

Stressors On Construction Workers: A Systematic Review Of Current Research

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Abstract: It has long been acknowledged that construction work is a stressful and risky career with consistently high levels of stress and injury incidence among construction professionals and labourers. Their mental state will have profound effects on their behaviour and the project's safety performance. Recent studies have indicated that the sector is more stressful today than it was five years before. This study aims to systematically review the literature to assess the recent trends of stressors on construction workers. The review procedures consisted of five major methodological stages, including protocol-based review, development of searching strings, systematic searching strategies based on identification, screening, and eligibility on established databases such as Scopus, and Web of Science. Apart from that, the study also covers factors affecting the stressor, the impact of stressors on construction workers, and methods of intervention adopted.

Keywords: *Stress, Stressors, Construction, Management*

1. Introduction

One of the most widely used definitions of stress is provided by Lazarus [1], who describes it as a relational concept. According to this definition, stress is neither defined as a particular type of external stimulation nor as a specific pattern of physiological, behavioural, or subjective reactions. Stress is now thought of as an interaction (or "transaction") between people and their environment. Another, more straightforward definition of stress is provided by Ng et al. [2], who state that it is an inevitable aspect of life and is not exclusive to any one profession. Stressors are the things that cause stress. A stressor is an essential component of stress and has the capacity to trigger a stress response. The term "stressor" was adopted by Enshassi & Al Swaity [3] to characterise the sensations produced.

2. The Impact of Job Stressors on Construction Workers

The work of a construction worker is typically characterized by repetitive tasks such as pouring and shaping concrete and drilling holes. This work is physically and mentally demanding and may lead to work overload if not properly managed. According to a study conducted by Elfering et al. [4], work overload can result in increased stress levels and occupational injuries. Safety equipment such as helmets and gloves are crucial in protecting the health and safety of construction workers, but inadequate equipment can cause accidents and increase stress levels as workers worry about their own safety.

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Supervisors play a crucial role in supporting construction workers to efficiently complete tasks and overcome difficulties such as handling concrete and lifting heavy equipment. Such support can reduce stress levels among workers, as demonstrated in a study by Mayo, Sanchez, Pastor, & Rodriguez [5]. In a real-world construction site, workers usually function as a team and require support from one another. A lack of support from coworkers can result in work stress, burnout, and unsafe behaviors, as described by Lazarus [1] in the context of psychological stress resulting from a traumatic experience in the workplace.

Because that construction workers typically have poor levels of education, there is a chance that their communication with foremen and colleagues may be hazy, which could result in vague understandings of their duties and goals. Hence, role ambiguity, which is described as a lack of clarity regarding the expectations of the work position as well as the scope and responsibilities of the job, can easily happen [6].

To help the employees fulfil their duties at work, job descriptions should be precise and consistent. Construction workers who received confusing instructions and explanations from their managers may be forced to do more labour and bear greater responsibility in the event of failure, with no compensation for success. Furthermore, this characteristic may enhance the stress levels of construction industry experts because [7] highlighted that physically stressed construction workers may even be more prone to accidents. Construction employees are typically positioned at the bottom of the organisational hierarchy in many projects involving construction. In addition to having limited influence over their job, they often have inadequate grasp of initiatives, which frequently results in a lack of autonomy. Because they lack autonomy, they are unable to schedule the work with a great deal of judgement or freedom, and they are helpless to choose the methods to follow in carrying out their obligations. This may have an impact on their productivity and capacity to work, which could ultimately result in workplace stress and even injury [7].

2.1 The needs for systematic review of stressors amongst construction industry workers

There have been many cases of mental health problem reported occurred upon construction workers. Construction workers are typically exposed to a variety of task risks while engaging on construction projects, given the absence of proper equipment, lack of working support, and or when working under time constraints. All of these may result in severe stress in health and mental [8]. The recent COVID-19 epidemic caused economic and labour market disruption and has resulted in a confluence of circumstances that may dramatically aggravate the risk of mental health disturbance

that leads to suicide among construction workers, especially those with lower skill levels [9]. Due to the concurrent effects of stressors on construction workers, it is essential to conduct a comprehensive analysis of recent studies to determine the type of stressors and their impact on construction workers.

3. Methodology

For the purpose of this study, a systematic review guideline proposed by Xiao & Watson [10] was performed to assess recent studies of stressors on construction workers. This review guideline is used for this study to enhance and retain a robust approach in generating an SLR with better transparency, as well as to assure and manage the quality of the review.

3.1 Literature Search and Evaluation

For the inclusion criterion, we only included studies with timeline ranging from 2017 until 2021. For the type of document, only articles journal with empirical data are included, apart from that, the article review, chapters in book, book series and book are excluded. Only articles written in English are included.

3.2 Literature Identification

The keywords for the literature search by using the keywords “stressor”, “construction,” “worker”. These identified keywords are enhanced through online thesaurus and past keywords used by previous literatures and assembled to form full search string. The search string is formed based on Boolean operator, phrase exploration, truncation, wild card, and field code functions (Table 1). This study relied on two databases as resource namely Scopus and Web of Science. Both databases are chosen due to their advanced searching capabilities, extensive, good quality control of the articles, and multidisciplinary focus, which includes construction-management related studies [11]. For Scopus the initial searching of the keywords titles, yielded a total of eleven documents, while the Web Science produced a total of seventeen documents. Lastly, after excluding the duplicates the combination of these two databases produced eighteen documents.

Table 1. The search terms and the number of articles from designated database.

Databases	Searching string/ Searching terms	No of articles (2017- 2021)	Date of search
Scopus	(("Stressor*") AND ("construction*" OR " construction worker*" OR " construction labour*" OR " construction labor*"))	11	13th May 2022
Web Of Science	(("Stressor*") AND ("construction*" OR " construction worker*" OR " construction labour*" OR " construction labor*"))	13	13th May 2022

3.3 Screening for Inclusion Process

The abstracts of the eighteen studies are manually assessed by the authors through reading to decide their relevance to the research topic—stressors on construction worker. Disagreements between reviewer findings were addressed and resolved accordingly. Out of this process, three articles were deemed irrelevant to our research topic (non-related to construction worker) hence fifteen articles were eligible for quality assessment process.

3.4 Quality and Eligibility Assessment

The full-text articles to further evaluated through reading. This process was carried out by two reviewers to ensure the quality and eligibility of the studies conform with the outlined criteria. Any article review, chapters in book, book series and book are excluded from the review. In this careful review process, three articles were excluded: one article was excluded because we could not find the full text and another two was excluded because published in the form of article review. Overall, this process produced twelve articles eligible for the review process.

3.5 Data Extraction and Analysis

The author reviewed all the twelve articles. Any data from the examined articles that could address the research questions was abstracted and arranged accordingly in a table. From each study, we extracted information on the following subtopics: the type of stressors, typology, coping strategy, study design and data collection method.

4. Results and Discussion

Selected Articles Background

The review resulted in twelve selected articles originating from ten countries (Table 2). Out of the twelve articles, three studies were carried out in Pakistan, two from China, while one was done in countries namely Germany, Indonesia, Malaysia, New Zealand, Palestine, Saudi Arabia and United Kingdom. Regarding of published year, one article was published in 2017, six in 2018, two in 2019, one in 2020, and two in 2021. Three countries namely Germany, United Kingdom and New Zealand are categorized under advanced countries while the rest are categorized under the developing countries status. One of the reason more studies produced from the developing countries is that more work-related stress have been increasing and yet been resolved [12]. Table 3 depicts data collection methods adopted in research studies on construction workers' stressors. Based on the table 3, it is obvious that the primary data collection methods employed by previous studies is questionnaire survey. With 11 out of 12 papers employed questionnaire survey can be concluded as the main choice for primary data collection. Meanwhile, only one study adopted interview method to collect data. The prevalence of questionnaire surveys in construction management research may be a factor in the scarcity of case study and interview studies. This is because questionnaire surveys are commonly used data collection method in construction management studies [13].

Table 2 Type of Stressors Identified for Each Studies

Type of stressors identified.										
Authors	Country	Year	Task Stressor	Extra Organisational Stressor	Organisational Stressor	Personal Stressor	Physical Stressor	Psychosocial Stressor	Challenge Stressor	Hindrance Stressors
1. Seth et al	Malaysia	2021	✓							
2. Van Heerden et al	New Zealand	2021	✓	✓	✓		✓			
3. Zheng et al	China	2020							✓	✓
4. Basahel	Saudi Arabia	2019	✓							
5. Maqsoom et al	Pakistan	2019						✓		
6. Widajati N.	Indonesia	2018			✓					
7. Naoum et al	United Kingdom	2018	✓		✓	✓	✓			
8. Maqsoom et al (a)	Pakistan	2018						✓		
9. Maqsoom et al (b)	Pakistan	2018						✓		
10. Raetze et al	Germany	2018	✓		✓					
11. Enshassi et al	Palestine	2018				✓				
12. Leung and Chan	China	2017	✓		✓	✓	✓	✓		

Table 3 Main Study Design and Data Collection Method

No	Studies	Year	Country	Status	Type of stressor	Main study design	Data collection method
1	Seth et al	2021	Malaysia	Developing	Job demand stressor	QN	Questionnaire
2	Van Heerden et al	2021	New Zealand	Developed	Major stressor identified are job demand, managerial behaviour, organisational leadership, and the economy stressor	QN	Questionnaire
3	Zheng et al	2020	China	Developing	Challenge stressors, Hindrance stressors	QN	Questionnaire
4	Basahel	2019	Saudi Arabia	Developing	Job demand stressor	QN	Questionnaire
5	Maqsoom et al	2019	Pakistan	Developing	Psychosocial stressors	QN	Questionnaire
6	Widajati N.	2018	Indonesia	Developing	Working Environment Stressor	QN	Questionnaire
7	Naoum et al	2018	United Kingdom	Developed	Task stressors: Organisational stressors: Personal stressors: Physical stressors	QN	Questionnaire
8	Maqsoom et al	2018a	Pakistan	Developing	Psychosocial stressors	QN	questionnaire
9	Maqsoom et al	2018b	Pakistan	Developing	Internal psychosocial stressors	QN	questionnaire
10	Raetze et al	2018	Germany	Developed	Stressors include regulation obstacles, regulation uncertainties, and overtaxing regulations	QL	interview
11	Enshassi et al	2018	Palestine	Developing	Personal Stressor	QN	questionnaire
12	Leung and Chan	2017	China	Developing	Personal stressors, interpersonal stressors, task stressors, organizational stressors, and physical stressors	QN	questionnaire

Table 4 Coping Strategies Suggestions by Each Studies

Authors	Year	Reduce Office Politics	Communication Management	Stress Training Management	Time Management	Job Coordination	Task	Leisure Activities	Employee Reward Programme	Recess	Family Support
1. Seth et al	2021							✓		✓	
2. Van Heerden et al	2021				✓			✓		✓	
3. Zheng et al	2020	✓		✓		✓		✓			
4. Widajati N.	2018		✓								
5. Maqsoom et al (a)	2018		✓						✓		
6. Maqsoom et al (b)	2018								✓		
7. Raetze et al	2018					✓					
8. Enshassi et al	2018										✓
9. Leung and Chan	2017		✓	✓	✓						✓

4.1 Type of Stressors Focussed for The Selected Studies

The exploration of practical research and theoretical development surrounding stressors has resulted in a various defined categorization pertaining to the evolution of stressors over the years. This has ensued some studies such as Lazarus [1], M. Leung & Chan, [14] and Senaratne & Rasagopalasingam [15] taking different approaches in classifying stressors. This study managed to identify several types of stressors in the construction industry studies in the recent five-year period.

A total of eight types of stressors were identified from the twelve studies namely task stressor, extra-organisational stressor, organisational stressor, personal stressor, physical stressor psychosocial stressor, challenge stressor and hindrance stressors (Table 3). The most common stressors focussed by the researchers were task stressors with six stressors, followed by organizational at four and psychosocial and personal stressors both at three. Meanwhile two studies focussed on physical stressors and for challenge, hindrance, and extra-organisational stressor only one study focused on each of them. From the table, task stressor can be seen emerge consistently every year. The next common stressor is organisational stressor which recorded almost every year except in 2019. Third most common stressor is psychosocial stressor which appear in 2017, 2018 and 2019. Meanwhile, challenge and hindrance stressors emerge in 2020 and organisational stressor appear in a 2021 study. The consistency occurrence of task stressors in the recent construction settings is in line with previous studies (Wu et al., [16]; Ye et al., [17]) indicate that till this day, task stressors still present main threat to the construction workers. Not surprisingly, organisational stressors being the second culprit in the industry. Considering the economic value of the construction industry, administrative procedures in the industry should be at a competitive level. For the psychosocial stressors, which are defined as stressors that address both the psychological and social components of the worker's surroundings. Compared to the physical stressors, the psychosocial gains just a slight number advantage. As noted by Abbe et al., [7], there is an area of growing research for psychosocial factors, particularly the ones endured by construction workers hence the opportunity are seized by some researchers.

4.2 Suggested strategies for construction workers to cope with stressors

Stressor have impact towards wellbeing and related to poor health status [18]. As such, this calls for preventive and proactive measures to resolve and cope with the existing stressors. This section focusses on the strategies for construction workers suggested by recent studies to cope with stressors. For each studies selected, 9 out of 12 suggested

coping solutions to manage the stressors. The authors clustered the suggestions based on nine themes namely communications management, reduce office politics, stress training management, time management, family support, leisure activities, recess, and employee reward programme (Table 4). Two most popular themes suggested by researchers to cope with stressors are communications management and leisure activities. Canales et al. [19] and M. Leung et al. [20] both agree that communications play key roles in reducing and controlling the impact of stressors in construction industry.

While M. Leung et al. [20] recommended that employers provide appropriate vertical communication channels with construction workers and also develop assessable and transparent bonus systems for the workers, Canales et al. [19] on the other hand suggest creating hometown associations, which are informal organization formed by migrants from same part for arranging social gatherings, exchanging various experiences, and providing necessary assistances, this is a decent way to cultivate informal relationships and improve communication, which could help to enhance mutual understanding among supervisors and construction workers. Moreover, a good amount of leisure activities could help to improve health thus helping the individual to be more productive [21]. Meanwhile for the stress training management, time management, family support, leisure activities, recess, and employee reward program themes, only two studies fall under each of the themes. It is important that project managers to offer proper support to construction work in handling these specific job stressors, as any inappropriate supervisor support may intensify their stress levels [5]. Thus, it is proper for project managers or supervisors to participate in stress management training so that they will be able to handle and support their workers handling stress. Finally, only one study suggests reducing office politics to help coping with stressors, the reason that only one study suggests this could be due to the fact most of construction works occur at the site instead of office.

5. Conclusion

The systematic review conducted has highlighted the recent trends of stressors on construction workers. Theoretically, the findings from this systematic literature review contribute to the body of knowledge by identifying the inadequacy and researcher's focus in the discovered literature hence could help contribute towards new knowledge for future works. Hence, this study could hopefully give an insight into the recent stressor's occurrence amongst construction workers and coping strategies to reduce them. The results obtained from this systematic review focus on the construction workers without profiling the type of workers and level, concentrating on construction settings only. Hence there is a need to look deeper into the relationship type of workers

and the stressors that affected them. Furthermore, analysis regarding how the status of the countries' economy affecting the stressors on workers could be further explored with a better data collection method. A further investigation on Covid-19's role on the stressors in the construction industry would also be considerable preparation in handling and anticipating the new risks that emerged in the industry. The systematic review further discovered that, although several studies had investigated to some extent the stressors that contribute to stress construction workers, almost none had given attention to the socio-cultural aspects such as family circumstances, spousal matters, and religious views. Furthermore, young workers and the case of young females in the construction industry are also excluded. Future studies will need to give greater attention to these factors. The findings of this systematic review study are useful in facilitating construction organizations, researchers, and policy makers identifying their strategies to address the impacts of stressors amongst construction workers. With better understanding, proper intervention and implementation could be implemented effectively.

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