sampling because the analysis specifically required workers who were directly involved in the core construction activities, the use of work equipment, the implementation of occupational safety procedures, and the achievement of construction targets. Based on field identification, 114 skilled construction workers met these characteristics, and all 114 were included as research respondents. This sampling decision enabled the study to focus on workers who experienced the safety conditions

under investigation directly and whose daily activities were sufficiently aligned with the dimensions of Individual Performance examined in the model.

The study primarily used quantitative primary data collected through structured questionnaires. Supporting documentation concerning the company profile, workforce composition, and other project-related information was also used to describe the research setting. A five-point Likert scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*) was applied to all measurement items. *Perceived Occupational Health and Safety* was operationalized as workers' perceptions of the consistency, fairness, and effectiveness of organizational safety policies, procedures, and practices in protecting them from occupational risks. Its measurement covered hazard prevention and control, safety knowledge and communication, management support for safety, and safety justice and reporting climate, drawing conceptually on Nahrgang et al. (2011); Neal & Griffin, (2006) . *Job Satisfaction* captured workers' evaluations of the work itself, working conditions, supervision, rewards, and coworker relationships, based on the job satisfaction framework used in the study and informed by Spector (2022) . *Individual Performance* represented workers' effectiveness in performing their responsibilities and incorporated task, contextual, and safety-related performance based on the performance literature of Campbell et al. (1993) and Sonnentag & Frese (2002) .

The measurement procedure separated the sources of the predictor and mediator from the performance outcome. The questionnaires assessing *Perceived Occupational Health and Safety* and *Job Satisfaction* were completed by the workers because both constructs concern employees' personal perceptions and evaluations of their work experience. In contrast, *Individual Performance* was rated by direct supervisors, foremen, supervisors, or head workers who were familiar with each respondent's daily work. The performance assessment covered workers' ability to complete assigned tasks, follow work instructions, meet work targets and deadlines, maintain accuracy and work standards, demonstrate consistent performance, and show initiative in supporting project activities. This multi-source measurement approach was used to avoid relying solely on workers' self-evaluations when assessing the performance outcome.

Data were analyzed using Partial Least Squares Structural Equation Modeling (PLS-SEM) with SmartPLS 4. PLS-SEM was selected because the research model simultaneously examined relationships among latent constructs and included an indirect mediating pathway Hair et al. (2021) . The analysis proceeded through evaluation of the measurement model and the structural model. The measurement model was assessed using indicator loadings, Average Variance Extracted (AVE), Cronbach's alpha, composite reliability, and discriminant validity. Indicator loadings above 0.70 were treated as the preferred criterion, while indicators between 0.60 and 0.70 could be retained when construct-level validity and reliability remained satisfactory. AVE values above 0.50 and reliability coefficients above 0.70 were used to

establish convergent validity and internal consistency. Discriminant validity was evaluated using cross-loadings, the Fornell–Larcker criterion, and the Heterotrait–Monotrait Ratio (HTMT), with HTMT values below 0.90 indicating adequate construct distinctiveness.

The structural model was subsequently evaluated using the coefficient of determination (R^2), effect size (f^2), predictive relevance (Q^2), and Variance Inflation Factor (VIF). R^2 was used to assess the explanatory capacity of the model, f^2 to examine the contribution of individual predictor constructs, Q^2 to evaluate predictive relevance, and VIF values below 5.00 to identify potential collinearity problems. Finally, direct and indirect hypotheses were tested through the bootstrapping procedure in SmartPLS. Path coefficients were used to determine the direction and magnitude of the estimated relationships, while statistical significance was assessed using a two-tailed criterion of $t > 1.96$ and $p < .05$. The indirect effect of *Perceived Occupational Health and Safety* on *Individual Performance* through *Job Satisfaction* was evaluated within the same bootstrapping procedure to determine the mediating role of Job Satisfaction.

RESULT AND DISCUSSION

Findings

A total of 114 skilled construction workers participated in the study. The respondents represented workers who were directly involved in core construction activities and therefore regularly interacted with work equipment, occupational safety procedures, supervisors, and project completion requirements. As presented in Table 1, almost half of the respondents were between 20 and 30 years old (47.4%), followed by those aged 31–40 years (36.8%). In terms of educational background, 53.5% had completed senior high school or vocational high school, while 33.3% had completed elementary school and 13.2% had completed junior high school. Most respondents had also accumulated substantial experience within the project setting, with 45.6% having worked for three to four years and 39.5% for one to two years. Thus, the sample predominantly comprised workers of productive working age who had sufficient exposure to the project environment to evaluate occupational health and safety practices and their work experiences.

Table 1. Respondent Characteristics

Characteristic	Category	Frequency	Percentage
Age	< 20 years	10	8.8%
	20–30 years	54	47.4%
	31–40 years	42	36.8%
	> 40 years	8	7.0%
Education	Elementary school	38	33.3%
	Junior high school	15	13.2%
	Senior/Vocational high school	61	53.5%
Project tenure	< 1 year	12	10.5%
	1–2 years	45	39.5%
	3–4 years	52	45.6%
	> 5 years	5	4.4%

Source: Primary data processed, 2026.

Descriptive analysis was subsequently conducted to identify the general tendencies of the three constructs. *Perceived Occupational Health and Safety* recorded an overall mean of 3.83, indicating that workers generally evaluated the occupational health and safety conditions positively. Among its eight indicators, the highest mean was recorded for OHS7 ($M = 3.91$), which reflected workers' positive evaluation of organizational attention to fatigue-related risks. OHS8 followed with a mean of 3.88 and reflected attention to occupational health exposures such as heat, dust, and noise. By contrast, OHS5 recorded the lowest mean ($M = 3.77$), indicating that the consistency of supervisory monitoring of safety procedures represented a comparatively weaker aspect of workers' safety experience. Nevertheless, all eight OHS indicators remained within the high category.

Job Satisfaction yielded an overall mean of 3.99. The highest-rated indicator was JS8 ($M = 4.06$), indicating a relatively positive evaluation of the rewards received in relation to the work performed. This was followed by JS2 ($M = 4.04$), which reflected the perceived importance of workers' jobs to project completion, and JS5 ($M = 4.03$), which represented cooperation among coworkers. The lowest mean was observed for JS4 ($M = 3.91$), suggesting that workers' assessment of fairness and consistency in supervisors' treatment, although still positive overall, offered comparatively greater room for improvement.

The highest construct-level descriptive score was observed for *Individual Performance*, with an overall mean of 4.23. Unlike *Perceived OHS* and *Job Satisfaction*, which were assessed by the workers themselves, *Individual Performance* was evaluated by direct supervisors, foremen, supervisors, or head workers familiar with the respondents' daily work. The highest indicator was IP1 ($M = 4.30$), followed by IP2 ($M = 4.28$) and IP6 ($M = 4.26$), indicating particularly strong evaluations of task completion, adherence to work instructions, and conformity of work outputs with established standards. The lowest-rated indicator was IP4 ($M = 4.13$), which concerned completing

work according to established targets. Although lower relative to the other performance indicators, it remained within the high category.

Table 2. Descriptive Statistics of the Main Constructs

Construct	Number of Indicators	Mean	Category	Highest Indicator	Lowest Indicator
Perceived Occupational Health and Safety	8	3.83	High	OHS7 = 3.91	OHS5 = 3.77
Job Satisfaction	8	3.99	High	JS8 = 4.06	JS4 = 3.91
Individual Performance	8	4.23	Very High	IP1 = 4.30	IP4 = 4.13

Source: Primary data processed, 2026.

Before testing the structural relationships, the measurement model was evaluated to establish construct validity and reliability. The outer loadings for *Perceived Occupational Health and Safety* ranged from 0.736 to 0.841, while those for *Individual Performance* ranged from 0.752 to 0.826. The loadings for *Job Satisfaction* ranged from 0.659 to 0.854. One Job Satisfaction indicator, JS8, produced a loading of 0.659, which was below the preferred threshold of 0.70 but remained within a retainable range because construct-level reliability and Average Variance Extracted (AVE) remained satisfactory. All remaining indicators exceeded 0.70.

Convergent validity was further supported by AVE values of 0.622 for Perceived OHS, 0.590 for Job Satisfaction, and 0.625 for Individual Performance, all exceeding the threshold of 0.50. Internal consistency was also satisfactory. Cronbach's alpha values were 0.913 for Perceived OHS, 0.900 for Job Satisfaction, and 0.915 for Individual Performance, while composite reliability (ρ_c) values were 0.929, 0.920, and 0.930, respectively. These values indicate satisfactory reliability across all three constructs.

Table 3. Measurement Model Assessment

Construct	Outer Loading Range	Cronbach's Alpha	Composite Reliability (ρ_c)	AVE
Perceived Occupational Health and Safety	0.736–0.841	0.913	0.929	0.622
Job Satisfaction	0.659–0.854	0.900	0.920	0.590
Individual Performance	0.752–0.826	0.915	0.930	0.625

Source: SmartPLS output, 2026.

Discriminant validity was assessed using cross-loadings, the Fornell–Larcker criterion, and the Heterotrait–Monotrait Ratio (HTMT). Each indicator loaded more strongly on its intended construct than on the other constructs. Under the Fornell–Larcker criterion, the square roots of AVE were 0.790 for Individual Performance, 0.768 for Job Satisfaction, and 0.788 for Perceived OHS. The HTMT values were 0.654 between Job Satisfaction and Individual Performance, 0.578 between Perceived OHS

and Individual Performance, and 0.831 between Perceived OHS and Job Satisfaction. As all HTMT values were below 0.90, the three constructs demonstrated adequate empirical distinctiveness and were retained for structural-model assessment.

Evaluation of the structural model showed that Perceived OHS explained 58.0% of the variance in Job Satisfaction ($R^2 = 0.580$; adjusted $R^2 = 0.576$). Perceived OHS and Job Satisfaction jointly explained 38.4% of the variance in Individual Performance ($R^2 = 0.384$; adjusted $R^2 = 0.373$). The effect-size analysis provided additional differentiation among the structural relationships. Perceived OHS had a large effect on Job Satisfaction ($f^2 = 1.379$), whereas Job Satisfaction had a smaller effect approaching the conventional medium threshold on Individual Performance ($f^2 = 0.141$). The direct effect size of Perceived OHS on Individual Performance was comparatively small ($f^2 = 0.027$).

The model also demonstrated predictive relevance for both endogenous constructs. The Q^2 Predict value was 0.570 for Job Satisfaction and 0.278 for Individual Performance, with both values exceeding zero. In addition, the VIF values for the structural relationships ranged from 1.000 to 2.379, remaining below the threshold of 5.00 and indicating no problematic collinearity among the predictor constructs.

Table 4. Structural Model Assessment

Endogenous Construct / Relationship	R^2	Adjusted R^2	f^2	Q^2 Predict	VIF
Job Satisfaction	0.580	0.576	—	0.570	—
Individual Performance	0.384	0.373	—	0.278	—
Perceived OHS → Job Satisfaction	—	—	1.379	—	1.000
Perceived OHS → Individual Performance	—	—	0.027	—	2.379
Job Satisfaction → Individual Performance	—	—	0.141	—	2.379

Source: SmartPLS output, 2026.

Bootstrapping was then used to examine the proposed direct and indirect relationships. As summarized in Table 5, the relationship between Perceived OHS and Job Satisfaction was positive and statistically significant ($\beta = 0.761$, $t = 18.488$, $p < .001$). H1 was therefore supported. Among all direct paths in the model, this relationship exhibited the largest path coefficient, indicating that workers who evaluated their occupational health and safety conditions more positively also tended to report substantially higher Job Satisfaction.

The direct relationship between Perceived OHS and Individual Performance was positive but not statistically significant ($\beta = 0.199$, $t = 1.615$, $p = .106$). Consequently, H2 was not supported. Although the estimated coefficient was positive, the available data did not provide sufficient statistical evidence that workers' perceptions of occupational health and safety were directly associated with supervisor-rated Individual Performance. In contrast, Job Satisfaction had a positive and statistically significant

relationship with Individual Performance ($\beta = 0.454$, $t = 3.707$, $p < .001$), providing support for H3.

Most importantly for the proposed psychological pathway, the indirect effect of Perceived OHS on Individual Performance through Job Satisfaction was positive and statistically significant ($\beta = 0.346$, $t = 3.602$, $p < .001$). H4 was therefore supported. The combination of a non-significant direct Perceived OHS–Individual Performance path and a significant indirect pathway indicates that Job Satisfaction played an important mediating role in the model. The result shows that the relationship between workers’ perceived occupational health and safety conditions and supervisor-rated performance operated more clearly through workers’ Job Satisfaction than through a statistically detectable direct relationship.

Table 5. Hypothesis Testing Results

Hypothesis	Structural Relationship	β	t-Statistic	p-Value	Decision
H1	Perceived OHS → Job Satisfaction	0.761	18.488	< .001	Supported
H2	Perceived OHS → Individual Performance	0.199	1.615	.106	Not supported
H3	Job Satisfaction → Individual Performance	0.454	3.707	< .001	Supported
H4	Perceived OHS → Job Satisfaction → Individual Performance	0.346	3.602	< .001	Supported

Source: SmartPLS output, 2026.

Overall, the empirical findings reveal a differentiated pattern across the proposed relationships. Perceived OHS was strongly associated with Job Satisfaction, while its direct relationship with Individual Performance was comparatively weak and statistically non-significant. Job Satisfaction, in turn, showed a significant positive relationship with supervisor-rated performance, and the indirect Perceived OHS–Job Satisfaction–Individual Performance pathway was statistically significant. The descriptive and structural results therefore converge around a model in which workers’ evaluations of occupational health and safety appear more closely connected to their psychological evaluation of the job than directly to their observable performance. This pattern provides the empirical basis for examining Job Satisfaction as the psychological pathway through which perceived safety-related working conditions are connected to Individual Performance in the subsequent discussion.

ANALYSIS/DISCUSSION

The strong positive relationship between *Perceived Occupational Health and Safety* and *Job Satisfaction* ($\beta = 0.761$, $p < .001$) indicates that workers’ evaluations of occupational health and safety are closely associated with how positively they evaluate

their jobs. This relationship is also reflected in the large effect size of Perceived OHS on Job Satisfaction ($f^2 = 1.379$), suggesting that safety-related working conditions represent an important part of the work experience of frontline construction workers. From a Job Demands–Resources (JD-R) perspective, this finding should not be interpreted by treating Perceived OHS as a single job resource. Instead, workers' safety evaluations encompass both the availability of safety-related resources and the extent to which occupational demands and hazards are effectively controlled. Bakker & Demerouti (2017) explain that job resources facilitate work-goal attainment and help reduce the costs associated with job demands, while Nahrgang et al. (2011) specifically identify safety knowledge, supportive leadership, social support, and a supportive safety climate as resources in safety-critical work environments. At the same time, occupational risks and hazards constitute demands that require additional physical and psychological effort. Workers who perceive that these resources are available and hazards are adequately managed may therefore experience their work environment more positively, which is reflected in higher Job Satisfaction.

This interpretation is consistent with previous empirical evidence linking safety-related working conditions with Job Satisfaction. Perera (2019) reported a positive relationship between occupational health and safety practices and Job Satisfaction among manufacturing machine operators, while Morgan et al. (2021) similarly found that health and safety policy management was associated with Job Satisfaction in manufacturing firms. The present study extends this pattern to frontline construction workers, whose daily work involves direct exposure to physical hazards, safety procedures, supervision, and changing site conditions. This contextual distinction is important because construction safety is not experienced only through formal rules. Lestari et al. (2020) showed that safety climate in Indonesian construction involves management commitment, communication, procedures, supportive working conditions, personal accountability, and training, while also identifying weaknesses in reporting, communication, and workers' ability to influence safety practices. In this context, satisfaction may be shaped not merely by whether safety policies formally exist, but by whether workers experience those policies as accessible, consistently enforced, supportive, and responsive to the risks encountered during daily work.

A different pattern emerged for the direct relationship between *Perceived Occupational Health and Safety* and *Individual Performance*. Although the path coefficient was positive ($\beta = 0.199$), the relationship was not statistically significant ($p = .106$), and its effect size was small ($f^2 = 0.027$). This finding indicates that favorable perceptions of occupational health and safety do not necessarily correspond directly to higher supervisor-rated performance. The result differs from Segbenya & Yeboah (2022), who reported a significant relationship between OHS practices and employee performance in the Ghanaian construction sector, and from Birowo & Putra (2023), who found significant positive relationships between perceived safety climate and both task

and contextual performance in a construction company. However, these studies differ from the present research in several important respects. Segbenya and Yeboah examined broader OHS practices and a narrower performance outcome, while Birowo and Putra focused specifically on perceived safety climate and relied on self-reported performance. The present study instead employed a broader worker-perceived OHS construct and separated the source of the performance assessment by using ratings from direct supervisors.

The use of supervisor-rated performance may partly explain why the direct relationship appears weaker than in studies relying on employees to evaluate both their work environment and their own performance. A worker may perceive safety arrangements positively without necessarily being evaluated as performing substantially better by a supervisor, because construction performance is also shaped by technical ability, experience, coordination, material availability, work scheduling, and project deadlines. The R^2 value of 0.384 for Individual Performance likewise indicates that Perceived OHS and Job Satisfaction explain a meaningful but incomplete proportion of performance differences. This interpretation is also compatible with Gamal et al. (2018), who found that occupational safety and health did not have a statistically significant direct relationship with employee performance. Therefore, the non-significant H2 does not imply that safety is irrelevant to performance; rather, it suggests that the performance implications of workers' safety perceptions may be more complex than a simple direct relationship and may depend on intermediate psychological processes as well as other work-related determinants.

This intermediate process becomes clearer through the significant relationship between *Job Satisfaction* and *Individual Performance* ($\beta = 0.454, p < .001$). The finding is consistent with the broader job satisfaction–performance literature. Judge et al. (2001), based on a large meta-analytic body of evidence, established a positive overall relationship between Job Satisfaction and job performance and also demonstrated that this relationship remains relevant when performance is evaluated through supervisory ratings rather than solely through self-assessment. Evidence from construction settings points in the same direction. Egemen (2024) found a significant positive correlation between overall Job Satisfaction and Job Performance across construction employees ($r = 0.610$), including skilled laborers ($r = 0.620$), and also reported positive relationships with task and contextual performance. Similarly, Aung et al. (2023) found that Job Satisfaction positively predicted Job Performance among non-managerial construction professionals ($\beta = 0.61, p < .01$). These studies reinforce the relevance of Job Satisfaction to work performance across different levels of construction employment.

For frontline construction workers, this relationship can be interpreted in light of the practical characteristics of project work. Workers who evaluate their jobs positively in terms of the work itself, supervision, coworker relationships, working conditions, and rewards may be better positioned to maintain concentration, cooperate

with coworkers, respond to supervisory instructions, and sustain effort under project demands. The fact that performance in the present study was assessed by supervisors makes this result particularly relevant, because the relationship is not simply a correspondence between employees' satisfaction and their own subjective evaluation of performance. Instead, workers reporting higher satisfaction also tended to receive higher performance assessments from those directly observing their work. This provides a useful extension to studies such as Egemen (2024), whose performance measure was self-reported and whose author explicitly identified supervisor ratings as an avenue for future research.

The central finding of the study is the significant indirect relationship between *Perceived Occupational Health and Safety* and *Individual Performance* through *Job Satisfaction* ($\beta = 0.346, p < .001$). When considered together with the non-significant direct path, the result indicates that workers' perceptions of occupational health and safety are linked to supervisor-rated performance more clearly through their Job Satisfaction than through a direct pathway. This pattern is closely aligned with Perera (2019), who reported that Job Satisfaction fully mediated the relationship between occupational health and safety practices and Job Performance among manufacturing machine operators. Morgan et al. (2021) likewise reported a significant mediating role of Job Satisfaction between health and safety policy management and employee productivity, although their model focused on hazard prevention, risk assessment, and productivity in manufacturing firms. These precedents indicate that the psychological consequences of safety-related conditions can be an important part of understanding their relationship with work outcomes.

The present findings add a construction-specific perspective to this mechanism. Aung et al. (2023), although not examining occupational safety, demonstrated a comparable psychological pattern in construction: inadequate reward and recognition did not directly predict Job Performance, but its indirect relationship through Job Satisfaction was significant. This suggests that characteristics of the work environment may not always translate immediately into observable performance but can first influence how employees evaluate their employment experience. In the present context, effective hazard control, clear safety communication, accessible safety knowledge, supportive supervision, and fair reporting practices may contribute to a stronger sense that workers are protected and valued. These evaluations can become incorporated into Job Satisfaction, which is then associated with the effort, cooperation, consistency, and work behaviors reflected in supervisor-rated performance. This interpretation is compatible with JD-R theory's broader proposition that workplace conditions influence outcomes through psychological and motivational processes, while recognizing that Job Satisfaction itself is not specified by Bakker & Demerouti (2017) as the central mediator of the JD-R motivational pathway.

The study therefore contributes to existing evidence in three interconnected ways. Theoretically, it extends the application of the JD-R perspective by showing that safety-related resources and the management of occupational hazards can be linked to performance through a positive evaluation of the job, rather than assuming that perceived safety conditions automatically produce higher performance. Contextually, it integrates relationships that construction research has often examined separately: safety perceptions and performance, Job Satisfaction and performance, and psychological mediation of workplace conditions. Methodologically, the study examines this pathway among frontline skilled construction workers while separating the source of the psychological constructs from the performance outcome. Perceived OHS and Job Satisfaction were reported by workers, whereas Individual Performance was evaluated by direct supervisors, reducing same-source concerns between the explanatory constructs and the principal outcome. Taken together, the findings suggest that construction organizations seeking performance benefits from OHS initiatives should pay attention not only to the formal availability of safety policies and equipment but also to whether workers actually experience safety practices as protective, supportive, communicative, and fair, because these experiences are closely connected to the psychological pathway through which OHS relates to their work performance.

CONCLUSION

This study examined the relationship between *Perceived Occupational Health and Safety*, *Job Satisfaction*, and *Individual Performance* among frontline construction workers in a housing construction project in Indonesia. The findings show that Perceived OHS was positively and significantly associated with Job Satisfaction, while its direct relationship with Individual Performance was positive but not statistically significant. Job Satisfaction was positively and significantly associated with supervisor-rated Individual Performance, and the indirect relationship between Perceived OHS and Individual Performance through Job Satisfaction was also significant. These findings indicate that the performance implications of workers' safety perceptions are better understood through a psychological pathway in which favorable evaluations of occupational health and safety are associated with greater Job Satisfaction, which in turn is associated with higher Individual Performance.

The findings contribute to the application of the Job Demands–Resources perspective in safety-critical construction work by showing that workers' perceptions of safety-related resources and the management of occupational hazards are not necessarily translated directly into observable performance. Instead, their relationship with performance may operate through workers' evaluations of their jobs. The study also extends previous evidence by examining this mechanism among frontline skilled construction workers and by separating the source of the psychological constructs from

the performance outcome, with Perceived OHS and Job Satisfaction reported by workers and Individual Performance evaluated by direct supervisors.

From a practical perspective, construction organizations should therefore view occupational health and safety not only as a matter of regulatory compliance or accident prevention but also as part of the broader work experience that can shape workers' Job Satisfaction. Management should ensure that protective equipment and hazard controls are consistently implemented, safety information is clearly communicated, supervisors actively support safe work practices, and workers can raise safety concerns within a fair and supportive reporting environment. Strengthening these aspects may help create working conditions in which employees feel protected, supported, and satisfied, thereby providing a more sustainable foundation for maintaining individual performance in construction projects.

REFERENCES

- Aung, Z. M., Santoso, D. S., & Dodanwala, T. C. (2023). Effects of Demotivational Managerial Practices on Job Satisfaction and Job Performance: Empirical Evidence from Myanmar's Construction Industry. *Journal of Engineering and Technology Management*, 67, 101730. <https://doi.org/10.1016/j.jengtecman.2022.101730>
- Bakker, A. B., & Demerouti, E. (2017). Job Demands–Resources Theory: Taking Stock and Looking Forward. *Journal of Occupational Health Psychology*, 22(3), 273–285. <https://doi.org/10.1037/ocp0000056>
- Birowo, Y. A. P., & Putra, T. S. (2023). Safety First, Performance Next: Exploring the Interplay between Perceived Safety Climate and Employee Performance. *KINERJA*, 27(2), 282–293. <https://doi.org/10.24002/kinerja.v27i2.7737>
- Campbell, J. P., McCloy, R. A., Oppler, S. H., & Sager, C. E. (1993). A Theory of Performance. In N. Schmitt & W. C. Borman (Eds.), *Personnel Selection in Organizations* (pp. 35–70). Jossey-Bass.
- Egemen, M. (2024). Assessing the Individual Effects of Different Job Satisfaction Facets on the Job Performance of Qualified Employees in the Unique Conditions of the Construction Industry. *Ain Shams Engineering Journal*, 15(7), 102789. <https://doi.org/10.1016/j.asej.2024.102789>
- Gamal, N. L., Taneo, S. Y. M., & Halim, L. (2018). Job Satisfaction as a Mediation Variable in the Relationship Between Work Safety and Health (K3) and Work Environment to Employee Performance. *Jurnal Aplikasi Manajemen*, 16(3), 486–493. <https://doi.org/10.21776/ub.jam.2018.016.03.13>
- Goetz, N., & Wald, A. (2022). Similar but Different? The Influence of Job Satisfaction, Organizational Commitment and Person–Job Fit on Individual Performance in the Continuum between Permanent and Temporary Organizations. *International*

Journal of Project Management, 40(3), 251–261.
<https://doi.org/10.1016/j.ijproman.2022.03.001>

- Hair, J. F., Hult, G. T. M., Ringle, C. M., & Sarstedt, M. (2021). *A Primer on Partial Least Squares Structural Equation Modeling (PLS-SEM)* (3rd ed.). SAGE Publications.
- Judge, T. A., Thoresen, C. J., Bono, J. E., & Patton, G. K. (2001). The Job Satisfaction–Job Performance Relationship: A Qualitative and Quantitative Review. *Psychological Bulletin*, 127(3), 376–407. <https://doi.org/10.1037/0033-2909.127.3.376>
- Lestari, F., Sunindijo, R. Y., Loosemore, M., Kusminanti, Y., & Widanarko, B. (2020). A Safety Climate Framework for Improving Health and Safety in the Indonesian Construction Industry. *International Journal of Environmental Research and Public Health*, 17(20), 7462. <https://doi.org/10.3390/ijerph17207462>
- Morgan, M. O., Emu, W., Amadi, C., Okon, E. E., & Njama, P. (2021). The Mediating Effect of Job Satisfaction on Health and Safety Policy Management and Employee Productivity in Manufacturing Firms. *Problems and Perspectives in Management*, 19(2), 104–117. [https://doi.org/10.21511/ppm.19\(2\).2021.09](https://doi.org/10.21511/ppm.19(2).2021.09)
- Nahrgang, J. D., Morgeson, F. P., & Hofmann, D. A. (2011). Safety at Work: A Meta-Analytic Investigation of the Link Between Job Demands, Job Resources, Burnout, Engagement, and Safety Outcomes. *Journal of Applied Psychology*, 96(1), 71–94. <https://doi.org/10.1037/a0021484>
- Neal, A., & Griffin, M. A. (2006). A Study of the Lagged Relationships Among Safety Climate, Safety Motivation, Safety Behavior, and Accidents at the Individual and Group Levels. *Journal of Applied Psychology*, 91(4), 946–953. <https://doi.org/10.1037/0021-9010.91.4.946>
- Perera, G. D. N. (2019). Occupational Health and Safety Practice and Job Performance: Role of Job Satisfaction. *Sri Lankan Journal of Human Resource Management*, 9(1), 1–10. <https://journals.sjp.ac.lk/index.php/sljjhrm/article/view/4371>
- Segbenya, M., & Yeboah, E. (2022). Effect of Occupational Health and Safety on Employee Performance in the Ghanaian Construction Sector. *Environmental Health Insights*, 16, 1–11. <https://doi.org/10.1177/11786302221137222>
- Sonnentag, S., & Frese, M. (2002). Performance Concepts and Performance Theory. In S. Sonnentag (Ed.), *Psychological Management of Individual Performance* (pp. 1–25). John Wiley & Sons. <https://doi.org/10.1002/0470013419.ch1>
- Spector, P. E. (2022). *Job Satisfaction: From Assessment to Intervention*. Routledge. <https://doi.org/10.4324/9781003250616>

