

Stressors in the multicultural construction working environment

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Abstract. Due to the dynamic and complex nature of the construction industry, construction workers are often exposed to a range of stressors which are causative factors for mental health problems. Simultaneously, intercultural contact between workers in a multicultural working environment may aggravate mental health issues. A better understanding of stressors can contribute to the development of targeted measures for mental health prevention and promotion. Therefore, this study aims to investigate the correlation between stressors and mental health for construction workers in a culturally diverse working environment. Data were collected using questionnaires from 252 construction workers in Australia. The Pearson correlation analysis was used to analyse the collected data. The results revealed the significant correlations between stressors and mental health outcomes and indicated the most significant stressors from work, personal and cultural domains. The findings provide valuable insights for practitioners and policymakers on the development of mental health interventions for construction workforce in a multicultural context. Researchers could also benefit from an in-depth comprehension on the causative factors of psychological issues in the construction industry.

1. Introduction

The construction industry has been recognized as a stressful working environment. Construction personnel have suffered from a variety of mental health problems including depression, anxiety and stress [1]. Meanwhile, a growing trend of workforce diversity has emerged in the organizational life [2], which leads to complicated demands as to adapt to the new needs and backgrounds of the workforce [3]. Particularly, in a culturally diverse context, the continuous first-hand contact between people within different cultural backgrounds may generate numerous conflicts [4]. These cultural-related risk factors could cause severe mental illnesses if not handled appropriately [5]. Thus, it is imperative to examine mental health issues of construction workers in a multicultural working environment.

Stressors jeopardize the safety and health of a construction project [6]. Identifying the crucial stressors can contribute to the understanding of mental health issues and development of intervention programs. A number of stressors have been identified in the construction industry. However, current studies have mainly focused on the work-related stressors. Other pivotal factors have been less explored [7], especially in a multicultural construction working environment. The relationships between major stressors and mental health outcomes in a culturally diverse construction workplace remain unknown. Against this background, this study aims to investigate the correlations between stressors and mental



health outcomes and identify the key sources of mental health problems for construction workers in a multicultural working environment.

2. Literature review and hypotheses

Stressors refer to the events producing immoderate and unpleasant demands on the person [8]. The transactional theory of stress and coping postulates that psychological outcomes are determined by the transactions between personal and situational factors [9]. Similarly, the occupational stress model of Cooper and Marshall [10] indicates that the potential sources of stress in the workplace and outside the organization both have critical influences on a person's mental health. Thus, identifying the key stressors is essential for mental health management. Based on the literature in the construction sector, this study identified three major types of stressors including work-related stressors, personal-related stressors and cultural-related stressors in a multicultural construction workplace.

2.1. Work-related stressors

Work-related stressors are the risk factors related to a specific field of work. Five work-related stressors have been identified in the occupational stress model, containing factors intrinsic to a job, role in organisation, career development, relationships at work, and organisational structure and climate [10]. The stressors in this model well present the major occupational stressors in the construction industry. Construction work features high-demanding tasks, heavy workload and long work time. These characteristics may make workers feel less secure for their job and future development. The complicated work requirements may also cause role ambiguity and conflict for workers [11]. Previous studies indicated that the intrinsic nature of construction industry, the ambiguous and conflict roles, and job insecurity were associated with mental health problems [12, 13]. Moreover, the poor working relationship and organizational structure were found to be crucial antecedents of occupational stress [14]. Based on existing literature, the following hypothesis is proposed:

- H1. Work-related stressors negatively impact on mental health of construction workers.

2.2. Personal-related stressors

Personal-related stressors are the potential sources of mental ill health emanated from individual characteristics and personal life [15]. Through reviewing literature in the construction sector, four personal-related stressors were identified, namely, type A behaviour pattern, locus of control, family problems and financial difficulties. Research from the psychological field suggested that type A behaviour pattern and locus of control were the top two prevalent personal characteristics linked to mental health problems [16]. Individuals with type A behavior pattern tend to be aggressive, impulsive, impatient and competitive, and were discovered to have a higher level of psychological illness [17]. Locus of control refers to what extent individuals perceive themselves in control of their lives. Individuals who believe their lives are determined by external factors were found to be more inclined to mental ill health [18]. Besides, previous studies in the construction sector discovered that family problems and economic difficulties could lead to mental illnesses such as anxiety and depression [12, 19]. The second hypothesis is thus proposed:

- H2. Personal-related stressors negatively impact on mental health of construction workers.

2.3. Cultural-related stressors

The acculturative stress theory indicates that continuous first-hand contact between people with different cultures may produce cultural-related stressors in a culturally diverse organization [20]. Cultural-related stressors refer to the difficulties and conflicts derived from intercultural contact [21]. Literature from the psychosocial field have revealed that cultural-related stressors play a significant role in generating mental illnesses [22]. Currently, little research in construction have explored the association between mental health and cultural stressors. A few studies revealed the adverse influence of cultural stressors on the health performance of general construction workers [e.g. 13, 23, 24] and ethnic minority

construction workers [e.g. 25]. A prevalence of racial discrimination was discovered among culturally diverse groups in the construction sites [25]. Language barriers were also found to be a crucial health and safety problem for workers [26]. Furthermore, significant cultural differences were disclosed among construction workers from different counties [24]. Based on previous studies, three crucial cultural-related factors were identified in a multicultural construction workplace, including racial discrimination, language barriers, and cultural value conflicts. The third hypothesis is therefore set out:

- H3. Cultural-related stressors negatively impact on mental health of construction workers.

3. Research methodology

Based on the research objective, this study can be recognized as correlational research which aims to explore the relationships between various aspects of a phenomenon [27]. Therefore, a quantitative method and a survey design were adopted to investigate the correlations between constructs.

3.1. Data collection instrument

Based on the hypotheses, the variables to be examined include various stressors and mental health outcomes.

Each of the stressor from work, personal and cultural domains was measured via the measurable scales based on existing literature [e.g. 28, 29, 30]. The five work-related stressors contain factors intrinsic to a job, role in organisation, career development, relationships at work, and organisational structure and climate. Type A behaviour pattern, locus of control, family problems and financial difficulties were evaluated as the personal-related stressors. Cultural-related stressors include racial discrimination, language barriers and cultural value conflicts.

Mental health outcomes were evaluated using the Kessler Psychological Distress Scale (K6). It is a simple measure of psychological distress based on a five-point Likert scale ranging from 0 (None of the time) to 4 (All of the time).

3.2. Sampling and data collection

A pilot study was carried out to verify the questionnaire. Seven experts including 2 researchers in construction mental health management, 2 professionals in construction work health and safety, 2 experienced workers, and 1 mental health expert were invited to the pilot study. They were requested to review the questionnaire and provide comments on the problems of the questionnaire. The final questionnaire survey was modified based on the experts' comments. The unit of analysis of this study is the construction worker. Thus, the construction workers in Australia which features a multicultural working environment were chosen. The questionnaire survey was distributed to 35000 active members in Australia's largest workers' entitlement scheme in the building and construction industry. Respondents who are more than 18 years, having at least one-year onsite working experience, and working with people from different cultures could proceed to the questionnaire survey. After removing the invalid questionnaires, 252 valid responses out of 398 received responses were used to conduct data analysis.

3.3. Data analysis method

The Pearson correlation analysis was conducted to investigate the correlations between stressors and mental health outcomes using SPSS software (version 27.0). Pearson correlation analysis measures the direction and degree of a linear relationship between two variables [31]. It is the most commonly used method of correlation which has been broadly applied in many research fields [32]. The reliability and validity of the data collection instrument were examined before the correlation analysis.

4. Results

4.1. Validity and reliability analysis

Cronbach' alphas was used to test the reliability of the data collection instrument. The Cronbach' alphas of the entire questionnaire is 0.909 (see Table 1), which suggested that the collected data were reliable. KMO and Bartlett's tests were employed to examine the validity of the questionnaire. The KMO test displayed a value of 0.840 and the Bartlett's Test of Sphericity showed a significance level of 0.000 (see Table 2), which indicated that the items were correlated. Thus, the analysis showed a satisfactory level of reliability and validity of the data collection instrument.

Table 1. The reliability test results of the questionnaire.

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
0.909	0.907	51

Table 2. The validity test results of the questionnaire.

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		0.840
Bartlett's Test of Sphericity	Approx. Chi-Square	6118.299
	Df	1275
	Sig.	0.000

4.2. Correlations between stressors and mental health

The collected data were normally distributed. Therefore, the Pearson correlation analysis was conducted to investigate the correlations between the stressors and mental health outcomes. As shown in Table 3, there were significant positive relationships between all the work-related risk factors and psychological distress. Among the five work-related stressors, relationships at work ($r = 0.390$, $p < 0.01$) was found to have the strongest significant correlation with psychological distress, followed by role in organisation ($r = 0.348$, $p < 0.01$), factors intrinsic to a job ($r = 0.336$, $p < 0.01$), career development ($r = 0.317$, $p < 0.01$), and organisational structure and climate ($r = 0.258$, $p < 0.01$). Table 3 also shows that all personal-related stressors had significant positive correlations with psychological distress, including type A behaviour pattern ($r = 0.517$, $p < 0.01$), locus of control ($r = 0.375$, $p < 0.01$), family problems ($r = 0.358$, $p < 0.01$), and financial difficulties ($r = 0.343$, $p < 0.01$). For cultural-related stressors, racial discrimination ($r = 0.280$, $p < 0.01$), and cultural value conflicts ($r = 0.146$, $p < 0.05$) had significant positive correlations with psychological distress. However, language barriers ($r = 0.117$, $p > 0.05$) was not significantly correlated with psychological distress.

Table 3. Correlations between stressors and psychological distress.

		PD	LOC	TABP	FP	FD	FIJ	RIO	CD	RAW	OSC	RD	LB	CVC
PD	Pearson Correlation	1	.375**	.517**	.358**	.343**	.336**	.348**	.317**	.390**	.258**	.280**	.117	.146*
	Sig. (2-tailed)		.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.065	.021
LOC	Pearson Correlation	.375**	1	.229**	.119	.167**	.162**	.281**	.396**	.296**	.266**	.327**	.050	.138*
	Sig. (2-tailed)	.000		.000	.060	.008	.010	.000	.000	.000	.000	.000	.427	.029
TABP	Pearson Correlation	.517**	.229**	1	.167**	.165**	.491**	.449**	.230**	.298**	.199**	.279**	.053	.162*
	Sig. (2-tailed)	.000	.000		.008	.009	.000	.000	.000	.000	.001	.000	.402	.010
FP	Pearson Correlation	.358**	.119	.167**	1	.241**	.079	.095	.073	.183**	.111	.028	.129*	.082
	Sig. (2-tailed)	.000	.060	.008		.000	.213	.133	.246	.004	.079	.661	.040	.194
FD	Pearson Correlation	.343**	.167**	.165**	.241**	1	.129*	.137*	.331**	.168**	.213**	.086	.183**	.173**
	Sig. (2-tailed)	.000	.008	.009	.000		.040	.030	.000	.008	.001	.173	.004	.006
FIJ	Pearson Correlation	.336**	.162**	.491**	.079	.129*	1	.494**	.299**	.266**	.201**	.326**	.000	.132*
	Sig. (2-tailed)	.000	.010	.000	.213	.040		.000	.000	.000	.001	.000	.999	.036
RIO	Pearson Correlation	.348**	.281**	.449**	.095	.137*	.494**	1	.351**	.383**	.310**	.318**	.213**	.247**
	Sig. (2-tailed)	.000	.000	.000	.133	.030	.000		.000	.000	.000	.000	.001	.000
CD	Pearson Correlation	.317**	.396**	.230**	.073	.331**	.299**	.351**	1	.455**	.449**	.464**	.023	.262**
	Sig. (2-tailed)	.000	.000	.000	.246	.000	.000	.000		.000	.000	.000	.722	.000
RAW	Pearson Correlation	.390**	.296**	.298**	.183**	.168**	.266**	.383**	.455**	1	.334**	.508**	.219**	.341**
	Sig. (2-tailed)	.000	.000	.000	.004	.008	.000	.000	.000		.000	.000	.000	.000
OSC	Pearson Correlation	.258**	.266**	.199**	.111	.213**	.201**	.310**	.449**	.334**	1	.233**	.170**	.295**
	Sig. (2-tailed)	.000	.000	.001	.079	.001	.001	.000	.000	.000		.000	.007	.000
RD	Pearson Correlation	.280**	.327**	.279**	.028	.086	.326**	.318**	.464**	.508**	.233**	1	.039	.268**
	Sig. (2-tailed)	.000	.000	.000	.661	.173	.000	.000	.000	.000	.000		.534	.000
LB	Pearson Correlation	.117	.050	.053	.129*	.183**	.000	.213**	.023	.219**	.170**	.039	1	.495**
	Sig. (2-tailed)	.065	.427	.402	.040	.004	.999	.001	.722	.000	.007	.534		.000
CVC	Pearson Correlation	.146*	.138*	.162*	.082	.173**	.132*	.247**	.262**	.341**	.295**	.268**	.495**	1
	Sig. (2-tailed)	.021	.029	.010	.194	.006	.036	.000	.000	.000	.000	.000	.000	
	N	252	252	252	252	252	252	252	252	252	252	252	252	252

** . Correlation is significant at the 0.01 level (2-tailed).

* . Correlation is significant at the 0.05 level (2-tailed).

Note: PD = Psychological Distress; LOC = Locus of Control; TABP = Type A Behaviour Pattern; FP = Family Problems; FD = Financial Difficulties; FIJ = Factors Intrinsic to A Job; RIO = Role in Organisation; CD = Career Development; RAW = Relationships at Work; OSC = Organisational Structure and Climate; RD = Racial Discrimination; LB = Language Barriers; CVC = Cultural Value Conflicts.

5. Discussion

5.1. Correlations between work-related stressors and psychological distress

This study found out that the five work-related stressors, namely relationships at work, role in organisation, factors intrinsic to a job, career development, and organisational structure and climate had significant correlations with psychological distress. This finding implies that the increase of work-related stressors would lead to a higher level of psychological distress. Due to the dynamic and fragmented characteristics of construction projects, close teamwork is required for effective completion of the construction tasks. Poor relationships at work not only undermine work performance but also bring about mental health problems [28]. Therefore, to develop a healthy working environment, construction companies should first focus on maintaining good relationship between workmates. Role conflict and role ambiguity may be easily generated in a complex and competitive construction working environment [33]. Rules and policies on clearly defining role responsibility is thus imperative. The construction industry have been notorious for tough working modes, such as long working hours and heavy workload. The intrinsic nature of construction work could lead to work stress [34]. Reforming the traditional working mode is important for a sustainable working condition. In addition, concerns about the promotion or security of the job, as well as the hierarchical structure of the organization could increase workers' work stress, leading to psychological distress [7]. Thus, improving the career development system and organizational climate is crucial for a good mental health of construction workforce.

5.2. Correlations between personal-related stressors and psychological distress

This study discovered that personal-related stressors, including type A behaviour pattern, locus of control, family problems, and financial difficulties were positively correlated with psychological distress. This finding indicates that there would be a higher level of psychological distress if personal-related stressors increase, and vice versa. Specifically, type A behaviour pattern had the most significant correlation with psychological distress among the three major types of stressors. It highlights the importance of individual characteristics in influencing mental health conditions. Therefore, construction workers featuring a type A behaviour pattern should be paid more attention to and targeted intervention programs should be developed. Additionally, the interpersonal characteristics, namely family problems and financial difficulties were also discovered as crucial sources of psychological problems. Thus, construction workers' personal life should be considered when developing mental health interventions.

5.3. Correlations between cultural-related stressors and psychological distress

The study also revealed that the cultural-related stressors including racial discrimination and cultural value conflicts had significant positive relationships with psychological distress. This finding demonstrated the existence of multicultural issues in a culturally diverse construction workplace, and indicated that racial discrimination and cultural value conflicts could lead to mental health problems. Particularly, racial discrimination had the strongest association with psychological distress among cultural risk factors. This emphasized the important role of racial discrimination in producing psychological problems. Therefore, interventions to promote a culturally tolerated and inclusive working environment should be implemented.

As analysed above, this study identified the crucial stressors of mental health in a multicultural construction working environment. The finding suggests that not only work-related stressors, but also personal-related and cultural-related stressors can lead to mental ill health. Accordingly, construction companies are advised to reduce the potential risk factors from the three aspects to help improve mental health performance of construction workers.

6. Conclusions and further research

This study identified the critical stressors of mental health from work, personal and cultural domains, and explored the correlations between stressors and psychological distress for construction workers in a multicultural working environment. It was found that not only work-related stressors, but also personal-related and cultural-related stressors had significant positive relationships with psychological distress. Specifically, all work-related stressors were significantly associated with psychological distress, and relationships at work was the most significant antecedent among them. In the personal domain, type A behaviour pattern, locus of control, family problems, and financial difficulties had significant positive relationships with psychological distress. Type A behaviour pattern had the strongest correlation with psychological distress. Moreover, racial discrimination and cultural value conflicts, as the cultural-related stressors, were significantly correlated with psychological distress. The findings of this study revealed that construction workers' mental health is only not influenced by stressors emanated from work, but also stressors from personal characteristics and intercultural interactions. Therefore, efforts to eliminate hazards from the three aspects are required to create a mentally healthy working environment.

This study provides a deeper understanding on the relationships between crucial stressors and mental health in a multicultural context. The findings of this study contribute to the existing body of knowledge on the risk factors of mental health, and provide valuable insights for practitioners on the development of mental health interventions for construction workers in a multicultural working environment.

There are limitations in this study. Research has indicated that workers at different job positions perceive stressors differently. Future research should also investigate the relationships of stressors and mental health by different labor positions. Furthermore, this study only explored the correlations between stressors and mental health. Future research on the interrelationships between different types of stressors can be conducted to have an in-depth understanding.

This paper reports one of the major findings of an original PhD research which aims to manage mental health in a multicultural construction workforce. A conceptual framework on managing mental health of construction workers in a multicultural workplace was developed. The main constructs including stressors, intercultural coping, and mental health outcomes were described in the model. This paper addresses the stressors of mental health. Further research will focus on intercultural coping, and the interactions between intercultural coping and stressors in improving mental health. The findings of the empirical research will be reported in two separate research papers.

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