

Workplace mental health interventions in the Vietnamese construction industry: A Social Ecological Model perspective

Các biện pháp bảo vệ sức khỏe tinh thần tại nơi làm việc trong ngành Xây dựng Việt Nam: Góc nhìn từ Mô hình sinh thái xã hội

> NHI DIEM PHAM NGUYEN¹, LONG LE-HOAI², MINH VAN NGUYEN^{3,*}

¹Master's student in Construction Management Programme, Ho Chi Minh City University of Technology, Vietnam National University, Ho Chi Minh City, Vietnam

²Faculty of Civil Engineering, Ho Chi Minh City University of Technology, Vietnam National University, Ho Chi Minh City, Vietnam

³Civil Engineering, Ho Chi Minh City University of Technology and Education, Ho Chi Minh City, Vietnam

*Corresponding author, Email: nguyenvanminh@hcmute.edu.vn

ABSTRACT

Construction employees face a high risk of mental ill health. This study aims to develop a list of workplace mental health initiatives based on the Social Ecological Model (SEM). The initiatives were first collected from previous studies and then refined through expert consultation with four Vietnamese practitioners. As a result, 23 initiatives were developed and categorized into five SEM levels: personal, interpersonal, organizational, community, and policy. The findings highlight that effective interventions should integrate actions across multiple levels, ranging from individual self-awareness and peer support to managerial and policy reforms. The study emphasizes the need to contextualize mental health initiatives to fit Vietnam's social and cultural characteristics. The results provide practical guidance for developing comprehensive, culturally sensitive workplace mental health strategies in the construction sector.

Keywords: Construction employees, initiatives, mental ill health, social ecological model (SEM).

TÓM TẮT

Người lao động trong ngành Xây dựng phải đối mặt với nguy cơ cao về các vấn đề sức khỏe tinh thần. Nghiên cứu này nhằm xây dựng danh sách các biện pháp bảo vệ sức khỏe tinh thần tại nơi làm việc dựa trên Mô hình sinh thái xã hội (SEM). Các biện pháp ban đầu được thu thập từ các nghiên cứu trước đây và sau đó được hiệu chỉnh thông qua tham vấn chuyên gia với bốn người lao động có kinh nghiệm trong ngành Xây dựng Việt Nam. Kết quả, 23 biện pháp đã được phát triển và phân loại theo năm cấp độ của SEM: Cá nhân, liên cá nhân, tổ chức, cộng đồng và chính sách. Kết quả cho thấy các can thiệp hiệu quả cần tích hợp hành động ở nhiều cấp độ, từ nhận thức cá nhân và hỗ trợ đồng nghiệp đến cải cách ở cấp tổ chức và chính sách. Nghiên cứu nhấn mạnh tầm quan trọng của việc điều chỉnh các biện pháp bảo vệ sức khỏe tinh thần cho phù hợp với đặc điểm văn hóa xã hội của Việt Nam. Kết quả mang lại những gợi ý thực tiễn trong việc phát triển các chiến lược toàn diện và phù hợp văn hóa nhằm cải thiện sức khỏe tinh thần tại nơi làm việc trong ngành Xây dựng.

Từ khóa: Người lao động ngành Xây dựng, biện pháp bảo vệ, sức khỏe tinh thần, Mô hình sinh thái xã hội (SEM).

1. INTRODUCTION

The construction industry is known for its fast-paced, high-pressure work environment (Radzi et al., 2025). Employees often face tight project deadlines, long working hours, and unsafe site conditions. They also experience physical strain, job insecurity, and poor work-life balance. Studies from countries such as China (Wang et al., 2025) and Australia (Tennakoon et al., 2024) showed that construction professionals are frequently exposed to excessive workloads and unclear job roles, leading to chronic stress and burnout. These demanding work conditions, combined with the

temporary and competitive nature of construction projects, create significant psychological risks for workers.

As a result, construction employees show higher rates of mental ill health than workers in most other industries (Nguyen et al., 2025a). Organizational-level interventions are therefore essential to promote employees' mental well-being (Estudillo et al., 2024; Greiner et al., 2022). Many studies introduced workplace mental health initiatives, including stress management training, awareness programs, counseling services, and peer-support systems. For example, the "MATES in Construction" program in Australia has

successfully reduced suicide risks through early intervention and workplace engagement (Thompson and Doran, 2024). These examples demonstrate that construction organizations can play a vital role in improving workers' mental health through well-designed, systematic interventions.

However, applying such programs directly to Vietnam requires careful consideration of local cultural and social characteristics (Nguyen et al., 2025a). Vietnamese workplaces are strongly influenced by Confucian values (Truong and Hallinger, 2016), which emphasize respect for hierarchy and authority. This may discourage open communication about personal mental health struggles. In addition, stigma surrounding mental illness remains widespread, making employees reluctant to seek help or discuss emotional difficulties. Collective norms often prioritize group harmony over individual expression, further limiting open dialogue about stress and distress. These socio-cultural barriers can hinder the effective implementation of standard mental health interventions commonly used in Western countries.

Therefore, there is a strong need to identify workplace mental health interventions that are appropriate for the Vietnamese construction industry. This study aims to develop a context-specific framework using the Social Ecological Model (Tanhan and Young, 2021) to examine factors influencing mental health at multiple levels (i.e., individual, interpersonal, organizational, community, and policy). By adopting this holistic approach, the study will propose a list of workplace mental health interventions that align with Vietnam's cultural values and working environment. The results are expected to guide construction firms, policymakers, and practitioners in building psychologically healthy and supportive workplaces in Vietnam.

2. LITERATURE REVIEW

2.1. Mental ill health risk factors in the construction industry

Construction employees are frequently exposed to a range of mental ill-health risk factors (Tennakoon et al., 2024). Heavy workloads, long working hours, and strict time pressures characterize the industry. Workers often face high physical demands, job insecurity, and unstable employment patterns due to the project-based nature of construction (Radzi et al., 2025). These factors create constant uncertainty and financial stress, which in turn lead to psychological strain. Moreover, hazardous site conditions and the need to meet tight deadlines often result in fatigue, low morale, and burnout. Nguyen et al. (2025) noted that the combination of physical exhaustion and emotional pressure contributes significantly to mental ill health in the sector.

Interpersonal relationships and organizational culture also play an essential role in shaping workers' psychological well-being. Poor communication, bullying, and conflict with supervisors or colleagues are everyday occurrences in construction sites (Nwaogu et al., 2020). In environments where mistakes are punished rather than learned from, employees tend to experience fear and anxiety (Nwaogu and Chan, 2021). A negative safety climate and authoritarian management practices further increase stress levels. The lack of psychological safety prevents employees from expressing concerns or seeking help when they are distressed. Consequently, feelings of isolation and helplessness become more prevalent among construction workers.

Another important source of risk is the imbalance between work and personal life (Zhang et al., 2023). Long shifts and irregular schedules make it difficult for workers to maintain family and social relationships. This imbalance contributes to fatigue, reduced

motivation, and emotional exhaustion. Substance use and maladaptive coping behaviors are also widespread as workers attempt to manage stress (Zhang et al., 2023). Furthermore, the temporary nature of employment often limits access to health services and mental health support, especially for migrant or informal workers (Raj et al., 2021). These factors collectively increase vulnerability to depression, anxiety, and suicide.

Recent studies emphasize that mental ill-health risks in construction are multidimensional (Zhang et al., 2023). They arise not only from individual factors but also from organizational, cultural, and industry-wide conditions. Addressing these risks requires more than individual coping strategies. It calls for integrated approaches that promote supportive leadership, fair workload distribution, open communication, and access to mental health resources. Understanding these risk factors is therefore essential for designing effective workplace interventions that can protect and enhance psychological well-being in the construction industry.

2.2. Mental health interventions

Recent studies have shown growing attention to mental health interventions in the construction sector (Campbell and Gunning, 2020; Estudillo et al., 2024; Greiner et al., 2022). These studies highlighted that interventions in this industry aim to address both individual and organizational factors that contribute to mental distress. Many studies focus on improving awareness, reducing stigma, and strengthening social support within the workplace (Nguyen et al., 2025a, 2025b). Programs such as peer-support systems, counseling services, and mental health training for supervisors have been widely discussed as effective approaches (Mehany et al., 2024). These interventions encourage early recognition of mental health issues and promote a more supportive environment for workers.

At the individual level, researchers emphasize the importance of self-awareness, resilience, and coping strategies (Nguyen et al., 2025b). Training sessions and workshops help employees develop emotional regulation, problem-solving skills, and confidence to seek help when needed. Studies have also highlighted the role of self-monitoring and mindfulness techniques in improving workers' ability to manage stress and anxiety. By encouraging proactive self-care behaviors, these initiatives aim to reduce the long-term impact of occupational stress.

At the organizational level, interventions often target leadership, workload management, and communication culture (Karakhan et al., 2023). Research suggests that management commitment and open dialogue are critical to promoting psychological well-being. Supportive supervision, fair workload distribution, and flexible scheduling can help reduce fatigue and prevent burnout. Moreover, cultivating a culture of respect and feedback encourages employees to express concerns without fear of blame. Some studies also stress the integration of mental health into broader occupational safety systems to ensure continuous attention and accountability (Lawani et al., 2023; Pirzadeh et al., 2022).

Previous studies agree that effective mental health interventions must operate across multiple levels within construction organizations. Successful programs combine individual resilience-building with systemic changes in management practices and workplace culture. However, researchers also note that interventions should be context-specific and responsive to cultural and social characteristics. A one-size-fits-all approach may not be effective, as construction workers'

experiences, beliefs, and coping styles vary widely. Therefore, recent research calls for holistic and context-sensitive frameworks that integrate psychological, social, and organizational dimensions of mental health.

2.3. Social Ecological Model

The Social Ecological Model (SEM) provides a comprehensive framework for understanding how different factors influence mental health (Tanhan and Young, 2021). It views human behavior and well-being as outcomes of multiple interacting levels of influence. These levels commonly include the individual, interpersonal, organizational, community, and policy levels. Each level represents a set of conditions that can either protect or harm mental health. In the context of construction firms, SEM is useful for identifying how workplace systems, team relationships, and management practices jointly affect employees' psychological well-being.

At the individual level, workers' attitudes, coping skills, and awareness of mental health issues play a central role (Yu et al., 2024). Construction employees often rely on personal resilience to handle stress and fatigue. Training and education programs that enhance self-efficacy and emotional regulation can therefore strengthen individual-level protection. At the interpersonal level, peer relationships, teamwork, and supervisor support become important. In construction projects, where collaboration is constant, supportive communication and empathy among colleagues can reduce isolation and build trust.

The organizational level addresses how management commitment, leadership style, and company culture influence mental health. Organizational policies on workload, safety, and communication shape the firm's psychological climate. A positive organizational culture that promotes openness and respect can reduce stigma and encourage help-seeking. At the community level within the firm context, professional networks, subcontractor relationships, and industry partnerships shape shared norms. Collaborative initiatives between companies or industry associations can create a collective commitment to mental health promotion (Smith et al., 2022).

Although the policy level usually refers to national regulations, within firms, it can be seen as internal policies or management systems that formalize mental health practices. These may include employee assistance programs, flexible work policies, or clear procedures for stress reporting. Applying SEM within construction firms helps to design multilevel interventions that address both individual and organizational determinants of mental health. This approach ensures that strategies are not isolated but are connected

across different layers of influence within the workplace (Yu et al., 2024).

3. RESEARCH METHOD AND FINDINGS

This study followed a multi-step process to identify and develop workplace mental health initiatives suitable for construction firms in Vietnam. First, a comprehensive review of previous studies was conducted to collect existing initiatives from international research on mental health in construction. These initiatives consisted of multiple levels, including individual, organizational, and workplace culture improvement. The authors then revised the initial list to remove duplicates and irrelevant items and to ensure clarity of meaning. This step helped to align the initiatives with the Vietnamese construction context and organizational structure.

Next, the refined list was reviewed by four Vietnamese practitioners who have direct experience in managing construction projects. They included one representative from the board of directors (R1), one from the human resources department (R2), one site manager (R3), and one professional from the bidding department (R4). These experts evaluated each initiative for its relevance, feasibility, and cultural suitability. Their feedback helped ensure that the initiatives reflected real challenges and opportunities within Vietnamese construction firms. Figure 1 illustrates the research plan.

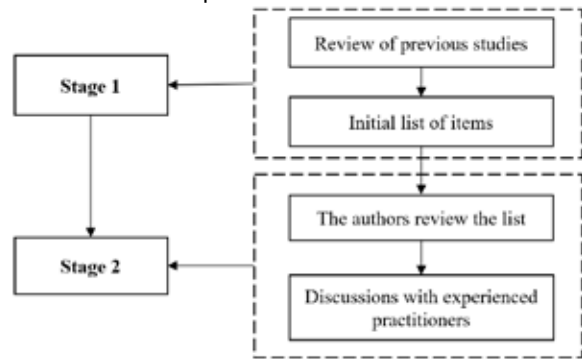


Figure 1. Research plan

After incorporating expert feedback, the list of initiatives was further refined and categorized according to the Social Ecological Model (SEM). The model allowed initiatives to be organized across multiple levels (i.e., individual, interpersonal, organizational, community, and policy) within the firm. Through this process, 23 initiatives were collectively agreed upon by the respondents. Table 1 presents the list of the initiatives.

Table 1. Mental health initiatives based on SEM

SEM factors	Code	Mental health initiatives
Personal	ID1	Form and maintain positive habits
	ID2	Self-monitor mental health status
	ID3	Develop stress management and recovery skills
	ID4	Support early identification and access to resources
	ID5	Rediscover personal values through work
Interpersonal	IP1	Strengthen colleague engagement and interaction
	IP2	Promote peer-to-peer communication and emotional support
	IP3	Build a culture of positive and supportive feedback
	IP4	Establish informal support networks

Organizational	OG1	Design and adjust workload
	OG2	Provide short breaks and recovery opportunities at the workplace
	OG3	Build a positive and compassionate organizational culture
	OG4	Empower employees and promote their capabilities
	OG5	Implement special support policies during the recovery phase
Community	CM1	Promote positive and compassionate internal communication
	CM2	Organize forums for sharing real-life experiences
	CM3	Encourage participation, support, and community connection
	CM4	Create internal spaces for initiative and proactive engagement
Policy	PO1	Leave policy for mental health reasons
	PO2	Policy supporting access to counseling services
	PO3	Policy on appropriate feedback and evaluation
	PO4	Anti-stigma and equitable psychological support policy
	PO5	Flexible human resource policy based on employees' mental health status

During the preparation of this work, the authors used ChatGPT to support the writing process and enhance the text's natural flow. All content generated with assistance was subsequently reviewed, verified, and edited by the authors.

4. DISCUSSIONS OF THE FINDINGS

The discussions reveal that personal-level initiatives are considered essential in promoting mental well-being among Vietnamese construction employees. All four respondents emphasized that improving self-awareness and daily self-care can reduce psychological distress. R1 commented that *"encouraging workers to form and maintain positive habits such as regular exercise, rest, and mindfulness helps them stay focused and calm under project pressure."* R2 added that *"self-monitoring one's mental health status helps employees recognize early signs of fatigue or anxiety,"* but admitted that Vietnamese workers are still reluctant to admit emotional problems due to fear of being judged as weak. R3 emphasized the need for *"practical training in stress management and recovery,"* suggesting short breaks and mindfulness sessions as effective within the construction context. R4 explained that *"rediscovering personal values through work increases employees' sense of pride and belonging,"* which aligns with Vietnamese collectivist values that emphasize dedication and contribution to group success.

The interpersonal factor reflects the Vietnamese cultural emphasis on harmony and social cohesion. R1 shared that *"strengthening colleague engagement and interaction (IP1) builds trust and unity,"* especially important in a hierarchical culture where communication gaps often exist. R2 remarked that *"peer-to-peer support (IP2) helps workers share emotions without fear of authority,"* which can counteract stigma surrounding mental health. R3 observed that *"positive and supportive feedback (IP3) encourages workers to perform better without humiliation,"* addressing a common issue in Vietnamese workplaces where top-down criticism dominates. R4 emphasized *"informal support networks (IP4), such as shared meals or online groups,"* as culturally suitable ways to increase emotional connection and open dialogue beyond formal structures.

The organizational factor focuses on leadership, management, and workplace culture within Vietnamese construction firms. R1 stressed that *"adjusting workload (OG1)*

and ensuring fairness" is crucial, as overwork is often normalized in Vietnamese culture. R2 added that *"short breaks and recovery (OG2) help reduce exhaustion,"* but admitted that taking rest is still viewed negatively by many managers. R3 emphasized the importance of *"a compassionate organizational culture (OG3),"* highlighting that Vietnamese leaders should shift from authoritative to empathetic management. R4 mentioned that *"empowering employees (OG4) strengthens trust,"* but such empowerment must be carefully implemented within hierarchical structures. Both R2 and R3 agreed that *"recovery policies (OG5) are vital for those returning from illness or burnout,"* since most local firms lack formal systems to support reintegration.

The community factor highlights the importance of connection, collective learning, and shared responsibility, which align closely with Vietnamese cultural values. R1 stressed that *"positive and compassionate internal communication (CM1) increases respect and unity."* R2 added that such communication can *"reduce stigma and encourage openness,"* addressing the cultural tendency to avoid discussing personal struggles. R3 believed that *"experience-sharing forums (CM2)"* reflect the Vietnamese tradition of learning through storytelling and peer learning. R4 supported *"community participation (CM3)"* through volunteering and social activities, which strengthen collective identity. R2 and R3 also emphasized that *"creating spaces for initiative (CM4)"* allows employees to express ideas, though they noted that many Vietnamese workers still hesitate to speak up due to respect for hierarchy.

The policy factor reflects the need to formalize psychological support within the workplace, which remains uncommon in Vietnam. R1 noted that *"introducing mental health leave (PO1)"* shows institutional recognition of emotional well-being, a new concept in Vietnamese firms. R2 added that *"access to counseling services (PO2)"* could normalize help-seeking behaviors in a society where mental health is often stigmatized. R3 pointed out that *"fair feedback and evaluation (PO3)"* reduces stress caused by strict performance reviews. R4 highlighted that *"anti-stigma policies (PO4)"* are critical to changing traditional views that link mental illness with personal weakness. Finally, R2 suggested *"flexible HR policies (PO5)"* that adjust workloads based on employees' mental health, reflecting a more human-centered approach that aligns with Vietnam's gradual shift toward sustainable, compassionate management practices.

5. CONCLUSIONS

This study explored workplace mental health interventions in the Vietnamese construction industry through the Social Ecological Model. The findings highlight that mental health should be addressed through multiple levels (i.e., individual, interpersonal, organizational, community, and policy). At the personal level, initiatives such as forming positive habits and developing coping skills help employees manage stress. Interpersonal interventions promote supportive relationships and open communication among colleagues. Organizational initiatives focus on workload balance, recovery opportunities, and a compassionate culture. Community and policy factors emphasize shared responsibility, inclusion, and the institutionalization of mental health support.

The study provides both theoretical and practical implications. Theoretically, it applies the Social Ecological Model to the construction context, demonstrating that mental health determinants exist beyond individual behavior. It contributes to the growing body of research on mental health in developing countries, where cultural values, workplace hierarchy, and stigma strongly influence outcomes. Practically, the 23 proposed initiatives offer a structured guide for Vietnamese construction firms to design, evaluate, and implement workplace mental health programs. They also serve as a reference for managers to increase open dialogue, flexible policies, and preventive interventions at multiple levels of their organizations.

However, the study has certain limitations. The findings are based only on qualitative insights from four practitioners, limiting generalizability. Moreover, the initiatives were not differentiated according to employees' mental health conditions, as suggested by the two-continua model of mental health. Future studies should apply quantitative methods to validate these initiatives and examine their effectiveness across groups with varying mental health statuses. Expanding the sample size and including diverse firm types will also provide a stronger empirical foundation for developing comprehensive and culturally relevant mental health strategies in construction.

Acknowledgement(s): This work received funding under project Grant No: B2025-SPK-05 from the Ministry of Education and Training and was hosted by Ho Chi Minh City University of Technology and Education, Vietnam.

REFERENCES

[1]. Campbell, M.A., Gunning, J.G., 2020. Strategies to improve mental health and well-being within the UK construction industry, in: *Proceedings of the Institution of Civil Engineers - Management, Procurement and Law*. pp. 64-74.

[2]. Estudillo, B., Forteza, F.J., Carretero-Gómez, J.M., Rejón-Guardia, F., 2024. The role of organizational factors in promoting workers' health in the construction sector: A comprehensive analysis. *J. Safety Res.* 88, 41–55. <https://doi.org/10.1016/j.jsr.2023.10.007>

[3]. Greiner, B.A., Leduc, C., O'Brien, C., Cresswell-Smith, J., Rugulies, R., Wahlbeck, K., Abdulla, K., Amann, B.L., Pashoja, A.C., Coppens, E., Corcoran, P., Maxwell, M., Ross, V., de Winter, L., Arensman, E., Aust, B., 2022. The effectiveness of organisational-level workplace mental health interventions on mental health and wellbeing in construction workers: A systematic review and recommended research agenda. *PLoS One* 17, 1-23. <https://doi.org/10.1371/journal.pone.0277114>.

[4]. Karakhan, A.A., Gambatese, J., Simmons, D.R., Albert, A., Breesam, H.K., 2023. Leading Indicators of the Health and Well-Being of the Construction Workforce: Perception of Industry Professionals. *Pract. Period. Struct. Des. Constr.* 28, 1-6. [https://doi.org/10.1061/\(asce\)sc.1943-5576.0000747](https://doi.org/10.1061/(asce)sc.1943-5576.0000747).

[5]. Lawani, K., Hare, B., Tong, M., Cameron, I., 2023. Exploring mental health challenges and implications for construction safety. *J. Eng. Des. Technol.* 1726-0531. <https://doi.org/10.1108/JEDT-07-2023-0327>.

[6]. Mehany, M.S.H.M., Fisher, G.G., Thiese, M., Kumar, S., 2024. Assessment of Construction Workers' Mental Health to Improve Wellbeing. Colorado, USA.

[7]. Nguyen, M. Van, Khanh, H.D., Phan, C.T., 2025a. Investigating the impacts of psychological safety climate on mental ill health in the Vietnamese construction industry. *Eng. Constr. Archit. Manag.* <https://doi.org/10.1108/ECAM-11-2024-1576>.

[8]. Nguyen, M. Van, Khanh, H.D., Phan, C.T., Thuc, L.D., 2025b. Exploring the awareness of construction employees on mental health problems : applying the health belief model. *Eng. Constr. Archit. Manag.* <https://doi.org/10.1108/ECAM-10-2024-1339>.

[9]. Nwaogu, J.M., Chan, A.P.C., 2021. Evaluation of multi-level intervention strategies for a psychologically healthy construction workplace in Nigeria. *J. Eng. Des. Technol.* 19, 509-536. <https://doi.org/10.1108/JEDT-05-2020-0159>.

[10]. Nwaogu, J.M., Chan, A.P.C., Darko, A., 2020. Review of global mental health research in the construction industry A science mapping approach. *Eng. Constr. Archit. Manag.* 27, 385-410. <https://doi.org/10.1108/ECAM-02-2019-0114>.

[11]. Pirzadeh, P., Lingard, H., Zhang, R.P., 2022. Job Quality and Construction Workers' Mental Health: Life Course Perspective. *J. Constr. Eng. Manag.* 148, 1-13. [https://doi.org/10.1061/\(asce\)co.1943-7862.0002397](https://doi.org/10.1061/(asce)co.1943-7862.0002397).

[12]. Radzi, A.R., K.S, A., Alias, A.R., Algahtany, M., Rahman, R.A., 2025. Modeling the factors affecting workplace well-being at construction sites: a cross-regional multigroup analysis. *J. Eng. Des. Technol.* 23, 1087–1110. <https://doi.org/10.1108/JEDT-07-2023-0322>

[13]. Raj, H., Bhandari, B., Adhikary, P., 2021. Perceived mental health , wellbeing and associated factors among Nepali male migrant and non-migrant workers : A qualitative study. *J. Migr. Heal.* 3, 100013. <https://doi.org/10.1016/j.jmh.2020.100013>.

[14]. Smith, M.E., Pahwa, R., Harrison, G.D., Sharpe, T.L., 2022. A Social – Ecological Model for Navigating Safety Across Time: The Experience of Black Adults With Serious Mental Illnesses. *J. Soc. Social Work Res.* 13, 353–379. <https://doi.org/10.1086/714634>.

[15]. Tanhan, A., Young, J.S., 2021. Approaching mental health: social ecological model and theory of planned behavior/theory of reasoned action. *Int. J. Eurasian Educ. Cult.* 6, 1967-2015.

[16]. Tennakoon, T.M.M.P., Ranasinghe, U., Samaraweera, A., Rameezdeen, R., Gallage, S., Newman, W.R., White, B.J., Lim, D.N.T.W., 2024. Work-related factors affecting mental well-being of young construction workers in South Australia. *Built Environ. Proj. Asset Manag.* <https://doi.org/10.1108/BEPAM-12-2023-0233>.

[17]. Thompson, N., Doran, C.M., 2024. Supervisor relationships, peer support and mental health stressors in the Australian building and construction industry. *J. Workplace Behav. Health* 40, 46-64. <https://doi.org/10.1080/15555240.2024.2315139>.

[18]. Truong, T.D., Hallinger, P., 2016. Exploring cultural context and school leadership : conceptualizing an indigenous model of có uy school leadership in Vietnam. *Int. J. Leadersh. Educ.* 3124. <https://doi.org/10.1080/13603124.2015.1105388>.

[19]. Wang, X., Chen, X., Zhang, H., Wong, C.U.I., 2025. Exploring the Role of Team Leisure Sports in Enhancing Occupational Commitment and Sustainability Among Construction Workers: A Focus on Team Cohesion. *Buildings* 15, 1-24. <https://doi.org/10.3390/buildings15040522>

[20]. Yu, Q., Huang, C., Tian, Y., Yang, J., Li, X., Ning, M., Chen, Z., Du, J., 2024. Factors associated with clinical nurse ' s mental health : a qualitative study applying the social ecological model. *BMC Nurs.* 23, 330.

[21]. Zhang, S., Sunindijo, R.Y., Frimpong, S., Su, Z., 2023. Work stressors, coping strategies, and poor mental health in the Chinese construction industry. *Saf. Sci.* 159, 106039. <https://doi.org/10.1016/j.ssci.2022.106039>.