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Root Causes of Mental Health Disorders among Construction Workers in Indonesia: An Integrative Literature Review and Exploratory Factor Analysis

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Abstract

Mental health disorders among construction workers have become an emerging concern due to the demanding nature of construction work, which involves high physical risks, unstable employment conditions, and intense workload pressures. Despite this growing concern, empirical studies examining the determinants of mental health disorders in the Indonesian construction industry remain limited. This study aims to identify and analyze the factors contributing to mental health disorders among construction workers in Indonesia. A mixed-methods approach was adopted, consisting of an integrative literature review and a questionnaire survey. The literature review identified 30 factors associated with mental health disorders among construction workers. Subsequently, a questionnaire survey was conducted, yielding 100 valid responses, and the data were analyzed using Exploratory Factor Analysis (EFA). The analysis revealed seven underlying root causes: recognition, stability, management practices, health and safety conditions, mental condition, physical condition, and workload. These findings provide a structured understanding of how organizational, occupational, and personal factors collectively influence workers' mental health in construction projects. The results highlight the importance of improving management practices, work environment, and job stability to support workers' psychological well-being. This study contributes to the limited body of knowledge on construction workers' mental health in developing countries and provides practical insights for industry stakeholders to develop policies and interventions that enhance worker well-being and project sustainability, while supporting the achievement of SDG 3 (Good Health and Well-Being) in the construction sector.

Keywords

Construction Workers, Exploratory Factor Analysis, Mental Health, Well-Being

Introduction

Construction projects are labor-intensive sectors that employ large numbers of workers. However, construction workers are frequently exposed to various occupational risks, including physical

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hazards, demanding workloads, unstable employment conditions, and psychologically stressful work environments. These conditions can negatively affect workers' health and well-being. To address occupational safety and health, construction researchers have conducted extensive research on the safety and health of construction workers. This is supported by the Sustainable Development Goals (SDGs) launched by the United Nations in 2015. The SDGs consist of 17 global goals, one of which is achieving good health and well-being (SDG 3), the focus of this study.

Health is defined as a complete condition of physical, mental, and social well-being, not merely the absence of disease or disability (WHO, 2020). Meanwhile, welfare is defined as an individual's level of happiness with many areas of his life based on the interaction of his resources (Mollo & Emuze, 2020). A person's potential to prosper is influenced by a variety of circumstances. As a result, it is critical to identify these various factors.

One aspect of health that needs to be considered is construction workers' mental health. Mental health is a mental condition that allows a person to overcome various life challenges, realize their strengths, learn and work productively, and contribute to their community (Hansen, 2024). Mental health disorders can be experienced by anyone, including construction workers. A study in Australia found that construction workers were twice as likely to commit suicide as the general population (Sunindijo & Kamardeen, 2017).

In Indonesia, mental health issues within the construction sector are still not widely researched and understood (Esra, 2019; Hansen, 2022). Meanwhile, the substance of worker protection, including that of construction workers, has been regulated by Indonesian Law No. 13 of 2003 concerning Employment (Republic of Indonesia, 2003). Worker protection encompasses welfare, safety, and occupational health, both mental and physical. In 2018, the Indonesian government issued Minister of Manpower Regulation No. 5 concerning Occupational Safety and Health in the Work Environment (International Labour Organization, 2018). This regulation includes aspects of workers' mental health in the workplace.

As a labor-intensive sector, human resources are the main driver of the construction industry's growth in Indonesia. Thus, the fulfillment of various aspects of construction workers' welfare deserves attention from all stakeholders. This is especially true given the high risk of accidents and illnesses in the construction sector. Frimpong et al. (2022a) saw a significant increase in the number of construction workers experiencing health problems. These various health problems include physical health disorders such as work-related musculoskeletal disorders and skin problems, as well as mental health disorders such as sleep difficulties and anxiety problems.

In carrying out their duties, construction workers encounter various job demands such as heavy workloads, dynamic work activities, paced work, and high-risk working environments (Batubara et al., 2021; Bryson & Duncan, 2018; Chan et al., 2020; Widayana & Wiratmaja, 2014). This requires construction workers to carry out their work quickly, precisely, and completely whenever necessary. These demands can cause physical and mental health problems. Various studies have been conducted to investigate occupational demands and their impacts within the construction sector (Rani et al., 2022; Rodriguez et al., 2019; Umer, 2022).

A variety of circumstances can contribute to the emergence of various mental health issues in construction workers. Long working hours, for example, have a negative impact on workers' mental health during construction projects (Bryson & Duncan, 2018). Construction employees frequently work beyond the standard 40-hour workweek to complete their tasks (Rani et al., 2022). Aside from that, construction workers' mental health suffers as a result of their severe workload (Batubara et al., 2021). Rani et al. (2022) define job expectations as job demands that exceed a person's ability to perform the job. Other factors influencing construction workers' mental health include low income (Chan et al., 2020; Darmawan, 2023), poor working conditions (Fagbenro et al., 2023; Widayana & Wiratmaja, 2014), job insecurity (Pirzadeh et al., 2022), low social status (Frimpong et al., 2022b), fear of project failure (Chan et al., 2020), violence and discrimination (Hansen, 2022; Sunindijo & Kamardeen, 2017), and work-life imbalance (Fagbenro et al., 2023; Mollo & Emuze, 2020). While these studies provide valuable insights, the findings remain fragmented and are predominantly derived from research conducted in developed countries.

Despite the growing awareness of mental health issues in the construction sector, systematic studies that integrate existing knowledge and empirically identify the key underlying factors affecting construction workers' mental health in Indonesia remain limited. Due to research gaps and the need to address mental health aspects in the construction industry, this study aims to investigate the root causes that cause mental health disorders in construction workers. Identifying these causal factors is an important first step toward understanding the mental health needs of construction workers, so they can serve as a resource for key stakeholders, particularly the government and construction project organizations, in their efforts to improve mental health in the construction work environment.

Methodology

This study employs a mixed-methods approach comprising two sequences: an integrative literature review and a questionnaire survey. The research design follows an exploratory sequential framework, where qualitative synthesis of previous studies was first conducted to identify potential factors influencing mental health disorders among construction workers. The identified factors were subsequently validated and grouped using quantitative analysis based on responses from construction practitioners.

An integrative literature review was conducted to identify factors contributing to mental health disorders among construction workers. Relevant studies were collected from several academic databases, including the American Society of Civil Engineers (ASCE) virtual library, Elsevier, and Indonesian journal databases. The search process used combinations of keywords such as "workers," "mental health," and "construction industry." The review focused on peer-reviewed journal articles and conference proceedings published between 2014 and 2024. Studies were included if they discussed factors influencing mental health, psychological stress, or well-being among construction workers. Studies that did not relate to occupational mental health or did not focus on construction industry were excluded.

The identified articles were screened based on title, abstract, and full-text review. Relevant factors affecting mental health disorders were extracted and synthesized through thematic

grouping. This process resulted in the identification of 30 factors, which were then used as the basis for developing the questionnaire instrument, which was distributed to respondents who met the criteria of a practitioner in the construction industry with at least 1 year of work experience. This second sequence was carried out to measure the opinions of construction practitioners in Indonesia regarding the factors that cause mental health disorders that they may know about or have experienced themselves. A four-point Likert Scale was used with 1 representing "strongly disagree" to 4 representing "strongly agree". Participation in the survey was voluntary, and respondents were informed that their responses would be used solely for research purposes. The anonymity and confidentiality of respondents were maintained throughout the study. Table 1 displays the results of the integrative literature review, and Table 2 displays the profile of survey respondents.

Table 1. Factors causing mental health disorders for construction workers

Code	Factors	References
C1	Physical health	(Chan et al., 2020; Fagbenro et al., 2023; Frimpong et al., 2022b; Hansen, 2022)
C2	The nature of construction work that continues to demand mental readiness (dynamic/constant changes)	(Batubara et al., 2021; Bryson & Duncan, 2018; Burke, 2019; Chan et al., 2020; Darmawan, 2023; Fagbenro et al., 2023; Frimpong et al., 2022b; Hansen, 2022; Pirzadeh et al., 2022; Sunindijo & Kamardeen, 2017; Widayana & Wiratmaja, 2014)
C3	Long working hours	(Batubara et al., 2021; Bryson & Duncan, 2018; Chan et al., 2020; Darmawan, 2023; Fagbenro et al., 2023; Frimpong et al., 2022b; Pajow et al., 2016; Pirzadeh et al., 2022; Sunindijo & Kamardeen, 2017; Widayana & Wiratmaja, 2014)
C4	Low income	(Chan et al., 2020; Darmawan, 2023; Eyllon et al., 2020; Fagbenro et al., 2023; Hansen, 2022; Mollo & Emuze, 2020; Pirzadeh et al., 2022; Sunindijo & Kamardeen, 2017)
C5	Heavy workload	(Batubara et al., 2021; Chan et al., 2020; Darmawan, 2023; Febrilliandika & Nasution, 2020; Fordjour et al., 2020; Hansen, 2022; Mollo & Emuze, 2020; Sunindijo & Kamardeen, 2017; Widayana & Wiratmaja, 2014)
C6	There are times when work pressure increases (paced work/time pressure)	(Chan et al., 2020; Darmawan, 2023; Fagbenro et al., 2023; Fordjour et al., 2020; Frimpong et al., 2022b; Widayana & Wiratmaja, 2014)
C7	Limited opportunity to make decisions	(Burke, 2019; Chan et al., 2020; Fagbenro et al., 2023; Frimpong et al., 2022b; Sunindijo & Kamardeen, 2017)
C8	Limited social and mental support from colleagues	(Chan et al., 2020; Sunindijo & Kamardeen, 2017; Widayana & Wiratmaja, 2014)
C9	Limited work environment and relationship	(Chan et al., 2020; Fordjour et al., 2020)
C10	Poor work conditions (space constraint, unsafe condition)	(Batubara et al., 2021; Chan et al., 2020; Fagbenro et al., 2023; Fordjour et al., 2020; Frimpong et al., 2022b; Widayana & Wiratmaja, 2014)

C11	High accident risks	(Chan et al., 2020; Darmawan, 2023; Frimpong et al., 2022b; Widayana & Wiratmaja, 2014)
C12	Limited opportunity for competency improvement	(Chan et al., 2020; Fagbenro et al., 2023; Frimpong et al., 2022b; Pajow et al., 2016; Widayana & Wiratmaja, 2014)
C13	Job insecurity	(Chan et al., 2020; Darmawan, 2023; Fagbenro et al., 2023; Frimpong et al., 2022b; Hansen, 2022; Pirzadeh et al., 2022; Sunindijo & Kamardeen, 2017)
C14	Physical demand and fatigue	(Chan et al., 2020; Fagbenro et al., 2023; Sunindijo & Kamardeen, 2017; Widayana & Wiratmaja, 2014)
C15	Mental demand and fatigue	(Batubara et al., 2021; Chan et al., 2020; Fagbenro et al., 2023; Sunindijo & Kamardeen, 2017)
C16	Limited time off/holiday	(Chan et al., 2020; Sunindijo & Kamardeen, 2017)
C17	Low social status of construction workers	(Bryson & Duncan, 2018; Chan et al., 2020; Frimpong et al., 2022b)
C18	Lots of complaints and critics due to work	(Bryson & Duncan, 2018; Chan et al., 2020; Fagbenro et al., 2023; Fordjour et al., 2020)
C19	Limited career promotion/option	(Bryson & Duncan, 2018; Chan et al., 2020; Fagbenro et al., 2023; Mollo & Emuze, 2020; Sunindijo & Kamardeen, 2017)
C20	Lack of improvement mechanism	(Chan et al., 2020; Fagbenro et al., 2023)
C21	Fear of project failure	(Chan et al., 2020)
C22	Unclear authority and responsibility/the tasks do not match your skills	(Burke, 2019; Chan et al., 2020; Fagbenro et al., 2023; Fordjour et al., 2020; Frimpong et al., 2022b; Pirzadeh et al., 2022; Sunindijo & Kamardeen, 2017)
C23	Interpersonal conflicts (inadequate communications, social isolation, poor relationships)	(Bryson & Duncan, 2018; Burke, 2019; Chan et al., 2020; Darmawan, 2023; Fagbenro et al., 2023; Fordjour et al., 2020; Frimpong et al., 2022b; Mollo & Emuze, 2020; Sunindijo & Kamardeen, 2017)
C24	Violence and discrimination in work environment	(Bryson & Duncan, 2018; Chan et al., 2020; Fagbenro et al., 2023; Fordjour et al., 2020; Hansen, 2022; Sunindijo & Kamardeen, 2017)
C25	Excessive drug, alcohol, and cigarette consumption	(Bryson & Duncan, 2018; Burke, 2019; Chan et al., 2020; Eyllon et al., 2020; Frimpong et al., 2022b)
C26	Work-related illness and injury	(Chan et al., 2020; Fagbenro et al., 2023)
C27	Poor work environment (dirty and polluted work environment, extreme weather, excessive noise)	(Chan et al., 2020; Fagbenro et al., 2023; Mollo & Emuze, 2020; Sunindijo & Kamardeen, 2017; Widayana & Wiratmaja, 2014)
C28	Lack of respect/appreciation (undervaluing skills)	(Chan et al., 2020; Fagbenro et al., 2023; Sunindijo & Kamardeen, 2017)

C29	Work-life imbalance (work-home conflicts, low support at home)	(Chan et al., 2020; Fagbenro et al., 2023; Frimpong et al., 2022b; Mollo & Emuze, 2020; Sunindijo & Kamardeen, 2017)
C30	Male dominated sector	(Bryson & Duncan, 2018; Chan et al., 2020; Frimpong et al., 2022b)

The questionnaire survey was distributed over approximately two months (6 October to 22 November 2022) using Google Form. Data collection yielded 102 responses; however, the preliminary assessment identified two invalid responses. Thus, there are 100 valid responses to analyze. To be able to find the root causes of mental health disorders, this study applies exploratory factor analysis (EFA). SPSS v25 is used to analyze data. EFA is widely used to reduce a large number of correlated variables into a smaller number of latent factors, which represent the fundamental dimensions influencing a particular phenomenon. Cronbach's alpha values are expected to be above 0.70 to be able to say that the data is reliable (Oladimeji, 2020). This study used a value of 0.4 or higher for factor loadings. In addition, this study uses promax oblique rotation because it assumes that the existing factors are correlated. The Kaiser-Meyer-Olkin (KMO) test values must be above 0.50, while the Barlett's sphericity test must be below 0.05 to be considered acceptable for factor analysis (Field, 2017). Since the number of responses analyzed is 100, the suppressed factor loading of 0.512 is applied as an absolute value.

Table 2. Profile of survey respondents

Profile	Number	Profile	Number
Gender		Educational Background	
Male	90	Senior High School or lower	58
Female	10	Diploma 3 years	2
Total	100	Bachelor degree	35
Age		Master degree	3
Less than 20 years old	2	Doctoral degree	2
20 - 30 years old	53	Total	100
31 - 40 years old	23	Job Position	
41 - 50 years old	13	Construction helper	21
51 - 60 years old	9	Coolie	31
More than 60 years old	0	Engineer	20
Total	100	Quantity surveyor	4
Working Experience		Project manager	4
Less than 5 years	76	Others	20
5 - 10 years	12	Total	100
11 - 15 years	5		
16 - 20 years	4		
More than 20 years	3		
Total	100		

Results and Discussion

Exploratory Factor Analysis Results

Exploratory Factor Analysis (EFA) was conducted to identify the underlying structure of factors influencing mental health disorders among construction workers. Prior to factor extraction, the suitability of the data for factor analysis was assessed. The KMO value was 0.819, which is beyond

the requirement of 0.50, and based on the KMO index acceptability level, it falls into the range of being great (Hutcheson & Sofroniou, 1999). Likewise, the Bartlett's test shows a significance value of 0.000, which is less than 0.05. Hence, the data are suitable for factor analysis.

Communalities below 0.4 are low, and factors with values below this threshold can be removed. In this study, all factors were retained (beyond 0.4). Meanwhile, the Total Variance Explained matrix has successfully extracted 7 components with eigenvalues greater than 1. These seven components explained 67.252% of the variance. These factors represent the underlying dimensions contributing to mental health disorders among construction workers.

From the pattern matrix, it was found that C2, C4, C14, C18, C20, and C23 are not compiled in any factor (due to the suppressed factor being 0.512). On the other hand, C1 is the only factor representing Component 7. Finally, the reliability is determined using the Cronbach's Alpha value [27]. In this study, the result of reliability test shows a strong reliability value (Taber, 2018), namely 0.914.

Factor Interpretation

Based on the pattern matrix grouping, interpretation is carried out by assigning a label to each component. It is a subjective process because there are no specific provisions in labeling. However, labeling is carried out based on the researcher's interpretation of each component. Table 3 displays the extracted components and their associated factors.

Table 3. Extracted components

Component	Factors
1 (Recognition factors)	Limited DM opportunity
	Limited competency opportunity
	Low social status
	Limited career promotion/option
	Fear of project failure
	Violence and discrimination
	Lack of respect/appreciation
2 (Stability factors)	Job insecurity
	Unclear authority/responsibility
	Work-life imbalance
	Male-dominated sector
3 (Management factors)	Limited social and mental supports
	Limited environment and relationship
	Poor working conditions
4 (Health and safety factors)	High accident risks
	Excessive drug, alcohol consumption
	Work-related illness and injury
	Poor working environment
5 (Mental factors)	Mental demand and fatigue
	Limited time off/holiday
6 (Workload factors)	Long working hours
	Heavy workload
	Paced work
7 (Physical factor)	Physical health

Recognition Factors

Recognition factors relate to opportunities for career advancement, competency development, and participation in workplace decision-making, which can influence workers' motivation and psychological well-being. In the construction industry, where the workforce is predominantly male, lack of recognition and limited opportunities for professional development may contribute to feelings of stress and reduced job satisfaction (Abdullah et al., 2013; Rostiyanti et al., 2020). Therefore, providing fair opportunities for skill development, career progression, and involvement in decision-making processes is essential to improve the mental well-being of construction workers. While female workers also face recognition-related challenges (Barreto et al., 2017; Rostiyanti et al., 2020), the findings of this study mainly reflect the experiences of the broader construction workforce represented in the sample (Abdullah et al., 2013; Barreto et al., 2017; Rostiyanti et al., 2020).

On the other hand, anxiety is the most common type of mental health disorder (Adwas et al., 2019). Anxiety is closely related to fear due to the inability to control or obtain expected results in the future. According to Burke (2019), this occurs when someone feels worried, tense, or afraid – especially about things that are about to happen, or that may happen in the future. In this study, the majority of respondents were lower-level workers such as helpers and coolies (52%), who are directly involved in physically demanding tasks and are frequently exposed to challenging site conditions. These workers may experience anxiety due to factors such as heavy workloads, safety risks, and limited job security. For Project Managers, this can arise from fear that the project will not be completed on time or will fail. If it lasts for a long period of time or with strong intensity, anxiety due to fear of failure can result in various mental health disorders, such as sleeping difficulties and depression.

Within the recognition factor, variables such as "poor image" and "lack of respect" refer to the perceived level of appreciation toward construction workers and their profession, rather than interpersonal respect among workers at the same level. Construction workers, particularly those at the operational level such as helpers and coolies, are sometimes perceived as having a lower occupational status compared to other professions. This perception may influence workers' sense of recognition, motivation, and psychological well-being. In fact, workers in the Indonesian construction sector are dominated by primary school graduates at 33.69%, followed by senior high school graduates at 26.18%, and junior high school graduates at 26.14%. Only 4.67% of construction workers have received higher education (BPS, 2022). Lack of respect received while carrying out work also affects a person's mental condition (Harvey, 2000; Ibaid, 2015). Therefore, improving recognition of workers' contributions within the project environment and society may help enhance their sense of value and reduce work-related stress.

Stability Factors

Changes are inevitable in the construction industry. The temporary nature of employment in the construction sector also creates problems related to job insecurity, which has an impact on the mental health of construction workers (Harvey, 2000). This is because a lack of continuous employment can affect a person's income and limit their opportunities to acquire additional skills and advance their careers. Someren (2022) found a significant relationship between financial well-being and job insecurity on the mental health of construction workers in the UK.

In addition, construction workers have an unusually high prevalence of poor mental health, which has been linked to the fact that they have less decision authority over their working conditions (Zaniboni et al., 2016). Unclear authority and responsibility can lead to confusion in the implementation of work, potentially causing interpersonal conflict. There has been a lot of research discussing interpersonal conflicts as drivers of mental health disorders (De Raeve et al., 2009; Hasanudin et al., 2022).

Different from other sectors, the construction industry is unique and dynamic. Various construction activities involve many parties with their own interests. Apart from that, the ever-changing sequence of work and the possibility of changes during implementation also create a heavy workload, forcing construction workers to prioritize work over their families and social lives. This indicates the work-life imbalance that construction workers often experience. The impact of this work-life imbalance has a negative impact on physical and mental well-being, as well as difficulty in retaining the workforce in this industry (Adah et al., 2025).

Furthermore, the low participation of women in the construction industry also affects the mental health of female workers. The male-dominated sector, such as construction, is a challenge for women to enter and pursue a career in the construction sector in long term (Rostiyanti et al., 2020). Abdullah et al. (2013) see that the low participation of women has made it difficult for them to compete for higher job positions in the industry.

Management Factors

Proper construction project management greatly influences the success of the project and the work satisfaction of the project team. However, the construction work environment has become a challenge for workers' development. ILO (2018) highlights the large number of construction workers who are still developing physically, emotionally, mentally, socially, and professionally. To develop well, they need social and psychological support from the work environment. However, the construction sector faces problems in the form of a lack of social and mental support (Chan et al., 2020; Kaluarachchi et al., 2022).

Working environment and mental health are inextricably linked. A pleasant working environment promotes mental health, and excellent mental health allows workers to perform better. Unsafe and unhealthy working environments can jeopardize mental health which can interfere with a worker’s capacity to work (ILO, 2022). Similarly, Belloni et al. (2022) found that working conditions significantly impact the mental health of workers in the UK.

Health and Safety Factors

Construction health and safety is an important issue that affects the mental health of construction workers. due to its poor track record in terms of health and safety issues, construction projects are often considered dangerous sites for workers (English & Le Jeune, 2012). Construction works are accident-prone work, which also burden the minds of construction workers (Kaluarachchi et al., 2022).

On the other hand, the impact of substance abuse in the construction industry has also been widely researched. Ntili et al. (2015) researched excessive alcohol and drug use by construction workers in South Africa. They found it a vicious cycle that worsens the mental health of

construction workers. Roche et al. (2020) see that alcohol consumption in the construction industry is caused by the characteristics of the construction industry, which is dominated by male workers. Flannery et al. (2021) suggest that the alcohol and drug consumption in construction is caused by mental strains, working conditions, male dominance, and poor management. All of this has an impact on many mental health disorders, such as depression and concentration difficulties, as well as physical health problems such as weight gain, high blood pressure, and cancer (Dash et al., 2019; Nguyen et al., 2019; Roche et al., 2020).

Mental Condition Factors

Workers' mental conditions can affect workers' physical health and performance (Bryson & Duncan, 2018; Fenyvian et al., 2020). The existence of various mental work demands, such as conflicts between team members, complaints from consultants or owners, and limited time off, can cause mental fatigue, which in the long term can cause mental health problems, such as difficulty sleeping, difficulty concentrating, and decreased morale (Harris et al., 2007; Leung et al., 2015; Ohrnberger et al., 2017). Apart from that, technological developments in the construction industry also require workers to adapt by mastering new technologies in carrying out their work. The process of mastering technology and digitalization requires a mental readiness to learn and practice these new skills.

Workload Factors

According to Sunindijo & Kamardeen (2017), there are demands from the construction industry for workers to work long hours or work with non-standard work schedules. Construction workers are also often required to work on weekends or overtime during projects that require accelerated field work (paced work). This condition is a characteristic of the construction industry that is difficult to change (Watts, 2009) in order to show commitment to carrying out work. However, this of course results in the emergence of various mental health problems as well as interpersonal and family conflicts (Lingard et al., 2010).

Physical Condition Factors

There is only one factor that represents this component, namely, physical health status, which can cause mental health disorders. In practice, construction work requires skilled, competent workers. Especially for work in construction sites that require physical strength and the concentration of workers. However, various studies have linked the relationship between physical health and a worker's mental health (Ohrnberger et al., 2017).

Research Implications

The findings of this study have important implications for improving the mental health and well-being of construction workers, particularly in Indonesia. One key implication is the need for better recognition and inclusion in the workplace. Many workers, especially women, face limited opportunities for career advancement and suffer from unequal treatment. This affects their motivation, job satisfaction, and mental well-being. Construction companies and policymakers need to develop more inclusive policies and create a work environment where all workers have equal opportunities to grow, contribute, and be recognized.

Another implication relates to job stability. The temporary and uncertain nature of employment in the construction industry contributes to stress, anxiety, and feelings of insecurity

among workers. These unstable conditions limit opportunities for skill development and long-term planning. Therefore, the industry needs to explore strategies to provide more stable employment structures, including training pathways, continuous contracts, and improved job security policies to protect workers' mental health.

This study also highlights the strong link between management practices and mental health. Poor work environments, lack of social and emotional support, and unclear roles can create stress and conflict. Managers must be trained to support their teams' mental health by promoting a healthy work culture, clear communication, and supportive supervision. Creating mental health programs and ensuring access to counseling or mental support services in construction projects can improve both worker well-being and project performance.

Moreover, health and safety remain a critical concern. Unsafe working conditions and frequent accidents contribute to stress and fear among workers. The industry should continue to strengthen safety standards and create a culture of prevention. In addition, attention must be paid to substance abuse problems, which often arise from mental strain. Programs focused on mental health awareness, stress management, and substance abuse prevention are urgently needed on construction sites.

Finally, the heavy workload, physical demands, and technological pressure in construction work must be carefully managed. Workers often sacrifice their personal lives and well-being for project deadlines. This imbalance leads to burnout, fatigue, and long-term mental health problems. Future interventions should focus on designing work schedules that allow for rest and recovery, promoting work-life balance, and supporting workers' adaptability to new technology. This research shows that improving construction workers' mental health requires action across multiple areas, from recognition and stability to safety and management support.

Conclusion

This study aimed to identify the factors affecting mental health disorders among construction workers in Indonesia by combining an integrative literature review with empirical analysis using Exploratory Factor Analysis (EFA). The literature review identified 30 potential factors, which were subsequently analyzed based on responses from construction practitioners. The EFA results revealed seven underlying root causes, namely recognition, stability, management practices, health and safety conditions, mental condition, physical condition, and workload.

The findings indicate that both organizational and work-related conditions play a crucial role in shaping construction workers' mental health. Factors related to management practices, recognition, and job stability highlight the importance of organizational support and fair treatment in reducing psychological stress among workers. Meanwhile, workload, physical condition, and health and safety factors reflect the demanding nature of construction work and its potential impact on workers' mental well-being. These results suggest that improving management practices, providing stable employment conditions, and creating a supportive work environment are essential strategies for enhancing workers' psychological health in construction projects.

From a theoretical perspective, this study contributes to the existing body of knowledge by integrating previously fragmented factors affecting construction workers' mental health into a structured framework of seven root causes. This framework provides a clearer understanding of how organizational, occupational, and individual factors interact to influence mental health in the construction sector, particularly in the context of a developing country such as Indonesia. From a practical perspective, the findings offer useful insights for construction companies, project managers, and policymakers. Improving worker recognition, strengthening occupational health and safety practices, and managing workload effectively can help reduce psychological stress and enhance worker well-being. Addressing mental health issues among construction workers may also contribute to improved productivity, reduced absenteeism, and better overall project performance.

On the other hand, this study has several limitations. First, the sample size was limited to 100 construction practitioners, which may limit the generalizability of the findings. Second, the study relied on self-reported survey data, which may introduce response bias. Future studies are encouraged to include larger, more diverse samples across regions and types of construction projects. In addition, further research could apply structural equation modeling to validate the relationships between the identified factors and mental health outcomes.

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