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IDENTIFYING STRESS AND COPING BEHAVIOR FACTORS OF ETHNIC MINORITY WORKERS IN THE CONSTRUCTION INDUSTRY VIA A FOCUS GROUP

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Abstract. The construction industry is notorious for stressful jobs, particularly for ethnic minority construction workers (EM-CWs), who experience complicated issues in the host country. Despite the high-level stress of EM-CWs compared to native construction workers, the particular coping behaviors of EM-CWs is unclear. Due to their cultural differences, religious beliefs, and possible stigma related to sharing feelings, typical stress management strategies may not be effective in relieving the stress of EM-CWs. To manage the stress of EM-CWs and also to benefit organizational productivity, it is important to identify the specific coping behaviors adopted by EM-CWs in response to stress. Therefore, this study aims to explore the stress management factors of EM-CWs. Six focus group discussions were conducted, made up of five EM-CWs groups (three general worker groups and two skilled worker groups) and one group of foremen. Contextual analysis was used to analyze the focus groups' qualitative data. The study identified 11 items of stress for EM-CWs in two major categories: emotional and physical stress. In addition to problem-focused (i.e., planned problem-solving, seeking instrumental support, and cognitive appraisal) and emotion-focused coping behaviors (i.e., seeking emotional support, emotional discharge, and escapism), the current study also explored religious-focused coping behaviors (i.e., religious practice, service, and meditation) of EM-CWs. The findings advance coping-behavior literature by addressing important features of religious coping behaviors in the construction industry. The study explored the unique stress management factors of EM-CWs, which can be used to manage the stress of EM-CWs, improve their stress management approaches, and design various stress management programs for EM-CWs. Furthermore, several recommendations were made in initiating time management training, encouraging organizations to consider mental health needs in the construction industry, acknowledging the specific cultural context of EM-CWs, striving to reduce the stigma around sharing emotions under stress, facilitating an adequate on-site environment to practice religion, and introducing mindfulness programs to relieve EM-CW stress and improve their performance.

Keywords: construction workers, coping behaviors, ethnic minority, focus group, stress.

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1. Introduction

The construction sector provides employment for about 220 million people globally (International Labour Organization [ILO], 2020), but has a poor record regarding the physical and mental health of the workforce (Shepherd et al., 2021). It is considered one of the most stressful job areas, as 97% of construction workers (CWs) worldwide suffer from stress (The Chartered Instituted of Building [CIOB], 2020). Due to the stressful, dangerous, difficult, and dirty nature of the work, native workers in developed regions are reluctant to join the construction industry, which is facing a shortage of young and skilled laborers (Lyu et al., 2020). Construction industry of the US faced a shortage of 650,000 workers (Elbashbishy & El-adaway, 2024), while a similar scarcity of young skilled labor observed in Hong Kong (Ho, 2016). Consequently, the proportion of ethnic minority construction workers (EM-CWs) has increased around the world (Statista, 2020), accounting for 10% in the UK (Lyu et al., 2023), 69% in Malaysia (Noor & Shaker, 2017), 16% in Australia (Department of Immigration and Citizenship [DIAC], 2009), and over 90% in UAE, Dubai, and Qatar (Kronfol et al., 2014). Similarly, the number of EM-CWs in Hong Kong increased fourfold between 2011 and 2021, mainly in workers from Nepal and Pakistan (Census and Statistics Department, 2011). However,

EM-CWs are reported to have higher risks of health and safety in comparison to their indigenous counterparts (Oswald et al., 2018). Due to cultural differences and limited social networks, the circumstances of EM-CWs are more complex than those of native CWs, and they experience a higher degree of stress (Devkota et al., 2021; Kim et al., 2020). Moreover, unfair treatment has been associated with heightened stress levels among EM-CWs (Mucci et al., 2019). The repetitive experience of these stressors in the lives of EM-CWs could exacerbate stress symptoms such as depression, anxiety, and suicidal ideation (Lerner et al., 2021). Although Ahmed et al. (2022) explored key stressors of EM-CWs, the study was exploratory and lacked empirical support. For effective stress management, understating the various stress and coping behavior is inevitable. Despite the significantly lower mental health quality of ethnic minorities than of native residents in Hong Kong (Vandan et al., 2019), very little attention has been paid to the stress management process of EM-CWs.

The construction industry has long been known for having some of the most strenuous and stressful jobs in the world, particularly for EM-CWs (Shepherd et al., 2021). EM-CWs experience various sources of stress, including discrimination, language barriers, employment issues, and wage theft (Chan et al., 2017a, 2017b; Wong & Lin, 2014), which can contribute to their stress levels. Thus, the capability to cope with stress is important for EM-CWs to sustain their well-being and performance, and to protect the organization from substantial economic loss. Many studies conducted on stress have been based on the transactional theory of stress and coping (Lazarus & Folkman, 1984), but very little research has thoroughly investigated the particular coping mechanisms of ethnic minorities.

In addition, it may not be appropriate to simply apply Western perceptions to South Asian cultures. Mental health issues are thought of differently in South Asian societies (Mirza et al., 2019), many of which do not utilize mental health services, and mental health problems are often stigmatized (Kwan et al., 2018). Reducing stress could be a challenging task for ethnic minorities due to the countless issues beyond their control in the host society (Farley et al., 2005). Similarly, the effectiveness of coping behaviors for various types of stress remains uncertain. Although research on EM-CWs in the construction industry cover various outcome variables like communication, safety, and general health (Oswald et al., 2018; Wu et al., 2020), the stress-coping relationship specifically in the context of EM-CWs is limited. It may be valuable to identify coping mechanisms based on the specific situations of EM-CW, instead of following general principles of coping behaviors. Hence, this study aims to identify the coping behaviors of EM-CWs in the construction industry in managing their stress so as to optimize individual and organizational performance. It may also be helpful to propose effective stress management strategies to EM-CWs to improve coping behaviors, which would be expected to improve labor productivity, performance, and project outcomes.

2. Literature review

2.1. Stress

Stress is an emotional and physical response of an individual to external stimuli (Leung et al., 2015). A human being responds to an external stressful situation by releasing physiological hormones to support the body (Mellner et al., 2005). The body tries to tackle the stressor via physical and emotional changes. When the source of stress disappears, the body will return to normal (Nixon et al., 2011). However, long-term contact with stressors may lead to various stress symptoms (Langdon & Sawang, 2018). It is also associated and developed for prolonged exposure to external demands (Liang et al., 2022). Normally, emotional stress symptoms include anxiety, tension, nervousness, and emotional exhaustion (Leung et al., 2014; Liang et al., 2021; Sutherland & Cooper, 2000), while physical stress symptoms consist of headaches, bodily pain, sleep disorders, and cardiovascular and gastrointestinal diseases (Cooper & Quick, 2017; Ganster & Rosen, 2013; Leung et al., 2008). Generally, the psychological health conditions of ethnic minority populations are worse than those of the local citizens (Vandan et al., 2019). Moreover, the levels of stress were significantly higher the among construction workers in comparing with their colleagues, including foremen, engineers, and managers (Nwaogu et al., 2022). The existing literature provides a comprehensive overview of the concept of stress and its different forms for local CWs. However, there is a lack of research focusing specifically on the types of stress and coping behaviors EM-CWs. Therefore, it is essential to explore the unique stress and coping behaviors of EM-CWs in the construction industry.

2.2. Coping behaviors

Coping refers to cognitive and behavioral efforts to manage external and internal demands that exceed an individual's resources (Lazarus & Folkman, 1984; Leung et al., 2015). According to the transactional theory of stress and coping (Folkman, 2010; Lazarus & Folkman, 1984), coping behaviors are typically divided into two major groups namely problem-focused and emotion-focused copings (Liang et al., 2021). Problem-focused coping refers to a person's efforts to counter the cause of stress by altering individual behaviors or environmental situations (Folkman, 2010; Leung et al., 2006), while emotion-focused coping behaviors regulate the individual negative emotions that arise due to exposure to stressors and stress (Folkman, 2010; Liang et al., 2021). Both of these coping behaviors have been reported to buffer stress, particularly in Asian migrants (Noor & Shaker, 2017). Many other coping strategies, including support from colleagues, withdrawal behavior, and intercultural coping (Liu et al., 2023; Palaniappan et al., 2023), have also been revealed as a positive approach to alleviate stress in a culturally diverse workplace. However, they lack empirical support and are vague regarding effectiveness towards different kinds of stress.

However, coping behaviors of EM-CWs may vary because the religious beliefs of EM-CWs may dominate their perceptions of stress and the adoption of coping behaviors (Kwan et al., 2018). There has been significant focus on the impact of religion on well-being (Hill & Pargament, 2003) and it has been associated with coping during hardship (Park, 2005). For instance, spiritual activity has been found to be connected to health-promoting behavior in Nepalese migrants working in Korea (Bhandari & Kim, 2016). More specifically, migrant usually adopt prayer as a coping behavior to reduce the stress induced from discrimination (Teteh et al., 2020). Despite the extensive literature on coping behaviors, there is still a lack of studies exploring different coping strategies in different populations particularly for EM-CWs in the industry. Hence, it is vital to understand the effectiveness of different coping strategies in EM-CWs and to identify the best coping strategies for different types of stress. Therefore, it is necessary to explore the various coping behaviors of EM-CWs in managing their stress effectively.

3. Research methodology

3.1. Focus group

A focus group is an exploratory group discussion held in a controlled atmosphere to gather information on specific topics. The method has been widely used in health and safety studies to obtain research information through informal group discussions within a topic framework (Nguyen et al., 2021; Han & Wang, 2018). This approach is suitable when knowledge is not clear, and the study topic need to be discovered (Owolabi et al., 2020). Participants can share then essential facts, experiences, and opinions deeply with less individual bias, as respondents with alike backgrounds are normally invited together in the same group (Conchie et al., 2013). In fact, focus group can gather dynamic group data with less time, produce extensive content from the discussion, facilitating the dialogue in a natural setting, and have less individual bias (Conchie et al., 2013; Morgen & Krueger, 1998; Kruger et al., 2019). Hence, this study adopted focus group discussion to explore stress and coping behaviours of EM-CWs in the industry.

3.2. Participants

In the current study, respondents were recruited based on their nationality and skills from various construction projects in Hong Kong. Six focus groups, made up of three non-skilled groups (i.e., general workers) from the dominant ethnic communities (Nepal, Pakistan, and India), two skilled groups (from Nepal and Pakistan), and one multinational group of foremen, were conducted systematically. The motives for selecting these ethnic minority groups were that most of the EM-CWs in Hong Kong are from these countries (Chan et al., 2017a). The group meetings were arranged in the community centers, rest room of the workers, and office of the foremen. Forty respondents joined the focus group meetings. The size of the focus groups (5–9 respondents) are adhered to the typical standard of four to twelve members per group. The majority of the EM-CWs were young: 37% were aged between 20–29 years, 30% were 30–39, 27% were 40–49, and only 5% were between 50–59. Participants worked in various organizations: 45% were with the main contractor, 50% with a sub-contractor, and 5% with suppliers. However, most were involved in either building work (40%) or civil work (52.5%), with only 7.5% working on other projects. Details are shown in Table 1.

To achieve a systematic qualitative data collection and analysis, the discussions for all the groups were kept open-ended and organized in an identically structured framework. The questions asked were: "*How does stress manifest in you*?" to explore different stresses and "*What do you usually do to release the stress*?" to discover various coping behaviors of EM-CWs. Confidentiality and nondisclosure of data were also ensured. In addition, a variety of methods were used, including worksheets for each group member, instant notetaking during the discussion, and audiotapes.

Table 1. Demographic information of respondents (N = 40)

Background information	Categories	Frequency (for each group)						%
		NSW (7)	PGW (8)	PSW (9)	IFM (5)	IGW (5)	NGW (6)	
Gender	Male	7	8	9	5	5	6	100
	Female	0	0	0	0	0	0	0.0
Work experience	<1	0	4	0	0	1	0	12.5
	1–10	6	3	7	5	4	0	65
	11–20	1	1	2	0	0	1	12.5
	>20	0	0	0	0	0	4	10.0
Organization type	Main contractor	1	5	7	5	0	2	45.0
	Sub-contractor	5	3	2	0	5	1	50.0
	Suppliers	1	0	0	0	0	3	5.0

Note: NSW = Nepali skilled CWs; PSW = Pakistani general CWs; NGW = Nepali general CWs; PGW = Pakistani general CWs; IFM = Foremen; IGW = Indian general CWs.

4. Data analysis

4.1. Contextual analysis

Qualitative data are majorly analyzed using contextual analysis (Vaismoradi et al., 2013). Contextual analysis combines the attributes of both content and thematic analyses using common keywords for interpreting the actual phenomenon (Timlin-Scalera et al., 2003), therefore, it is suitable for exploring areas of inquiry based on the groups of participants rather than individuals (Hughes & DuMont, 1993). This began by separating the group discussion according to a certain group of identified themes in the transcripts (Liang et al., 2021). During the data analysis process, phrases with common characteristics were gathered and grouped, thus reducing the vast amount of raw discussion data into smaller, discrete, and more manageable pieces of data. The data were then combined based on the themes and further categorized into different groups according to previous literature. This is widely used in the data analysis of focus group studies (Tirth et al., 2021), beginning with a keen scrutiny of the respondent's responses to distinguish common keywords (Timlin-Scalera et al., 2003). Finally, essential phrases and keywords were identified and summarized to illustrate the group data.

5. Results and discussions

The data from the focus groups was evaluated in groups to show collective opinions instead of individual thoughts (Stewart & Shamdasani, 2014). The results explored two major types of stress (i.e., emotional and physical) of the EM-CWs (see Tables 2 and 3).

5.1. Emotional stress of EM-CWs

Typically, the emotional stress of EM-CWs often goes unheeded. This is due to the misconception that as EM-CWs are involved in physically demanding tasks in their jobs, their health and performance is associated purely with physical factors such as excessive manual handling, heavy workload, and awkward posture. However, this study highlighted that EM-CWs experience various emotional stress symptoms in their construction industry jobs (see Table 2). All the focus groups identified anger and worry, while the majority of them also described disturbance, tension, and burnout as their emotional stress symptoms. For instance, several members of the focus groups (NSW2, 6; PSW4; PGW4; NGW5) stated that they feel angry and lose their temper because of work burdens, pressure, long working hours, and criticism. It is understandable for people to lose their temper after a hectic job with long working hours, particularly if the tasks do not go well despite their intense effort. Under such stressful situations, criticism from a supervisor can further ignite negative emotions such as the loss of temper, anger, and frustration. The foremen's group also confirmed that their criticism causes anger in EM-CWs (IFM3).

Furthermore, most EM-CWs mentioned that they *worry* due to their minority status, temporary job, economic pressure, children's future, and unsafe work, among other things. For example, a participant (NSW1) stated that "*I am worried about my temporary job status and also worried about finding my next job*" and "*I feel sad and worried when I get targeted at work based on my ethnicity*". Many EM-CWs are worried for their family and children because their families are either in their hometown or even if they are in Hong Kong, they cannot give them enough time to their family. They also worry that their children could also face similar sufferings in the future due to lack of proper guidance (see Table 2). The foremen's group indicated that they too often worry about their expenses and their kids' future (IFM1 & 4). Most of the EM-CWs have large families, which can increase the financial burden and affect their children's educational expenses. The situation is more stressful for those EM-CWs whose families are in their hometown, and they cannot visit them frequently, giving them significant worry for their families and children.

Nervousness and tension were also identified as emotional stress symptoms of EM-CWs (see Table 2). Several focus groups respondents noted that they get nervous, tense, and depressed both at work and outside work. It is understandable that EM-CWs experience many other issues in society, such as discrimination, racism, language barriers, and compatibility problems, which can lead to emotional stress such as *tension*, *nervousness*, and *disappointment*.

In addition, fatigue and burnout were also identified as emotional stress symptoms by the focus group participants. Construction jobs often involve demanding tasks, long working hours, and heavy workloads. Therefore, it is not uncommon for EM-CWs to suffer from emotional fatigue and burnout during work. Their physical and mental energy can be depleted during complicated tasks, and they can feel emotionally drained at the end of the day (NGW3, IGW2). In some cases, EM-CW tasks become exhausting if the workers are unfamiliar with the working norms. A participant indicated that "*at the end of the week, I feel used up and fatigued*" (NSW4). The foremen's group also highlighted that heavy work makes them "*physically tired and leads to mental exhaustion*" (IFM5).

5.2. Physical stress of EM-CWs

EM-CWs are often involved in physically strenuous and demanding tasks on construction sites such as manual handling of materials, tunnel works, and repetitive movements (see Table 3). Under such circumstances, EM-CWs can experience symptoms of physical stress (Nixon et al., 2011). In the current study, *physical exhaustion and tiredness*, *body pain*, *sleep problems*, and *joint pain* were the most commonly identified physical stress symptoms. All the focus groups participants mentioned that their body gets physically tired, exhausted, and fatigued by the end

Table 2. Excerpts of EM-CW emotional stress

Manifestations	Excerpts from the transcripts
Anger	NSW6: I feel ***angry*** because of the work burden and pressure. Sometimes, I ***lose my temper*** *due to criticism and long working hours*. NSW2: I get ***angry*** due to repeated opinions. PSW4: I get ***angry*** when given another task before completing one task. PGW4: Rude behavior *makes me* ***angry***. IFM3: Criticism makes me ***lose temper***. IGW1: Many times, I *feel* ***angry*** when work does not go well and have to listen to the boss. NGW5: It is normal to ***lose temper*** sometimes if something goes wrong or someone repeatedly criticizes the work.
Worry	NSW1: I am ***worried*** about my temporary job status and also ***worried*** *about finding my next job*. NSW1: I feel ***sad*** and ***worried*** when I get targeted at work based on my ethnicity or sometimes *face* ***trouble*** *at work*. PSW8: ***I feel troubled due to a site injury*** or accidents because the company will not *give any vacations and health insurance*. IFM1: Most of the time they ***worry*** about their finance and economic pressure. They ***worry*** about their kids' future. IFM4: They often ***worry*** about their expenses. NGW1: I ***worry*** about my children's future. I am sacrificing family time to earn money and unable to give full time to my children. I fear that if my children suffer then all my earnings and effort become useless.
Disturbance	NSW3: Taunting remarks from the Chinese workers are ***disturbing and irritating*** for me at work. PGW6: I become ***irritated*** *by small things and words*. The salary difference between me and my Chinese partner for same work *makes me disappointed* and sometimes I feel ***disturbed*** by such discrimination. IGW5: I get ***irritated*** *due to the lack of understanding* and difficulty in conversation with others. NGW6: Changing space in the dirty and crowded container is ***irritating*** and ***disturbing***. NSW5: Lack of proper changing rooms and toilet service at sites is ***disturbing and uncomfortable***.
Tension	NSW7: Apart from work there are m*any problems*, *which cause* ***tension and depression***. PSW4: ***Tension*** from work make us uneasy and difficult to relax our mind. PGW4: ***I get nervous*** because of work problems. IGW1: I worry about my future job. I am also afraid ***of job insecurity*** and am ***tense*** to find my next job. I ***am very tense*** about my work and family life, especially about the children. I could not spare time for my children.
Burnout	NGW5: There is a lot of ***stress and tension*** in Hong Kong both at work and outside work. NSW4: At the end of the week, I feel ***used up*** and ***fatigued***. PGW8: *I feel* ***mentally exhausted*** *after a long day task*. Sometimes, *I* feel ***totally messed up*** and *try to leave as early as possible*. IFM2: They lose focus when they get tense and ***emotionally burnt-out***. IFM5: Heavy work makes them physically tired and leads to ***mental exhaustion***.

Note: NSW = Nepali skilled CWs; PSW = Pakistani general CWs; NGW = Nepali general CWs; PGW = Pakistani general CWs; IFM = Foreman; IGW = Indian general CWs.

Table 3. Excerpts of EM-CW physical stress

Manifestations	Excerpts from the transcripts
Physical tiredness	PSW2: I feel ***tired*** after the whole day's work. IFM3: They get ***physically tired*** due to repetitive upward and downward movements and carrying a heavy load. IGW4: When I ***get tired, I feel body pain, back pain,*** and so on. NSW4: Handling cement and concrete causes skin problems. After hectic work, it is normal to feel ***tiredness, fatigue, and exhaustion***.
Body pain	PSW1, 5: My ***muscles and wrists are painful***. PGW4: Sometimes, I feel ***pain in my legs and lower back***. IFM2: When they do a physical hard job, they experience ***pain in the body, joints, and legs.*** IGW2: It is usual to ***get tired and feel pains in joints and legs.*** All work seems heavy and painful. NGW3: I have ***pain in my body, legs, and joints***.
Sleep problem	NSW1: Daytime sleeping is important for me. During night shift duty, I ***cannot sleep in the daytime***. PGW5: Sometimes due to heavy work and ***tiredness, I suffer from sleep problems***.
Headache	PSW2: I have ***headaches and pain*** in other parts of the body. PSW7: I feel pain and have ***headaches*** at work due to machine noise. NSW7: It is normal to suffer from ***headaches*** because of a heavy physical job. IFM4: Usually, complaints from workers are of feeling tired, pain, and ***headaches***.
Allergy	NSW2: ***Skin problems***, ***itching, and allergy*** often occur. PGW5: Dust creates ***breathing and allergy problems***. NGW4: I suffer from a ***skin disease*** because of working on the sites.
High blood pressure	NGW2: I am old now and suffering from various diseases such as ***high blood pressure, cardiac problems, and diabetes***.

Note: abbreviations refer to Table 1.

of the day. For instance, participants stated, "*after hectic work, it is normal to feel tiredness, fatigue, and exhaustion*" (NSW4) and "*when I get tired, I feel body pain, back pain and so on*" (IGW4). The foremen's group also confirmed that they get "*physically tired due to repetitive upward and downward movements of carrying heavy loads*" (IFM3). It is interesting to note that many EM-CWs think that physical tiredness is normal in their work (NSW7, NGW3 & 5). The constant use of muscles in pushing, pulling, and repetitive work in construction sites leads to increased muscle and body strength and an ability to handle heavy work.

EM-CWs mentioned that they feel pain in the body, muscles, and joints after work (see Table 3). For example, one participant stated that "*many times, I feel tired and have body pain, especially after operation of drill machines weighing 35–40 kg. Sometimes, it gets stuck inside the stone, and I need to give it a lot of exertion, which leads to pain in my back, wrists, and entire body*" (IGW1). Several focus group participants (PSW1, 5 & 8, NGW3, PGW2) pointed out that their *muscles, wrists, lower back, and joints are painful due to heavy work*. In construction tasks, EM-CWs need to work in awkward postures and to adjust their body against different external forces, such as applying additional pressure on the shoulder and legs to pull bamboo for scaffolding or working with heavy metals. Continuous adjustment of the body without adequate breaks may result in physical stress symptoms such as body pain.

5.3. Coping behaviors of EM-CWs

The results explored coping behavior in three major aspects: (1) problem-focused coping, (2) emotion-focused coping, and (3) religious-focused coping (see Tables 4, 5, and 6).

5.3.1. Problem-focused coping

Contrary to native construction workers (Liang et al., 2021), this study identified that EM-CWs tend to adopt planned problem-solving in fixing their problems at work. EM-CWs mentioned three strategies, including *dealing with a problem*, *planning with colleagues*, and *self-compromise* in their work issues (see Table 4). Construction work can have complicated problems, requiring an immediate on-site solution. In some situations, workers have to solve the problems without relying on others. Several focus groups, including the NSW, PGW, NGW, and IFM groups pointed out that sometimes they try to solve problems by themselves. Such as a participant stated, "*there are many situations encountered in construction work where in some new concepts are required to solve the problem by ourselves with a different approach*" (NGW5). On the other hand, many tasks in construction cannot be executed by individual workers but require teamwork as well as planning. One participant expressed that "*I usually try to discuss and plan with my colleagues in a team*" (NSW2). It is interesting to note that

Table 4. Excerpts of EM-CW problem-focused coping behaviors

Coping Behaviors	Manifestations	Excerpts from the transcripts
Planned problem-solving	Deal with problem	NSW4: When I face a problem, it is better for me to ***fix by myself,*** which is also good for my performance. PGW1: The difficult task teaches me new skills when I try to ***solve problems by myself***. It is a learning curve for me. IFM2: Some workers ***try to solve the problem by themselves***. NGW5: There are many situations encountered in construction work where ***new concepts are required to solve the problem by ourselves*** with a different approach. NGW3: I have to ***solve my problem by myself*** such as if I get tired and need rest then I go to the toilet or go for drinking water so I can get few moments rest.
	Planning with colleagues	PSW8: I try to solve problems through ***managing skills*** and ***handle*** my job pressure through ***time management*** and ***planning skills***. NSW2: I usually try to discuss and ***plan with my colleagues*** in a team. PGW6: Whenever I encounter any mishap and misconduct, I *try to* ***control myself*** *and remain patient*. PSW8: At the site, I ***bear all the sufferings*** to suppress my impulsive reaction.
	Self-compromise	
Seeking instrumental support	Seek help from seniors	NSW2: I usually *try to* ***get help from a supervisor*** and friends when I am stuck in my work. NSW7: In the complex and major tasks, I ***ask for help*** from my ***supervisors***. PGW6: I ***seek supervisor help*** when I do not understand my tasks. IFM3: When they face a problem in a task, they ***have to seek us for help***. IGW2: Most of the time, I ***seek help from the seniors*** who are familiar with the work.
	Seek help from friends	PSW1: I have a ***support system from friends*** in tough times, specially at work. PGW8: I *get* ***support from friends*** to solve the problem at work and to find the jobs. IFM2: Some workers ***solve the problem through discussions with colleagues***. IGW4: My friends are very supportive in every situation. *I* ***get support from friends*** at work. NGW2: Sometimes, I ***seek help from a friend*** to solve the problems.
Cognitive appraisal	Positive reappraisal	NSW3: Whenever I face any difficulty at work, I start ***to think about my family.*** Especially about my daughter and old mother, which gives me strength to bear the situation and bring ***positive thinking to my mind to solve the problems***. NSW2: I try to *divert my* ***thinking.***

Note: abbreviations refer to Table 1.

as a minority group, they are aiming to compromise at work. Due to his low status and power, he prefers to stay silent on many unjust issues, such as agreeing to work on low wages, unsafe conditions, and bullying. In a foreign country, they can feel insecure at work and often have to suffer to keep themselves in a job.

The tasks in construction projects are complex, difficult, and time-driven, and instrumental assistance is often required to execute the tasks. Sometimes, EM-CWs face technical problems they are unable to handle by themselves. In such circumstances they need assistance from experienced seniors and supervisors. The current study also identified that most of the EM-CWs seek instrumental support during tasks. Several focus groups participants expressed that in complex and major tasks, they seek help from supervisors and seniors, as technical advice, and peer feedback can help to solve problems more efficiently. Additionally, they often work as a group to finish a task. When facing an issue, they seek help from their colleagues and friends, as indicated by comments such as "*I get support from a friend to solve the problem at work*" (PGW8). The foremen's group also confirmed that some workers solve the problem through discussion with colleagues (IFM2). In some multinational companies, the EM-CWs are grouped into the same team to enable help-seeking behavior between senior and junior EM-CWs. Although EM-CWs have limited authority and resources to improve hostile conditions at work, they can still divert their thoughts in a positive way. Most of the problem at the construction sites are not in their control, and this can enable them to adopt positive reappraisal.

5.3.2. Emotion-focused coping

This study identified that obtaining emotional support from friends and family was one of the most common coping behaviors adopted by EM-CWs. All the focus groups mentioned that they shared their feelings with their friends and family to reduce their stress (see Table 5). Specifically, several participants stated, "*I share my feelings about my work issues with friends and family*" (NSW4, PGW4), and "*I get family and friends' help in a stressful situation*" (NSW7). For EM-CWs, sources of emotional support can also come from host-country colleagues, peers, and friends (Chib et al., 2013). In a foreign country, EM-CWs

Table 5. Excerpts of EM-CW emotion-focused coping behaviors

Coping Behaviors	Manifestations	Excerpts from the transcripts
Seeking emotional support	Seek support from friend and family	NSW4, PGW4: I ***share my feelings*** about my work issues with friends and family. NSW7: I ***get family and friends' help*** in a stressful situation. PSW7: ***We share feelings*** and problems among friends. PSW9: I ***shared my problems*** with friends to relieve my stress. IGW3: We ***talk with each other*** and ***share feelings with friends***. NGW1: I feel relaxed by ***talking with each other and friends***. NGW4: ***Sharing my problems with others, I feel easy*** and lighthearted. IFM2: In most of the issues, they ***talk with each other*** and ***share with friends***.
	Spend time with friends and family	NSW2: Whenever I face any difficulty and trouble in life, I usually ***go with friends to relieve my stress***. NSW3: ***I spend time with family,*** particularly with my daughter to relieve my job stress.
Emotional discharge	Smoking	PSW8: To relieve stress most of us ***smoke***. Although this is temporary relief, it gives solace for 7 to 8 minutes. PGW8: I ***smoke*** to relieve my stress. PGW6: Joblessness leads to different activities like ***smoking, drinking,*** and so on. IFM1: EM workers take a lot of breaks ***for smoking***.
	Drink alcohol	NGW6: When I get stressed, I ***take beer or drink alcohol*** to relax myself. NSW7: Most often I ***drink alcohol*** and watch movies. IFM3: Some of EM-CWs ***drink alcohol*** to relieve their pressures.
	Sports	NSW2: I ***play games*** and go to hangouts to relieve the stress. PGW7: I ***play hockey*** to enjoy and refresh my mind. Sometimes, I go to the gym *for* ***exercise***. IFM1, 3: They ***play video games*** to relax and forget the difficulties and stress.
	Outing	PSW4: I ***take rest*** to relieve my work pressure. IGW2: Whenever I get frustrated, I ***arrange a get together among friends*** and ***outings once a week to relax***. NGW5: ***I go out for dinner with family*** and ***play with the children,*** which gives peace to my heart and mind. IGW2: I ***dance*** to relax from the work stress at weekends.
Escapism	Avoid situations	NSW4: Whenever my ***mode is off,*** I ***keep quiet, get aside*** and try to do my own work. PGW2: The company *does not care about our health.* In order to get some rest, I ***spend more time in the washroom***. NGW1: The best solution of the problems at work and the stress is to ***quit the job*** and stay at home, or otherwise to ***accept all these issues.*** IFM3: Generally, they ***avoid the supervisor*** to get their work done and to avoid criticism.

Note: abbreviations refer to Table 1.

usually have limited social networks for emotional support, and therefore, friends can play an important role in regulating their emotional distress. In addition, spending time with the family also relieves EM-CWs' stress, although this may not be the case for workers whose families live in their hometowns. Moreover, cultural differences between the EM-CWs and their native colleagues may hamper them in seeking help from coworkers and peers. Hence, EM-CWs are inclined to seek emotional support largely from their shared-ethnicity friends and family.

In addition to seeking emotional support, the current study identified various emotional discharge behaviors among EM-CWs, including sport exercise, smoking, listening to music, eating, and drinking alcohol to cope with their stress (see Table 5). Among these emotional discharge behaviors, smoking was the most common in a majority of EM-CWs groups. The PSW, PGW, and IFM groups indicated that they smoked to relieve stress. Past studies have also mentioned that ethnic minority groups are more likely to engage in unhealthy behaviors such as smoking, drinking alcohol, and illegal sexual activities to relieve stress (Cooper & Quick, 2017). The current study also found that some EM-CWs adopt maladaptive coping behaviors, such as, a participant said that "*when I get stressed*, *I take beer or drink alcohol to relax myself*" (NGW6). However, many EM-CWs adopt healthy activities such as playing sports, exercising, going on an outing, and resting to relieve stress (PGW7, IGW2, PSW4, IFM1 & 3). After physically demanding work in the construction industry, such healthy activities can help EM-CWs to refresh their minds and body, which is important in maintaining sound physical and mental health.

The study also highlighted the adoption of escapism behavior amongst EM-CWs in order to minimize their difficulties (see Table 5). EM-CWs also exercise escapism in ways such as ignoring tasks, wasting time in the washroom, quitting the job, and avoiding supervisors to reduce stress (PGW2, NGW1). This indicates that over-stress for EM-CWs can lead to escapism. For instance, EM-CWs may lose their temper due to discrimination, but their minority status makes them powerless, a situation they wish to escape from to relieve their emotions. When EM-CWs experience too much pressure on the job, they become tense and try to escape from the stressful situation by leaving.

5.3.3. Religious-focused coping

Unlike native construction workers, most of the EM-CWs are religious, and their religion plays a vital role in coping with stress. Many features of religion are powerfully associated with physical and psychological well-being in daily life, particularly in coping with hardship and difficulties (Park, 2005). It is interesting that this study identified the adoption of different religious coping behaviors among EM-CWs to minimize their stress. Of the different religious coping practices discussed (i.e., *religious practice*, *service*, and *meditation*; see Table 6), religious practice was the most common among EM-CWs. In particular, the PSW, PGW, and IGW group participants felt that "*prayer is another good way to relieve my stress*". One participant mentioned that "*when all hope is finished and there is no way to come out from the situation*, *I start praying and seek God's help*" (PGW1). It is recognized that most South Asians are religious and often seek inner peace and power through religious practices (Bhandari & Kim, 2016). Furthermore, some EM-CWs believe that participation in the services of mankind and their religious activities give peace of mind (PSW3, PGW1). Engagement in generous actions (e.g., charitable activities, volunteering, meal distribution, and blood donation) can boost positive emotions and enhance happiness. Meditation was also practiced by IGW and NGW groups to minimize their stress. For instance, as one participant said, "*I do meditation and feel relaxed and forg*et al. *life's worries*" (IGW4). One of the Nepali Buddhist workers also mentioned that "*I perform worship and meditation*, *which provides me comfort. I feel better after doing mindfulness*" (NSW6).

6. Recommendations

6.1. Practical implications

In the current study, physical tiredness is the most widely reported symptom of physical stress for EM-CWs. Often EM-CWs rely on their previous work styles, which may delay their tasks and exacerbate the physical exhaustion. In order to reduce physical tiredness in their tasks, it is suggested that construction companies teach EM-CWs the most appropriate and simplest ways to complete their tasks. Organizations should also initiate time manage-

Table 6. Excerpts of EM-CW Religious-focused coping behaviors

Coping Behaviors	Manifestations	Excerpts from the transcripts
Religious-focused coping	Religious practice	PSW9: ***Prayer*** is another *good way to relieve my stress*. PGW1: When all hope is finished and there is no way to come out from the *situation*, *I* ***start praying,*** and ***seek God's help***. IGW1: When I ***sit for God's help,*** I feel I am getting pure and inner strength. IFM1: Sometimes, Muslim workers want to ***pray at the sites***.
	Religious service	PSW3: I *feel inner comfort* when I ***help someone in seeking God's happiness***. PGW1: I believe that my God is seeing my kind deeds and for His pleasure, I ***serve other people and religious places during my free time***.
	Meditation	IGW4: I ***do meditation*** and feel relaxed and forget al. life's worries. NSW6: I perform ***worship and meditation***, which provides me ***comfort***. I feel better after doing ***mindfulness***.

Note: abbreviations refer to Table 1.

ment training for EM-CWs, which can result in high returns through improved labor productivity. It is also important for EM-CWs to be persuaded to change their attitudes and perceptions in order to adjust to the efficient working environment of Hong Kong. Moreover, they *should also be advised to learn new techniques for using advance construction equipment and time management skills through available training and online resources*. This would enable them to allocate an appropriate amount of time to particular tasks, to complete difficult tasks with diligence and care, and to take action rather than procrastinate, thus minimizing the physical tiredness at work.

Seeking emotional support was mentioned by all the focus group, although this depends on the cultural setting. In some cultures, sharing feelings with others is appreciated, whereas other cultures keep emotions and feelings secret and do not share them with others (Thomson et al., 2015; Vandan et al., 2019). Therefore, it is necessary to consider the specific cultural contexts for understanding EM-CWs stress management strategies. To reduce any stigma, the management team could establish trust by creating a comfortable space where workers can open up and share their feelings of stress. This would enable a feeling of involvement, respect, and recognition of cultural values to allow emotion sharing behavior. EM-CWs should be open minded in entering the social circle of local colleagues as well as learning the local language to enhance social support. EM-CWs should also be encouraged to participate in various volunteer programs such as a cleanup drive, fundraising events, provision of relief goods to the needy to improve social connections and interactions.

Religious-focused coping was also identified as an important coping behavior for EM-CWs. It is recommended that construction companies consider the religious activities of EM-CWs. For instance, Muslim workers need to be able to offer prayers during working hours in a clean and quiet place. Similarly, other religious workers need quiet places to engage in religious practices. Therefore, companies are advised to respect and facilitate EM-CWs' religious practices on construction sites through the provision of a quiet room, a proper clean toilet system, adequate time slots (i.e., 5 to 10 minutes break) for prayers, work shifts during fasting, and so on. Encouragement and respect for the workers' religions can increase their spirituality and alleviate their stress. EM-CWs should also discuss with their supervisor ways of compromising to balance the work schedule and their religious practices on construction sites. In addition, introduction of mindfulness programs (i.e., mindfulness-based stress reduction workshops) in the construction industry would be beneficial for EM-CWs and other workers to alleviate stress and improve performance.

6.2. Limitation and future studies

The study focuses on identifying the stress management factors of EM-CWs in Hong Kong. To establish an effective and holistic stress management model for EM-CWs, other aspects involving organizational support (e.g., career, supervisor, financial, and adjustment support), and performance (e.g., task, interpersonal, organizational, and safety performance) of EM-CWs should be considered. Hence, this study has laid the basis for the establishment of an integrated stress management model for EM-CWs.

The study used a qualitative method to identify stress management factors of EM-CWs, which is valuable for future stress management studies. The findings of this study set out the foundation for developing measurement scales for quantitative research. It is suggested that the complex associations among explored stress management factors in predicting the performance of EM-CWs are examined. Furthermore, in order to validate the stress management mode of EM-CWs in real construction projects, it is recommended that future research conduct longitudinal case studies. Overall, this study makes a valuable contribution to the body of knowledge in developing the base for further research and in progressing current industrial practice.

The current study focused only on the three dominant ethnic minority communities (i.e., Pakistani, Nepali, and Indian) that make up the highest ethnic minority proportion in the construction industry (Census and Statistics Department, 2016; Chan et al., 2017a). Additionally, ethnic minorities from Thailand, the Philippines, Bangladesh, and Nigeria account for a low percentage of the ethnic minority workers in the construction industry, and these minority groups may adopt different types of coping behaviors. Hence, it is suggested that future studies identify stress symptoms and coping behaviors of EM-CWs from various other countries. Further research could also compare stress management factors among different ethnic minority groups. The findings of this study not only make valuable recommendations for EM-CWs but also provide insights to better understand the coping behaviors of EM-CWs.

7. Conclusions

This study, which adopted the focus group research method, explored two kinds of stress –emotional and physical stress. In addition, three major types of coping behaviors were identified: problem-focused (i.e., planned problem-solving, seeking instrumental support, and cognitive reappraisal); emotion-focused (i.e., seeking emotional support, emotional discharge, and escapism); and religious-focused (i.e., religious practice, religious service, and meditation). Overall, these findings of this research made valuable contribution to theory and industry. It will contribute to project success and industry profitability. The identified stress and coping behaviors related to EM-CWs definitely add to the body of knowledge and theory establishment for developing an effective stress management approach for EM-CWs in the challenging construction condition. Furthermore, the findings act as a foundation to design a measurement instrument to examine the relationships of various stress and coping behaviors of EM-CWs.

In order to reduce stress, improve coping behaviors and subsequently performance, a number of practical recommendations are made to organizations, such as starting time management training for EM-CWs, teaching EM-CWs the simplest ways to complete their tasks, considering the needs of mental health in the construction industry, recognizing the particular cultural contexts of EM-CWs in their stress management strategies, creating a comfortable space for EM-CWs to share their feelings, arranging healthy activities to encourage relief of stress, respecting and facilitating religious practices on construction sites. In additions, EM-CWs are also suggested to change their attitude to adjusting to life in Hong Kong, advise to join the social networks of local colleagues, learn the local language to enhance social support, discuss to their supervisors for appropriate management of their tasks and religious practices, and introducing mindfulness activities in the construction industry.

References

Ahmed, K., Leung, M. Y., & Ojo, L. D. (2022). An exploratory study to identify key stressors of ethnic minority workers in the construction industry. *Journal of Construction Engineering and Management*, *148*(5), Article 04022014. https://doi.org/10.1061/(ASCE)CO.1943-7862.0002261

Bhandari, P., & Kim, M. (2016). Predictors of the health-promoting behaviors of Nepalese migrant workers. *Journal of Nursing Research*, *24*(3), 232–239. https://doi.org/10.1097/jnr.0000000000000120

Census and Statistics Department. (2011). *Thematic report: Ethnic minorities. Population by-census*. http://censtatd.gov.hk

Census and Statistics Department. (2016). *Thematic report: Ethnic minorities. Hong Kong*. http://censtatd.gov.hk

Chan, A. P., Javed, A. A., Wong, F. K., Hon, C. K., & Lyu, S. (2017a). Evaluating the safety climate of ethnic minority construction workers in Hong Kong. *Journal of Professional Issues in Engineering Education and Practice*, *143*(4), Article 04017006. https://doi.org/10.1061/(ASCE)EI.1943-5541.0000333

Chan, A. P., Wong, F. K., Hon, C. K., Lyu, S., & Javed, A. A. (2017b). Investigating ethnic minorities' perceptions of safety climate in the construction industry. *Journal of Safety Research*, *63*, 9–19. https://doi.org/10.1016/j.jsr.2017.08.006

Chib, A., Wilkin, H. A., & Hua, S. R. M. (2013). International migrant workers' use of mobile phones to seek social support in Singapore. *Information Technologies and International Development*, *9*(4), 19–34.

Conchie, S. M., Moon, S., & Duncan, M. (2013). Supervisors' engagement in safety leadership: Factors that help and hinder. *Safety Science*, *51*(1), 109–117. https://doi.org/10.1016/j.ssci.2012.05.020

Cooper, C. L., & Quick, J. C. (2017). *The handbook of stress and health: A guide to research and practice*. John Wiley and Sons. https://doi.org/10.1002/9781118993811

Department of Immigration and Citizenship. (2009). *Population flows: Immigration aspects 2008–2009*.

Devkota, H. R., Bhandari, B., & Adhikary, P. (2021) Perceived mental health, wellbeing and associated factors among Nepali male migrant and non-migrant workers: A qualitative study. *Journal of Migration and Health*, *3*, Article 100013. https://doi.org/10.1016/j.jmh.2020.100013

Elbashbishy, T., & El-adaway, I. H. (2024). Skilled worker shortage across key labor-intensive construction trades in union versus nonunion environments. *Journal of Management in Engineering*, *40*(1), Article 04023063. https://doi.org/10.1061/JMENEA.MEENG-5649

Farley, T., Galves, A. L., Dickinson, L. M., & Perez, M. D. J. D. (2005). Stress, coping, and health: a comparison of Mexican immigrants, Mexican-Americans, and non-Hispanic whites. *Journal of Immigrant Health*, *7*(3), 213–220. https://doi.org/10.1007/s10903-005-3678-5

Folkman, S. (2010) Stress, coping, and hope. *Psycho-Oncology*, *19*(9), 901–908. https://doi.org/10.1002/pon.1836

Ganster, D. C., & Rosen, C. C. (2013). Work stress and employee health: A multidisciplinary review. *Journal of Management*, *39*(5), 1085–1122. https://doi.org/10.1177/0149206313475815

Han, Y., & Wang, L. (2018). Identifying barriers to off-site construction using grey DEMATEL approach: case of China. *Journal of Civil Engineering and Management*, *24*(5), 364–377. https://doi.org/10.3846/jcem.2018.5181

Hill, P. C., & Pargament, K. I. (2003). Advances in the conceptualization and measurement of religion and spirituality: Implications for physical and mental health research. *American Psychologist*, *58*(1), 64–74. https://doi.org/10.1037/0003-066X.58.1.64

Ho, P. H. (2016). Labour and skill shortages in Hong Kong's construction industry. *Engineering, Construction and Architectural Management*, *23*(4), 533–550. https://doi.org/10.1108/ECAM-12-2014-0165

Hughes, D. L., & DuMont, K. (1993). Using focus groups to facilitate culturally anchored research. *American Journal of Community Psychology*, *21*(6), 775–806. https://doi.org/10.1007/BF00942247

International Labour Organization. (2020). *Developing the construction industry for employment-intensive infrastructure investments*.

Kim, J. M., Son, K., Yum, S. G., & Ahn, S. (2020). Analyzing the risk of safety accidents: The relative risks of migrant workers in construction industry. *Sustainability*, *12*(13), Article 5430. https://doi.org/10.3390/su12135430

Kronfol, Z., Saleh, M., & Al-Ghafry, M. (2014). Mental health issues among migrant workers in Gulf Cooperation Council countries: literature review and case illustrations. *Asian Journal of Psychiatry*, *10*, 109–113. https://doi.org/10.1016/j.ajp.2014.03.003

Kruger, L. J., Rodgers, R. F., Long, S. J., & Lowy, A. S. (2019). Individual interviews or focus groups? Interview format and women's self-disclosure. *International Journal of Social Research Methodology*, *22*(3), 245–255. https://doi.org/10.1080/13645579.2018.1518857

Kwan, C. K., Baig, R. B., & Lo, K. C. (2018). Stressors and coping strategies of ethnic minority youth: Youth and mental health practitioners' perspectives. *Children and Youth Services Review*, *88*, 497–503. https://doi.org/10.1016/j.childyouth.2018.04.002

Langdon, R. R., & Sawang, S. (2018). Construction workers' well-being: What leads to depression, anxiety, and stress?. *Journal of Construction Engineering and Management*, *144*(2), Article 04017100. https://doi.org/10.1061/(ASCE)CO.1943-7862.0001406

Lazarus, R. S., & Folkman, S. (1984). Coping and adaptation. In W. D. Gentry (Ed.), *The handbook of behavioral medicine* (pp. 282–325). New York: Guilford.

Lerner, D., Adler, D., Shayani, A., & Rogers, W. H. (2021). Research on the Tufts be well at work program for employees with depression: 2005–2020. *Psychiatric Services*, *72*(12), 1441–1450. https://doi.org/10.1176/appi.ps.202000762

Leung, M. Y., Liu, A. M., & Wong, M. M. K. (2006). Impact of stress-coping behaviour on estimation performance. *Construction Management and Economics*, *24*(1), 55–67. https://doi.org/10.1080/01446190500228381

Leung, M., Chan, Y., & Olomolaiye, P. (2008). Impact of stress on the performance of construction project managers. *Journal of Construction Engineering and Management*, *134*(8), 644–652. https://doi.org/10.1061/(ASCE)0733-9364(2008)134:8(644)

Leung, M. Y., Yu, J., & Chan, Y. S. (2014). Focus group study to explore critical factors of public engagement process for mega development projects. *Journal of Construction Engineering and Management*, *140*(3), Article 04013061. https://doi.org/10.1061/(ASCE)CO.1943-7862.0000815

Leung, M. Y., Chan, I. Y. S., & Cooper, C. (2015). *Stress management in the construction industry*. New York, US: Wiley. https://doi.org/10.1002/9781118456361

Liang, Q., Leung, M. Y., & Ahmed, K. (2021). How adoption of coping behaviors determines construction workers' safety: A quantitative and qualitative investigation. *Safety Science*, *133*, Article 105035. https://doi.org/10.1016/j.ssci.2020.105035

Liang, Q., Zhou, Z., Li, X., Hu, Q., & Ye, G. (2022). Revealing the mechanism of stress generation for construction frontline professionals through development of structural stressors–coping–stress models. *Safety Science*, *150*, Article 105708. https://doi.org/10.1016/j.ssci.2022.105708

Liu, Q., Feng, Y., London, K., & Zhang, P. (2023). Coping strategies for work and cultural stressors in multicultural construction workplaces: a study in Australia. *Construction Management and Economics*, *41*(7), 537–553. https://doi.org/10.1080/01446193.2023.2171450

Lyu, S., Hon, C. K., Chan, A. P., Javed, A. A., Zhang, R. P., & Wong, F. K. (2020). An exploratory study of safety communication networks of ethnic minority crews in the Hong Kong construction industry. *Engineering, Construction and Architectural Management*, *28*(4), 1156–1175. https://doi.org/10.1108/ECAM-07-2019-0368

Lyu, S., Hon, C. K., Chan, A. P., Jiang, X., & Skitmore, M. (2023). Critical factors affecting the safety communication of ethnic minority construction workers. *Journal of Construction Engineering and Management*, *149*(2), Article 04022173. https://doi.org/10.1061/JCEMD4.COENG-12680

Mellner, C., Krantz, G., & Lundberg, U. (2005). Medically unexplained symptoms in women as related to physiological stress responses. *Stress and Health: Journal of International Society for the Investigation of Stress*, *21*(1), 45–52. https://doi.org/10.1002/smi.1037

Mirza, A., Birtel, M. D., Pyle, M., & Morrison, A. P. (2019). Cultural differences in psychosis: The role of causal beliefs and stigma in White British and South Asians. *Journal of Cross-Cultural Psychology*, *50*(3), 441–459. https://doi.org/10.1177/0022022118820168

Morgen, D. L., & Krueger, R. A. (1998). *The focus group kit.* Thousand Oaks, CA: SAGE.

Mucci, N., Traversini, V., Giorgi, G., Tommasi, E., De Sio, S., & Arcangeli, G. (2019). Migrant workers and psychological health: A systematic review. *Sustainability*, *12*(1), Article 120. https://doi.org/10.3390/su12010120

Nguyen, D. V. M., Vu, A. T., Ross, V., Brijs, T., Wets, G., & Brijs, K. (2021). Small-displacement motorcycle crashes and risky ridership in Vietnam: Findings from a focus group and in-depth interview study. *Safety Science*, *152*, Article 105514. https://doi.org/10.1016/j.ssci.2021.105514

Nixon, A. E., Mazzola J. J., Bauer J., Krueger J. R., & Spector, P. E. (2011). Can work make you sick? A meta-analysis of relationships between job stressors and physical symptoms. *Work and Stress*, *25*, 1–22. https://doi.org/10.1080/02678373.2011.569175

Noor, N. M., & Shaker, M. N. (2017). Perceived workplace discrimination, coping and psychological distress among unskilled Indonesian migrant workers in Malaysia. *International Journal of Intercultural Relations*, *57*, 19–29. https://doi.org/10.1016/j.ijintrel.2017.01.004

Nwaogu, J. M., Chan, A. P. C., & Naslund, J. A. (2022). Measures to improve the mental health of construction personnel based on expert opinions. *Journal of Management in Engineering*, *38*(4), Article 04022019. https://doi.org/10.1061/(ASCE)ME.1943-5479.0001045

Owolabi, H. A., Oyedele, L. O., Alaka, H. A., Ajayi, S. O., Akinade, O. O., & Bilal, M. (2020). Critical success factors for ensuring bankable completion risk in PFI/PPP megaprojects. *Journal of Management in Engineering*, *36*(1), Article 04019032. https://doi.org/10.1061/(ASCE)ME.1943-5479.0000717

Oswald, D., Sherratt, F., Smith, S. D., & Hallowell, M. R. (2018). Exploring safety management challenges for multi-national construction workforces: a UK case study. *Construction Management and Economics*, *36*, 291–301. https://doi.org/10.1080/01446193.2017.1390242

Palaniappan, K., Natarajan, R., & Dasgupta, C. (2023). Prevalence and risk factors for depression, anxiety and stress among foreign construction workers in Singapore–a cross-sectional study. *International Journal of Construction Management*, *23*(14), 2479–2487. https://doi.org/10.1080/15623599.2022.2070343

Park, C. L. (2005). Religion as a meaning-making framework in coping with life stress. *Journal of Social Issues*, *61*(4), 707–729. https://doi.org/10.1111/j.1540-4560.2005.00428.x

Shepherd, R., Lorente, L., Vignoli, M., Nielsen, K., & Peiró, J. M. (2021). Challenges influencing the safety of migrant workers in the construction industry: A qualitative study in Italy, Spain, and the UK. *Safety Science*, *142*, Article 105388. https://doi.org/10.1016/j.ssci.2021.105388

Statista. (2020). *Number of foreign construction workers employed in Singapore from 2013 to 2019*. https://www.statista.com/statistics/1054354/singapore-foreign-construction-workers-employed/

Sutherland, V., & Cooper, C. (2000). *Strategic stress management: An organizational approach*. Springer. https://doi.org/10.1057/9780230509146

Teteh, D. K., Lee, J. W., Montgomery, S. B., & Wilson, C. M. (2020). Working together with God: Religious coping, perceived discrimination, and hypertension. *Journal of Religion and Health*, *59*, 40–58. https://doi.org/10.1007/s10943-019-00822-w

The Chartered Instituted of Building. (2020). *Understanding mental health in the build environment*. https://policy.ciob.org/wp-content/uploads/2020/05/Understanding-Mental-Health-in-the-Built-Environment-May-2020-1.pdf

Thomson, M. S., Chaze, F., George, U., & Guruge, S. (2015). Improving immigrant populations' access to mental health services in Canada: a review of barriers and recommendations. *Journal of Immigrant and Minority Health*, *17*(6),1895–1905. https://doi.org/10.1007/s10903-015-0175-3

Timlin-Scalera, R. M., Ponterotto, J. G., Blumberg, F. C., & Jackson, M. A. (2003). A grounded theory study of help-seeking behaviors among White male high school students. *Journal of Counseling Psychology*, *50*(3), 339–350. https://doi.org/10.1037/0022-0167.50.3.339

Tirth, V., Wagale, M., Singh, A. P., Sarkar, A. K., Singh, R. K., Algahtani, A., & Islam, S. (2021). Investigating the adverse

impacts of rural roads using a fuzzy multicriteria approach. *Journal of Civil Engineering and Management*, *27*(6), 441–453. https://doi.org/10.3846/jcem.2021.15264

Vaismoradi, M., Turunen, H., & Bondas, T. (2013). Content analysis and thematic analysis: Implications for conducting a qualitative descriptive study. *Nursing & Health Sciences*, *15*(3), 398–405. https://doi.org/10.1111/nhs.12048

Vandan, N., Wong, J. Y. H., & Fong, D. Y. T. (2019). Accessing health care: Experiences of South Asian ethnic minority women in Hong Kong. *Nursing and Health Sciences*, *21*(1), 93–101. https://doi.org/10.1111/nhs.12564

Wong, J. K. W., & Lin, A. H. (2014). Construction workplace discrimination: Experiences of ethnic minority operatives in Hong Kong construction sites. *Engineering, Construction and Architectural Management*, *21*(4), 403–420. https://doi.org/10.1108/ECAM-09-2013-0082

Wu, C., Luo, X., Wang, T., Wang, Y., & Sapkota, B. (2020). Safety challenges and improvement strategies of ethnic minority construction workers: A case study in Hong Kong. *International Journal of Occupational Safety and Ergonomics*, *26*(1), 80–90. https://doi.org/10.1080/10803548.2018.1466508