Risk Factors Associated with Mental Health among Construction Workers at PT PP (Persero) Tbk in the KH Mohammad Thohir Regional General Hospital Project, Lampung

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ABSTRACT

This study investigates the risk factors associated with mental health among construction workers at the RSUD KH Mohammad Thohir project, Lampung. A cross-sectional approach was applied involving 135 workers selected through total sampling. Data were collected using validated questionnaires, including Job Demands–Resources indicators and the Self-Reporting Questionnaire (SRQ-20). Univariate, bivariate, and multivariate analyses were performed to identify the relationship between job demands, job resources, work duration, working hours, and mental health status. The results showed that more than half of the workers (51,9%) experienced mental health problems. Job demands demonstrated a significant relationship with mental health (p = 0,001), where workers with high job demands had a higher proportion of psychological distress (68,9%). Job resources were also significantly related to mental health (p = 0,000), with low job resources increasing the likelihood of mental health issues. Working hours and work duration showed borderline and significant associations, respectively. Multivariate analysis indicated that education, job resources, and job demands were the most influential predictors of mental health. The study concludes that psychosocial work conditions play an essential role in influencing workers' psychological well-being, underscoring the need for targeted interventions to improve mental health outcomes among construction workers.

Keywords: Mental health, construction workers, job demands, job resources, SRQ-20

Introduction

Mental health has become a critical issue in the construction sector, which is characterized by high physical demands, strict deadlines, and elevated safety risks. These conditions increase workers' vulnerability to emotional and psychological disorders. In Indonesia, 9.8% of the population experiences mental-emotional problems (Riskesdas, 2018), with construction workers contributing significantly to this prevalence. Globally, more than 970 million people live with mental health disorders, and an estimated 12 billion workdays are lost annually due to depression and anxiety (WHO, 2024).

Multiple factors influence the mental health of construction workers, including individual characteristics, workload, job pressure, supervisory demands, role conflict, and physical environmental conditions such as noise. Excessive workload, long working hours, and unrealistic targets have been shown to increase stress, fatigue, and burnout (Trisnovian, 2025). High noise levels and limited social support further exacerbate psychological strain and reduce

productivity (Ananda et al., 2021). According to the Job Demands–Resources (JD-R) theory, mental health problems arise when job demands exceed individual coping resources.

Supervisory pressure, unclear roles, and poor interpersonal relationships increase the risk of anxiety and depressive symptoms (Wu et al., 2018). Chronic fatigue leads to decreased concentration, irritability, sleep disturbances, and a higher likelihood of workplace accidents (Dihartawan et al., 2024). In contrast, strong social support functions as a protective factor, improving resilience and work motivation (Khoirunnisa, 2021).

The construction of RSUD KH Moh. Tohir Krui Lampung by PT. PP (Persero) Tbk presents substantial physical and psychosocial risks. A preliminary study conducted in May 2025 identified common stress-related symptoms such as headaches, sleep disturbances, irritability, reduced motivation, and safety concerns. Among 18 workers interviewed, 38.9% reported stress due to tight deadlines, 33.3% experienced excessive physical fatigue, and 27.8% expressed anxiety about workplace safety.

These findings highlight the urgent need for a comprehensive risk analysis of workers' mental health. Such evidence is essential for designing effective interventions and risk management strategies to enhance worker well-being, productivity, and project sustainability.

Materials and Methods

This quantitative study employed a cross-sectional design. The study population included all construction workers at the PT. PP (Persero) RSUD KH Mohammad Thohir Krui Project in Lampung, totaling 136 workers, based on the 2025 HSE manpower data. Using a total sampling technique, 135 workers who met the inclusion and exclusion criteria were selected as respondents.

Instruments

Job Demands were measured using a standardized questionnaire adapted by Noviana (2022), which demonstrated item–total correlations >0.30 and strong reliability (Cronbach's Alpha 0.78–0.85). Job Resources were assessed using a validated instrument adapted from Erwanto (2018), with item–total correlations >0.30 and high reliability (Cronbach's Alpha 0.80–0.88). Mental health status was measured using the Self Reporting Questionnaire (SRQ-20) adapted from Devina (2024), showing high validity ($r = 0.708–0.941 > r\text{-table } 0.136$) and excellent reliability (Cronbach's Alpha = 0.981).

Data Analysis

Data were analyzed using univariate, bivariate, and multivariate analyses to examine the relationship between job demands, job resources, and mental health outcomes.

Results and Discussion

Table 1. Characteristics of Respondents

Variable	Category	Frequency (n)	Percentage
Gender	Male	129	95,6
	Female	6	4,4
Age	< 20 years	26	19,3
	20–35 years	64	47,4
	> 35 years old	45	33,3
Education	Basic (did not complete elementary school–junior high school)	33	24,4
	Secondary (high school/vocational school)	59	43
	Higher (D3/S1)	43	31,9
Years of Experience	New (<1 year)	38	28,1
	Medium (1–5 years)	49	36,3
	Long-term (>5 years)	48	35,6
Working Hours	8–10 hours	77	57,0
	>10 hours	58	43
Job Resources	Low	48	35,6
	Moderate	28	20,7
	High	59	43,7
Job Demands	Low	30	22,2
	Moderate	44	32,6
	High	61	45,2
Mental Health	Disorders	70	51,9
	Normal	65	48,1

The majority of respondents were male, numbering 129 people (95,6%), while only 6 were female (4,4%). Most respondents were in the 20–35 age group (47,4%), a productive age group synonymous with optimal physical and mental abilities for field work. The majority of

respondents had a secondary education (high school/vocational school), totaling 59 people (43,7%), followed by higher education (31,9%) and primary education (24,4%).

Most respondents had worked for 1–5 years (36,3%), followed by workers with more than 5 years of service (35,6%) and less than 1 year (28,1%). The majority of respondents worked 8–10 hours per day (57,0%), while the other 43,0% worked more than 10 hours. Long working hours have the potential to cause physical and mental fatigue.

A total of 59 respondents (43,7%) had high job resources, such as support from coworkers, recognition, and work autonomy. However, 35.6% of workers still had low job resources. Most respondents (45,2%) had high job demands, indicating work pressure, heavy responsibilities, and heavy physical burdens.

A total of 70 respondents (51,9%) experienced mental health disorders, while 65 people (48,1%) were in a normal mental state. This shows that more than half of construction workers experience stress or mental health symptoms due to work factors.

Table 2. Association between Job Demands and Mental Health

Job Demands	Mental Health						*p- value*
	Disorder		Normal		Total		
	n	%		%	n	%	
Low	9	30,0	21	70,0	30	100	
Moderate	18	40,9	26	59,1	44	100	0,001
High	42	68,9	19	31,1	61	100	

The results of *the Chi-Square* analysis show that there is a significant relationship between *job demands* and the mental health of construction workers at PT. PP Pembangunan RSUD KH. Muhammad Thohir Krui – Lampung, with a p-value of 0,001 (< 0,05). From the cross-tabulation results, it is known that workers with high *job demands* have the highest proportion of mental health disorders, namely 68,9%, while only 30,0% of workers with low *job demands* experience disorders.

Table 3. Association between Job Resources and Mental Health

Job Resources	Mental Health						OR	p-value
	Disorder		Normal		Total		95% CI	
	n	%	n	%	n	%		
Low	9	18,8	39	81,3	48	100	1.992 (0.998- 3.979)	0,000
Moderate	15	53,6	13	46,4	28	100		
High	45	76,3	14	23,7	59	100		

The Chi-Square test results show that there is a highly significant relationship between job resources and mental health, with a p-value of 0.000 (< 0,05). Respondents with low job resources were mostly in a state of mental health disorder (81,3% normal and only 18,8% experiencing disorders), while those with high *job resources* showed the opposite condition, where 76,3% experienced disorders and only 23,7% were normal. The odds ratio (OR) value obtained was 11,992 (0,998–3,979), meaning that high *job resources* carry an 11,9-fold increased risk of mental health issues.

Table 4. Relationship between length of employment and mental health Length of Mental Health

Length of employment	Mental health						p- value
	Disorder		Normal		Total		
	n	%	n	%	n	%	
New (<1 year)	12	31,6	26	68,4	38	100	0,005
Moderate (1–5 years)	25	51,0	24	49,0	49	100	
Long-term (>5 years)	32	66,7	16	33,3	48	100	

Based on the analysis results, there is a significant relationship between length of service and the mental health of construction workers with a p-value of 0,005 (< 0,05). Workers with a short length of service (<1 year) have a lower level of mental health (31,6%) compared to workers who have been working for a long time (>5 years), who have a mental health level of 66,7%. This shows that the longer a person works in a construction project environment, the greater the risk of experiencing emotional exhaustion and mental health problems.

Table 5. Relationship between working hours and mental health Working hours per Mental Health

Working hours	Mental health						p-value
	Disorder		Normal		Total		
	n	%	n	%	n	%	
8–10 hours	45	58,4	32	41,6	77	100	0,050
>10 hours	24	41,4	34	58,6	58	100	

The Chi-Square test results show that the relationship between working hours and mental health is at the significant level with p = 0,050 (= 0,05). Workers with working hours of 8–10 hours per day have a mental health level of 58,4%, while workers with working hours of >10 hours per day have a disturbance level of only 41,4%.

1. Overview of Risk Factors Related to the Mental Health of Construction Project Workers

The results show that most respondents were male (95,6%), with the dominant age group being 20–35 years (47,4%), secondary education level (43.7%), 1–5 years of work experience (36,3%), and working 8–10 hours per day (57,0%). Most workers had high job demands (45,2%), high job resources (43.7%), and 51,9% experienced mental health problems. These findings indicate that even though the majority of workers are of productive age and have a secondary education, high work pressure and physical demands still have the potential to cause stress and psychological disorders. Construction work is generally heavy, risky, and requires high stamina, which has an impact on the mental well-being of workers (Schaufeli, 2019). According to *the World Health Organization* (WHO, 2020), construction workers have the highest level of work-related stress compared to other industrial sectors, due to the physical demands and harsh working environment. Time pressure, work safety, and project uncertainty can lead to increased anxiety, fatigue, and depression.

2. The Relationship Between Job Demands and Mental Health

The Chi-Square test results show a significant relationship between job demands and mental health (p = 0,001). Workers with high job demands experience mental health issues 68,9% of the time, which is much higher than workers with low job demands (30,0%). Job demands describe the level of physical, mental, and emotional demands in a job. High demands cause increased work stress because workers must expend more energy, time, and concentration to meet targets. According to Bakker & Demerouti (2017) in the Job Demands–Resources (JDR) Model theory, excessive workload without adequate support will cause emotional exhaustion and chronic stress. This condition triggers an imbalance between individual capabilities and job demands, which can impair mental health. In addition, Schaufeli (2019) adds that high job demands increase the risk of burnout, especially when not balanced by rewards, autonomy, or support from superiors. For construction workers, time pressure, accident risks, and noisy work environments play a major role in worsening psychological conditions. Thus, the results of this study are consistent with previous theories and studies that an increase in job demands is directly proportional to an increase in mental health risks (Baker, 2017).

3. The Relationship Between Job Resources and Mental Health

The results of this study show a highly significant relationship between job resources and mental health (p = 0,000). The lower the job resources workers have, the higher the risk of

mental health problems. Job resources include social support from coworkers and supervisors, positive feedback, job autonomy, and opportunities for self-development. Workers with high job resources tend to have better psychological resilience to stress (Demerouti, 2018). According to Demerouti et al. (2018), job resources act as a "protector" against the negative effects of job demands. Social support in the workplace can reduce emotional pressure, increase feelings of appreciation, and strengthen work motivation. This is also supported by research by Nielsen et al. (2021), which found that the availability of job resources can reduce stress levels and improve the psychological well-being of field workers.

The results of this study reinforce the view that *job resources* serve as a protective factor *(buffer effect)* against work stress. When workers feel valued, receive support, and have control over their work, the risk of mental health problems can be minimized (Demerouti, 2018).

4. The Relationship Between Length of Service and Mental Health

The analysis shows a significant relationship between length of service and mental health (p = 0,005). Workers with more than 5 years of service have the highest proportion of mental health disorders (66,7%), while only 31,6% of new workers (less than 1 year) experience disorders. These results indicate that the longer a person works in a construction project environment, the higher the risk of emotional exhaustion and chronic stress due to long-term exposure to physical and mental pressure. Monotonous work, the risk of accidents, and a lack of appreciation can cause feelings of boredom and anxiety. According to Kahn & Byosiere (1992), excessively long working hours can cause cumulative stress and fatigue (cumulative fatigue syndrome), especially when not balanced with coping strategies or social support. Research by Suh & Kim (2020) also mentions that long working hours in the construction sector are positively correlated with mental fatigue due to exposure to a harsh work environment and unpredictable project changes.

5. The Relationship Between Working Hours and Mental Health

The test results show that the relationship between working hours and mental health is at the threshold of significance (p = 0,050). Workers with 8–10 hours of work per day experience 58,4% mental health, while those who work >10 hours actually show lower rates of disorders (41,4%). Although it seems contradictory, this can be explained by factors such as adaptation and work experience. Workers who are able to endure long working hours are usually already adapted to work pressure and have better physical and mental endurance. According to the ILO (2022), long working hours are not the only cause of stress, but rather a

combination of workload, rest time, and environmental support. Workers who have a good social support system or adequate compensation tend to be better able to cope with the pressures of long working hours. However, this study also highlights the importance of regulating working hours to ensure they remain humane. The WHO (2021) reports that working more than 55 hours per week increases the risk of psychological disorders by up to 35%. Therefore, even though the results show adaptation to long working hours, monitoring of workloads remains necessary. Based on field observations and interviews, workers occasionally perform overtime, especially when the project faces tight deadlines or weather-related delays. However, overtime is not performed daily and varies depending on the work progress. Most workers reported working 8–10 hours per day, with occasional overtime extending to 11–12 hours during peak periods. This pattern may contribute to fatigue and psychological stress, as prolonged working hours have been associated with mental strain in construction work."

Conclusion

This study involving 135 construction workers found that most respondents were male, aged 20–35 years, had secondary education, 1–5 years of work experience, and typically worked 8–10 hours per day. The majority reported high job demands and high job resources, and 51.9% experienced mental health problems. Chi-square analysis demonstrated that work duration, working hours, job resources, and job demands were significantly associated with mental health. The multivariate model showed that age, education, work duration, job resources, and job demands were predictors of mental health status, with education emerging as the strongest predictor, followed by job resources and job demands, while work duration contributed but was not statistically significant. These findings highlight the importance of improving job resources, regulating workload and working hours, and strengthening training programs particularly for workers with lower educational backgrounds as part of both immediate and long-term strategies to support mental health in construction environments.

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