Psychosocial Risks among Migrant Workers in the Middle East Construction Sector

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Submitted in fulfillment of the requirements for the degree of

Doctor of Philosophy

University of Nottingham

August 2020

Abstract

Background: The Middle East has witnessed an unprecedented construction boom in recent years supported by a massive migrant workforce. The working conditions of this workforce are generally recognized as poor. Few researchers have examined health and safety and their possible relations with the psychosocial working conditions of this workforce. A paucity of knowledge exists on the occupational risks to health and safety in this population, and this is particularly the case for risks arising from the psychosocial work environment. Added knowledge in this domain could usefully inform risk reduction activities concerning modification to the design, organization, and management of work as a means to protect and promote workers' health and safety.

Aims and Methods: A sequential mixed-methods investigation was conducted involving migrant construction workers at a large construction site in the Middle East. Study 1 involved a series of qualitative focus groups (n = 50) with the aim of identifying problematic psychosocial working conditions. Focus group transcripts were subjected to thematic analysis to identify themes in the narratives. The findings of Study 1 informed the design of a questionnaire completed by 651 workers to produce a descriptive profile of theory-based and role-specific psychosocial hazard exposures, the psychosocial safety climate, and indices of health and safety (Study 2). Data from Study 2 were subjected to logistic regression analyses to explore associations between psychosocial hazard exposures and safety climate in relation to health and safety outcomes.

Results: Thematic analyses of focus group transcripts from Study 1 revealed a series of psychosocial hazards, namely high job demands, poor management support, and financial strain. Key among these hazards was indebtedness to a labour recruiter in participants'

home countries. In the quantitative study, the descriptive profile was stratified by job type (labourers, skilled workers, foremen) and characterized by high exposure to potentially harmful psychosocial hazards, poor safety climate, and poor health and safety indices. Exposure to generic theory-based and role-specific psychosocial hazards was associated with elevated odds of negative health and safety outcomes.

Conclusions: Research that focuses on generic theory-based psychosocial risk factors, alongside those that are role- and context-specific, offers a strong basis for interventions relevant to a specific occupational group. The current investigation has advanced knowledge on psychosocial risks among migrant construction workers in the Middle East construction sector and points towards pathways for the protection and promotion of the health and safety of this large and neglected population.

Acknowledgements

I would like to thank my supervisors, Dr. Jonathan Houdmont and Prof. Amanda Griffiths, for their guidance and support throughout the course of this study. Special acknowledgement and gratitude go to Dr. Houdmont for his invaluable guidance and continuous direction throughout the entire research journey.

I must express my thanks to my dad, Abdalla, who provided the energy and enthusiasm that led me to this point. Many thanks go to my mom, Ehsan; my brothers, Hisham and Hani; and my sisters, Nasreen and Nadia for always being there for me. Special gratitude goes to my lovely wife, Nahla. Without her standing by my side this research would not have been completed. Warm acknowledgements and love to my kids– Mohammed, Omer, and Alaa–the candles that light the way throughout my difficult times.

Sincere thanks go to the companies that have contributed valuable data and information that was necessary for my research. I thank the staff members in these firms who provided necessary logistical support and assisted in the translation stages. I cannot forget to thank my management, colleagues and friends, who stood by my side, supported me, gave me courage and motivation, and voluntarily took parts of my daily work to allow me the opportunity to focus on my research. Many thanks go to Dr. Mansour Malik for his invaluable comments and suggestions. Finally, many thanks to the staff and workers who participated in the research; without their contribution, this work would have not seen the light.

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Preface

The current study has its genesis in my experiences as a migrant worker in the Middle East. As a Sudanese national, I commenced work in the Middle East in 2000 and since that time have worked as a health and safety manager for several large companies in the transport, oil and gas, and construction sectors. Within these roles, I became aware that economic growth in the Middle East is predicated on a low-skilled and low-paid migrant workforce, largely drawn from countries in Southern Asia. Working in the field, I have personally witnessed the pitiful working and living conditions these workers endure.

The combination of my professional expertise and observations of the working life of these migrant workers led me to hypothesize on the possible relationship between such working conditions and health and safety. I was keen to explore the precise nature of the problematic psychosocial working conditions experienced by such workers and establish whether these were linked in a meaningful way to measures of health and safety. If that were shown to be the case, it would provide a strong evidence base upon which to make an argument for the allocation of resources to eliminate or reduce exposure to such working conditions.

Having previously secured a master's degree, I decided to develop my hypotheses into a doctoral investigation. I was motivated by three factors: (1) the intrinsic satisfaction to be found in study; (2) the opportunity to shine a light on psychosocial working conditions that might warrant and be receptive to modification with a view to the enhancement of workers' health and safety; (3) the possibility of enhancing my career prospects. I initially contacted my supervisor at the University of Nottingham in the summer of 2011. He expressed an interest and enthusiasm for my doctoral ideas and agreed to offer academic

supervision. Thus, I formally commenced the PhD in Applied Psychology on a part-time basis in January 2012.

Aims and Focus of the Thesis

In response to the paucity of empirical knowledge concerning psychosocial working conditions and how they relate to health and safety indices among migrant construction workers in the Middle East, the current investigation has the following aims:

- Aim 1: To identify problematic work-related psychosocial hazards (stressors) from the viewpoint of migrant construction workers in the Middle East.
- Aim 2: To profile role-specific and generic theory-based psychosocial hazard exposures, safety climate, and indices of health and safety among a large sample of migrant construction workers in the Middle East.
- Aim 3: To examine the health and safety correlates of a key work-related psychosocial hazard identified in the initial qualitative study: recruitment agent payments.
- Aim 4: To examine cross-sectional relations between job strain on the one hand and perceived overall health, worksite accident involvement, and job satisfaction on the other.
- Aim 5: To examine cross-sectional relations between perceptions of the safety climate on the one hand and perceived overall health, worksite accident involvement, and job satisfaction on the other.

Structure of the Thesis

The framework of this thesis is built around the five aims outlined above. Chapter 1 opens with an overview of the Middle East construction sector and its migrant workforce, followed by a literature review in Chapter 2 on psychosocial risks as they relate to migrant construction workers. Chapter 3 describes the mixed-methods research design utilized in the investigation and addresses associated methodological issues.

Chapter 4 presents a study that addresses the first aim of the investigation, namely the identification of work-related psychosocial hazards (stressors) as perceived by migrant construction workers. The chapter reports the findings of an initial qualitative study involving 50 participants across seven focus groups.

Chapter 5 addresses the second aim of the investigation, that of profiling psychosocial hazard exposures and indices of health and safety in a large sample of migrant construction workers in the Middle East. Cross-sectional data elicited from 650 participants via a quantitative questionnaire are presented. Findings indicated that the majority (58%) of migrant construction workers within the sample had paid a labour recruiter and 40% had experienced a worksite accident. Between 3% (labourers) and 9% (foremen) perceived their health to be poor. Moreover, this chapter addresses the third aim of the investigation: to examine the health and safety correlates of a key work-related psychosocial hazard identified in the qualitative study, namely recruitment agent payments. Findings indicated that labourers and skilled workers who had paid a labour recruiter were significantly more likely to have experienced a worksite accident in the previous 6-month period. Skilled workers, but not labourers and foremen, who had paid a labour recruiter were at increased risk of poor health.

Chapter 6 addresses the fourth aim of the investigation: an examination of relations between job strain on one hand and perceived overall health, worksite accident involvement, and job satisfaction on the other. Findings indicated that job strain (active job type) was associated with general health among skilled workers, while high job strain was associated with job satisfaction among skilled workers and foremen. Job strain was not significantly associated with accident involvement. It was concluded that reducing job strain among these groups might promote general health and job satisfaction.

Chapter 7 addresses the fifth and final aim of the investigation which was informed by a further key finding of the initial qualitative study, namely concerns among migrant construction labourers regarding their site managers' attitudes towards health and safety. In response to this concern, analyses are presented on relations between the safety climate as perceived by migrant construction workers and health and safety outcomes. The safety climate was significantly associated with job satisfaction among participants of the three groups: labourers, skilled workers, and foremen. However, the safety climate was only associated with health ratings among skilled workers. No significant relationship was found between the safety climate and workplace accident involvement among participants in the three groups investigated.

Chapter 8 brings together the results and conclusions from the qualitative study and the cross-sectional quantitative analyses. The findings are considered in the light of the extant literature and the socio-economic and political context in which the investigation was situated. The theoretical, empirical, and practical implications of the investigation are considered, and ideas for further research proposed. The thesis concludes by setting out the investigation's key contributions.

Publications Arising From the Thesis

This doctoral investigation has generated the following peer-reviewed academic journal articles and conference presentations:

Hassan, H., & Houdmont, J. (2014). Health and safety implications of recruitment payments in migrant construction workers. *Occupational Medicine, 64*, 311–336.

Hassan, H., & Houdmont, J. (2014). Construction migrants' labour recruiter payment, health, and safety. *Proceedings of the 11th European Academy of Occupational Health Psychology Conference: Looking at the past – planning for the future: Capitalizing on OHP multidisciplinary.*

The Author's Contribution

The investigation described in this thesis was conducted solely in fulfillment of the requirements of the PhD in Applied Psychology at the University of Nottingham. This investigation does not constitute part of an organizational initiative; rather, the author initiated the research in his capacity as a doctoral student and in response to his personal experience and observations of psychosocial risks while working in the Middle East construction sector. No external funding was solicited or received and no additional academic input, beyond that provided by the supervisory team, was received.

1 Chapter One: The Middle East Construction Sector and Its Migrant Workforce

1.1 Introduction

In the last three decades, the Middle East has witnessed an unprecedented construction boom owing to oil export revenues, especially in the Gulf Cooperation Council countries (GCC), and the surge of development in other countries of the region. Given the availability of funds, political stability, and an opened migration corridor, GCC countries in particular have undertaken huge development projects. In Dubai alone, there were 4,000 construction projects underway worth more than $313 billion by 2018. In Abu Dhabi, more than 5,000 residential units were completed by 2017 (United Arab Emirates Commercial Guide, 2018). This boom in the region's construction industry was forecast to have provided projects worth $500 billion by 2015 (Kenrick, 2012). It was estimated in 2012 that Abu Dhabi alone would spend about $200 billion on new infrastructure, development, and expansion projects over the following five years. In 2015, the forecast for projects in GCC countries was $172 billion, including both new projects and those already underway, which was the highest on record. The planned projects involve the ongoing Qatar World Cup 2022 and Dubai Expo 2020, construction of railways, airports, infrastructure, new tourist cities, and oil and gas expansion projects (Deloitte, 2015). As documented by Al-Hathloul and Abel-Rahman (2010), the region has witnessed significant development owing to economic growth, increasing population, and modernization in different parts of the region.

Because of the large-scale construction boom, millions of migrant workers are engaged in this sector (Deloitte, 2015). In a typical mega-project executed in the region,

20,000 workers are employed to carry out the planned work. The following section describes the magnitude of the migration of construction workers towards the region.

1.2 The Middle East Construction Sector and Migrant Workforce

According to the United Nations (UN) definition, a migrant worker is "a person who is to be engaged, is engaged or has been engaged in a remunerated activity in a state of which he or she is not a national" (United Nations: The International Convention on Migrant Workers and its Committee, 2005). The construction boom relies entirely on migrant workers drawn mainly from South Asian countries. Despite the scarcity of credible and updated data on the migrant workforce in the region (Mehmood et al., 2018), the following figures offer an idea of the influx rate of the migrant workforce in the region in the past several years. In Qatar, the number of migrant workers exceeded 86% of the total population and made up 94% of the employed population, with most employed in the construction sector (Qatar Ministry of Development and Planning Statistics, 2017). The number of migrant workers in GCC countries increased from 9 million in 1990 to almost 13 million in 2005 (Dito, 2008). Migrants constituted a majority of the labour force in all the GCC countries, with the average for 2004 amounting to 70% (Kapiszewski, 2006). The average for 2008 went up to 77% (Baldwin-Edwards, 2011). In comparison with the GCC population, migrant workers account for 25% of the labour force in Saudi Arabia, 66% in Kuwait, and more than 90% in the United Arab Emirates (UAE) and Qatar. However, by the end of 2018, more than 8.3 million migrant workers were employed in the UAE alone, accounting for 88% of the total population (International Organization for Migration, 2019). Furthermore, in Qatar, the most important employment sector is construction at 44% of total employment. Migrant workers dominate this sector, representing almost 100% of

the employees in construction. In Kuwait, Bahrain, Saudi Arabia, and the UAE, migrant workers in construction account for 95%, 90%, 91%, and 95% respectively (Baldwin-Edwards, 2011). Furthermore, the data compiled by the Gulf Labour Market and Migration Programme (GLMM, 2016) showed that almost 50 million expatriates work in the region, out of whom 33% are employed in Saudi Arabia with the rest working in the other GCC countries.

Most migrant workers are drawn from Asian countries, namely India, Pakistan, the Philippines, Bangladesh, Sri Lanka, and Indonesia (Baldwin-Edwards, 2011). Migrant workers in the region are employed through a work permit system called "kafala" in the GCC, which enables the candidate worker to obtain a residence visa. The visa is renewed every two years throughout the duration of the project contract (Baldwin-Edwards, 2011). Additionally, there is a "nationalization campaign" adopted by all GCC countries to encourage national workers' employment across all work sectors. However, the private sector is still dominated by migrant workers, while most employees in public sectors are nationals of the specific country or from the GCC. A high rate of national employment candidates prefer to stay unemployed and wait for public sector opportunities, because salaries and remunerations tend to be better than in the private sector (Diwan & Akin, 2015).

Seeking better opportunities and improved economic gains, migrant workers continue to leave their native countries and head towards the region attracted by opportunities in the construction sector. However, migrant workers face a range of challenges related to working conditions in the host countries as highlighted in the following sections.

1.3 Challenges Facing the Migrant Workforce

As a result of the competitive environment and limited project timeframes, construction work is considered mentally and emotionally demanding and stressful (Wahab, 2010). However, psychological health among migrant workers has rarely been studied despite migration being associated with psychiatric disorders (Cantor-Graae & Pedersen, 2013). Migrant workers are often a vulnerable group compared to other groups of domestic workers. A recent study conducted in Qatar concluded that mortality and morbidity rates, mainly related to construction work, are a major public health concern among migrants despite the lack of credible data and proper surveillance systems (Mehmood et al., 2018). In a study conducted among migrant workers in three European countries to assess exposure to accidents, it was found that migrant workers were more vulnerable to accidents compared to non-migrant workers (Guldenmund et al., 2013). The study also reported that migrant workers were reluctant to report accidents to authorities for fear of being deported to their home country. Moreover, the study reported that the companies deliberately shipped migrant workers back to their home country when they endured accidents in order to reduce legal implications and insurance liabilities. A study by McKay, Craw, and Chopra (2006) conducted in the UK summarized the conclusions of previous studies on why migrant workers were usually more involved in accidents compared to domestic workers. Some of the factors identified in those studies were poor knowledge among migrant workers of the local safety provisions, inadequate experience and knowledge of their legal rights, poor communication, and insufficient training relative to domestic settings.

Among the few studies conducted in the GCC countries and the Middle East in general was a 2014 investigation by Kronfol, Saleh, and Al-Ghafry, which reviewed the existing research conducted in the region focusing on the psychological wellbeing of migrant workers. The review revealed that fewer than a dozen articles had been published since 2002, and most tended to be out of date and descriptive in nature, with limited quantitative information and/or data. The review also revealed that migrant workers in the Middle East, and particularly in the GCC countries, lived and worked in relatively harsh working conditions, which could have led to psychological disorders. Al-Maskari et al. (2011) also conducted a cross-sectional survey of depression and suicidal behavior among 239 male migrant workers in the UAE. The results revealed that 25% of workers suffered from depression, 6.3% reported suicidal thoughts, and 2.5% had attempted suicide. Both depression and suicidal tendency were associated with physical illness, working in the construction industry, earning less than $275 per month, and working more than 8 hours per day. Moreover, there were reports studying specific nationals (e.g. Indians and Nepalese) living and working in specific areas (e.g. GCC countries). For instance, Adhikary et al. (2011) reported that more than 500 Nepalese migrant workers have died in GCC countries because of workplace-related accidents, mental illness, poor labour conditions, and suicide. In Qatar, where huge construction work is underway in preparation for the football World Cup in 2022, the fatality rate is eight times that of the UK (Sultan, 2013). In Saudi Arabia, migrant workers—particularly those in the construction industry—were found to suffer from poor working conditions, substandard accommodation, poor safety practices, and an exploitative wage system (Suresh et al., 2017).

It is fair to say that a combination of factors results in stressful and poor working conditions endured by migrant workers in the Middle East. One of these factors is the hot weather in the region and in the GCC countries in particular, where meeting project deadlines exerts high pressure on construction teams. Another factor is the high physical demands of construction work. An additional factor is the inherent emotional stress of the migration process from native countries to host countries with potential social, ethical, and religious differences. The International Labour Organization (ILO) describes the work undertaken by migrant workers as usually dangerous, dirty, and difficult (ILO, 2018).

As noted by Varia (2011) in a study involving migrant domestic workers in Asia and the Middle East, inadequate and inefficient labour laws, nonspecific immigration policies and existing social discrimination contribute to human rights violations. The human rights violations include long working hours with no rest days, non-payment of salaries, physical and sexual abuse, forced labour, and even cases of slavery. Most semi-skilled and skilled workers in the region are economic migrants from developing countries such as India, Pakistan, Bangladesh, and the Philippines. The workers accept living in harsh working conditions, so they can improve their financial conditions (Al-Neaimi et al., 2001). Another relevant factor that has implications for health and safety is the fact that subcontractors are usually small companies with small structures. These small companies may lack a safety commitment and adequate resources as well as provisions to support the health and safety of their workforce (Wong & So, 2002).

It is evident that stressful working conditions, among other factors, are associated with accidents and ill health among migrant workers. Therefore, poor health and poor safety performance in the construction industry in the region continues to be a cause for

concern. In Kuwait, the accident ratio in construction was 11 per 1,000 workers in 1999 (Al-Tabtabai, 2002). In the UAE, injury was the second leading cause of mortality, with occupation-related fatalities (mainly in construction) attributable to 16% of all deaths caused by injury in the Emirates in 2010 (Loney et al., 2012). Moreover, a Human Rights Watch Report (2015) indicated that some employing construction companies confiscate passports and withhold salaries, while migrant workers still have to repay large sums of money to recruitment agents to secure low-paid work in the UAE. This happens in spite of the fact that employers and decision makers are obliged to identify and address health and safety problems. There is a legal and moral requirement that employers should ensure adequate and acceptable living and working conditions for their employees (UAE Federal Law No. 8 of 1980). Nonetheless, existing legislation is not specific and has no clear guidance like the approved codes of practice available in the UK. Inadequate legislation and inefficient enforcement mechanisms have further exacerbated health and safety problems (Kronfol et al., 2014). Although it is widely understood that migrant workers in the Middle East have an elevated accident rate, reliable evidence on the scale of the issue is limited. Surprisingly, few studies in the region investigated exposure of migrant workers to accidents, and none of them were found to have examined psychosocial risks and the consequent impact on health and safety outcomes (e.g. Al-Tabtabai, 2002; Fass et al., 2017; Kronfol et al., 2014). Existing studies have largely focused on physical safety relative to physical hazards, and safety barriers sought to mitigate accidents rather than focusing on the psychosocial dimensions of working conditions. There is an evident knowledge gap concerning the psychosocial working conditions of migrant workers in the Middle East.

1.3.1 Migrant Workers' Health and Safety

According to the United Nations report (UNFPA, 2017), in 2015 there were more than 244 million people living outside their country of origin. Half of these people were workers looking for occupational opportunities in other—usually more developed—countries. Migrant workers often contribute to the economies of their home countries by sending money back to their families. Also, migrant workers provide skills and labour to the countries where they work. However, these migrant workers are known to be among the most vulnerable groups in society. They are usually hidden from the public eye and public policy (Quandt et al., 2013). They often have low pay, work long hours, operate in poor conditions, and are subjected to human rights violations, abuse, trafficking and violence (ILO, 2015).

Several studies have documented the exposure of migrant workers to stressful working conditions. A survey of 30,000 migrant workers in 31 European countries revealed that these workers were exposed to negative occupational working conditions such as high temperature, loud noise, long working hours, high-speed work, and were often working without official work contracts (Ronda-Pérez et al., 2012). Migrant workers were less likely to have a permanent job contract compared to native-born workers, and reported poor health (Sousa et al., 2010). Migrant workers are also more likely to be exposed to extreme temperatures (ILO, 2015); pesticides (NIOSH, 2017); chemicals, muscle strain, workplace stress and associated poor mental health (Hsieh et al., 2016); lack of safety standards (Quandt et al., 2006); workplace abuse such as sexual harassment (Garcia & Castro, 2017); and trafficking and forced labour (Parreñas, 2011).

There are multiple reasons as to why migrant workers exhibit more negative health outcomes than non-migrant or native-born workers. Some of these reasons relate to language and cultural barriers (Orrenius & Zavodny, 2009), lack of access to health care (Panikkar et al., 2014), and lack of legal authorization to work e.g. undocumented workers (Bernhardt et al., 2009). Furthermore, the political climate in the receiving countries might create uncertainty and insecurity, and there may be a lack of safety standards and regulations (Quandt et al, 2006). These factors, either existing independently or combined, exacerbate migrant workers' exposure to risk of workplace injuries and negative health outcomes.

Despite the scarcity of accurate data, evidence exists to indicate a high prevalence of occupational accidents and injuries among migrant workers in the Middle East. Mehmood et al. (2018) concluded that mortality and morbidity rates are higher among migrant workers in GCC countries compared to the rates in their native countries. The study also noted that because of a lack of credible data and proper surveillance systems, the actual number of work-related accidents can be far higher than documented in hospital records. Another study conducted by Al-Rubaee and Al-Maniri (2011) in Oman found a work-related injury rate of 1,980 per 100,000 among mostly migrant workers, while Tuma et al. (2013) similarly found that the incident rate of falling from heights was 86 per 100,000 migrant workers in Qatar. In the UAE, a 2009 work-related injury rate of 136 per 100,000 workers was observed (Barss et al., 2009). Data from 2004 indicate an increasing work-related injury rate, making this the second most common cause of death in the Abu Dhabi Emirate (Preventive Medicine Sector Annual Report, 2004). Moreover, in 2007, injuries arising from accidents at work became the major cause of death in the largest

Emirate, Abu Dhabi (Health Authority of Abu Dhabi, Health Statistics, 2008). Examination of hospitalization records related to occupational injury in the UAE revealed that there had been 614 admissions over a period of 25 months. Out of this number, only 4% of the workers were Emirati nationals. Falls were the major cause of injury (51%), while falling objects followed closely at 15% (Barss et al., 2009). From these reported statistics, it is apparent that migrant workers are exposed to significant work-related risks. Moreover, a recent meta-analysis on migrant workers' health and safety noted that migrant workers primarily originate from 25 low-income countries and work in various industrial sectors, including construction (Hargreaves et al., 2019). The study argued that international migrant workers are at considerable risk of work-related ill health and injury, and their health needs are critically overlooked in research and policy in the countries of destination. The study also found that the sample of migrant construction workers it investigated exhibited an increased prevalence of interpersonal disorders (such as paranoid ideation and hostility) and other anxious depressive disorders.

Accident rate data for migrant construction workers in the Middle East is largely anecdotal, and far less is known of their health status. One study involving Bangladeshi migrant workers found that 60% of male workers reported that their health had improved following migration, and the same proportion reported having gained weight following migration. Improved nutrition is cited as the primary factor accounting for these changes. Only a small proportion of workers reported that their health had deteriorated following migration (Rahman, 2011). However, little is known about migrant workers' psychological health. The current research has identified a single study with a focus on this. Nadim et al. (2016) examined psychological conditions in a sample of migrant construction workers in

Saudi Arabia and found a 30% prevalence rate for depression. Given the poor psychosocial working conditions in which migrant workers operate, it is likely that a large proportion experience poor psychological health. Joshi et al. (2011) conducted a study of Nepalese migrants distributed among three Gulf States. The study revealed that most of these migrant workers were reluctant to seek medical advice for fear of having to cover medical bills from their wages. Further, there were concerns about lost earnings associated with visiting a health professional. Therefore, the actual health status of migrant workers is far from clear. A robust surveillance system and focused research is urgently needed to clarify the scale and nature of the issue. Hence, one of the objectives of the current investigation is to contribute to a robust evidence base concerning the health and safety of migrant construction workers in the Middle East.

The following sections describe organizational, environmental, and legal characteristics that are essential to the contextual understanding of the construction sector in the Middle East and the GCC specifically.

1.4 The Organizational Context for the Current Investigation

This study was carried out within a large-scale construction project in the Middle East. The project involved construction of new oil and gas facilities including the main plant, pipelines, and service buildings. The client appointed one of the leading international construction companies to run the project. Subsequently, the main contractor hired a number of local subcontractors. In pursuit of this research, I approached the main contractor and obtained permission to conduct the study with workers on the project. Following that, I attended meetings with the management board of each subcontractor with the aim of explaining the research objectives and obtaining their permission. Given that

occupational health and safety research is extremely rare in the Middle East construction sector, this piqued the curiosity and attention of management boards and proved to be the key to securing necessary permissions. More than 15,000 workers were employed on the large-scale construction project. Most workers were migrants from countries including India, Pakistan, the Philippines, Bangladesh, Nepal, Turkey, and Nigeria, among others.

1.5 Environmental Background

The current study was carried out in the Middle East, a region notorious for extremely hot weather. The temperature during the summer exceeds 50 degrees Celsius. The summer season lasts for 9 months. In the peak of the summer, work is not legally allowed to be performed outdoors in direct sunlight from 12:30 to 3:00 pm because of the risk of heat stress (Bates et al., 2009). The project that provided a context for the current investigation is in a desert area where the weather is hotter and drier than in urban areas, with frequent sand and dust episodes. The closest urban area or town is 200 km from the project location.

1.6 The Legal Context of the Construction Sector in the Middle East

According to legislation in most Middle Eastern countries, employers and decision makers are required to identify and address health and safety hazards. In fact, as stated earlier, the UAE has legal requirements for employers to ensure acceptable living and working quarters for migrant workers (UAE Labour Law, 1980). However, existing legislation lacks clear instruction. Clear formal guidance and codes of practice such as those in the UK or US do not exist. A recent study conducted in the Middle East, focusing on Lebanon, reached a similar conclusion. In a comparison between the American Occupational Safety and Health Administration (OSHA) regulations and the legal decree in Lebanon, the study observed that the decree is very generic and lacks the specific

requirements found in the OSHA standards. The study found that Lebanese construction safety regulations lack specificity in their requirements, which resulted in poor implementation by companies, coupled with inadequate inspection and enforcement by government authorities (Awwad et al., 2016). Such discrepancies lead in most cases to contractors and companies becoming reluctant to adopt health and safety measures designed to protect their workforce. When there are no specifically binding health and safety regulations and no monitoring and enforcement mechanisms, employing companies might limit resources designed to provide acceptable working conditions for their workers. Given the difficulties in obtaining data in the region, the generalization in the above-mentioned observation across the region is not scientifically sound. Because countries differ in their legal settings and operating criteria, it is necessary to make such generalizations with caution. Indeed, some countries in the Middle East have made considerable improvements in their health and safety regulations. For instance, the United Arab Emirates (UAE) produced a comprehensive code of practice to govern health and safety requirements, and Qatar has introduced tough legal rules tailored to protect migrant workers (Kronfol et al., 2014).

However, more research and suitable intervention strategies have yet to be implemented to reach desirable health and safety outcomes. Existing legislation in most Middle Eastern countries is still generic and does not involve specific regulations or codes to reduce problems associated with psychosocial working conditions. In many countries health and safety legislation requires employers to identify and mitigate psychosocial risk factors that cause work stress (Ertel et al., 2008). In the Middle East, non-specific legislation, combined with inadequate law enforcement, leaves the door open to contractors

and companies to interpret and implement the law subjectively (Awwad et al., 2016). Similarly, a study conducted among migrant construction workers in Saudi Arabia found that the country had adequate health and safety legislation but insufficient enforcement and implementation. The study concluded that migrant construction workers work and live in poor conditions that induce unsafe behavior, reduce job satisfaction, and lead to poor safety performance (Suresh et al., 2017). Another issue that makes it difficult to identify and mitigate psychosocial risks is the fact that the formation of workers' trade unions is prohibited in most countries in the region (Sultan, 2013). Trade unions are generally a strong stakeholder that protects workers' rights and voices their health and safety concerns. Migrant construction workers in the region are largely deprived of the right to form trade unions, exacerbating the health and safety challenges they face.

A crucial aspect of the legal context in the region is the work permit regulations that govern the relationship between the migrant worker and the employer. This work permit system is generally referred to as the "kafala" system in the GCC, where each employer recruits workers through a contract developed by the Ministry of Labour (Diwan & Akin, 2015). However, in most cases there is another internal binding contract between the worker and employer, and payment made to agents unknown to the authorities in the host countries (Jureidini, 2014). It is important to note that the kafala (work permit system) is heavily criticized by many international organizations as it strips workers of many rights and offers employers the upper hand, encouraging them to abuse migrant workers (e.g. Amnesty International Report on Qatar, 2014). The referenced report have called on Gulf countries to abolish this system because it permits the unfair treatment of workers. Therefore, as per these reports, many shortcomings are noted in the overall labour law in

most of the countries in the region, and the work permit system in the Gulf States in particular. Many legal concerns will be addressed in detail throughout this thesis, and the above legal summary highlights key contextual aspects in relation to the current investigation. The following section describes the health and safety standards in the region.

1.7 Health and Safety Standards and Legislation in the Middle East

Developed countries typically adopt tough health and safety standards to prevent workplace injuries (e.g. OSHA standards in the US). In contrast, such standards are often lacking in developing countries (Alkilani et al., 2013). With a focus on Jordan, Alkilani et al. (ibid) attributed low health and safety standards in the construction sector to a lack of commitment from the government in developing and enforcing adequate legislation and regulations. A similar study by Awwad et al. (2016) investigated 15 construction companies in Lebanon. The study found that only 8 companies out of the 15 involved in the study implemented health and safety management systems. Moreover, the implementation of health and safety procedures varied widely among these eight companies. The study attributed the discrepancy in effective implementation to the absence of a unified national health and safety management system, since participants indicated that their safety systems were based on a random combination of international standards such as those of the US and Britain, as well as their experience on prior projects. The same study indicated that 7 companies out of the 15 participating did not develop health and safety plans, procedures or systems. Reasons behind this lack of commitment to workplace safety included absence of laws and regulations enforcing safe practices. Other reported causes were the perceived length of time and high cost associated with safety implementation.

Countries across the Middle East vary in their health and safety standards. For instance, in the UAE, construction companies adopt higher health and safety standards compared to other countries in the region (Deloitte, 2015). Nonetheless, due to various international companies involved in construction projects in the UAE, there are challenges facing health and safety implementation at the workplace level. For instance, Chinese construction companies that undertake many projects in the country tend to adopt Chinese standards and codes (Deloitte, 2015). Furthermore, in the project where the current study was conducted, all four involved companies adopted certified health and safety management systems such as 18001 ISO OHSAS. Nonetheless, there is an urgent need to have a unified national health and safety management system, standards and legislation as suggested by Awwad et al. (2016). A unified national health and safety management system is important for enforcement, inspection and audit purposes. In this regard, the Abu Dhabi Emirate in the UAE took steps to standardize health and safety management systems in the major industrial sectors. In 2009 the emirate issued a decree for the development of environment, health and safety management systems across all sectors, including construction (Maraqa & Mohamed, 2013). This required all companies in the construction sector to develop and implement an environment, health and safety system by 2020. The system that the emirate developed integrates various regulations and risk management procedures. Maraqa and Mohamed's (2013) study in the Abu Dhabi Emirate recommended that auditing and accreditation by external certified bodies is important to ensure proper implementation of the environment, health and safety system. The study also argued that enforcement by authorities is equally important to urge companies to adopt and implement the developed system.

Concerning international health and safety standards and regulations, the International Labour Organizations (ILO) produced a number of conventions that each state member must ratify. Many state members ratified some, but not all conventions (ILO, 2020). Similarly, Middle Eastern countries selectively ratified the occupational health and safety (OHS) conventions. For example, Kuwait ratified seven out of the eight fundamental conventions, while the Kingdom of Saudi Arabia (KSA) and UAE ratified six of the eight. Most of the countries in the region did not ratify the main occupational health and safety convention (C155), the occupational health services convention (C161), and the promotional framework for OHS convention (C187) (ibid). A study conducted for the ILO by Rima Habib in 2007 concluded that out of the 18 Arab countries studied in the region, only Algeria ratified the health and safety convention (C155). The study reported the following reasons that prevent the KSA and the UAE from ratification: the conventions contradict some aspects of the National Legislations; other administrative reasons; and some economic sectors, such as government/public sectors, are not covered under the Code of Labour (Habib, 2007). However, most of these countries, including the UAE, did not denounce any of the occupational health and safety conventions (ILO, 2020). Habib's 2007 study indicated that the UAE developed local OHS legislation that is largely in line with ILO conventions. However, enforcement is inadequate in some respects, especially in terms of the number of inspectors and their powers. Among other labour conventions, UAE Federal Law No. 8 of 1980 covered: workers' health and safety protection, welfare and wage protection, compensation provision, and health service provision. Furthermore, Habib's 2007 study confirmed that the UAE developed the National OHS policy and the National OHS program in line with ILO OHS conventions. However, the study urged the

UAE and other Arab countries to update their OHS standards to meet international standards and the ratification of ILO conventions, improve enforcement of OHS standards, enhance workers' health and safety committees, and form workers' unions.

In conclusion, health and safety standards in the region are currently inferior to those typically implemented in developed countries. However, countries in the region vary in the development and implementation of health and safety standards. GCC countries, and specially the UAE, are taking significant steps towards improving occupational health and safety standards.

Summary

This chapter has outlined the scale of occupational migration to the Middle East. Moreover, the main health and safety challenges facing migrant workers and the overall working environment were highlighted. The chapter concluded by summarizing the legal and environmental context underpinning the current investigation.

The following chapter reports on the psychosocial hazards associated with construction working conditions where migrant workers operate. The chapter also reports on the existing literature on psychosocial hazards and associated health and safety outcomes.

2 Chapter Two: Psychosocial Working Conditions and Safety Climate – Relations with Health and Safety

2.1 Background

This chapter provides an overview of the existing literature on psychosocial hazards and their impact on workers' health and safety. The key objective of this process is to identify knowledge gaps in order to guide the research questions of the current investigation.

First, this chapter discusses the conceptualization and nature of psychosocial working conditions and their health and safety implications. In the second part, it reports on safety climate and its association with psychosocial working conditions. The chapter further provides a detailed description of the notion of job strain and its association with health and safety outcomes. The final part of the chapter describes the theoretical background and framework of the research and concludes with the objectives of the study.

2.2 Psychosocial Hazards and Health and Safety Outcomes

The term psychosocial hazards is defined as aspects of work design, the organization and management of work, and their social and organizational contexts, which have the potential for causing psychosocial or physical harm (Cox & Griffiths, 1995). The construction industry is notoriously stressful and demanding (Campbell, 2006). With the highly competitive environment and tight project timeframes, construction work can be mentally and emotionally demanding and stressful (Wahab, 2010). Traditionally, safety and health studies in the construction industry often propose interventions aimed at preventing injuries from a physical standpoint. However, in recent decades there has been an increase in the number of studies investigating links between psychosocial factors,

workers' injuries, and health in the construction sector (Goldenhar et al., 2003; Sobeih et al., 2006). One of the main issues affecting workers' daily performance is job-related stress (Cotton & Hart, 2003; Hart & Cooper, 2001; Jex, 1998; Wright & Cropanzano, 2000). Working in a stressful environment is likely to have a negative impact on workers' health and safety. There have been calls for a focus on the influence of psychosocial risk factors in research on the working conditions of construction workers (Alavinia et al., 2007). A key challenge concerns the identification and control of psychosocial risk factors.

Work-related stress is defined by the UK Health and Safety Executive as the adverse reaction people have towards excess pressure and other demands they experience in the workplace. Consistent with this definition, the European Agency for Safety and Health at Work defines work-related stress as a situation where work demands exceed the employee's ability to cope with or control them (European Agency for Safety and Health at Work, 2009). Stress is a state, and not an illness; where it is prolonged and excessive, it may cause both physical and mental ill health (Health and Safety Executive, 2018).

A substantial body of research has identified risks associated with psychosocial hazards that can cause psychological and physical harm (Leka & Cox, 2008b; Leka & Houdmont, 2010). Some examples of the commonly identified psychosocial hazards are unclear and conflicting roles and responsibilities, poor communication, long working hours (high demand), and low decision latitude (control). For instance, when employees face high job demands, they may ignore or work around safety rules to complete the job (Halbesleben, 2010), and this may result in accident or injury. Therefore, psychosocial hazards, on one hand, can cause immediate physical harm in the form of injury and accidents. On the other hand, they can have a chronic effect on physical or psychological

health. Adverse psychosocial work environments may lead to stress-related disorders (Nieuwenhuijsen et al., 2010), including depression and musculoskeletal problems (Bonde, 2008; Eatough et al., 2012). In a 2014 study conducted in Ghana, Amponsah-Tawaih, Leka, Jain, Hollis, and Cox found that psychosocial hazards were positively associated with the number of times a worker was involved in an accident. However, in this study, higher work demands combined with low control and low support and security proved to be more likely to increase the recurrence of accidents. This clearly indicates that poor psychosocial conditions in the workplace are linked to poor safety. Moreover, psychosocial risks may have negative effects on organizational performance. A study conducted by Arshadi and Damiri (2013) in the Middle East region found a negative relationship between psychosocial stressors and job performance, and a positive relationship between turnover intention and job stress. Furthermore, there is evidence that workplace stressors influence employee job satisfaction and turnover (Applebaum et al., 2010).

Despite the evidence of the negative effects of psychosocial hazards, organizations may remain reluctant to address these risks and adopt suitable and sufficient interventions. Some studies have acknowledged that workplace interventions are often targeted towards individuals rather than organizations (Leka & Cox, 2010). The interventions are also usually not specific to the context of the organization. Moreover, workplace health interventions are rarely underpinned by any real examination of the root problems. Maharee-Lawler (2012) argued that:

> Despite the strong support for comprehensive stress prevention programs that simultaneously address the work-based sources of job stress while enhancing employees' coping capacities, firms are more likely to invest in strategies to help

> workers cope with a stressful workplace (for example, through cognitive behavioral therapy, relaxation training and lifestyle-oriented employee wellbeing programs). (p. 332).

Hence, firms may be reluctant to take steps to prevent or reduce organizational sources of employee stress (Comcare, 2008). This approach appears to be more prevalent in countries where health and safety legislation does not emphasize the importance of psychosocial working conditions (Murphy & Sauter, 2003). The problem is complex in the Middle East region, as health and safety legislation has no specific regulations pertaining to psychosocial working conditions. In fact, there is no evidence found in the research conducted in the area to support either of the approaches indicated above by Maharee-Lawler. The organizational focus has tended to be orientated towards physical hazards and their direct consequences for physical injuries. Psychological and psychosocial domains have usually been either ignored or under-examined (Fass et al., 2017). Moreover, there is clear evidence that local legislation and formal codes of practice devised to prevent physical ill health are inadequate (Awwad et al., 2016).

A study in the Middle East documented that 55% of its respondents believed that workplace accidents were not reported (Borthwick & McAndrew, 2012). It is believed that many work-related accidents and deaths in the region, particularly in construction, go unreported (Hadid, 2005). Furthermore, Loney et al. (2012), concluded that expatriate workers in the UAE either: (i) lack the knowledge of the negative health consequences associated with specific occupational hazards; and/or (ii) have not been adequately trained in, or do not see the benefits of following safety and health requirements. However, Borthwick and McAndrew (2012) found that respondents from Europe (95.3%) were of

the view that the safety and health standards of the construction industry in their home countries were better than the standards in UAE. Interestingly, 77.7% of respondents that came from countries outside Europe (mainly Asia) thought that the UAE provided better safety and health standards than their country of origin. In a study conducted in Saudi Arabia, Christopher et al. (2004) found that expatriates' General Health Perception (GHP) was better than most of the population norms because no links existed between GHP and the assignment duration. Although these findings contradict many other studies, they indicate that each area has characteristics that may subsequently constitute different psychosocial hazards. Therefore, more studies are needed in the region to explore plausible and specific psychosocial risks and their implications. Despite several studies identifying a wide range of psychosocial hazards, further studies are warranted because of the unique nature of the work settings. In addition, the interaction of these hazards and the potential consequences warrant further investigation.

It is important to highlight the nature of the workforce in the Middle East, where migrant workers from different countries have to work together despite their diverse backgrounds. Social diversity may pave the way to a wide variety of psychosocial risks e.g., workers from various Asian countries must work and live side-by-side with workers from African and Arabic nations despite their different social and cultural backgrounds (Randeree, 2008). Moreover, migrant workers are likely to be unfamiliar with the working conditions in the region. This is an added challenge they face. For these reasons, it is imperative that risks associated with psychosocial hazards are investigated. Hence, this study set out to explore this neglected area of research in an attempt to address an important knowledge gap.

2.3 Safety Climate and Health and Safety

It is important to define and highlight the importance of safety climate and safety culture in relation to psychosocial hazards. The investigation of safety climate is important since it is a key indicator of an organization's health and safety performance. In 1980, Zohar introduced the concept of the safety climate and how workers perceive the safety values of their organization. Safety climate can be defined as shared perceptions concerning safety policies, procedures, and practices (Zohar, 2003). It is widely accepted that safety climate represents the shared perception of employees of the priority that an organization places on safety (Zohar, 1980; Zohar & Luria, 2004). Consistent with this perspective, another definition extensively used by researchers considers it as the individual perception of policies, procedures and practices relating to safety in the workplace (Neal & Griffin, 2006).

Safety culture on the other hand, refers to aspects of organizational culture that affect behaviors and attitudes associated with risks. Safety culture can be viewed as the collective values, attitudes, and beliefs among the employees in any organization as affected by safety parameters (Choudhry et al., 2007; Guldenmund, 2000). Many scholars have used the safety culture and safety climate terms interchangeably. However, safety climate is also seen as a manifestation of safety culture based on the attitudes and behavior adopted by employees (Cox & Flin, 1998; Guldenmund, 2000). Safety climate provides important insights into the status of safety culture in the workplace (Cox & Cheyne, 2000). Guldenmund (2000) claimed that safety climate is used to measure safety culture at a given point in time, making use of safety records, magnitude of compliance to mandates and regulations, and assessing the perception and attitude of employees towards safety. To

solidify the safety culture definition, Petitta, Probst, Barbaranelli, and Ghazi (2017) defined the construct as "a shared set of safety-related attitudes, behaviors, values, and ingrained assumptions that orient organizational actions pertaining to safety" (p. 3). These authors quantitatively measured safety culture using a set of safety culture types, namely autocratic, bureaucratic, technocratic, clan patronage, and cooperative. They found that certain safety culture dimensions (e.g. autocratic, bureaucratic, and technocratic) and safety climate can be used to predict employee compliance. However, safety climate moderates the relationship between supervisor enforcement and employee compliance only under specific safety culture conditions. Petitta et al. (2017) argued that their findings highlighted an empirical distinction between safety climate and safety culture. The study also posited that organizational safety culture offers a more qualitative distinction between the ingrained safety-attributed beliefs, values, and attitudes among an organization's members, while safety climate measures the perceptions of an organization's members towards safety features.

Scholars use various instruments to measure safety climate. These include but are not limited to management commitment, safety training, safety communications, and safety performance (Beus et al., 2010; Seo et al., 2004; Zohar, 2003). Despite the existence of several instruments for the examination of safety climate, the objective of such examination is usually to assess the organization's safety commitment and subsequent health and safety performance in the workplace as explained in the following sections.

Zohar and Luria (2005) have distinguished between two different levels of climate at the workplace using their Multilevel Model: the organizational level climate and the group level climate. The organizational level climate involves management commitment

manifested in procedures and policies, while the group level climate depicts supervisory safety priorities. This model considers that top management sets policies and procedures, which form the reference and boundaries for supervisors' decisions related to the implementation of day-to-day tasks. It is noteworthy that the two climates are often consistent but not identical. In other words, strong organizational climate predicts high safety priorities implemented by supervisors. Subsequently, these safety priorities shape and adjust workers' perceptions and ultimately predict safe or unsafe behaviour. Moreover, the Multilevel Safety Climate Model assumes that supervisors interpret and execute safety procedures. Accordingly, workplace supervisors must make choices regarding competing work demands and whether or not to disregard safety in favour of work production. Therefore, discretion in the implementation of the work on site informs and determines the perceptions of workers towards safety. For instance, supervisors who ignore safety and favour production send a negative message to workers about safety priority, resulting in a low level of safety climate.

The current study tested safety climate utilizing the same concept of assessing the workers' attitudes towards the supervisors' behaviour regarding safety priorities. The study used the 16-item instrument that was developed by Zohar and Luria (2005). The questionnaire contains three types of supervisor behaviour:

> (i) active practices (e.g. makes sure we receive all the equipment needed to do the job safely), (ii) proactive practices (e.g. reminds workers who need reminders to work safely), and (iii) declarative practices (e.g. spends time helping us learn to see problems before they arise). (p. 6)

The concept of assessing safety climate based on supervisory safety behaviour has been extensively used in previous studies. A recent meta-analytic review carried out by Alruqi, Hallowell, and Techera (2018) found that 34 studies out of 107 used the supervisory safety response as a measure of safety climate. Notably, all the studies reviewed were conducted within the construction industry. The current investigation used Zohar and Luira's questionnaire to examine supervisory safety response and ultimate evaluation of safety climate as the study is related to the construction sector. Furthermore, this safety climate instrument was found reliable and practical, and it has been widely validated (Johnson, 2007; Brondino et al., 2012; Huang et al., 2012).

The following section outlines the distinction between psychosocial safety climate and safety climate, and why the current study elects to utilize the latter construct over the former.

Psychosocial Safety Climate (PSC)

Psychosocial Safety Climate (PSC) is a relatively new construct developed by Dollard and Bakker (2010). These authors defined PSC as shared perceptions regarding policies, practices and procedures for the protection of worker psychological health and safety (Dollard & Bakker, 2010). In the original model, the PSC construct uses the Job Demands–Resources model as a theoretical framework, with the assumption that PSC is an upstream organizational climate influenced widely by senior management and precedes working conditions. Therefore, PSC is considered a specific dimension of organizational climate. The construct comprises: (1) senior management support and commitment for stress prevention through involvement and commitment; (2) management priority towards psychological health and safety versus productivity goals; (3) organizational

communication, that is, the organization listens to contributions from employees; (4) organizational participations and involvements (Dollard & Bakker, 2010).

Similar to safety climate, PSC is a facet of organizational climate. However, as acknowledged by Dollard and Bakker, the main distinction between the two is that PSC emphasizes psychological health and safety while safety climate focuses on physical health and safety. These authors further explain that PSC may provide indications for desired safety behavior within the organization. For instance, in an environment of low PSC, bullying and other negative behaviour may be prevalent because employees perceive that psychological health and safety is not a priority in the organization. It is important to note that because PSC focuses specifically on psychological health and psychosocial hazards, it is expected to predict these outcomes with more accuracy compared to safety climate (Hall et al., 2010). However, Zohar's 2011 study posited that one of the important features of safety climate is that it shapes the perception of employees about the priority of safety in the organization. This is clear on the importance of prioritizing safety versus production, which will predict the safe or unsafe behavior of employees exposed to physical or psychosocial strain, as argued by Bronkhorst's 2015 study. This later study concluded that regardless of the focus on physical or psychological safety, safety climate in the organization promotes safe employee behavior. Safety climate can be an optimal intervention strategy to prevent harm to physical or psychological health (Bronkhorst, 2015). Therefore, the current investigation postulates that the examination of safety climate is a reliable indicator of both physical and psychosocial risk levels in the workplace in agreement with Zohar and Bronkhorst. It is important to explain the reasons as to why the current investigation elected to examine safety climate rather that PSC:

i. PSC is a complex construct as compared to safety climate. In the context of the current investigation, where participants are workers with little by way of formal education, it can be considered appropriate to use the simplest measurement instruments available. Therefore, safety climate is found more suitable for the current investigation.

ii. In the qualitative study, participants expressed their concerns regarding site managers'/supervisors' safety role and behavior onsite. Therefore, safety climate is manifested in the workers' perception of the supervisors' attitude towards safety, and safety climate is perfectly explained and specifically measured by Zohar's (2005) 16-item model. On the other hand, the PSC framework does not specifically address this aspect of organizational climate; PSC is largely focused on senior management roles and commitments towards protection of workers' psychological wellbeing (Hall et al., 2010).

iii. Safety climate is useful for the examination of workplace safety performance. It demonstrates the real value of safety when it comes to the decisions made in the workplace in day-to-day tasks. The safety priorities made on site shape and adjust workers' perceptions and ultimately predict safe or unsafe behavior as indicated by Zohar and Luria (2005). In other words, safety climate can examine the actual safety value perceived by workers in production versus safety, situations. Since the current research objective is to explore the health and safety conditions where migrant workers operate, the safety climate construct is a suitable indicator for this purpose.

iv. The current study is an exploratory cross-sectional investigation, and one of its main objectives is to gain insight into health and safety conditions in the workplace. Therefore, safety climate as a reliable indicator of health and safety performance fits the purpose of this study.

v. PSC focuses on upstream organizational climate influenced and driven mainly by senior management commitment to psychological health and safety versus productivity goals (Dollard & Bakker, 2010). However, safety climate mostly emphasizes physical health and safety at the workplace. The current research is specifically concerned with migrant workers' perceptions of site supervisors'/managers' attitudes towards safety onsite. Therefore, this particular concern can adequately be examined using safety climate rather than PSC. However, future studies may elect to use PSC for examination of organizational climate. This can further shed light upstream into the commitment of organization management to psychological health and safety, complementing the current study's downstream examination of the existing health and safety conditions at the workplaces.

2.3.1 Safety Climate and Psychosocial Working Conditions

Cox, Griffiths, and Rial-Gonzalez (2000) divided psychosocial factors at work into aspects of job design (e.g. work pressure, job control), organization, and management of work that can cause stress. In agreement with Zohar (1980) and others, it is obvious that safety climate is an important factor to consider when addressing psychosocial working conditions. Safety climate is a reliable indicator of an organization's working environment and a determinant of its health and safety performance (Glendon & Litherland, 2001). A

poor safety climate correlates positively with unsafe working conditions and ultimately, poor health and safety performance. It is generally accepted that organizations with a strong safety culture and a good safety climate are better prepared to prevent workplace accidents and injuries (Baram & Schoebel, 2007). Flin et al. (2000) reported that safety climate has been widely accepted as a reliable indicator for safety performance in contrast to other extensively used indicators such as "lost time injury." A recent longitudinal study conducted among blue-collar workers in Denmark found that safety climate predicted future workplace accidents (Ajslev et al., 2018). Moreover, one of the largest meta-analytic studies in the field, which covered 203 studies, concluded that safety climate accounted for 15.5% of accident/injury variance and another 49.8% of unsafe behavior variance (Nahrgang et al., 2011). This finding corroborates the conclusion of a study conducted among construction workers in Hong Kong. The study demonstrated that safety climate predicted occupational injuries (Sui et al., 2004). Moreover, the safety climate construct has been widely involved in recent accident investigations. Because of its crucial role in establishing the root causes of accidents, organizations and firms actively focus on safety climate and its implications in accident causation (Columbia Accident Investigation Board DC NASA, 2003; Cullen, 2001). In a recent study conducted in the construction industry in Canada, safety climate was confirmed to be negatively associated with safety outcomes and job-related stress (Chen et al., 2017). More importantly, safety climate has association with broader aspects of psychosocial working conditions and psychological health outcomes. For instance, safety climate was associated with workers' perceptions of job insecurity. Probst (2004) has noted that a good safety climate reduced or eliminated the adverse effects of job insecurity on safety knowledge, safety compliance, employee

accidents, near-miss incidents, and workplace injuries. Therefore, a positive safety climate is a prerequisite for safe working conditions.

To understand how safety climate is exhibited in the workplace, it is important to understand how it is examined and measured. Safety climate is examined at the organizational level, with emphasis on management commitment manifested in safety policies and safety procedures as mentioned above. It is also measured at the group level as indicated earlier (Zohar, 2000), and at the individual level, addressing behavioral factors such as safety compliance and attitudes towards safety systems. Zohar (2003) and Seo et al. (2004) have determined a number of crucial factors necessary to measure safety climate. These factors include: (1) management safety commitment; (2) management and policies and procedures; (3) safety training; (4) safety communications; and (5) work risk and employee involvement.

In summary, safety climate is measured using various tools and instruments, which ultimately indicate how the organization places safety among other priorities. Moreover, the measurement of safety climate relies largely on the perception of the employees—a huge body of research adopts the survey method in identifying the value of safety in the workplace. Nonetheless, it is noted that in some circumstances, safety climate can be an outcome rather than a predictor. Beus et al. (2010) found that injury rate is a strong predictor of safety climate, and not the opposite where safety climate predicts injury rate. In this case, the rate of workplace injury may have influenced the employees' perception towards safety, manifesting a poor safety climate.

It is imperative to note that the use of different instruments to measure safety climate has received criticism. In a recent systematic review, Leitão and Greiner (2016)

argued that the use of different measures of safety climate caused confusion and affected the validity of safety climate as a predictor of health and safety outcomes. The review raised additional concerns regarding the ambiguity of safety climate dimensions. However, many studies have demonstrated that safety climate is a credible predictor of psychosocial and physical health and safety outcomes (Beus et al., 2010; Christian et al., 2009; Clarke, 2010; Nahrgang et al., 2011). Johnson (2007) conducted a study to assess the predictive validity of safety climate. The author concluded that the instrument proved to be psychometrically reliable and valid, and it could be used as an effective predictor of safety-related outcomes for both safety behaviour and accident incidence. The current study has examined the 16 items of Zohar's (2005) Safety Climate Questionnaire. In the questionnaire, safety climate is measured by assessing the perception of workers towards their site supervisors'/managers' prioritization of safety. In other words, the instrument assesses the perception of workers towards the site managers' attitudes and their resultant actions regarding safety priority that shape safety climate among workers. The current study has elected to use the same instrument to measure safety climate, as it is practicable and reliable, particularly within the context of the construction sector in the region.

The following section reviews the safety climate literature in the construction industry. Since the current study is being conducted within the construction sector, it is vital to examine the existing literature in this area.

2.3.2 Safety Climate in the Construction Industry

In pursuit of establishing a sound research avenue, I looked into the safety climate literature focusing on its use in the construction industry as a reliable predictor of safety and health performance. It is noted that the construction sector registers high rates of

accident and work-related illness. This view has been supported by Fass et al. (2017) and Suresh et al. (2017) in two different study surveys. A significant number of studies have focused on examining safety climate as a predictor of accident rates and safety performance. This finding has also been confirmed by numerous studies (Siu et al., 2003, 2004; Choudhry et al., 2009; Lingard et al., 2010; Zhou et al., 2011). Siu et al. (2004) also found that safety climate influences safety behaviour and accident prevention. This shows that safety climate is one of the key factors that affect the degree of safety in the working environment. Improved safety climate promotes good safety performance and reduces the risk of accidents (Baram & Schoebel, 2007). As detailed earlier, safety climate is a psychological and psychosocial construct that is expressed in several dimensions. Siu et al. (2004) claim that management commitment, procedures, and practices are important organizational factors necessary for building an organization's safety climate. A study by Alruqi et al. (2018) on safety climate in construction industries has found that the main safety climate dimensions commonly used to predict injury include the supervisor's safety role, safety rules and procedures, management commitment, individual responsibility to health and safety, and training.

Identifying and determining all the safety climate factors is the first step, but the main challenge that confronts organizations is how to foster and enhance these factors concurrently to achieve a positive safety climate. I suggest that an additional challenge that confronts the construction sector is the fact that most construction workers are hired for a limited or fixed contract in line with the project lifetime. This idea is consistent with what Suresh et al. (2017) have asserted. Once the project is completed, workers are usually demobilized. Therefore, after improving the safety attitude of one cohort of workers and

supervisors, the management is obligated to retrain a new cohort of workers that is recruited for the next project. I see this as a true challenge in the training and education of construction workers in the in the Middle East. Varia (2011) thinks that other problems arise where concerns such as language, communication, social barriers, and sometimes even discrimination float to the surface. In spite of these challenges, I believe that it is the responsibility of the construction companies in the region to improve and enhance safety climate during the limited construction contract. It is my view that in order to overcome such challenges, robust research is warranted to provide practical solutions and quick and efficient interventions. As stated earlier, I found very few studies focusing on psychosocial and psychological safety in the region. As well, no single study was found to examine safety climate and its association with health and safety outcomes among migrant workers. This statement is supported by the findings of a study by Leung and Cooper (2015) that analyzed studies investigating work-related stress in construction between 1989 and 2013. The scholars reviewed a vast number of studies, 50% of which came from Hong Kong, 22% from Europe, 15% from Australia and 2% from the United States. This research has found no similar studies in the Middle East, in spite of the massive construction boom underway in the region. This gap in the knowledge presents an imperative for the current research. It leaves questions about the status of safety climate in the Middle East construction sector and whether safety climate could be investigated as a predictor of health and safety outcomes. In other words, the study attempts to examine safety climate and to demonstrate the degree to which it is associated with health and safety outcomes for migrant workers in the region.

Following a review of the safety climate literature in relation to health and safety, the next section is a discussion on the relationship between safety climate and job satisfaction.

2.3.3 Safety Climate and Job Satisfaction

The focus of this section is to identify the association between safety climate and job satisfaction outcomes. Price (2001) has defined job satisfaction as the affective orientation an employee has towards his or her work. Job satisfaction can also be seen as a global feeling towards the job, or employees' attitudes regarding different facets or aspects of the job. A number of studies demonstrated safety climate as being a predictor of employee job satisfaction (e.g. Morrow & Crum, 1998; Clarke, 2010; Michael et al., 2005; Goldenhar et al., 1998). A study by Suresh et al. (2017) on migrant construction workers in Saudi Arabia found that poor working conditions, inadequate welfare provisions, and exploitative wages had a negative relationship to safety climate, job satisfaction, and productivity. In 2010 DeJoy, Della, Vandenbert, and Wilson argued that safety climate might relate to outcomes highly important to an organization's performance and success. Their study showed that safety climate does influence employee outcomes, namely job satisfaction, engagement, and turnover. Ultimately, these outcomes would affect the organization's production and success.

This study has utilized group safety climate level for conceptualizing organizational safety climate as developed by Zohar (2005). In the referenced concept, the attitude of workers would likely be influenced by the site manager's or supervisor's safety priority. Simply put, the practices and behavior of site managers or supervisors would affect workers' perception of the workplace safety climate. Therefore, the current study examines

the association between safety climate and migrant workers' overall feelings towards their job (e.g. job satisfaction). Clarke (2010) has found a direct relation between safety climate perceptions and job satisfaction, attributing that to the organization's safety provisions, which in turn may result in improving job satisfaction levels of workers. Six years later, a study conducted by Huang et al. (2016) found that safety climate related to outcomes beyond those of conventional safety. Huang et al. demonstrated that safety climate predicts job satisfaction, employee engagement, and turnover (2016). In this regard, what the company provides for safety creates a generalized climate belief, which in turn influences specific attitudes such as job satisfaction. Michael et al. (2005) suggested that employees who have positive safety climate perceptions are more likely to perceive support from their organizations as positive treatment and commitment to their wellbeing. This can create positive motivation to perform the work safely and improve job satisfaction. That being said, the current study has explored the possible relationship between migrant workers' attitudes towards site managers' safety priorities on one hand and job satisfaction on the other. The study also examines this possible relationship among three existing participant groups, namely labourers, skilled workers, and foremen.

After the review of safety climate literature, the following section discusses the notion of job strain and its association with health and safety outcomes.

2.4 Job Strain and Health and Safety Outcomes

From existing literature and first-hand experience in the Middle East construction sector, I am aware that among factors that trigger poor health and unsafe conduct, a problem to consider is psychological job strain. Job strain was defined in Karasek's (1979) original job strain model, where the author proposed that the combination of low job

control and high job demands creates high job strain that is potentially harmful to workers' health. Before presenting the job strain model, it is important to outline the effects of job strain on health outcomes. A number of previous studies have identified job strain as associated with indices of occupational health and safety (Goldenhar et al., 2003; Hakanen et al., 2008; Hofmann & Stetzer, 1996; Turner et al., 2010). To date, few studies have examined this association among migrant workers in the construction sector. That is why the current study explores available literature on the relationship between job strain and health and safety outcomes specifically among migrant construction workers.

In order to further explore this relationship, the following section will first discuss the job strain model. This will facilitate the understanding of the health and safety consequences of job strain within this theoretical framework.

2.4.1 Job Strain Model

Karasek's (1979) Demand–Control Model focuses on two psychosocial characteristics of work: job demands and job control. The job demands parameter in the current study refers to workload (Hockey & Earle, 2006), time pressure, and role-related demands such as role ambiguity and role conflict (Gilboa et al., 2008). The job control parameter refers to the ability of employees to exercise control over the skills and methods they use to perform their duties (e.g. skill discretion), as well as the extent to which they can contribute to decisions affecting their job (e.g. decision authority) (Karasek, 1979). Thus, the model is based on two main hypotheses:

1. The combination of high job demands and low job control causes psychological and physical strain (high strain jobs)—the strain hypothesis.

2. Jobs in which both the demands and control are high result in positive outcomes such as wellbeing, learning, and personal growth (active jobs).

According to the combination of job demands and control, the following job types can be identified (Karasek & Theorell, 1990):

1. High strain jobs: high demands and low control.
2. Low strain jobs: low demands and high control.
3. Active jobs: high demands and high control.
4. Passive jobs: low demands and low control.

In Karasek's original model, the work category characterized by high job demands and high job control is termed active work, and it provides challenging opportunities resulting in encouragement of skill and knowledge acquisition. In contrast, a low strain job (low job demands and high job control) does not provide employees with motivation. High strain jobs (high job demands and low job control) and passive jobs (low job demands and low job control) may affect employees, discouraging them from improving their skills and mastering the job (Parker & Wall, 1998). The original model was further modified in 1988 to include social support. Scholars considered the social support a buffer in high demand circumstances (Cooper et al., 2001; Karasek & Theorell, 1990; Johnson & Hall, 1988; Lim, 1996). However, the current study has elected to use the original model as a framework for exploring job strain factors and their health and safety outcomes. The model has been used extensively during the past three decades, particularly in the prediction of occupational health and safety outcomes. In consulting existing literature, I found that a connection between job strain and cardiovascular disease has been established (Alfredsson et al., 1982; Johnson & Hall, 1988; Karasek & Theorell, 1990; Karasek et al., 1988). Job strain has been

associated with other health issues, such as lung cancer, depression, suicide, fatigue, sleeping problems, headaches, and stomach problems (Aasa et al., 2005; de Croon et al., 2002; Tsutsumi et al., 2007). The model has also been applied in the construction sector (Bowen et al., 2014; Holmström et al., 1993).

The job demand–control model has received extensive reviews and assessment in recent decades (Cox & Griffiths, 2010; Häusser et al., 2010; Van der Doef & Maes, 1999). The model has also received mixed support from many cross-sectional and prospective epidemiological studies, while the strain hypothesis has been widely supported in studies assessing psychological wellbeing. Nonetheless, the model was mainly criticized for not considering the direction of causation between demands and health (de Lange et al., 2004). It also did not consider the independent effects of job demands and job control (Häusser et al., 2010), besides the narrow focus on two individual psychosocial hazards (demands and control) (Sparks & Cooper, 1999). Cox and Griffiths (2010) noted in their theoretical review of work-related stress that despite the criticism of demand–control theory, many researchers have continued using Karasek's model, and it has had a major impact at the policy level. According to Beehr, Glaser, Canali, and Wallwey (2001), the factors that might explain the massive popularity of Karasek's job demand–control model are:

1. The model is easy to understand.
2. The concepts are easy to empirically test and measure.
3. The findings of studies that show relationships between job demands, job control and health and performance outcomes point to practical implications for employers.

As stated earlier, in view of the merits of this valuable model, the current study chose it as an analysis tool. I believe it is a suitable framework for focusing on the

examination of generic psychosocial work characteristics in relation to health and safety outcomes. However, in considering the minimal criticisms that the job strain model has received, I believe together with Sparks and Cooper (1999) that the model has focused heavily on generalized work characteristics, ignoring more job-specific variables. This, however, has had a very modest adverse impact on analyses of the current research results. The reason is that the current investigation, besides the job strain factors (job demand and control), will not neglect to examine other important job-specific factors. For instance, one of the primary job-specific factors deemed important based on the qualitative study was the payment made by migrant workers to recruiters in order to secure employment for them in the host countries. It is my conviction that this burden of an advanced or promised payment definitely poses a grave psychological threat to the workers' wellbeing. Imposing significant financial stress on these workers will ultimately have a negative impact on their health and safety performance. Due to the effect of recruiter payments on health and safety outcomes, this research has allocated a separate investigation solely to address the issue in Chapter 5. Furthermore, the current study also examined safety climate and its association with health and safety outcomes (see Chapter 7). Therefore, the use of the job strain model is found suitable for the research, keeping in view that other job-specific psychosocial factors were examined throughout the thesis. Utilizing several methods of examination of psychosocial factors will offset potential shortcomings associated with the model.

A discussion of job strain will follow with a focus on studies that have explored the relation to health and safety outcomes.

2.4.2 Job Strain and Its Impact on Health and Safety

A vast number of studies have demonstrated that job demands influence a broad range of outcome variables, including burnout, satisfaction, mental exhaustion, turnover intention, and fatigue (e.g. Gilboa et al., 2008). As stated earlier, job strain and its relationship to cardiovascular diseases has been widely studied. However, it is important to also note that increased job control can reduce the impact of job demands (Dwyer & Ganster, 1991). Hurrell and McLaney (1989) found that increased job control (task control, resource control, and control over the physical environment) was associated with greater job satisfaction. However, it has been established by previous researchers that job strain can have a negative impact on safety performance. For instance, higher psychological job demands have been associated with higher levels of unsafe work behavior (Hofmann & Stetzer, 1996), more frequent near-misses (Elfering et al., 2006), and a higher likelihood of accidents and injuries (Chmiel, 2005). A study by Chau et al. (2005) has shown that the accumulation of high physical job demands generates fatigue, which in turn exacerbates disability and increases the risk of injury. Moreover, evidence of the adverse effects of job demands on safety compliance has been established by several studies, including those of Collinson (1999) and Hofmann and Stetzer (1996).

It has been my experience during the years of working in the sector that job control, namely autonomy, provides employees required resources to address job demands. The higher the autonomy in any job, the more employees experiences the freedom to decide how to meet job demands and thus reduce the potential for strain. A number of previous studies have found that autonomy is negatively related to stress (Hemingway & Smith, 1999; Nahrgang et al., 2011). However, some theoretical support for the association

between positive work demands and employee performance can also be found in the job strain model itself as documented by Karasek and Theorell (1990). Existing findings show that from the job strain model perspective, stressors might not only be relevant as a source of adverse effects, but may also facilitate learning and improved performance in the workplace (Karasek & Theorell, 1990). The current study attempts to examine the various combinations of job demands and control in relation to migrant workers' health and safety. The results of this examination are expected to add positively to existing knowledge and literature.

2.4.3 Job Strain in the Construction Industry

It is well known that construction is a physically demanding form of work. The construction industry has become more stressful in recent decades (Fass, et al., 2017; Campbell, 2006), most probably because of competition and tight projects schedules (Alavinia et al. 2007). In the same year 2007, Beswick and colleagues examined the construction industry and listed a number of stressors besides high job demands, including commuting, safety responsibilities at work, working in a dangerous job, and job insecurity. A study conducted among Dutch construction workers found high job demands to be associated with symptoms of depression. That led Boschman and others (2013) to conclude that low job control and low social support from the direct supervisor created additional psychosocial risk factors for symptoms of depression. These authors believe that there is increasing need for more research to inform suitable intervention strategies with the purpose of mitigating health and safety risks in the construction industry. In the region studied where a construction boom is underway, the necessity for more research is even greater, particularly in the psychological and psychosocial domains which are mostly

ignored during risk assessment of construction activities. A number of researchers (e.g. Al-Tabtabai, 2002; Fass et al., 2017; Kronfol et al., 2014) has noted this paucity in research in the region.

2.4.4 Job Strain and Its Impact on Migrant Workers

A small number of studies have examined the interrelationship between job strain and health and safety outcomes among migrant workers (Grzywacz et al., 2007; Lee et al., 2011; Lee et al., 2012). A study conducted among Latino migrant farm workers in the United States found that isometric load (when workers hold incorrect postures for long periods) was associated with poor physical health, and high job control was associated with improved mental health (Grzywacz et al., 2007). Another study was conducted in South Korea among Korean–Chinese migrant workers (Lee et al., 2012). In this study, more than 20% of the participants were in the construction field and other similar physically demanding occupations. The results of the study showed that work-related psychosocial stressors are significant factors leading to depression among Korean–Chinese migrant workers living in Korea. Moreover, depression has been shown to be one of the most commonly reported mental health problems among migrant workers in the United States and Australia (Anikeeva et al., 2010; Torres et al., 2010). Migrant workers are generally content with low-income and risky jobs which locals are not willing to take on. For instance, a study conducted among Nepalese migrant workers in three Arab Gulf countries concluded that in the sampled group of workers employed in unskilled jobs in construction a third of the participants had experienced work-related injury within a span of 12 months (Joshi et al., 2011).

Based on existing evidence, one key research question is whether high job strain exists among migrant workers in the region. Moreover, is job strain associated with health and safety outcomes? As established earlier, no studies have seriously examined the association between job strain and health and safety outcomes among migrant workers in the Middle East. The current study seeks to shed light on this unexplored area of research and aims to demonstrate whether job strain is associated with migrant construction workers' health and safety.

Based on the job strain model, it is important to note that organizations and employers struggle with striking a balance between reasonable levels of job demands and a reasonable degree of autonomy (control). As an outcome of the literature review, it can be concluded that the increasing emphasis on construction work progress coupled with tight schedules produces a stressful work environment, particularly when employees are not given adequate authority to decide on how to do the job (low control). Therefore, I think this highlights the need for organizations to assess job demands and control in order to alleviate potential high job strain. In its quest to explore the impact of job strain on health and safety of migrant construction workers, the current research seeks to identify pathways for organizations to improve working conditions.

After the literature review related to psychosocial hazards, safety climate and job strain, as well as their links to workers' health and safety, the following section presents a review of a key potential psychosocial hazard. That hazard is the payments made by migrant workers to local recruiters for employment in the Middle East region.

2.4.5 Payments to Local Labour Recruiters

In order to secure employment through a labour recruiter, workers often pay the

equivalent of their prospective annual salary abroad as indicated by a 2006 Human Rights Watch report. In addition to meeting the official required payment/s, workers may be forced to pay unofficial, illegal fees. Focusing on Indian migrant returnees, Buckley (2012) concluded that the recruiters charged a fee that is 6000% higher than the maximum legal limit. Workers who fail to secure the capital to pay a labour recruiter usually take out one or more loans, often at a higher than normal rate of interest. As a result, it takes them several years to repay their migrant debts. In fact, Rajan (2009) and Buckley (2012) estimated that a timeframe of two to three years longer than commonly expected prior to migration is typical. According to the 2006 Human Rights Watch report, this disparity between expectation and reality for repayment periods may be partly explained by the misleading information provided by labour recruiters as they maximize the potential benefits for overseas job seekers. The money is usually paid to local companies acting as intermediary agents in the country of origin. In some cases, the payment is also made through individual brokers who, in return, share the money with local agents and through networks in the country of destination. A study conducted in Qatar that involved migrant workers from five Asian countries (Nepal, Bangladesh, Pakistan, the Philippines, and India) found that recruiter payment practices are largely similar across all five countries (Jureidini, 2014). In the host countries, legislation obliges the employee to pay a nominal fee to the recruiters (see UAE Federal Law, 1980). This payment is usually equal to one month of prospective overseas salary. However, the local recruiters have been found to charge more than $5,000, relative to a typical prospective overseas salary of $200–300 per month (Jureidini, 2014). Furthermore, in most of the host countries in the Gulf for instance, it is illegal to charge the workers money as the employer is legally responsible for all

recruitment fees (UAE Federal Law, 1980). Nonetheless, local recruiters are known to force workers to pay hefty fees in a clear violation of the law in both the country of origin and the host country. There is also evidence that some employers in the host countries are involved in this unjust practice of payment to recruiters. Employers may get cheaper workers and probably other corrupt deals with senior executives in return for procuring contract deals with the local recruiters. These types of shady transactions are never recorded or documented, aiming to circumvent the law. In conclusion, as detailed by Jureidini (2014 and the 2006 Human Rights Watch report, the workers are left alone to deal with the recruiters, thus falling victim to the vicious and unfair traps of unrealistic promised jobs in the region.

2.4.6 Economic Consequences of Labour Recruitment Payments

The migrant construction workers who secure employment through a local recruiter do experience particularly harsh economic conditions in comparison to those who have been directly hired by an employer. Buckley (2012) has found that most workers are employed through local labour recruiters, earn no fixed salaries, have no direct relationship with the contractors in charge of their worksites, and have no access to severance pay or subsidized flights home. The study goes on to describe that these workers experience job insecurity. With no guarantee of work, they sometimes go for long periods without work and pay.

Jureidini's (2014) study in Qatar has concluded that migrant workers are exposed to glimmering unrealistic promises which later plunge them into debt bondage, forced labour, and trafficking, all because of being bound to labour recruiter payment obligations. Randeree (2008) has claimed that knowledge of these practices is widespread, and

governments of both origin and destination countries have been criticized for failing to take adequate steps to enforce legislation preventing or limiting the exploitation in the recruitment process.

The following section reports on the literature related to key constructs of the qualitative study, namely organizational stressors, safety performance and organizational health.

2.5 Association Between Organizational Stressors, Safety Performance and Organizational Health

As Clarke (2006) has documented, safety performance has received increased attention in a number of studies mostly because of its potential link to occupational injuries and accidents. The study defines safety performance as collective workplace behaviors that are potentially linked to accidents. Focusing on safety stressors is one of the different ways of improving workplace safety (Sampson et al., 2014). Based on various theories, the increase in occupational stress exposure could be problematic for job performance in general and safety performance in particular (Rosen et al., 2010). Therefore, accident prevention is largely dependent on identification of the organizational stressors and the introduction of suitable intervention strategies designed to eliminate these stressors.

Organizational stressors are commonly referred to as psychosocial hazards in occupational health psychology. Cox, Griffiths, and Rial Gonzalez (2000) have identified them as aspects of work design, the organization and management of work, and their social and organizational contexts, which have the potential for causing psychological, social, or physical harm. Gmelch (1982) argues that organizational stressors are those factors that

reflect organizational policy and rules, as well as those related to an employee's position within the organization.

In the construction sector, links between organizational stressors and indices of individual and organizational health are well established (Sobeih et al., 2009). For instance, Goldenhar, Williams, and Swanson (2003) found that exposure to ten work stressors was directly related to either injury or near-misses. The researched stressors include job demands, job control, job certainty, training, safety climate, skill under-utilization, responsibility for the safety of others, safety compliance, exposure hours, and job tenure.

As previously noted, organizational health is a relatively new term used in contemporary research. Many closely related terms were used in the past, pointing to a similar version of organizational health. For instance, organizational performance, organizational capability, and more recently, organizational resilience have been used for the purposes of an organization's appraisal. This research has elected to use Xenidis and Theocharous's (2014) definition of organizational health. The definition is the state of complete and unimpeded operations of all formal, informal, main and auxiliary processes. A healthy organization is one where all the processes are running efficiently. The current study explores constructs such as job satisfaction, as an indicator of organizational health status. It is obvious that many factors can lead to an organization's success or failure, as shown in studies discussed in the following section. I believe that the combination of examining the working conditions of migrant workers as well as organizational health makes the current study useful not only in the domain of workers' wellbeing, but also for an organization's success.

Modern organizations call for motivated and healthy employees to compete and prosper. Whether an employee decides to remain in the organization or not has strong links to the employee's perception of the working environment in the organization (DeJoy et al., 2010; Wilson et al., 2004). This working environment shapes overall organizational health in terms of job satisfaction, job security, turnover intention, and work productivity. Moreover, many factors play a major role in creating a positive or negative psychosocial working environment. Several studies have demonstrated the detrimental effect of high work pressure both on workers' productivity and their safety performance (Hinze, 1997; Rundmo et al., 1998; Brown et al., 2000; Mohamed, 2002; Siu, 2005; Mitropoulos et al., 2005). In Traverse and Cooper's (2007) study, job pressure was found to be the main predictor for mental ill health and lower job satisfaction. Other studies have found that pay and compensation were directly related to job satisfaction which contributed to turnover intention (Gustafson, 2002; Tnay et al., 2013; Huang et al., 2016). Pay satisfaction is defined as the level of overall positivity individuals feel towards their pay (Faulk, 2012). Further studies found that management support is a key factor in improving work performance and safety performance (Clark et al., 2008; Dawley et al., 2010; Siu et al., 2002). Many studies also found that job satisfaction was associated with work performance (e.g. Lee & Moreo, 2007). Moreover, job insecurity was found to be one of the organizational factors negatively affecting safety performance (Probst et al., 2013).

In summary, the reviewed literature relevant to organizational stressors showed that they can undermine safety performance, organizational health, and subsequently, an organization's success in the referenced business. Organizations that have a good record of organizational health are expected to retain their workers, ensure their wellbeing, be

competitive in the market, and prosper. In this vein, the current study aims to examine organizational stressors and their impact on both organizational health and safety performance.

The theoretical framework will clarify how this study was conducted, as well as provide an understanding of the literature related to the psychosocial working conditions in the construction industry in the region. To that end, it is important to outline the theoretical framework of this study in the following section.

2.6 Theoretical Background

The present study has adopted the transactional theory of work stress as a framework and a conceptual foundation (Cox, 1978; Cox et al., 2000; Cox & Griffiths, 2010; Cox & Mackay, 1981). This model is closely related to the work of Folkman and Lazarus (1980), since many of the processes and stages built into the model are similar. However, there are certain important differences in Cox's model, particularly a clarified structure and greater focus on occupational health and individual differences (Cox & Ferguson, 1991). Cox and Griffiths state that transactional theory (i) links antecedent factors such as poorly managed, designed, and organized work aspects ('stressors') with (ii) cognitive–perceptual processes that contribute to an increase in the emotional experience of stress, and (iii) correlates the experience with the outcomes. The transactional theory has consistently identified key stress-related job conditions that are frequently examined, including the conditions of the job strain model—job demands, job control, and social support (Karasek & Theorell, 1990). The theory also adequately explains how stress occurs and indicates the conditions that need to be considered when identifying the work-based sources of employee stress (Cooper et al., 2001). The present study seeks

to identify psychosocial risks that are perceived by workers as work-related stressors (antecedents). Considering the transactional theory and the related literature, all evidence suggests that these psychosocial risks have the potential to cause harm to workers' health and safety. The theoretical models used to conceptualize these risks will be discussed in greater detail later on in the thesis.

2.7 Aims of the Present Study

As stated earlier, the primary purpose of the current study is to explore the psychosocial working conditions of migrant workers in the construction sector in the Middle East from a holistic perspective. The holistic approach aims at identifying a broad range of psychosocial hazards and their anticipated health and safety outcomes. This approach unravels psychosocial complexities that are uniquely peculiar to the Middle East. Given the paucity of research on the construction sector in the Middle East, the present study is considered a pioneering exploration of potential psychosocial hazards and their health and safety outcomes. Therefore, the study attempts to close the existing knowledge and research gap.

The current study is also expected to profile the role-specific exposure of migrant workers to psychosocial hazards associated with their work. The study aims to provide important insights into this neglected area of research. This, in turn, will provide unique findings crucial for future intervention strategies. It is important to mention that the study is designed to provide practical information for safety practitioners and decision makers, particularly in construction organizations. Since I have extensive experience in health and safety in construction, the study is presented from a practitioner standpoint rather than a purely academic one. As well, the study will pave the way for future investigations that

focus upstream on organizational structure in identifying sources of psychosocial risks, instead of focusing on outcomes at the individual level.

It is important to highlight that new insight into the psychosocial risk factors of construction work can help substantially in selecting the most relevant and efficient intervention programmes to be adopted for the improvement of the working conditions of migrant workers in the region.

2.8 Research Questions

In view of existing theory and empirical knowledge, the following research questions are explored in the current investigation:

1. *What are the organizational stressors that migrant workers are exposed to in the construction sector in the Middle East region?*

2. *What is the prevalence of local recruiter payments by migrant construction workers, and do prevalence rates differ by worker group (labourers, skilled workers, foremen)?*

3. How do migrant construction workers in the Middle East rate their overall health, and what is the prevalence of workers' involvement in worksite accidents?

4. Is payment to a labour recruiter associated with involvement in worksite accidents and poor general health?

5. *What are the indices of job strain categories among the three migrant construction worker groups (labourers, skilled workers, and foremen)?*

6. Is job strain associated with poor health, accident involvement, and job satisfaction?

7. *How do migrant workers in the three groups perceive the attitude of site managers towards health and safety?*

8. *Is safety climate associated with poor health, accident involvement, and job satisfaction?*

2.9 Literature Review Summary

The literature review in Chapter 1 reported on the scale of economic migration to the Middle East region. Chapter 2 defined key constructs under investigation, including psychosocial hazards and their implications for health and safety outcomes. It also outlined the importance of addressing psychosocial work factors and their association with negative health and safety implications. The review reveals the lack of literature and research conducted in the Middle East and points out the urgent need to conduct more studies that focus on the psychosocial working conditions of migrant workers. Moreover, the review defines the theoretical framework of the study, namely the use of the combined transactional and job strain theories. The role of safety climate and its association with health and safety outcomes is discussed. As well, the review describes the job strain factors and their associated health and safety consequences. Finally, the research questions and aims of the current study are outlined, together with the contributions the study expects to add to existing knowledge, theory, and practice.

3 Chapter Three: Mixed-Methods Research

3.1 Study Background

This study was undertaken within a large-scale construction project in the Middle East. The project comprises the construction of new oil and gas facilities including the main plant, pipelines, and service buildings. The client appointed one of the leading international construction companies to run the project. Subsequently, the main contractor hired a number of local subcontractors. In pursuit of this research, I approached the main contractor and obtained permission to conduct the study among workers on the project. Following that, I attended several meetings with the management board of each subcontractor with the aim of explaining the research objectives and obtaining their permission. Given that occupational health and safety research is extremely rare in the Middle East construction sector, this piqued the curiosity and attention of management boards and proved to be the key to securing necessary permissions. Due to the large-scale nature of the construction project, more than 15,000 workers were employed. Most of the workers were migrants from countries including India, Pakistan, the Philippines, Bangladesh, Nepal, Turkey, and Nigeria. A total of 1,000 workers and foremen were invited to participate in the research survey.

3.2 Participants

Fifty workers and foremen participated in focus groups, and subsequently 650 completed a questionnaire. The participants were informed of the objectives of the study, and the researcher visited the target participants in their camps during dinner times where all workers gathered in the mess hall. Focus group sessions were organized after work time with the assistance of translators from the contractors' staff, since most of the participants

did not speak English. All nationalities were considered for representation, both in focus groups and in the survey. The findings of the qualitative focus groups informed the content of the quantitative questionnaire, which was then translated into Urdu and Hindi to offer workers the option to choose the language they understood better. I believe that the relatively high response rate (65%) can be attributed to the fact that studies such as this one are rare. This is probably why most participants were keen to have their concerns heard with the hope that interventions may improve their situation in the future. Participants remained anonymous for confidentiality purposes. They read and signed consent forms without referring to their names or telephone numbers. Also, it was a requirement that they hand over the completed questionnaire in a sealed envelope to selected safety staff from each company, and then the staff hand over the completed copies to the researcher. Two reminders were sent over a four-week period requesting the sampled workers to complete the questionnaire. All participants were male, as females usually do not work in remote construction sites in the region.

3.3 Design of the Study

The current study uses a sequential mixed-methods design, with an initial qualitative study identifying the key psychosocial hazards experienced by migrant workers. The findings from the qualitative study informed the design of a subsequent cross-sectional quantitative survey administered among migrant workers to quantify exposure to the psychosocial hazards. As documented by Liu et al. (2008), Houdmont (2013), and Weihs et al. (2014), a considerable number of previous studies have used the mixed-methods approach. This technique proved to be suitable for the current study because it allows for identification of problematic aspects of the working conditions. It provides the opportunity

to identify the underlying issues that may not be revealed through administering the survey method directly. Mergler (1999) argued that the mixed method of quantitative and qualitative approaches in a complementary way can contribute to a better understanding of the continuous changes that take place in the workplace. It also helps to understand the workers' situation and facilitates the development of appropriate strategies for preventive interventions. Cooper and Schindler (2008), Neuman (2011), as well as many other researchers have suggested that both qualitative and quantitative methodologies can work together in an integrated fashion rather than an adversarial one. That is, qualitative research can capture the issues that may be missed using the quantitative approach and vice versa.

An interesting study by Zou et al. (2014) reviewed the research methods commonly used in the construction industry. The study found that the mixed-methods approach might offer a way of bringing research and practice closer together. This is more beneficial than using the individual research approaches and paradigms. Mixed-methods research only accounts for around 9% of the studies reviewed (n = 88), which seems a very low percentage given the nature of the construction industry's safety problems. Added to that, there is a need to co-produce knowledge with the practice community and ensure the dissemination of generalizable interventions to projects and organizations. However, a note of caution is that mixed-methods research is not necessarily superior to mono-methodology research (Bryman, 2008). On the other hand, Galvin and Smith (2017) used a qualitative approach in their study, arguing that in the quantitative method, some variables might be ignored or remain unidentified. A similar argument was advanced by Razavi (2001) and Beiske (2002). However, using mixed methods proved to be valuable in avoiding some of the variables being ignored. In a published paper that emerged from the current research,

the qualitative analysis resulted in the identification of critical concerns regarding migrant workers' payments to recruiters in order to obtain work visas into the region (Hassan & Houdmont, 2014). Subsequently, the payment to recruiters was identified as a stressor by the quantitative study. Unsurprisingly, the ordeal of paying recruiters proves to be correlated with migrant workers' health and their exposure to workplace accidents. This established relationship was identified thanks to the qualitative analysis. Therefore, it is fair to say that these important findings may have remained unidentified if the quantitative approach was used independently.

Doyle, Brady, and Byrne (2009) have argued that the mixed-methods approach has the following eight advantages: triangulation, offsetting weakness, answering various research questions, explanation of findings, completeness, illustration of data, hypotheses development and testing, and instrument development and testing. In their 2010 study, Abowitz and Toole confirmed that the mixed-methods approach proved vital in improving the validity and reliability of the construction safety study.

Weighing the pros and cons of mixed methods, I elected to use the technique in the current research. The mixed-methods approach has been chosen because it offers in-depth insights into the psychosocial working conditions through its qualitative component. In addition, the quantitative component provides a secondary level of investigation, which seeks empirical and evidence-based knowledge necessary for future interventions.

Furthermore, the mixed methods in the current study offer a unique insight into workers' attitudes, perception, and mind-set exhibited during the interviews. The outcome, in turn, informed the design and content of the subsequent quantitative study. The direct interface between the researcher and the workers has undoubtedly boosted the respondents' trust and

confidence. That significantly assisted in administering the successful questionnaire at a later stage. By word of mouth, news about the research spread throughout the project campuses. Bearing in mind that this type of research had never been conducted and that these workers are not familiar with the drill, it could have been very difficult to secure their participation without the interviews and discussions involving their health and safety concerns. It is my conviction that the merits of the mixed-methods approach augmented by the successful data gathering process proved mixed methods to be suitable and effective for the current investigation. The qualitative and quantitative methodologies will be discussed in greater detail in Chapters 4 to 7.

3.4 Methodology of Mixed-Methods Research

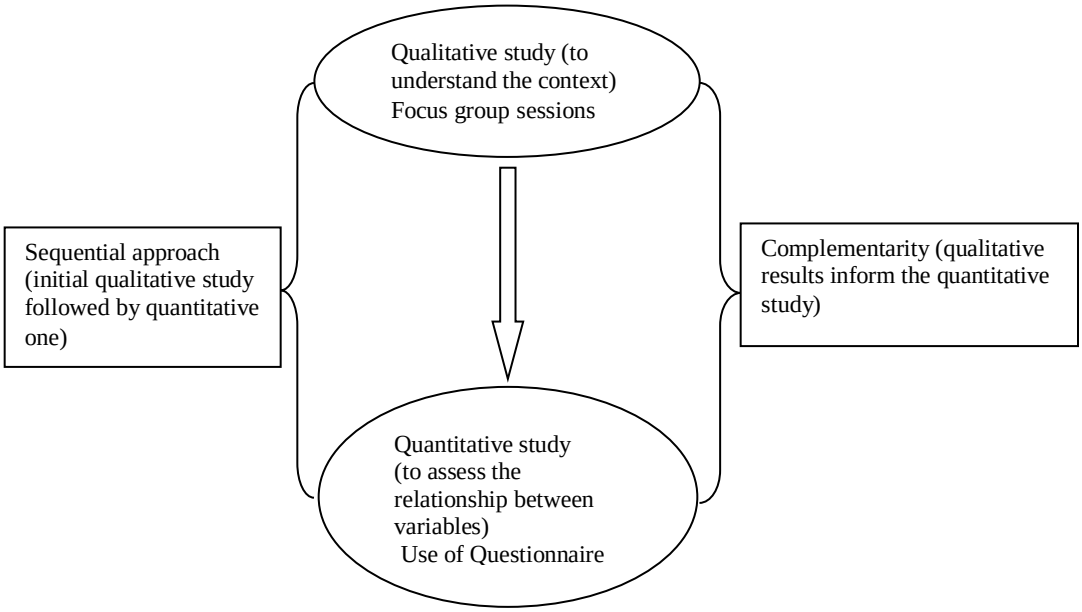
This section describes the mixed-methods approach, its qualitative and quantitative components, and the different measures used in both. The mixed-methods approach employs both qualitative and quantitative techniques of data collection and analysis. However, legitimate questions arise as to the need for two approaches, what the characteristics of each approach are, and which approach precedes and/or whether they run concurrently. Creswell (2003) has argued that in the qualitative approach, the researcher claims knowledge based on constructivist and interpretivist standpoints (see section 3.4.1 for definitions). The researcher goes about collecting data using an open-ended approach through interviews, documents, and participant observation among other methods, while in the quantitative method, the researcher uses post-positivist claims for building up knowledge. The quantitative researcher collects numeric data (using a survey, for instance) to identify the relationships between variables. However, according to the view of other scholars, the mixed-methods approach is different from mono-method approaches. In this

view, mixed methods follow the pragmatist philosophy considering its practical orientation (Johnson et al., 2007). On the other hand, a researcher must make critical decisions regarding the sequence and the timing of qualitative and quantitative interventions when using mixed-methods research. However, the purpose and relationships between the two approaches, as well as their time orientation, are the main criteria which dictate the sequence and the timing for conducting each (Onwuegbuzie & Collins, 2007). According to Greene, Caracelli, and Graham (1989), in the description of each study purpose, triangulation research uses qualitative and quantitative techniques concurrently, considering convergence, corroboration, and correspondence of the results of each method. However, in complementarity research, the researcher can use both concurrent and sequential timing to elaborate, illustrate, and explain the different facets of a phenomenon (Greene et al., 1989).

Given the exploratory nature of the current study and its complementarity, the sequential approach to research design has been found an appropriate fit. The exploratory nature implies that the current study focuses on understanding the context where the study is conducted, while its complementarity implies that the findings of the qualitative approach are used to inform the design and content of the quantitative research. Accordingly, the qualitative approach is used to understand the context of the phenomena under investigation, which are the psychosocial working conditions of migrant workers. The findings of the qualitative approach were used to inform the design and content of the questionnaire used for quantitative study. Following Torres Retamal (2017) in sketching the mixed-methods approach, the diagram below shows the role, sequence, and interactions between the qualitative and quantitative methods (Figure 3-1).

Figure 3-1

Research Design



It is important to note that the quantitative method has received criticism from some researchers. Bryman (2008) argued that quantitative research ignores the capacity of people to interpret the world around them—the ability that distinguishes people from other objects in natural science. Another study stated that researchers might influence the structure of the research based on their own knowledge and experience. Therefore, the study is based on the researcher's assumptions about the world and only partially on the participants' views and opinions about the world (Grix, 2004). Likewise, Grix (2004) stated that qualitative research uses a limited sample, which is not generalizable to a larger population since its representative capacity is questionable. Furthermore, Bryman (2008) argued that qualitative research cannot be replicated as it depends fully on the researcher's ingenuity. Therefore, given the merits and problems of each research method, the use of the mixed-methods approach can avoid possible shortcomings of the mono-method approach.

3.4.1 Epistemology and Ontology

In the research design process, a philosophical approach and paradigm should drive study development. Researchers must choose the theoretical framework for the research method prior to commencing the project. Therefore, researchers should identify the philosophical assumptions upon which the research method is based. Practically, some methods are more appropriate for certain types of research and may not be appropriate for others which have a different context (Creswell, 2009). Epistemology and ontology are the key philosophical positions in social research. Epistemology is concerned with the theory of knowledge and the methods used to obtain it. In this philosophical position, there are two perspectives on knowledge acquisition and development (Burrell & Morgan, 1979). The positivist position considers knowledge as something that can be acquired. However, the interpretivist position suggests that knowledge can be obtained through individual experience. Ontology, on the other hand, is the study of the essence or reality of social phenomena. This concept revolves around whether the social phenomenon is external to individuals or it is a product of individuals' perceptions and actions. There are two different ontological standpoints, namely objectivism and constructivism. Objectivism argues that social phenomena confront individuals in the form of external objects that transcend an individual's influence. In contrast, constructivism posits that social phenomena are produced by the interactions of social actors, and they are in continuous flux (Bryman, 2008). According to Millar (1997), researchers have the choice to decide on their philosophical positions and understand their influence on the way research is carried out and the analysis outcomes. That means the researcher is to define the phenomena under investigation from an ontological standpoint. To understand the phenomena

(epistemological position), the researcher explores the method by which to acquire this knowledge and the methodology by which to achieve the necessary understanding. Quantitative research typically adopts the theoretically-informed positivist position in collecting numerical data to facilitate explaining the social phenomena under study. From an ontological standpoint, quantitative research follows objectivist considerations in seeing social phenomena as something that individuals cannot change.

Qualitative research relies on words and meanings to relate the research to the theory from the interpretivist epistemological position. This approach is ontologically constructivist in interpreting social phenomena are mutable and constructed by individuals' active interpretations and interactions. Researchers can simultaneously adopt both an ontological and an epistemological position, since they can co-exist in parallel to serve the research processes. It is important for a researcher to understand that the decision to choose the philosophical standpoint depends on the aims, expected outcomes, and the nature and context of the research itself.

In the current research, the key aim is to explore the organizational stressors and investigate their impact on safety performance and overall organizational health. To obtain in-depth insights into the psychosocial working conditions of the sampled migrant workers, the interpretivist position has been adopted with the aim of understanding the psychosocial and social context using qualitative interview methodology. The study has also adopted the constructivist position, capturing the essential reality of the problems in the psychosocial working environment as experienced by migrant workers.

3.4.2 Qualitative Study

As stated earlier, this research involves a mix-methods approach, using both qualitative and quantitative methods. Accordingly, the first study consists of seven focus group sessions organized as part of the qualitative study. A total of 50 participants have attended the sessions. Semi-structured interviews were prepared, and participants were asked to describe the positive and negative aspects of their work. Every session lasted about 2 hours, and each discussion was tape-recorded with permission from the participants. In accordance with the aims of the study, thematic analysis was applied to identify broad themes evident in the focus group transcripts (Braun & Clarke, 2006). This approach has been widely used in occupational health psychology research, and it proved to be an effective means by which to identify, analyze, and report on themes in quantitative data (Leka et al., 2011; Payne et al., 2012; Houdmont et al., 2013). The focus group findings informed the content of the quantitative questionnaire.

3.5 Quantitative Study (Cross-Sectional Data Collection)

The quantitative part of the current study has adopted a cross-sectional approach to data collection. This approach involves data collection at a single point in time through the use of a questionnaire. Although this technique has been widely used in research, it has also been criticized. The main criticism, which I can acknowledge, is that the cross-sectional approach does not account for causality and the relationship direction due to the fact that all the data is collected at a single point in time. In other words, it is not clear which variable causes or influences another. Over the course of this study (see Chapter 7), an association between safety climate and job satisfaction has been established. A question subsequently arises from the cross-sectional data as to whether safety climate influences

job satisfaction or vice versa. Despite the limitations of this design, Spector and Pindek's (2015) review of research designs employed in five years' worth of papers published in the two leading occupational health psychology journals (Journal of Occupational Health Psychology and Work & Stress) showed that 41% of studies used a cross-sectional approach. Moreover, despite the inherent limitations, "papers using such designs often provided some significant contribution, such as developing a new scale, addressing a novel question or testing a complex hypothesis that had not previously been tested" (Spector & Pindek, 2015, p. 3). Chapters 5, 6, and 7 discuss further clarifications to and justifications for the limitations of the cross-sectional approach.

3.5.1 Survey Instruments

The survey questionnaire design was directly informed by the findings identified in the qualitative study, and several constructs and variables were examined at the questionnaire stage. The following sections outline the instruments used to measure each construct.

3.5.2 Safety Climate

This study has used the 16 items of Zohar's (2005) Multilevel Model of Safety Climate in order to measure safety climate. This instrument was chosen because it has clearly conceptualized the safety climate construct and has been used before in similar studies (Johnson, 2007; Brondino et al., 2012; Huang et al., 2012). Responses were given using the 5 point Likert scale: 1 (disagree in a strong manner), 2 (disagree in a slight manner), 3 (neither agree nor disagree on issues), 4 (agree slightly on issues), 5 (agree strongly on issues). An example of an item is: "My supervisor frequently checks to see if we are all obeying the safety rules." The validity of this measure was checked using

Cronbach's measure for internal consistency (16 items, α=.88). The source of these items is a previously published group climate scale that covered the same content categories (Zohar, 2000). This scale items covered a range of interaction modes between supervisors and group members by which supervisors could indicate the priority of safety against competing goals such as production speed or schedule. Zohar's 2005 scale offered a wider range of climate indicators related to supervisory practice in the context of competing demands. The measurement scale did not include negatively worded items associated with passive or avoidant practices because of the evident reluctance of workers to respond to negatively worded items.

3.5.3 Job Demands and Control

These constructs were measured using 14 items for demand and control drawn from the United Kingdom's Health and Safety Executive Management Standards Indicator Tool (MSIT: HSE, n.d.). Job Demands includes eight items and Job Control includes six items. Indicator Tool subscales were used to avoid a lengthy questionnaire. A shorter survey has higher chances of getting approval from an administrator and being completed by an employee (Wanous et al., 1997). The validity of both constructs using Cronbach's measure for internal consistency was 8 items α=.74 for job demands and 6 items α=.65 for job control. Responses were given on a scale of 5: 1 (never), 2 (seldom), 3 (sometimes), 4 (often), and 5 (always). An example of an item is: "My working time can be flexible." In this study, it was noted that Cronbach's measure for internal consistency was relatively low (α=.65) for Job Control. The common practice in research is to have an alpha coefficient equal to or more than .70. However, previous research considered α=.6 to .5 acceptable (Nunnally, 1967).

3.5.4 Work-Related Stress

Work-related stress was measured using a single-item measure which offers a quick and easy approach to data collection in the organizational context (Bowling, 2005). This approach is also useful where the research objective is to obtain a 'snapshot' of a topic as opposed to diagnostic information. Single-item psychological construct measures are sometimes considered to have reliability issues, as reliability cannot be assessed in a cross-sectional single-item study. However, when the meaning of the construct is clear to the respondents, single-item approaches may be appropriate (Wanous et al., 1997). These attributes and advantages of single-item measures of work-related stress have been demonstrated in several studies in recent years (Smith, 2001; Smith et al., 2000; Smith et al., 2004; Wadsworth et al., 2007). This is an indication that using such an approach in the assessment of work-related stress may offer an effective alternative to the more complex case definitions mostly used by researchers (Houdmont et al., 2010). In the current research, work-related stress was measured using a single item: "How stressful do you find your job?" The 5 point response scale was: 1 (not stressful at all), 2 (mildly stressful), 3 (moderately stressful) 4 (very stressful), 5 (extremely stressful).

3.5.5 Job Satisfaction

Job satisfaction was also measured using a single item. Other advantages of a single-item measure include the fact that it takes up less space, is more cost-effective, and may have more face validity than multiple-item measures (Wanous et al., 1997). These advantages are supported by a number of research studies (e.g. Dolbier et al., 2005). A single-item measure of facet satisfaction is certainly shorter and easier to complete than multiple-item measures. As a result, it is less costly due to minimal time lost from

employees leaving their posts in order to complete the surveys. The job satisfaction construct was measured with the item: “I am satisfied with my job.” The 5-point response scale was: 1 (disagree strongly), 2 (disagree a little), 3 (neither agree nor disagree), 4 (agree a little), 5 (strongly agree).

3.5.6 Overall Health

Following Leineweber et al. (2010) and Bennet and Lindstrom (2018), the overall health indicator was measured using self-rated health. A single question was used: “How would you rate your general state of health?” Responses were given on a five-point scale from very good (1) to very poor (5), and subsequently dichotomized into ‘good/average’ (1–3) and ‘poor’ (4/5). This measure has been widely used to predict morbidity and mortality in a variety of epidemiological investigations (e.g. Idler & Benyamini, 1999; DeSalvo et al., 2006). The self-rated health measure has proved worthy and credible when used among Iraqi migrant workers in Sweden by Bennet and Lindstrom. The consistency of this approach was tested when results of the single-item measure evaluating the health of the same sample of Iraqi migrant workers were then compared with clinical test data. Bennet and Lindstrom (2018) confirmed that the self-rated measure is reliable and valid for any similar future study. The fact that the measure proved valid in Europe does not preclude its use in the Middle East.

It is worth noting that using a single measure for assessing the health status of the participants may not fully tap into both their general and psychological health. This will be further discussed in the study limitations section. Future studies may elect to use multiple items to cover both general and mental health.

3.5.7 Safety Performance (Accident Data)

Safety performance in this study was measured by the degree of the workers' involvement in accidents, the number of accidents, and the type of accident (3 items α=.75). Previous studies have used similar self-reporting for accidents aiming to measure safety performance and safety outcomes (Siu et al., 2003; Siu et al., 2004; Marottoli et al., 1997; Barling et al., 2002; Mearns et al., 1998; Morrow & Crum, 2004). A similar instrument was also used to measure accident under-reporting (Probst et al., 2010). The key question used in the current research was: "Have you been involved in an accident in the past 6 months?" with a dichotomous yes/no response option.

3.6 Procedure

Seven focus group sessions were conducted in which workers were informed of the objectives of the study and asked to consent to participate (Appendix B). Fifty workers and foremen took part in these sessions with an average of seven participants per session. The researcher scheduled the sessions in the camps in the workers' rooms to ensure that workers were in their comfort zone and would feel free to talk. The findings of the focus groups informed the content of the quantitative questionnaire. The study's qualitative and quantitative branches will be discussed separately in different chapters of this manuscript.

For the quantitative part of the study, a questionnaire was prepared and translated into Hindi and Urdu, since most of the participants did not properly understand English. The translation process followed Brislin's (1980) guidelines of "back translation" to ensure accuracy. The translated questionnaire was piloted to 10 workers and foremen, and some changes were made as a result of the pilot sampling. The questionnaires in sealed envelopes were then distributed to participants with the assistance of safety staff from each company.

Around 1,000 questionnaires were delivered to participants requesting that they be completed within 4 weeks. Two subsequent reminders were sent to participants through their respective supervisors. Within a month, 650 completed questionnaires were completed and returned, with a response rate of 65%.

3.6.1 Ethics

The participants in the survey were informed of the objective of the study. They were educated on their rights and were requested after comprehending that to sign a consent form (Appendix B). This knowledge sharing and awareness have been administered during the focus group interviews and also when administering the questionnaire.

The current research has been undertaken in a manner consistent with the British Psychological Society's (2009) Code of Ethics and Conduct, as well as the code of ethical research conduct of the University of Nottingham. The Research Ethics Committee of the Institute of Work, Health and Organizations at the University of Nottingham has granted the ethical approval (Appendix A), and the study has complied with all aforementioned codes of ethical conduct. The following sections outline the principles that were observed during the study.

3.6.2 Principle: Respect

Ethical issues arising during the administering of the questionnaire:

1. Consent: The questionnaire cover sheet has clearly outlined the purpose of the study, the approximate time required for completion of the questionnaire, procedures for turnover of the questionnaire upon completion, and the researcher's full contact details (Appendix C).

2. Confidentiality: The questionnaire cover sheet has provided assurance that responses would remain anonymous and confidential. It was also stated that non-identifying data might be used in academic research articles. Furthermore, it stated that completed questionnaires would be stored in a safe cabinet in the researcher's office as per the UK Data Protection Act of 1998.
3. Self-determination: The questionnaire cover sheet made clear that participation in the survey was voluntary, and the respondent has the right to withdraw from the study at any point.

3.6.3 Principle: Responsibility

Relevant ethical issues:

1. Protection of participants: The questionnaire cover sheet provided assurance that completion of the questionnaire is unlikely to trigger distress. However, it was made clear that should the participants sense any cause of distress, the next step should be contacting the organization's occupational health department using provided contact information.
2. Debriefing of participants: The questionnaire cover sheet has detailed when and from where the findings of the study could be obtained.

3.6.4 Confidentiality

The following ethical issues relating to confidentiality were considered:

1. Responses were to be anonymous unless the participant chose to provide contact information at the end of the questionnaire.
2. The data would only be available to the researcher and the study supervisor.

3. The data would be stored on a stand-alone personal computer which is not networked and is equipped with up-to-date security protection.
4. The data collected would be subjected to all the necessary protections as required by the Data Protection Act of 1998.
5. No individual participant would be identified in connection with the data presented in any future academic articles.

3.7 Reflexive Statement

Reflexivity is "the attention paid to the way different kinds of linguistic, social, political, and theoretical elements are woven together in the process of knowledge development, during which empirical material is constructed, interpreted and written" (Alvesson & Sköldberg, 2009 p.9). These authors also suggested that reflexivity is "the interpretation of the interpretation," or the clarifications of the way the interpretation of the research was conducted. Orlikowski and Baroudi (1991) argued that it is important to understand the social process, which involves getting inside the world of the actors who generate it; as well, we can never assume the interpretive researcher has a value-neutral stance. Therefore, the social construction process should not be unknown to the reader. The interpretation process needs to be clear so that readers can evaluate the researcher's process, results and conclusions. Hence, the following section provides insights into the social context surrounding the researcher and research conduct relationship.

I was working on a large-scale construction project where the current study was conducted. I was a safety engineer on the team assigned by the client as project management consultants (PMC). The main duty of this team was to ensure that the project was executed in line with the client's work procedures and contractual requirements. I was

keen to inform the participants that the current study was part of the research conducted in pursuit of my PhD degree. It was made clear in the Participant's Information Form (Appendix A) that the research was for academic purposes and had no bearing on or relationship to the work onsite. I knew none of the participants personally as my main daily interaction onsite was with the contractors' safety engineers and construction managers. Furthermore, all participants were workers and foremen.

Given my duty as a safety engineer, I was able to present the questions during the interview in a clear and understandable way. However, I was aware that I must not influence the participants' responses through specific prompting questions. I was careful to use the appropriate language during the interview and give full attention to the participants' responses. The study utilized translation by Indian safety officers to facilitate the interview. Despite careful attention to the process of data collection and interpretation, one cannot claim to be completely neutral and unbiased (Orlikowski & Baroudi, 1991). This is because—from an epistemological standpoint—acquiring knowledge requires interpreting the participant's response and then interpreting the interpreted response to obtain results.

Throughout this process, I believe the researcher relies on two elements necessary in understanding and interpreting the data. The academic background of the researcher combined with previous practical experience are the elements that largely shape the mindset and decisions involved in data interpretation. Therefore, the data collection and analysis may differ from one researcher to another. That it is why it is important to be transparent about these processes to the reader who will go on to assess the potential validity of the research results. With that said, I acknowledge that my academic background

as a researcher as well as my experience in the field of health and safety may somewhat influence the data interpretation in this study. However, this statement should not be seen as a criticism of the validity of the results. In fact, I would strongly argue that my experience in health and safety facilitates my understanding of the world of migrant construction workers. It also enables informed decisions regarding the interview questions and the successful understanding of the participants' responses. However, the responses and related findings were not in line with my expectations prior to conducting the research. From my work experience (particularly in the risk assessment field), I expected certain psychosocial hazards to emerge. Many of these hazards did not emerge. However, a different set of psychosocial hazards emerged from the interviews and data analysis.

3.8 Data Analysis

Socio-demographic data was obtained from the sample of three groups of workers: labourers, foremen and skilled workers. The collected data were analyzed. Table 3.1 shows the initial descriptive data of the socio-demographic characteristics of the investigated sample, outlining gender, job role, age, marital status, tenure, etc.

3.9 Participant Characteristics

Table 3-1 shows the socio-demographic characteristics of the three worker groups. The population is entirely dominated by males as no females were engaged in the construction project under study. The average age of the three groups collectively falls between 26–30 years. The majority (above 50%) of the sampled workers are married, but it should be noted that the category 'widowed' is missing from the questionnaire. Almost the same percentage of each group has reported a household of 5 to 9 dependents. Indians constituted the main nationality (above 80%) of the sampled migrant workers within the

three groups. Most of the labourers and skilled workers (above 55%) had an average of 6–10 years of education, while 49% of the sampled foremen have completed 1–15 years of education. The foremen group was the most educated among the worker groups. Moreover, 32% of the sampled foremen had completed 16–20 years of education. In line with the expectations, a significant percentage of the sampled foremen (43%) have been in the company's service for 1–2 years. A proportion of 27% and 36% of labourers and skilled workers, respectively, have been in the company's service for the same length of time. A relatively small percentage (above 25%) of the sampled workers in the three groups have worked in the same company for more than 2 years.

Table 3-1

Socio-demographic characteristics

Socio-demographic characteristics	Foremen *n* (%)	Labourers *n* (%)	Skilled Workers *n* (%)
Gender			
Male	126 (100)	188 (100)	337 (100)
Age			
16–20	_	_	3 (0.89)
21–25	36 (28.57)	35 (18.62)	34 (10.09)
26–30	42 (33.33)	85 (45.21)	143 (42.43)
31–35	23 (18.25)	33 (17.55)	80 (23.74)
36–40	6 (4.76)	18 (9.57)	45 (13.35)
41–45	6 (4.76)	12 (6.38)	22 (6.53)
46–50	4 (3.17)	3 (1.60)	2 (0.60)
51+	3 (2.40)	2 (1.07)	5 (1.48)
Not specified	6 (4.76)	_	3 (0.89)
Marital status			
Single	55 (43.65)	53 (28.19)	91 (27.00)
Married	64 (50.79)	131 (69.68)	240 (71.22)
Divorced	4 (3.17)	2 (1.07)	3 (0.89)
Not specified	3 (2.40)	2 (1.07)	3 (0.89)
Nationality			
Bangladeshi	2 (1.59)	3 (1.60)	8 (2.37)
Egyptian	1 (0.79)	_	_
Filipino	9 (7.14)	1 (0.53)	1 (0.30)
Indian	105 (83.33)	147 (78.19)	269 (79.82)
Jordanian	_	_	2 (0.59)
Nepali	_	2 (1.06)	4 (1.19)

Nigerian	1 (0.79)	_	1 (0.30)
Pakistani	1 (0.79)	31 (16.49)	37 (10.98)
Syrian	2 (1.59)	_	1 (0.30)
Turkish	1 (0.79)	1 (0.53)	_
Vietnamese	3 (2.40)	3 (1.60)	11 (3.26)
Not specified	1 (0.79)	_	3 (0.89)
Education (Years)			
0–5	2 (1.59)	17 (9.04)	13 (3.86)
6–10	14 (11.11)	127 (67.55)	192 (56.97)
11–15	62 (49.21)	37 (19.68)	120 (35.61)
16–20	41 (32.54)	7 (3.73)	8 (2.37)
Not specified	7 (5.56)	_	4 (1.19)
Dependents			
0–4	52 (41.27)	40 (21.28)	103 (30.56)
5–9	54 (42.86)	98 (52.13)	180 (53.41)
10–14	7 (5.56)	24 (12.77)	39 (11.57)
15–19	3 (2.40)	8 (4.26)	5 (1.48)
20+	10 (7.94)	5 (2.65)	3 (0.90)
Not specified	_	13 (6.91)	7 (2.08)
Tenure			
<6 months	24 (19)	45 (24)	38 (11)
6 months–1 year	18 (14)	42 (22)	97 (29)
1–2 years	54 (43)	50 (27)	122 (36)
>2 years	30 (24)	51 (27)	80 (24)

The present chapter (3) discussed the methodology of the research as well as the socio-demographic characteristics of the sampled population. The following chapter (4) reports on the qualitative study, aiming to identify potential psychosocial stressors/hazards associated with the working conditions of migrant workers in the construction sector in the region.

4 Chapter Four: Qualitative Examination of Work-Related Psychosocial Hazards Experienced by Migrant Construction Workers in the Middle East

Chapter Summary

This chapter describes the qualitative study and discusses its results. The chapter starts with a brief literature review that leads into the aims of the study and its methodology. The study used focus groups involving 50 workers from the 3 workers' groups: labourers, skilled workers and foremen. In the methodology section, the thematic analysis approach is described. The analysis results that include the key organizational stressors are presented. In the discussion section, the key identified organizational stressors and their possible consequences to safety performance and organizational heath are examined. Finally, the study implications, strengths, and limitations are described.

4.1 Introduction

A disturbing dearth of research on migrant construction workers' health and safety was noted. Mehmood et al.'s (2018) study also asserted this lack of research and credible data in the Middle East region. The study described in this chapter offers one such contribution, which is the identification of organizational stressors and their potential links with migrant workers' health and safety, as well as organizational health.

As outlined in Chapter 2, the exposure to organizational stressors influences safety performance (Rosen et al., 2010). In the construction industry, research shows links between work stressors and near-misses, injuries, and musculoskeletal disorders (Goldenhar et al., 2003; Sobeih et al., 2009). Other studies have demonstrated the detrimental effect of high work pressure on both workers' productivity and their safety performance (Hinze, 1997). In Traverse and Cooper's (2007) study, job pressure was found

to be the main predictor for mental ill health and lower job satisfaction. Other studies have found that pay and compensation were directly related to job satisfaction, which contributed to turnover intention (Huang et al., 2016). On the other hand, management support is seen as a key factor in improving work performance (Clark et al., 2008). Many studies also found that job satisfaction was associated with work performance (e.g. Lee & Moreo, 2007). Moreover, job insecurity was found to be one of the negative organizational factors affecting safety performance (Probst et al., 2013).

In summary, the reviewed literature showed that organizational stressors can undermine safety performance, organizational health, and subsequently, an organization's success in the referenced business. Organizations that have a good record of organizational health are expected to retain their workers, ensure their wellbeing, compete successfully in the market, and prosper. In this regard, the current study aims to examine organizational stressors and their potential links with both organizational health and safety performance.

Two crucial research questions have emerged from the extensive literature review despite its limited coverage, in relation to organizational stressors and their links with migrant workers' health and safety in the Middle East construction sector:

1. What are the organizational stressors that migrant workers are exposed to in the construction sector in the Middle East?
2. How do migrant workers perceive the identified organizational stressors in relation to their health and safety performance and organizational health?

4.2 Aims of the Qualitative Study

This part of the research deals with the process of identifying the organizational stressors as perceived by the target worker groups in the construction industry. A secondary

purpose of this study is to explore the relations between organizational stressors, safety performance and organizational health. In the absence of research on psychosocial risks among this population, a qualitative methodology was applied in this study in order to facilitate the emergence of context-specific issues that may not otherwise be identified in a quantitative survey. In the quantitative survey, the researcher usually pre-determines the domains covered in the survey. However, in qualitative research, is available for all contextual issues to emerge.

Within the context of the overall study, the purpose of this stage has been to identify the context-specific issues and concerns of the workers. This was subsequently used to inform the design of a quantitative questionnaire for administration to a large sample of migrant construction workers in the region. The quantitative component of the study, in turn, explored the extent to which the findings of the initial qualitative study could be extrapolated to the broader worker population.

4.3 Research Theory

The current study has adopted Cox and Griffiths's (2010) Transactional Stress Theory (TST) as a framework. The TST explains the process that links (i) antecedent factors, such as poorly managed or poorly designed aspects of the workplace ('stressors') with (ii) the cognitive–perceptual processes that contribute to an increase in the emotional experience of stress, and (iii) the results of that experience (Cox & Griffiths, 2010). Within this framework, the organizational stressors as antecedents may have a potential influence on workers' perception and safety behaviour (cognitive process), which may, in turn, affect safety performance and organizational health (outcomes). The current qualitative research is exploratory in nature and it is driven by the context; contrary to the quantitative research

which is confirmatory and hypothesis-driven. The current study has consulted existing literature and subsequently developed the research questions. The study has adopted a theory to explain the phenomena being studied and to provide direction on what aspects to examine and how to examine them. The theoretical grounding establishes a starting point that later facilitates the understanding and well-informed interpretation of the resulting data. The qualitative component of this research has aimed to identify and recognize outcomes from the responses of the participants. However, the starting point of the research is largely driven by theoretical frameworks such as the TST, which is adopted by the current investigation.

4.4 Methodology of the study

The present study has adopted a qualitative approach aiming as much as possible to capture the rich description of the lived experience of participants. Focus groups were used to gather data from multiple participants at one time. The focus groups were conducted to facilitate the researcher's understanding of the attitudes and perceptions of voluntary participants. This approach allows for an in-depth interpretation of the meanings behind the participants' responses within the context of their surroundings. Qualitative research is quite appropriate for exploring under-researched areas such as the working conditions of the target migrant construction workers in the region. One advantage of the qualitative approach over the quantitative is that in the quantitative approach the participant is restricted by predetermined questions, which may yield predetermined responses. Another advantage is that the qualitative approach offers flexibility in expressing opinions beyond the presented questions. Additionally, the qualitative approach is concerned with words and meanings rather than quantifications of numeric data. This allows for the

collection of rich in-depth data which cannot necessarily be obtained using other methods (Bryman, 2012). Furthermore, in the qualitative approach participants are allowed enough space to express their thoughts and opinions in their own words. It is noteworthy to mention that the current investigation has adopted a bottom-up approach where migrant construction workers were asked their opinions on the psychosocial working conditions at their workplace. The researcher has also made it a point to encourage the workers to talk freely beyond just answering the interview questions. That has been beneficial and apparently, in the focus groups sessions, the workers elaborated further in their responses and provided very interesting information beyond what the researcher expected. This type of data provided salient evidence that the qualitative method was appropriate for the current investigation. That is why I agree with Chamberlain's (2000) argument that the qualitative method is useful for providing insights on both the 'how' and the 'why' questions.

Qualitative methodologies have been extensively applied in the scientific literature to identify organizational stressors and to explore their overall context. An example of this practice has been confirmed by Houdmont's 2013 study which utilized focus groups to identify the context-specific stressors affecting police custody officers in England. Similarly, Fortune, Rooney, and Kirwin (2017) used semi-structured interviews to explore the key stressors experienced by police computer forensic investigators whose role requires them to view online child exploitation material. In the UK higher education sector, Darabi, Macaskill, and Reidy (2016) used online interviews to examine the experience of university staff in responding to the stressors of their job. Yet more examples can be seen in Galvin and Smith's 2017 study where the authors conducted interviews with trainee clinical psychologists to identify the stressors associated with their role. Though diverse in terms

of cultural context, these studies are unified by the paucity of evidence specific to the context of investigation. This paucity has warranted the adoption of qualitative methodology in order to identify salient stressors that might not have been captured using a quantitative methodology. The reason for this is that the researchers may miss the potential stressors during the questionnaire design stage.

4.4.1 Research Focus Groups

Focus groups involve interviews that allow the researcher to obtain insights on the attitudes and opinions of the participants. These sessions enable communication between the researcher and the participants. Such open communication can reveal areas of concern that might otherwise be overlooked. The open-ended questions that the researcher has adopted in this process allowed the participants to express their thoughts in their own words, set their priorities, and elaborate as necessary. This discussion, in turn, offered the researcher the opportunity to understand the cultural norms and values held by the target group members. The focus group method proved to be efficacious and important for the study, since the researcher was able to gain valuable insights that helped guide and develop the research in line with Elliott et al.'s (2011) study. Moreover, focus group sessions may provide richer data through the discussion and interaction between participants compared to face-to-face interviews (Richens, 2015). Focus group sessions provide the space for debate and discussion between participants, which reveal more insights and enrich the collected data. These sessions also represent a time-efficient form of data collection. Consulted studies have tended to use semi-structured interviews that involve focus groups where several participants have simultaneously provided responses to questions posed by a facilitator. Thus, the time required for a set of individual interviews typically far exceeds

the time required for a single focus group. Linked to this advantage, focus groups are also appropriate in workplace research where organizational arrangements make it possible to secure the contribution of multiple participants at a single point in time. The current study has definitely benefited from such a practice and therefore has found the focus group approach suitable for this investigation.

4.4.2 Recruitment of the Research Participants

The current study was launched in 2012 in a large-scale construction project in the region. The project employed more than 15,000 migrant workers with four companies operating as sub-contractors. Two of the operating companies are international construction contractors overseeing a number of projects worldwide. The other two companies are among the major local companies in the region. To allow for maximum variation in sampling, participants employed by all four contractors were invited to contribute to the focus groups. The current study utilized the assistance of safety supervisors to invite participants. The safety supervisors were requested to recruit those willing to participate from groups of workers and foremen. The participation criteria set by the researcher was that the workers/participants should be (i) migrants and (ii) work as a labourers, skilled workers, or foremen directly employed by the company. Furthermore, to ensure acceptable sample representation, participants were selected from a pool of different construction trades including bricklayers, steel fixers, welders, and masons. Three focus group sessions were dedicated to foremen participants, while the other four targeted a mix of labourers and skilled workers.

Fifty participants took part in seven focus group sessions. As most of the participants do not speak English, translators were invited to facilitate communication

between the participants and the researcher for each session where the translator's native tongue matched that of the participants.

Prior to starting the focus groups, participants were made aware of their ethical rights via a participant information sheet (Appendix A). The participants were then asked to read, ensure understanding of the content, and sign a consent form (Appendix B). Minutes of the focus group sessions were audio recorded and subsequently transcribed. The focus group sessions were scheduled after working hours at accommodation camps. The duration of each focus group session was about one and a half hours. All participants were males as almost no females work in remote construction sites in the region.

4.4.3 Socio-demographic Characteristics

Table 4-1 shows the socio-demographic characteristics of the focus group participants. Skilled worker participants constituted the largest group (42%), followed by foremen (36%) and labourers (22%). Most of the skilled workers and foremen were married: 81% and 83%, respectively. However, only 36% of the labourers were married. Of the labourers, 64% had worked in the same company between 6 months and 1 year. It is notable that 22% and 19% of foremen and skilled workers, respectively, stayed in the same company more than 2 years.

Table 4-1

Socio-demographic Characteristics of Focus Group Participants

			Marital Status						Tenure (experience in the company)							
Job Title	N	%	Married		Unmarried		Divorced		>6month		6m–1year		1–2 years		<2 years	
			n	%	n	%	n	%	n	%	n	%	n	%	n	%
Labourer	11	22	4	36	7	64	0	0	2	18	7	64	1	9	1	9
Skilled worker	21	42	17	81	3	14	1	5	3	14	10	48	4	19	4	19
Foremen	18	36	15	83	3	17	0	0	1	5.5	6	33.3	7	39	4	22.2

4.4.4 Semi-structured Interview

Each focus group was structured around a set of identical questions (Table 4-2). As stated before, qualitative approaches utilizing focus groups have been widely used in occupational health research. For instance, Zou et al. (2014) analyzed 88 published articles concerning construction safety, 51% of which were qualitative and had used both face-to-face as well as focus group interviews. In the current research, the term ‘interview’ refers to a group interview or a focus group discussion. It does not in any way indicate a face-to-face interview with a single participant.

Table 4-2

Focus Group Semi-structured Interview Questions

	Themes of organizational problems or stressors	**Questions**
1	Long working hours	1-How many hours do you work daily including commuting?
2	Work pressure and unrealistic targets	1-How do you find your workload? 2-Are your work targets generally realistic? Please give examples.
3	(a) Inadequate leisure time	1-How do you perceive your social life in terms of time spent with colleagues and friends? 2-Do you speak about your personal life with your colleagues? If not why? 3-To what extent are you satisfied that you have sufficient leisure time for physical exercise?
	(b) Inadequate time for family	1-What about time to think about your family and talk to them
4	Poor communication	1-Do you think you have a language barrier in your work environment? 2-If yes; how do you think it affects your daily work performance? 3-In what way do you think the language barrier might increase your health and safety risks at work?
5	Poor management support	1-How do you perceive management support in your organization? 2-How does the management react to your complaints? 3-Have you ever observed a situation where management was reluctant to send ill workers to the clinic? 4-Have you or your colleagues ever been refused sick leave by a doctor while working on this project?
6	Discrimination and unfair treatment	1-Do you feel you are ever treated unfairly at work? If so, in what ways?
7	Rewards	1-Is the remuneration you receive equal to what you were told back home? 2-Is it enough to support your life and your family life? 3-Do you go on regular annual leave? If not, why? 4-Do you work every Friday? Why don't you take Friday off?
8	Debt to an agent back home	1-Back home, do you owe an agent money in return for securing the job for you here in the UAE? 2-If yes, how does that affect you and your family?
9	Desire to leave the company	

		1-Have you considered leaving the company? If so, how often? 2-If you are given a chance to remain with your company for another project, are you likely to accept the offer? Why?
10	Job satisfaction	1-To what extent do you find yourself satisfied with your job? 2-What are the primary reasons for that satisfaction or dissatisfaction?
11	Job insecurity	1-To what extent you think your job is secure?
12	Reduced work productivity and performance	1-In the existing work environment, do you think you perform to the best of your ability? Why?
13	Safety compliance	1-In your workplace, do you ever take shortcuts or overlook safety rules? Why? 2-Have you failed to report incidents or near-misses in the past 12 months? Why? 3-Have you deliberately violated safety rules in the past 12 months? Why?
14	Food quality	1-Are you satisfied with the food being served in the camp? If not, why?
15	Musculoskeletal disorders	1-Do you regularly experience MSDs or fatigue?
16	Emphasis/validation of the above aspects	1-What are the three worst things about your job?
17	Positive aspects	1-What are the positive things about your job?
18	Conclusion	1-Do you want to add anything?

Driven by the existing literature and theory, a series of informal discussions were held with a small sample of migrant construction workers to identify possible areas for exploration. Subsequently, in line with the research aims, a semi-structured interview schedule was developed and piloted among five workers. Considering the feedback obtained from the pilot exercise, the final interview draft was completed with only minor modifications to ensure clarity. The development of the interview questions mostly relied on the exiting literature. However, some questions that were specific to the study context were developed by the researcher and shared with the participants for their feedback. Most

of the questions were open-ended to allow participants the freedom to bring up salient issues that were pertinent to their occupational context.

The first section of the interview focused on the job demands in terms of heavy workload (Hockey & Earle, 2006), working hours, communication, and time for social life. Next, participants were asked about salaries and remuneration, and whether they were in debt to a recruiting agent back home. Then, they were invited to discuss welfare provisions. Participants were also asked about work performance and productivity. Another section of the interview covered job satisfaction, job insecurity, and desire to leave the company (turnover intention). Then, participants were also asked to talk about safety compliance and any other safety concerns that might not have been covered in the interview questions. Next, they were asked to talk about positive and negative aspects of their job. They were asked to point out any additional issues they would like to raise before the conclusion. Finally, the participants were thanked for taking part in the interview.

The interviews revealed that the workers' awareness and knowledge of health and safety measures was minimal. Moreover, it took some workers a long time to understand the questions, even when the translator explained them in many ways. Obviously, participants were largely unaware of their health and safety rights and the welfare obligations legally required of their employers. On many occasions, the workers continued talking beyond the point raised. On other occasions, they tended to personalize issues and talk about their own concerns. For the sake of empathy and to earn the participants' trust, I felt it was necessary to listen to some irrelevant narratives. The feedback was also positive, as it provided unforeseen elements of the overall context. However, it was always important to keep the discussion on track. The translator and the researcher managed to

keep the discussion under reasonable control. As the researcher possessed a basic grasp of the Hindi language, it was not difficult to redirect discussion back to the issues under examination when debate wandered off course. Following the initial interviews, more practical experience was acquired over time, and the discussion became more meaningful within acceptable boundaries. Nonetheless, even the irrelevant points mentioned in the discussion added insight to the overall context of the working conditions of the migrant workers.

4.4.5 Saturation Point

It is essential at this stage of the research to assess the focus group process looking into their number, their outcomes, and whether the process has adequately met the objectives. Commonly, in any qualitative research, the number of interviews is determined by reaching the saturation point. The saturation point, as defined by Richens (2015), is the point where no additional information is added by additional sampling or interviewing of participants. However, this definition has its flaws. For instance, in heavily researched areas or in studies where a higher-level concept is sought (Ando, 2014), the saturation point might be reached with very few participants. It is worth mentioning that in some studies, funding and ethics committees are the factors which determine the number of interviews conducted. Owing to the exploratory nature of this investigation, I systematically planned for focus groups to be conducted until thematic saturation was reached.

4.4.6 Transcription of the Audio Recorded Data

A commercial transcriber undertook transcriptions of the resulting audio recordings of the focus groups. This transcriber was selected based on three criteria: their reputation for reliability within the academic community; their ability to protect the data in full

compliance with the legal requirements; and the reasonable service price. Recommendations from peer researchers and acceptance by the supervisor were also sought to ensure the competence of the transcriber. Two transcription service providers bid for the role. The researcher requested the selected bidder to demonstrate competence in data protection and server encryption. The bidder provided a valid certificate to this effect, which was a 256bit SSL encryption certificate. This bidder also met the criteria of charging the service fees based on the minutes of recording regardless of the time spent on the transcription or the number of generated words. After the selection of the service provider, the audio files were uploaded to their server. The files were first checked for clarity of audio recording and then transcribed into seven text files. Each group session was transcribed into a separate file. Afterwards, the researcher reviewed the text files against the audio recorded data to ensure proper a match with the transcription. However, sentences were not clear on occasion, such as when two participants spoke at the same time or when a mobile phone rang. Some personal statements were also excluded; for example, when a worker requested to go for dinner or to answer a phone call.

4.4.7 Data Analysis Using Thematic Analysis Approach

The current analysis replicated the six stages of Braun and Clarke's (2006) thematic analysis approach (see Table 4-3). Braun and Clarke's procedure is widely used in occupational health psychology research as it enables analyzing, identifying, and reporting of the themes in qualitative data (e.g. Houdmont, 2013; Leka et al., 2011; Payne et al., 2013). In line with this method of analysis, the audio data files were transcribed and turned into text files. Following that, the researcher embarked on reviewing and reading the transcription against the audio recordings. This allowed the verification of the accuracy of

the transcription process. The reviewed text was tagged with codes highlighting the main common features of the text. There were seven transcripts and each was separately coded. This step was followed by the generation of initial broad categories for the different responses in accordance with the study guidelines. The coded data was reviewed for similar codes. This step was followed by collating the categories into sub-themes that addressed the same topics. The categorization of data focused on data relevant to the research aims. Microsoft Excel was used to help in categorization of the data and tabulation of emergent themes and subthemes. The repeated codes were collapsed where the surplus and unnecessary texts were excluded. This stage of sub-theme generation followed an inductive approach where the sub-themes were derived from the data. The researcher then carried on the analyses under consultation with the research supervisor in order to clarify the emergent themes. The sub-themes were grouped into major themes with the relevant data within each theme. Themes and sub-themes then underwent review against the developed categories to ensure that the entire data set was represented. Defining and naming the themes and sub-themes then followed. It was important to verify the reliability of theme generation. To do that, the coded data was sent to the supervisor asking him to evaluate it against the produced themes and sub-themes. Afterwards, supervisory approval concerning the generated themes and sub-themes was obtained. In the final stage, the report was developed using extracts from the transcripts and linking every theme to its respective study aim.

Table 4-3

Thematic Analysis Steps

Steps	Description of each step
1.Transcribing and reading the data	Reading and re-reading the data to become familiarized with it, recording notes.
2. Generating initial categories	Guided by study aims, initial broad categories to be generated from the data.
3. Collating categories	Collating the categories, searching for themes, and gathering data relevant to each theme.
4. Reviewing themes and sub-themes	Reviewing themes and sub-themes against the categories to ensure all data was represented.
5. Defining and naming themes	Defining and naming the themes and sub-themes while keeping in mind the study aims and the overall storyline.
6. Producing the report	Producing the report using extracts from the transcripts, and linking them with aims, research questions and literature

It is worth mentioning that there is an option for using software to conduct the thematic analysis. For instance, using Computer Assisted Qualitative Data Analysis Software (CAQDAS) can speed up the process of the analysis (Bryman, 2012). Despite the assistance from the software, the role of the researcher is crucially important in interpreting the codes and the resulting themes. That said, there is still criticism of qualitative research since it allows for personal interpretation and spotting patterns and themes, which renders it subjective and may vary from one analyst to another. To address this concern, Clarke and Braun (2006) have developed a detailed thematic analysis process, which provides a robust structure that can be used by researchers to achieve both reliable and comparable outcomes. The current research analysis was strictly guided by this prominent thematic analysis approach.

4.5 Results

As has been stated earlier, fifty participants contributed to the focus group discussion. They represented the spectrum of the construction trades including masons, steel fixers, carpenters, and welders, and they fell within the three main workforce groups: foremen, skilled workers, and labourers. A positive sign was that the sampled migrant workers welcomed the participation in the study with no reservation whatsoever. The novelty of such research involving them may have been an incentive. It was more likely that they had never been invited to take part in any research before, and it is most probable that no similar interviews or questionnaires had ever been given to them by their companies throughout their tenure there. Therefore, they were pleased to participate, probably hopeful that this kind of research might contribute to improving their working conditions in the future. Although it was made clear to them that this study is meant for academic purposes, they still hoped it might have a positive impact in the near future. Indeed, this is the ultimate aim of the research, hoping that the organizations and safety practitioners would adopt the findings and recommendations of this study for improvement.

Table 4-4

Principal Themes and Sub-themes and the Number and Percentage of Participants Identifying Each Theme (n = 50)

Themes and subthemes	*N*	%
Theme 1: High job demands	45	90
Sub-theme 1: Heavy workload		
Sub-theme 2: Poor working environment		
Sub-theme 3: Language barrier		
Theme 2: Management support	19	38
Sub-theme 1: Welfare provisions		
Sub-theme 2: Unattended complaints		
Theme 3: Financial strain	21	42
Sub-theme 1: Inadequate salary		
Sub-theme 2: Payment to an agent back home		
Theme 4: Poor organizational health	37	74
Sub-theme 1: Job Satisfaction		
Sub-theme 2: Job insecurity		
Sub-theme 3: Desire to resign (turnover intention)		
Sub-theme 4: Poor work performance (productivity)		
Theme 5: Poor safety performance	20	40
Sub-theme 1: Breaking safety rules		
Sub-theme 2: Accident underreporting		
Sub-theme 3: Increased risk of injury		

The analysis of the data using the thematic approach revealed 5 main themes and 14 sub-themes (Table 4-4). The main themes are described below with quotes indicating the content of the themes and sub-themes.

4.5.1 Theme 1: Job Demands

Most of the migrant workers (90%) indicated that job demands were high. The job demands theme encompassed three subthemes, namely heavy workload, poor working environment, and language barrier. It was reported that migrant workers used to struggle daily with many challenges starting as early as 4:30 am and queuing for taking showers,

lining up for early breakfast, lining up to take the bus, and reaching the worksite at 6:00 am. At the worksite, they were required to achieve certain daily targets. In addition, depending on the project stage, pressure mounted accordingly. Bearing in mind that projects were usually very tight with highly unrealistic deadlines, these factors exerted huge pressure on the workforce to strive to meet the unrealistic targets.

The following are the sub-themes that emerged from the main theme of high job demands.

Heavy Workload

Thirty participants have indicated that their workload was high, physically demanding, and required extra effort in order to meet the set targets. The sampled participants also indicated that in certain cases, they had to bypass safety rules in order to meet the deadlines (quote 1).

> *Quote 1: The workload is huge; it is neither realistic nor reasonable, but no escape, you have to do it no matter what, you depend on your own skills to manage. Because of the stage of the project (near completion) everybody is pushing for work progress. We sometimes have to compromise safety for the sake of progress. For example, if it is a dusty and windy at site, we suppose to stop work, but we are forced to proceed. We are away from our families in this desert, and sometimes the climate is bad and hot, but we have to do the job, no other option* (skilled worker).

There was also evidence of threats used to impose a heavy workload (quote 2). Some participants mentioned that they were threatened with termination from the project if they rested or did not achieve the planned targets.

Quote 2: When I sit to take rest the foreman is forcing me to continue working. He is not giving us rest time, and if we ask for something he says your passport and ticket are ready, if you want to go home, we can fire you any time (labourer).

The participants also reported long working hours (quote 3). They reported that they usually had to wake up at 4:30 am, queue to take a shower and get their turn eating early breakfast so they could reach the site at 6:00 am. They mentioned that the working day lasted up to 6:00 pm and they reached the camp at almost 7:00 pm.

Quote 3: Everybody feels the working hours are too much, but there is nothing we can do about it. We suppose to work for 12 hours mandatory (labourer).

Participants also reported that they were forced to work every Friday (the usual rest day in the region) and sometimes through public holidays (quote 4). Many foremen have reported that they had to work every Friday, mainly when the daily work permits were issued in their names. The permit to work is a system used to organize and control daily site work and is usually valid for seven consecutive days. Therefore, the permit holder is not supposed to leave the site on Friday as per the permit validity.

Quote 4: The problem happens when a JP (foreman) got sick, at that time the whole crew will be idle on site. That is why we cannot get sick because the permit is issued in my name. Management is not supportive in this case and they don't have a replacement or stand by JPs. Even on Friday, I cannot take it off because of the work and permit issue. There is no time for social life, and sometimes there is no time and no off for holidays and Fridays (foreman).

Some workers reported that because of the long working hours, they rarely found time for social activities and physical exercise (quotes 4–5).

Quote 5: We do not have time for physical exercise; we are doing enough physical exercise at the site (labourer).

Poor Work Environment

Most of the sampled migrant workers perceived the working environment as being unhealthy and poor. Many factors contributed to this perception. The main ones were unfair salary scales and allocation of overtime. Many workers complained that different pay was disbursed for the same job carried out by workers with the same qualifications (quote 6).

Quote 6: Two people are getting two different salaries. That is the same job, blasting, painting, another person is getting 1,000 rupees, and he is getting around 750 rupees. The new people who are getting recruited are getting more money than them (labourer).

Other factors that influenced the workers' negative perception were poor work planning, inadequate resources, and the hot weather conditions (quote 7).

Quote 7: The problem happens when a foramen got sick, at that time the whole crew will be idle on site. That is why we cannot get sick because the permit is issued in my name. Management is not supportive in this case and they don't have a replacement or stand by JPs. Even on Friday, I cannot take it off because of the work and permit issue. Inadequate resources and incompetent workers are making our job harder (foremen).

A certain number of workers stated that they could not leave the company for a better job because of the ban imposed by the Ministry of Labour. The ban states that

workers must stay for a minimum of two years with the same employer; otherwise they would be deported and banned from the country (quote 8).

> *Quote 8: I want to resign but because of the ban imposed by the Ministry of Labour I cannot resign, otherwise I have to leave the country for 2 years* (skilled worker).

Language Barrier

The analysis revealed that there was a language barrier that may undermine communication between workers and their direct supervisors. As stated earlier, the project workforce consisted of a number of different nationalities. However, most workers were Indian, and they communicate using their native language, which is mostly Hindi. The official language of the project management is English, but only a few workers are able to communicate in English. On the other hand, supervisors are mostly from India, Turkey, and the Philippines. Therefore, in cases where the supervisor is from Turkey or the Philippines, the communication problem arises (quote 9–11).

> *Quote 9: We sometimes have communication problems; it is a big problem particularly with Turkish foremen. Other languages like Hindi, Urdu we understand. The only issue is in the Turkish language which we do not understand, and they do not understand our languages* (skilled worker).

Some participants noted that the daily communication onsite sometimes became even harder, since Turkish supervisors barely spoke English either (quote 10).

> *Quote 10: You know some of the Turkish staff do not know English, you need to adjust your language, and you need to use signs sometimes to communicate*. (labourer).

In some cases, the participants stated that there was a total communication breakdown and misunderstanding of the daily work instructions (quote 11).

Quote 11: Sometimes we say something else and they do something different. If you ask them did you understand, they tell you yes and when you pick one of them, he does not know what you say, then why are they nagging their head? (foreman).

4.5.2 Theme 2: Management Support

Thirty-five participants pointed out that management support in their respective companies was insufficient. The main concerns were the inadequate welfare provision and the complaints raised by workers without being addressed.

Welfare Provisions

The welfare provisions were reported as being inadequate. Some workers stated that the food quality and quantity were not satisfactory (quote 12).

Quote 12: Food is not good but we have to eat to survive, we are forced to eat it (labourer).

A considerable number of participants raised a concern about the lack of gym and recreation facilities in the camps (quote 13). Due to the fact that the camps are located far from cities, all welfare facilities such as mess facilities, gym facilities, and recreation are to be provided by employers.

Quote 13: No gym or recreation for workers, it is only for seniors in the camp (skilled worker).

Unattended Complaints

A number of participants indicated that they were afraid to raise any complaints as they might promptly lead to them being sacked from the job (quote 14).

Quote 14: Here it is not allowed to complain, we are afraid of the company, not allowed to complain (labourer).

The discussion with workers also revealed that they do not have access to management, as they only deal with the supervisory level. They have also reported that, even if their complaint reached the top, the management team's response to their complaints is negative (quote 15).

Quote 15: If I put a complaint note in the complaint box, I have to mention my employment number, if I do so management will take reaction against me (skilled worker).

4.5.3 Theme 3: Financial Strain

A notable portion of the sampled participants reported a low monthly salary from which they had to pay recruiters in their home countries fees for host country placement and visa documentation. Some workers even took out loans to pay recruiters for securing the job for them, and instead, they had to repay the lenders back home.

Inadequate Salaries

The worker group reported that their pay and compensation was not adequate. Some of them indicated that their monthly salary was less than $150/month. The labourers who are classified as unskilled workers do earn the lowest salary (quote 16).

Quote 16: I feel we are much secured because we are cheap and yet competent and capable for the job, they need us disparately to complete the project (foreman).

Payment to an Agent Back Home

Overwhelmingly, the sampled participants reported that they had to pay an agent back home for securing them a job in the host countries. The agreement with the agent was

to facilitate the visa documentation for a certain amount of money. This amount of money is huge compared to workers' earned wages in the host country. Some workers spend years paying back the agent (quote 17). If they fail to repay, the recruiting agents might expose their families at home to intimidation and harassment.

> *Quote 17: Until one year I have to pay my full salary to the agent, I do not pay anything to my family. After one year I start to get some money for me. If the project finishes after one year, then I will get nothing* (labourer).

Some of the participants stated that they had to take out high interest loans to pay the local recruiters, and they then had to pay back the bank or lenders (quote 18).

> *Quote 18: I took a loan with the high-interest rate from the bank to pay the agent. It is a problem for me, but again for the sake of future work I took that* (skilled worker).

It is evident that this burden of recruiter payment probably poses financial strain and emotional stress for the workers given the poor salary they receive with no chance of future increase. Plenty of workers had already spent years in the project without receiving any promotion or pay increase (quote 19).

> *Quote 19: I am here for five years, almost five years and salary is still not increased* (labourer).

Participants also indicated that no pay increase or bonus was given to them despite the hard assignments they carried out (quote 20).

> *Quote 20: We got all the tension and stress during past shutdown work and company did not recognize us for the good job we did. We had to stay on the job for four days continuously to have the job completed during shutdown time, yet*

company gave a bonus to engineers and supervisors, and nothing to us. This is demoralizing (foreman).

4.5.4 Theme 4: Organizational Health

Around 74% of the participants thought that organizational health was poor. In other words, they perceived the organization's ability to prosper and succeed to be poor. The indicators of this perception are collated in the following sub-themes.

Job Satisfaction

Most of the participants expressed dissatisfaction with their job. This is partly due to the poor salaries they receive, as well as the absence of any prospects of promotion combined with continual work pressure (quote 21).

Quote 21: I am not satisfied with a job and the main reason is money (skilled worker).

Inadequate resources and incompetent new workers were among the reasons for lower job satisfaction among participants (quote 22).

Quote 22: Inadequate resources and incompetent workers are making the job harder and making me less satisfied (foreman).

Job Insecurity

A number of the participants reported that they felt insecure working on the project. Some of them have attributed that to the near-ending stage of the project (quote 31). Others have expressed feeling worthless and dispensable to the company.

Quote 31: We feel insecure because supervisors said the project will finish in 2 months. We have tension now because we already took loan and we need to pay back (skilled worker).

Desire to Resign

The analysis revealed a high tendency to leave the company. Given the fact that more than 4 companies were involved in the study, it was notable that this issue was reported by workers from almost all the companies. Some workers also expressed their intention to remain in the company—only in the aim of gaining experience would they move to a better company (quote 32).

Quote 32: I will not stay in this company, if they improve my salary I can remain but in the current salary I will not (labourer).

Poor Work Performance

A sample of the participants reported that the problematic aspects in their organizations result in low work performance (quote 33).

Quote 33: We can do more and produce more if company provides more resources and increase salaries (foreman).

Some participants have also indicated that productivity could have improved if the organizations were keen to address the problematic issues reported in the above sections (quote 34).

Quote 34: Company does not provide good salary, so I do not work to best of my ability. I can do more (skilled worker).

Other workers noted that the language barrier undermined work performance (quote 35).

Quote 35: Sometimes language barrier increase risk of injury and it affects work performance also (foreman).

4.5.5 Theme 5: Poor Safety Performance

The undertaken analysis revealed evidence of poor safety performance. The main factors that indicated poor safety performance were the tendency to break safety rules, accident under-reporting, and the perception of increased risk of injuries at the workplace.

Breaking Safety Rules

Most of the workers reported that they had to break safety rules, taking shortcuts to meet the unrealistic and unreasonable work targets (quote 36). They were inclined to take a shortcut because of the high work demand.

> *Quote 36: Due to work pressure and the targets that we have to meet we sometimes overlook safety rules* (skilled worker).

The analysis also showed that because of inadequate resources, workers are in most cases compelled to neglect the safety rules (quote 37).

> *Quote 37: We never take shortcut for high risk matters; we only take shortcut when we don't have resources and yet we need to do the job* (foreman).

Incident and Accident Reporting

It is evident from the analysis that some workers failed to report incidents that occurred at the site, believing that management would take negative action against them for reporting incidents (quote 38).

> *Quote 38: Sometimes we see incident on site but we are afraid to report it as our company might take action against the reporter* (labourer).

Some workers often deliberately neglected to report incidents such as first aid cases. These workers believed that reporting incidents might damage their company's

reputation because of a false belief that the client might blame their company for having incidents on site (quote 39).

Quote 39: If I report incident it will only create a problem for my company. This is my company which is why I never create a problem for it (skilled worker).

Increasing Risk of Workplace Injury

The sampled workers have indicated that they perceive the working conditions to be susceptible to increased risk of workplace injury. For instance, this includes negative factors such as language barriers (quote 40).

Quote 40: Language barrier sometimes increases risk as workers do not understand foreman instructions (foreman).

The participants indicated that the high work pressure encouraged unsafe behavior and generated negative perceptions of increased risk of workplace accidents (quote 41).

Quote 41: Suppose we can leave early if we do the job quickly without complying with rules and procedures, we do that (skilled worker).

4.6 Discussion of the Qualitative Study Findings

As previously established, the focus of this exploratory study was to identify organizational stressors in the construction business in the region, and to assess the perceived association of these stressors with safety performance and organizational health. After analyzing the collected data thematically, five top-level themes and multiple sub-themes emerged. The key top-level themes were high job demands, inadequate management support, financial strain, poor organizational health, and poor safety performance. The research has established that some of these stressors are organizational,

including job demands, inadequate management support, and financial strain. The remaining issues were related to poor safety performance and poor organizational health, which are considered consequences and outcomes rather than stressors. The current study, however, shares with a number of scholars the point of view that safety performance and organizational health do in some way shape the migrant workers' perception towards safety at the workplace. For example, when most workers tend to break the safety rules—the risks of injury tend to increase, and consequently, the work stress level is apt to rise. Likewise, when job insecurity or staff turnover increases, the work environment becomes stressful. This research considers both arguments. The current study posits that the quantitative questionnaire following on the heels of the current qualitative investigation may offer clarification on the direction of the relationships between variables, verifying whether these constructs can be deemed predictors or outcomes. However, in view of the study context and design, safety performance and organizational health are considered outcomes of the perceived psychosocial hazards at the workplace.

Before discussing the research findings, it is necessary to outline the importance of the current investigation. Given the huge construction boom underway in the Middle East in the last three decades, the amount of research conducted in the construction health and safety field was critically disproportionate. In fact, the very few existing pieces of research had focused on accident prevention measures rather than investigating the actual psychosocial factors that influenced behavioral safety (Al-Tabtabai, 2002; Fass at el., 2017). The current exploratory qualitative study aims at filling this knowledge gap, bridging research and practice, and paving the way for future research.

4.6.1 Job Demands, Safety Performance, and Organizational Health

The workers in this study indicated that some aspects of their job were stressful. The main stressor reported was high job demands, where work targets were considered unrealistic and hard to achieve. Another key stressor was the negative work environment entailing long working hours, unfair salary, unbalanced overtime allocation, and the hot weather conditions. Moreover, the language barrier and communication breakdown resulted in the work instructions being mostly misunderstood, putting migrant workers at higher risk of injuries and affecting the collective work productivity.

The following sections discuss each one of these job demand factors and assess their potential associations with safety performance and organizational health.

High Job Demands, Safety Performance, and Organizational Health

The current research revealed evidence that migrant workers were being exposed to substantial pressure in order to meet unreasonable work targets. To meet such deadlines, these workers were forced to work longer hours and carry out harder assignments. Some of the migrant workers indicated that they had to put in more than 12 hours a day without taking the weekend off. They also indicated that harsh instructions and sometimes threats "of firing from the company" were used to force them to work non-stop. It is commonly known that the construction industry is an inherently tough working environment. Moreover, the deadlines and timeframes imposed in these projects were usually optimistic and always tight. Contractors often place tenders for shorter project delivery times, aiming to win the project tender. Usually the clients and owners of the project look for contractors who can deliver the project in the shortest period. However, during the execution of the project, many unforeseeable problems and obstacles come up. These problems can often

cause delays. Therefore, most of the time pressure for project completion gradually mounts throughout the span of the project. That is the main reason that these workers are more likely to be subjected to pressure to catch up with the lapsed completion date, which was earlier irrationally committed to by the contractors. Furthermore, in oil and gas infrastructure projects, completion dates are crucial and highly rigid. Similarly, construction project completion is linked with the production of oil or gas—both strategic products to respective governments. All these factors explain why job demands can be extremely high, especially close to the project's completion stage. Some of the sampled migrant workers indicated that they continued working day and night during the commissioning of the project. Moreover, a number of them reported that they had to bypass safety rules, in a deviation from safety procedures, to achieve unrealistic work targets. Similar claims were made in a study by Choudhry and Fang (2008) which similarly surveyed construction workers in Hong Kong. The study concluded that among other factors, work pressure forced workers to engage in unsafe behavior. Hinze (1997) also argued that although safety is an integral component of a construction project that cannot be isolated from other project elements, project managers put pressure on the workforce to catch up with schedules. That was true for most construction projects in the region—something that I, as a safety practitioner, can attest to. When workers are under pressure, they may elect to take shortcuts in order to complete the work, putting both safety and quality at higher risk. To solidify my view on the matter, high job demands in this study were shown to increase the risk of accidents because of the bypassing of established safety rules.

The same was confirmed in relevant reviewed literature, showing that perceived production pressure affected the workers' productivity. That, in turn, resulted in a decrease in safety, which eventually influenced both safety management and accident rates. This was in many ways explored and confirmed by several scholars (Hinze, 1997; Rundmo et al.,1998; Brown et al., 2000; Mohamed, 2002; Mitropoulos et al., 2005).

Hofmann and Stetzer's (1996) study is in line with the current research findings. One fact they established was that work pressure constrained employees' progress towards workplace safety (Hofmann and Stetzer, 1996). The probable reason was that work stress usually compelled individuals to focus on only a few specific aspects of the work environment, thus ignoring other critical aspects. It was obvious that under increasing production pressure, workers tended to take "shortcuts," thinking that there was little or no time to comply with safety procedures which resulted in a higher frequency of unsafe behavior and subsequently higher risk of injuries. Indeed, the current study found that migrant workers were forced to deviate from established safety rules to meet work progress targets. Breaking safety rules consequently increased the risk of accidents. The consequence of that was also the loss in production and possible damage to reputation, which could seriously affect an organization's standing in the industry. The reviewed literature, the conclusions drawn from this study, and my personal experience in health and safety all attest to the fact that unrealistic workload was equally detrimental to both safety performance and work productivity. It was also noted that increasing work pressure may result in less job satisfaction, higher levels of job insecurity, and a tendency towards turnover as indicated in the results of the study. These factors widely impeded organizational success because of the negative impact on overall organizational health.

This issue is highly pertinent to organizational health and will be discussed thoroughly in the following sections.

Language Barrier, Safety Performance, and Organizational Health

Almost all the migrant construction workers coming to this region hail from countries in Asia, where languages other than English dominate. Nonetheless, the majority of the site supervisors and project engineers where the study took place were from Turkey and the Philippines, where the official communication language is English. Therefore, most of the participating migrant workers indicated that it was hard for them to understand work instructions directed at them by their respective supervisors. The misunderstanding of work instructions puts workers at increased risk of workplace injury. This plausible outcome supports the findings of a study conducted in the UAE by Loney et al. (2012). The study found that most migrant workers in the region exhibited a low level of literacy, and there was a communication breakdown with senior staff. Similarly to Loney et al. (2012), the current study's findings conclude that organizations must consider that the language barrier may pose difficulties impeding a worker's understanding of his work instructions as related to health and safety requirements. Some of the sampled migrant workers noted that, in many cases, they had to use body language and signaling in order to communicate with their supervisors. However, with such a poor venue of communication, the safety message is either misunderstood or entirely lost. Misunderstanding work instructions puts workers at higher risk of injury. In other words, when workers do not understand the correct instructions of conducting the daily work, they will certainly be unable to carry out the job safely. To add to the complexity of the problem, most of the work methodologies and safety procedures are provided in English, which further exacerbates such misunderstanding. It

was noted by some migrant workers that most of the safety signs in the region's projects are usually presented in English. This is an obvious problem, since the construction industry is inherently hazardous and has the highest injury rates as documented by Fass et al. (2017). Furthermore, migrant workers are usually emotionally exhausted and preoccupied with their own problems. Within this context, communication breakdown can be a critical factor contributing directly to the increasing risk of workplace accidents. As noted by Loney et al. (2012) and certainly confirmed by this study, the low literacy rate of these migrant workers together with the inherent language barrier in the region would negatively affect their health and safety performance in this sector. On the other hand, misunderstanding work instructions might also delay work progress. Some of the participating migrant workers indicated that the language barrier adversely affected their work productivity. When the workers receive the work instructions and wrongly interpret them, the job at hand suffers resulting in substandard quality and possible delay. Given the fact that organizations usually put resources and commitment into delivering on time, it is undesirable to delay work progress because of communication breakdown. That is why this study urges organizations to seriously address this language problem. One of the approaches this study recommends is that organizations should employ supervisors who are the same nationality as the workers. It would also add value if these organizations provided effective English training to the workforce in order to improve their communication skills. Unfortunately, few organizations in the region have attempted to translate their safety rules into the dominant language on their construction sites, such as Hindi or Urdu. This research has made sure that the study instruments and the questionnaire

were translated into Hindi and Urdu to ensure full understanding and facilitate adequate and informed responses to the questions.

Poor Working Environment

A great number of the participant migrant workers reported that their working conditions were problematic. A range of factors certainly contributed to this perception. One obvious factor among these was unfair salary systems. The research revealed that a discrepancy exists in the benefit allocation among the migrant workers. It was apparent that workers with the same qualifications, who carry out the same responsibilities of a certain job, receive different pay levels. The study found that a huge segment of the migrant worker population perceived this unfair pay allocation as demoralizing, resulting in dismay and probably job dissatisfaction. It is hard and stressful enough for these workers to handle such demanding jobs, let alone to be subjected to receiving not only poor and inadequate pay, but also one that is unjustifiably unequal to that of their peers. A significant number of the migrant workers have also reported that overtime pay was allocated unfairly. Some of them are given extra overtime hours and subsequently receive higher pay than their peers. This unequal and unfair treatment generates aggravation and dissatisfaction among these underpaid workers. Adams (1965), the developer of the equity theory, stated that employees who perceive inequality in pay treatment exhibit negative behaviour such as absenteeism and a desire to resign from the organization. This concept is proven to be valid in the current study which shows that unequal pay treatment not only affects the workers' morale, but also influences the turnover intention and subsequently negatively impacts overall organizational health.

The study also documented that resources were inadequately allocated for the work onsite. One of the main factors was the employment of incompetent and unskilled workers. Those who had reported this problem also indicated that the incompetence of the newly hired workers caused additional work stress. These untrained and unqualified workers usually produced less and frequently put their peers at risk of accidents. Moreover, the sampled segment of the foremen group reported that there was a shortage of qualified foremen who could cover for others who might fall sick or be absent for any other reason. They reported, "one cannot take sick leave or else the whole working crew has to cease functioning in the absence of the foreman." Needless to say, such a situation affected the workers' psychologically. They perceive that they could not afford to take off any rest days even if they fell sick. It is evident that the work progress would also be negatively affected since the whole crew would halt and be idle should their foreman fall sick. Hence, inadequate resources and their poor allocation are detrimental factors to both workers' health and the overall organizational health in terms of productivity loss.

As well, it was reported during the interviews that part of the sampled workers cannot transfer or relocate to any other company because of the ban imposed by the Ministry of Labour in the country. As indicated by this law, workers cannot move from one company to another before completing two years in service of their current employer (refer to, for example, UAE Federal Law 1980). Therefore, workers have to remain with their companies no matter how poor the working conditions are. This legal obligation adds to the stress these workers are already subjected to since they do not have the option of looking for a better job. This stress is compounded for those who have borrowed money in their home countries in order to secure employment in the host region. These workers

would be overwhelmed with their current underpaid job because the financial burden on them is immense. It is unfortunate that the employing companies in most cases take advantage of this situation. With the power these companies have over the helpless migrant workers, the companies would largely be reluctant to improve the working conditions for them, knowing full well that these workers cannot leave the job. It is important to note that the "kafala" system, as mentioned earlier in this text (Chapter 1), is a system developed by the region's governments delegating certain rights to the local nationals and companies to employ expatriate workers. Apparently, this system creates more psychological stress for workers as they are unable to look for a better job.

One of the study's outcomes is the concern the workers expressed about adverse weather conditions in the desert area where most of the projects happen to operate. The region is notorious for its high temperatures during the summer. In some parts of the region, humidity is also high thus amplifying the heat index. In some GCC countries, for instance, the work must stop from 12:30 pm to 3:00 pm as the hot weather poses real risk of heat stress and other heat-related illness (Bates et al., 2009). Such weather conditions make the working environment very stressful for the workers.

4.6.2 Financial Strain

Financial strain is an indicator of individual socioeconomic status (SES) and is defined, according to Oakes and Rossi (2003), as the individual's access to desired resources. Financial strain can be referred to also as the inadequacy of income which falls short of meeting the individual's needs. The current study revealed that the remuneration system was problematic since the migrant workers received inadequate pay incommensurate to the high job demands. In addition, a considerable number of these

migrant workers had to pay back a significant sum of money to local recruitment agents in order to secure employment for them in the host countries of the region. This issue is further discussed in the following section.

Inadequate Salaries and Payment to Recruiters

Many of the interviewed participants have complained that their pay was inadequate and they were not satisfied with it. Moreover, most of these workers had to borrow against the very poor pay they were receiving, and they were obliged to pay it back. These workers were in debt to recruiters for securing employment for them in the region. In summary, the poor current pay combined with pre-obligations to recruiters led to high financial strain. It is noted by this study and others that these migrant workers, particularly in the construction industry, used to receive poor salaries compared to their counterparts in other trades even within the same employing company. However, unlike European countries and the US, where skilled workers usually receive reasonable pay, in this region, workers earn lower salaries. Leung et al.'s (2012) study conducted in the region confirms this observation. This was also reported by Guldenmund et al. (2013) in a study that was conducted among migrant workers in three European countries, namely Denmark, the UK, and the Netherlands. The study concluded that migrant workers usually come to these countries for a limited time with the main objective of earning money. For that reason, they are able to endure poor working conditions without complaining. However, in the case of the migrant workers in the current study, they were obliged to stay longer given their low earnings, and therefore, they were often forced to concentrate on production at the cost of their own personal safety. As a result, the financial strain factor does not only constitute psychological concerns, but also prompts direct safety concerns. It is clear that these

workers tend to ignore safety protocols in order to achieve the work targets in their attempt to please their supervisors and increase income. Their goal, in this situation, is to keep their job at any cost so that they can earn the necessary money to pay back recruiters and fulfill their obligations of supporting their families. Most of these workers indicated that despite the great difficulty of their situation, they continue paying the recruitment agents back for long periods of time under these persistently stressful working conditions.

It is my conviction as a safety practitioner that the poor pay is largely linked to the turnover intention trend. The workers who perceive their salary as inadequate are less likely to remain working for the same organization for a long time. Most of the sampled workers reported that a labourer's salary only averages $150, which was relatively low. A high percentage of the Indian workers reported that they would prefer to resign and join local companies back home, where a better salary may be expected. Gustafson (2002) argued that the chances of better pay in the organization directly contributed to turnover intention. This finding supports Tnay et al.'s (2013) study which found that pay-related job satisfaction is directly correlated to turnover intention. Therefore, poor pay is not only affecting the workers' psychological wellbeing, but also influences their turnover intention trend and subsequently, the overall organizational health.

The payment to recruiters is a key finding of this qualitative study and will be examined in relation to health and safety consequences in Chapter 5 of this thesis.

4.6.3 Management Support

Management support, as defined by Eisenberger, Huntington, Hutchison, and Sowa (1986), refers to management's appreciation and care towards their employees and their wellbeing. The present study showed that management support was perceived by workers

as inadequate. Some of the workers said that they faced threats of being fired if they raise any concerns to the management. Such a negative attitude from the management side induced additional work stress, which in turn influenced safety behaviour. This outcome was also demonstrated by a similar study among construction workers in Hong Kong conducted by Siu, Phillips, and Leung (2002). The research found that workers who perceived negative safety attitudes displayed by their management or their peers in the workplace felt distressed. This distress, in turn, subjected these workers to a higher chance of being involved in work-related accidents. It is noted that most of these workers rarely come face-to-face with management staff except for their site supervisors and foremen. This was confirmed by the study as most sampled workers reported that they only deal directly with site supervisors and rarely see or interact with project or construction managers. Accordingly, it is my view as a researcher that this conduct is not the optimal way of communication and involvement with workers, but it is the usual practice within the construction business in the region. In disagreement with my view, Tan (2008) reported that supervisors are the key indicator and the reflection of the organization and management's views towards workers' concerns and wellbeing. Although the supervisors' role is important in supporting workplace safety, senior management's interaction with workers is equally crucial, as it demonstrates the management's commitment to workers' health and safety. Therefore, managers must interact with their workforce to show commitment and ensure workforce involvement. In the current study, however, the workers' concerns about their supervisors' safety attitude informed the subsequent quantitative study.

The following sections discuss the inadequate welfare provisions and workers' unattended complaints and concerns as a reflection of poor management support and insufficient care about workers' wellbeing.

Welfare Provisions

The present study found evidence of inadequate welfare provisions. Food quality was one of the main concerns indicated by the workers. Utilities, particularly shower rooms, were reported as insufficient in number and unsuitable for use in most locations of the accommodation camps. The workers had to queue for hours to get into a shower room. They usually leave bed at 4:30 am rushing to get a chance to shower, eat breakfast and get on the shuttle bus by 5:00 am to reach the workplace at 6:00 am. Recreation facilities were also rarely available for the workers at the camp quarters. It is to be noted that recreation facilities could have been very useful to help the workers cope with the stressors. Unfortunately, most of the companies in this business in the region were reluctant to provide any of that. Previous studies showed that young adults who practice physical exercise as a coping strategy experience fewer negative emotions compared to those who do not. Studies have shown that physical exercise is very effective in decreasing stress and depression, improving mental health, and hence, boosting overall quality of life (Biddel, 2000; Morgan, 1997; Hales & Travis, 1987; Schlicht, 1994). It is, therefore, the recommendation of this study that employing companies should pay much more attention to the provision of recreation facilities, improvement of food quality and quantity, and taking all relative measures to ensure the wellbeing of their workforce. It is important to note that welfare provision plays a crucial role in promoting workers' feelings of satisfaction. Job satisfaction would lead to workers' commitment, less turnover, and

improved productivity. Ali (2008) argued that a dissatisfied employee would have more desire to leave the organization. That, in turn, would result in the loss of relatively knowledgeable and experienced employees.

Unattended Workers' Complaints

Some of the interviewed workers reported that the management usually ignores their complaints and concerns. Most of the complaints are largely related to welfare, daily work, and overtime allocation. They indicated that their complaints go unanswered or totally ignored. Not only that, but such complaint are sometimes met with threats of being fired. This negligence from the management forces the workers to feel unvalued by their company. Surprisingly, the only level of company management that they could approach is their site supervisor. The site supervisor is responsible for signing their attendance sheet, allocating the overtime schedules, and approving their leave. Therefore, in a way, the supervisor controls all aspects of work at the site. The workers are not allowed to approach construction managers, project managers, or any other managers in the company. Site supervisors are the ones interacting with the workers on a daily basis. Tan (2008) has stated that the supervisor's favourable or unfavourable treatment towards the workers is indicative of the organization's views towards its employees. Therefore, a working environment where workers are not valued induces both negative feelings and a tendency to leave the organization. Gentry et al.'s (2006) study demonstrated that employees who are given a voice, appreciated and supported by their supervisors are more likely to remain in the organization for longer periods. Clark et al. (2008) and Dawley, Houghton, and Bucklew (2010) found that workers who perceive their management as supportive tend to produce more and exhibit less intention to leave the organization. On the contrary,

employees whose concerns are rarely addressed and are left unsupported by management are more inclined to leave the organization. It is worth bearing in mind that unattended complaints may lead to bitter grievance and negative behavior, such as recklessness and sabotage which may lead to strikes and demonstrations if the situation remains unrectified. From my experience in the region, many strikes took place because of grievances and workers' resentment. In addition, there was always the probability that workers may leave the company which could negatively impact the production and hence organizational health. However, when workers' complaints are addressed and they feel valued by the organization, they become more committed and would willingly remain productive at their posts. This argument is supported by a study by Eisenberger et al. (1990), which found that employees who are appreciated by management are more committed, responsible, and innovative. Such an environment is desirable, and positive management support is the key to fostering such an environment. In consideration of all the values discussed above, this study suggests that companies should seriously consider what caliber of supervisors to have on site. A supervisor's job is critical in ensuring that workers are properly treated, and their concerns are immediately addressed and rectified in a timely fashion. It is vital that these companies understand the importance of the multilevel support trickling down from top management, including middle management and site supervisors. Thereafter, management goals and values towards workers' wellbeing should be expressed by the supervisors' behaviour towards their site workers. The understanding of the site supervisors' role is the key for promoting positive and healthy working environments. To sum up, management support, as manifested in supervisors' care towards their workers' welfare provisions and

attending to workers' concerns, is crucial in reducing turnover intention and improving the organization's productivity.

4.6.4 Organizational Stressors, Safety Performance and Organizational Health

One of the key findings of the current study is that organizational stressors are found to be associated with organizational health. This is particularly evident in staff turnover, work performance, job insecurity, and job satisfaction**.** Construction workers who were exposed to organizational stressors were apparently more inclined to leave the company looking for better job opportunities. Jamal (2005) argued that employees who experience a high level of job stress are more likely to be subjected to poor health, low motivation, decreased productivity, and minimal work-related safety. The companies in which workers are exposed to work stress are less likely to succeed in a competitive market. Many studies found that the greater the amount of stress, the higher expected turnover intention of employees (Chen et al., 2011; Applebaum et al., 2010). Noor and Maad (2008) also found that a positive relationship exists between work-life conflict, stress, and turnover intention. Arshadi and Damiri (2013) conducted a similar study in the region that established a negative relationship between job performance and job stress, and a positive relationship between turnover intention and job stress. Therefore, as confirmed by the current research findings and existing similar studies, organizational stressors are detrimental to organizational health conditions. In the following sections, the practical indicators of organizational health status will be discussed, including job insecurity, job satisfaction and turnover intention.

Job Insecurity and Safety Performance

Job insecurity is another contributing stressor that increases the level of turnover intention. Perception of job insecurity among the migrant workers can be attributed to the feeling that they are not adequately cared for or valued by their organization. However, job insecurity can also be caused by the nature of the construction projects where workers would be demobilized by the end of each project. This sense of instability, plus the 'hire and fire' culture in the construction business as described by Beswick et al. (2007), form a powerful stressor that drives the feeling of job insecurity among these workers. To that effect, it is the study's conclusion that job insecurity is detrimental to workers' health and safety, as well as organizational health. Furthermore, as Probst et al. (2013) demonstrated, not only does job insecurity amplify the likelihood of experiencing an accident at work, but it is also related to a significant increase in the likelihood that employees will choose not to report such an accident. This study has explored job insecurity, accident under-reporting, and outcomes, which warrant further research in order to investigate the relationship and causality between these constructs. The current investigation found evidence of both job insecurity and accident under-reporting among migrant construction workers. This study holds the view that these two factors undermine workers' health and safety performance and organizational health conditions.

Job Satisfaction, Safety Performance, and Organizational Health

This study revealed that migrant workers exhibit low levels of job satisfaction. Poor salaries, unfair overtime allocations, and inadequate resources are among the factors that drive the low job satisfaction. Platis, Reklitis and Zimeras (2014) noted that job satisfaction could be measured using a number of indicators, including satisfaction with management,

quality of the work, working hours, targets, working security, recognition, and satisfaction of productivity. However, the qualitative approach of the current study aimed to obtain a snapshot of job satisfaction levels. Nonetheless, poor compensation, inadequate resources, and poor working environment are among the factors that shape the perception of job satisfaction. For these migrant workers who ventured to come to the region looking for better opportunities, the compensation and reward system are the most important indicator of job satisfaction. Similar findings were reported by Guldenmund et al.(2013) in a study that was conducted among migrant workers in three European countries. As stated earlier, the study found that migrant workers usually come to the European host countries for a limited time and their main objective is to earn money. That short period combined with a focused objective makes them able to endure poor living conditions and unsafe situations.

In agreement with DeJoy et al. (2010) and Huang et al. (2016), this study posits that safety performance in the workplace is shown to be associated with workers' job satisfaction. The focus group study demonstrated that poor safety performance creates an undesirable perception of the organization, resulting in reduced job satisfaction. Additionally, the migrant workers expressed fear for their own safety because of working in unsafe conditions. Although the relationship direction may not be established by qualitative research, one can argue that job satisfaction can influence safety performance and not vice versa. As indicated above, this research supports the notion that safety performance affects job satisfaction. Furthermore, Judge et al. (2001) found that employees' job satisfaction is important to organizational outcomes as it is linked to job performance. Therefore, organizational health and the company's ability to remain successful and competitive will be compromised, especially within the context of

construction where competition is usually ruthless due to the fact that companies have to deliver projects within set timeframes. The success of an organization depends in large part on workers' wellbeing, which must be maintained by ensuring job satisfaction. Moreover, job satisfaction is not associated only with turnover intention, but it is also an important driver of productivity. Dissatisfied workers, on the other hand, might impede work performance affecting organizational health and prosperity. Dissatisfied employees tend to ignore safety rules, thus causing the rate of work accidents to spike. Pauknerova et al. (2006) suggested that the right job satisfaction factors encourage and motivate employees to perform better, which is a prerequisite for work efficiency. This is in line with Lee and Moreo's (2007) view that employee satisfaction is a key factor in a company's success. Given the current research findings, job satisfaction might be an important indicator of both safety performance and organizational health.

Job Insecurity, Safety Performance, and Organizational Health

There are several definitions of job insecurity in the literature. For example, Rosenblatt and Ruvio (1996) defined it as the overall concern about the future existence of the job. The current study found evidence that migrant workers are exposed to considerable levels of job insecurity. As a result of the nature of construction projects, the workers would be subjected to a high level of job insecurity once the project nears completion. Most migrant workers are project-based employees, and organizations would not retain them unless there is another project available. Another reason for job insecurity is the exposure to mistreatment and the threats by supervisors on the worksite. Many of the migrant workers reported that they usually receive threats of visa cancellation if they complain. These threats and uncertainty for future employment create stress as a result of job

insecurity. Job insecurity may prompt a tendency to violate safety procedures, increasing the risk of injuries. Moreover, the accidents that occur may end up going unreported, as has been indicated by most of the sampled migrant workers. This is in line with Probst et al.'s (2013) findings that the perception of job insecurity not only increases the likelihood of experiencing an accident at work, it also significantly increases the likelihood that such an accident goes unreported. To that end, job insecurity is found detrimental to workers' health and safety performance. It also negatively affects the organization's health and its capacity to compete and prosper in the market. Successful organizations provide a healthy work environment for their employees and make efforts to retain them as a future asset.

Staff Turnover, Safety Performance, and Organizational Health

Turnover intention may be defined as the intention of employees to quit working for an organization (Ali, 2008). The current study considers turnover an outcome rather than an antecedent. This view agrees with most previous researchers, contending that turnover intention is an organizational outcome (Huang et al., 2016; Chen et al., 2011; Applebaum et al., 2010). The current study concludes that the turnover parameter influences other perceptions of organizational commitment to its workers' welfare, and subsequently, to the level of job satisfaction even for newcomers. Higher staff turnover may add extra load on to existing workers and reduce productivity due to the resultant low morale. The organization must then employ new workers to replace those who have resigned. The newly recruited workers are also apt to be affected by the dissatisfied atmosphere in the existing pool of remaining workers, and the turnover cycle keeps rolling, thus affecting the organization's daily operations. Turnover rate can start to improve only when workers believe that their organization cares for their wellbeing. Then, the workers'

job satisfaction level rises, and subsequently, so does their commitment towards organizational health and prosperity.

As an overall outcome of this research, migrant workers perceived the organizational stressors identified in the qualitative study as detrimental to both safety performance and organizational health. These findings are further examined in the implications of the study section and the discussion chapter (8).

4.7 Limitations of the Study

While the findings of the current study are incredibly important given the lack of relevant studies in the region, certain limitations must be acknowledged. Workers' health and psychological wellbeing may not have been systematically examined in this study because the focus of this research is qualitative rather than quantitative. This may render health status relatively subjective, but the study offers basic health data that would pave the way for future research. The number of sampled companies in this study is limited to four, which is inadequate for generalizing the findings. However, the data obtained is useful for identifying directions for further studies in the field. Moreover, the objective of this qualitative study is not to draw conclusions that can be generalized; rather, it is an exploratory study designed to offer insight, inform quantitative studies and pave the way for future research.

The language barrier is a limitation that has been clearly demonstrated over the course of this study where communication between the researcher and the surveyed workers proved to be somewhat challenging. Although reliable translators were employed for the study, it is still evident that interviewees may have failed to fully express their experiences and concerns. Certified transcribers have carried out transcription of the audio

records; however, there is no guarantee that the data is fully preserved, while misinterpretation cannot be fully ruled out. Despite these limitations, the study was able to draw very important findings that can open avenues for organizations and future studies to investigate this unexplored area of research further.

4.8 Strengths of the Study

The study is among the very few that have examined psychosocial working conditions of migrant construction workers in the region. In fact, it might be the only study that has examined organizational stressors and their links to safety performance and organizational health. The limited or entirely lacking research in the area was one reason that prompted this investigation. This makes the study a pioneering exploration of construction workers' health and safety in the region. Moreover, the study successfully obtained crucial data related to psychosocial working conditions of migrant construction workers, safety performance at the worksite, and organizational health. The study findings are encouraging and may motivate organizations to make use of them in addressing the issues they outline. It is obvious that the current study is designed and conducted from a practitioner's standpoint more than an academic one. This is a unique strength that makes the study more useful and practical for organizations and safety practitioners. Another important strength is the identification of organizational health as a relatively new construct, which includes key factors such as job security, turnover intention, productivity, and job satisfaction. All these important factors examined over the course of this study proved crucial for an organization's success. An additional strength is that the current findings are not only important for decision makers in organizations, but are also equally important for human resources managers, safety practitioners and government authorities.

4.9 Practical Implications and Recommendations

The practical implications of the research findings are:

- The study identified a wide range of organizational stressors associated with migrant workers' operating conditions in the construction sector. These stressors are to be considered upon investigating work-related injuries and occupational illness in particular, and safety performance more broadly.
- The study demonstrated that organizational stressors are perceived as detrimental to organizational health and may impair the ability of organizations to remain successful and competitive in the dynamic market. The study recommends that organizations should mitigate such stressors in order to limit or reduce their potential negative impact.
- The findings of this study can be very useful to safety practitioners and decision makers who seek to improve migrant workers' working conditions. One area for improvement is addressing the communication barriers between supervisors and their workers. This study suggests that such an improvement can dramatically reduce the risks associated with misunderstanding work instructions and improve work performance.
- Based on the research findings, organizations and relevant stakeholders in the construction sector should identify, examine, and act upon organizational stressors pertinent to their respective work design, organization, and management. It is counterproductive to wait for organizational stressors to impair

safety performance and organizational health while it is possible to tackle and mitigate these stressors preemptively.

- The study revealed the importance of key factors of organizational success alongside the organizational stressors that may undermine both safety and work performance onsite. Organizations can tackle organizational stressors, particularly the ones that can be eliminated swiftly. For instance, organizations may start with distributing the overtime allocations fairly among migrant workers and improving salary scales to alleviate financial strain and improve job satisfaction. More importantly, organizations and stakeholders should address the issue of recruiter payment and employ workers directly. Moreover, organizations can provide language training for the workforce to address the language barrier, or recruit supervisors of the same nationality as the workers.
- One important step that can improve management support is to employ competent supervisors and empower them to reflect the organization's positive values. The current study demonstrated that supervisors could play a vital role in improving both workplace safety and productivity.
- Furthermore, proper planning and realistic allocation of resources can decrease workload and reduce job demands, which will reflect positively on workers' perception of the job and will enhance safety at the workplace.

The study findings, combined with the evident lack of research in this area, necessitate that organizations, researchers, and institutions further investigate the psychosocial working environment of the vulnerable migrant worker population in the construction sector. The focus of such studies should be within the organizational stressor

and psychosocial hazard context, and not merely addressing physical safety as has largely been the case to date.

4.10 Conclusion

The current study identified a range of organizational stressors associated with the construction sector in the region. Moreover, the study examined the potential influence of these stressors on safety performance and organizational health. The qualitative evidence indicated that safety performance and organizational health are negatively affected by the identified organizational stressors. Studying the mechanisms of the influence of organizational stressors on safety performance and organizational health is vital, but the current research is limited to investigating the potential links between these stressors and their consequences. However, the current study recommends identifying the mechanisms of influence of organizational stressors on safety performance and organizational health in future studies. The challenge is to better understand these dynamics to develop interventions/mitigations that may alleviate these stressors.

In view of the current research findings and based on my personal experience as a safety professional engaged in this field for 18 years, organizations and relevant stakeholders have long neglected the importance of work stress and occupational health psychology in the construction sector. For instance, none of the organizations involved in this research have systems in place to assess work-related stress, despite the complex and stressful psychosocial working conditions where migrant workers operate. Surprisingly, the issue of work stress in this context is a taboo and not discussed among concerned parties. The focus on health and safety management in the region is entirely directed towards physical safety (including equipment, physical hazards, and physical health). No

arrangement was made for the monitoring of psychosocial hazards and stressors that can influence attitudes, perceptions, and safety behaviour. Therefore, the current study is significant as it sheds light on this neglected area of research. Having said that, organizations, regulatory authorities, researchers, and safety practitioners should dedicate adequate resources and demonstrate firm determination to study organizational stressors and their health and safety consequences in order to introduce effective interventions. To that end, the present exploratory study may stimulate future research and provide crucial literature and data related to construction health and safety in the region. Moreover, the study obtained unique insights into migrant workers' attitudes and perceptions of their companies. These insights may inspire practical intervention strategies that aim to improve migrant workers' psychosocial working conditions.

Summary

The study identified important organizational stressors, namely high job demands, financial strain, and poor management support. Poor safety performance and organizational health were identified as outcomes associated with the above-mentioned organizational stressors, though both can act as antecedents in certain contexts. Within the study, there were many sub-themes identified as stressors giving rise to the main organizational outcomes. The study also attempted to demonstrate how organizational stressors might negatively affect safety performance and organizational health in terms of productivity, turnover intention, job security, and job satisfaction. Finally, the strengths, limitations, conclusions, and practical implications of the findings are described. The study successfully fulfilled its main aims. In addition, it identified the main concerns pertinent to

the psychosocial working conditions of migrant workers. These concerns and findings will inform the content of the subsequent quantitative study.

The following chapter is concerned with one of the main stressors identified in the qualitative study: payment to recruiters. This stressor was cross-sectionally examined in relation to health and safety outcomes in the quantitative study reported in the next chapter.

5 Chapter Five: Health and Safety Implications of Recruitment Payments

The analyses described in this chapter have been published as:

Hassan, H., & Houdmont, J. (2014). Health and safety implications of recruitment payments in migrant construction workers. *Occupational Medicine, 64*, 331–336.

5.1 Chapter Summary

This chapter discusses the quantitative data analyses that found their impetus in the initial qualitative study described in Chapter 4, which has identified recruiter payments as a key source of stress for migrant construction workers in the region. In response to that finding, two exploratory survey items have been introduced to the questionnaire developed for the subsequent quantitative study to examine the nature and extent of these recruiter payments. The current chapter describes the prevalence of recruiter payments in the sample of 650 workers under survey. The stress-causing nature of the referenced payments has been examined in the context of its links with indices of worker health (perceived general health status) and safety (involvement in accidents on the worksite). Prior to describing the study methodology results and discussion, an overview of the existing literature is carried out in the following section.

5.2 Introduction

As stated in Chapter 2, migrant construction workers in the Middle East are largely drawn from South Asian countries. To secure employment through a labour recruiter, workers often pay the equivalent of their prospective annual salary abroad (Human Rights Watch, 2006). Buckley's (2012) study which was conducted among Indian returnee workers found that some paid 6000% more than the official fees. As a result, workers may take several years to repay their migrant debts (Rajan, 2009). Another study conducted in

Qatar involved interviews with migrant workers from five Asians countries (Nepal, Bangladesh, Pakistan, Philippines, and India) and found that recruiter payment practices were largely similar across all five countries (Jureidini, 2014). The occupational health and safety implications of these financial arrangements remain largely unexplored. Few studies implied potential psychosocial implications of this practice. For instance, migrant construction workers that secure employment through a local recruiter may experience particularly harsh economic conditions in comparison to those who are hired directly by an employer (Buckley, 2012). Jureidini's (2014) study of migrant workers in Qatar concluded that workers are exposed to false promises, debt bondage, forced labour and trafficking as a result of being bound by labour recruiter payment obligations.

Current study set out to explore the prevalence of the recruiter payment practice. The investigation attempts to examine the health and safety implications of payment to recruiters among the migrant workers in the Middle East region.

5.3 Theoretical Framework of the Study

The literature reviewed above paints a picture of a high prevalence of recruiter payments, worksite accidents, and poor health among migrant construction workers in the Middle East. Moreover, the qualitative study conducted for the current doctoral investigation identified recruiter payments as a key source of stress. The analyses contained in this chapter are therefore informed by the Transactional Stress Theory (TST) (Cox & Griffiths, 2010). The transactional stress theory posits a stress process that links (i) antecedent factors, such as poorly managed, poorly designed and poorly organized aspects of work ('stressors') with (ii) the cognitive–perceptual processes that contribute to an increase of emotional experiences such as stress and (iii) psychological, physical, and

behavioural outcomes (Cox & Griffiths, 2010). Within this framework, a group of economic stressors, also referred to as aspects of economic life that cause stress for the employees and their families, can be identified (Probst, 2010; Sinclair et al., 2010). The TST suggests that the existence of economic stressors in the form of recruiter payments may be linked to occupational safety breaches and the poor health of migrant construction workers.

5.4 Research Questions

In light of the literature review and TST framework, the following research questions are explored in this chapter:

Descriptive Questions

1. What is the prevalence of labour recruiter payments among migrant construction workers in the Middle East, and do prevalence rates differ by worker group (labourers, skilled workers, foremen)?
2. How do migrant construction workers in the Middle East rate their overall health?
3. What is the prevalence of involvement in worksite accidents of migrant construction workers in the Middle East?

Inferential Questions

1. Is payment to a labour recruiter associated with involvement in worksite accidents?
2. Is payment to a labour recruiter associated with poor general health?

5.5 Aims of the Current Investigation

Few studies have reported on the recruiter payment practice in the region. However, none of these studies has empirically examined the potential association between this detrimental practice and health and safety outcomes among migrant workers. Therefore,

the main aim of the investigation is to profile the prevalence of recruiter payments among the three worker groups, and to examine the potential links of this payment practice to migrant workers' health and safety outcomes.

5.6 Methods

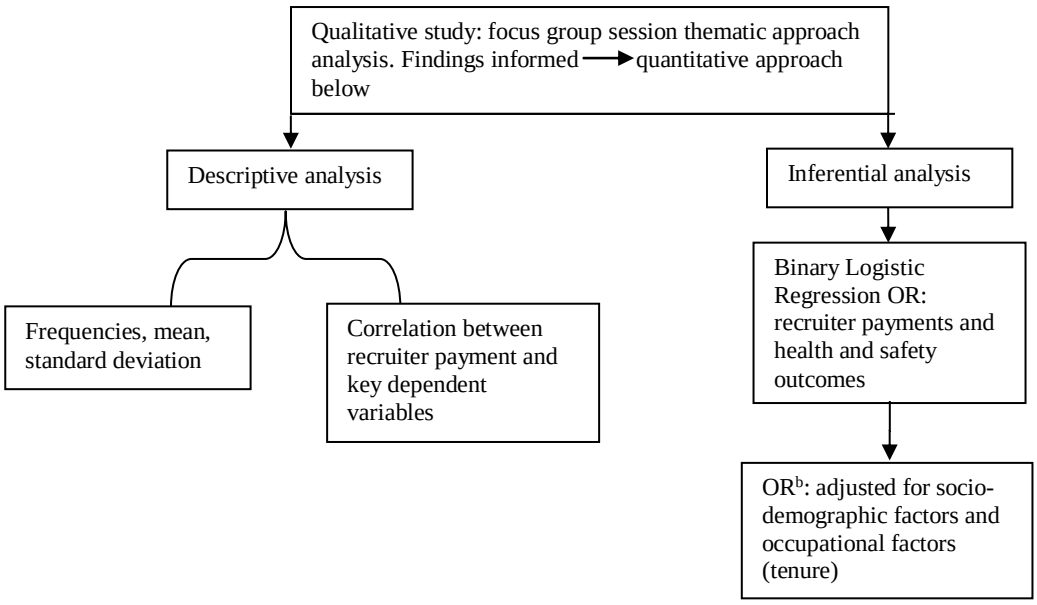
The methodology of the quantitative study was described in Chapter 3 (see Figure 5-1). The questionnaire items of importance to the analyses are described in the current chapter. Labour recruiter payments were investigated using the item: "Did you pay a labour recruiter to secure your current job?" Responses were given in a dichotomous yes/no format. To measure workplace accidents, respondents were asked "How many accidents have you had in the workplace over the last 6 months?" Responses were subsequently dichotomized into zero accidents and one or more accidents. To measure self-rated health, a single item was applied: "How would you rate your general state of health?" Responses were given on a 5 point Likert scale of 1 (very good) to 5 (very poor), with subsequent dichotomization into 'good-average' (1–3) and 'poor' (4–5). This item was adopted from Leineweber et al. (2010) and has been found to predict mortality and morbidity in large-scale epidemiological studies (Benyamini, 1999; DeSalvo et al., 2006). The full questionnaire is presented in Appendix (D).

The data provided by the three worker groups (labourers, skilled workers, foremen) was analyzed separately because of the demographic and work type differences between the groups. The relationship between labour recruiter payments, poor general health, and involvement in workplace accidents was measured using logistic regression and odds ratios (ORs) with 95% confidence intervals (CIs). Statistical controls were applied for the possible confounding influence of occupational and socio-demographic covariates. For

each worker group, the likelihood of poor health and having had an occupational accident in the last 6 months was established among those who had paid a labour recruiter relative to those who had not. All the data were screened before analysis for accuracy of the scores, any missing data, outliers, as well as violations of the assumptions of regression analysis. Statistical significance was set at $p < .05$ throughout. All statistical analyses were performed through the IBM SPSS Statistics Version 21 (IBM. SPSS Statistics Version 21. Somers, NY: IBM, 2012).

Figure 5-1

Analytical Process for Examination of Relations Between Recruiter Payment and Health and Safety Outcomes



5.7 Results

Demographic characteristics of the population are presented in the study methodology section of Chapter 3 (see Table 3-1).

Descriptive Analysis

The frequencies of labour recruiter payments, involvement in accidents, and experiences of poor health stratified by worker group are presented in Table 5-1. Notably, irrespective of the group that the employee belongs to, most of the workers had made payments to labour recruiters, and 40% had experienced a workplace accident. Between 3% (labourers) and 9% (foremen) reported poor perceived health.

Table 5-1

Frequencies of Labour Recruiter Payments, Poor Health, and Involvement in Accidents

	Labourers %	Skilled Workers %	Foremen %
Labour recruiter payment	59.1	64.1	52.0
Poor health	3.2	5.3	9.3
Accident involvement	41.5	43.0	42.6

Inferential Analysis

The risks of poor health and involvement in accidents that are associated with labour recruiter payments are shown in Table 5-2. As in the case of the health parameter, skilled workers making labour recruiter payments are more likely to report poor health (OR, 10.27; CI, 1.35–87.16). The relationship remains significant after controlling for the possible influence of occupational and socio-demographic factors (OR, 12.53; CI, 1.49–105.40). However, in the case of labourers and foremen, the relationship did not show statistical significance. On the issue of involvement in accidents, labourers have significantly increased odds of being involved in one or more accidents, though the relationship has no significance after adjustment for socio-demographic and occupational characteristics. Skilled workers who are tied to recruiter payments have higher chances of experiencing workplace accidents. That relationship remains significant controlling for the influence of socio-demographic and occupational factors (OR, 2.57; CI, 1.55–4.26). However, foremen who pay a labour recruiter were not at risk of workplace accidents.

Table 5-2

Odds Ratios (95% CIs) of Labour Recruiter Payments and Risk of Poor Health and Accident Involvement

	Poor Health			Accident Involvement		
	OR (95% CI)	OR[a] (95% CI)	OR[b] (95% CI)	OR (95% CI)	OR[a] (95% CI)	OR[b] (95% CI)
Labourer	3.57 (0.41–31.20)	3.61 (0.39–33.46)	1.48 (0.68–3.19)	**3.12 (1.66–5.88)**	**3.24 (1.63–6.47)**	1.10 (0.84–1.44)
Skilled workers	**10.27 (1.35–78.16)**	**14.35 (1.75–17.81)**	**12.53 (1.49–105.40)**	**2.24 (1.40–3.59)**	**2.36 (1.45–3.85)**	**2.57 (1.55–4.26)**
Foremen	0.92 (0.28–3.01)	0.41 (0.07–2.56)	0.35 (0.53–2.36)	0.59 (0.29–1.20)	0.53 (0.24–1.17)	0.52 (0.24–1.16)

OR: Odds Ratio
OR[a]: Controlled for socio-demographic factors (age, education, number of dependents)
OR[b]: Controlled for socio-demographic plus occupational factor (tenure)
Note: Significant findings are in bold.

5.7.1 Discussion

The study found that the majority of the surveyed migrant construction workers (58%) have made payments to a recruiter, and 40% have experienced workplace accidents. Fewer than 1 out of 10 respondents consider their health to be poor. On the other hand, both the labourers and the skilled workers who have recruiter payment obligations have elevated odds of experiencing workplace accidents. Skilled workers making recruiter payments are more likely to be exposed to risk of poor health.

Recruiter Payment and Migrant Workers' Health

The links which exist between recruiter payments and the elevated risk of reported poor health among skilled workers are significant. However, the broad CI (1.35–78.2) indicates that these findings should be interpreted with caution. It is notable that the association between recruiter payment and poor health exists only among skilled workers, and there is no significant relationship for the labourers and the foremen. This may be attributed to the nature of the job these skilled workers are tackling. Their jobs usually involve hard physical construction work such as carpentry, masonry, and block laying. That is understandable, since the skilled workers are the ones who carry out the hard tasks, while the foremen limit themselves to supervision and the labourers only assist with the handling of construction materials. Simply put, the group responsible and accountable for carrying out the actual work onsite is the skilled workers. Therefore, it is evident that the skilled workers are the ones most probably subjected to the risk of poor health.

The findings have so far revealed that less than 1 out of 10 migrant workers have perceived their health as poor. This finding is consistent with the limited studies that concentrate on the health of the migrant workforce who choose the host countries in the region. Nevertheless, the conclusions from the current study concerning workers' health may be somewhat unexpected given the poor living conditions that most of the workers have to endure. The expectation is to see a bigger percentage of poor health among migrant workers. To that end, the findings from the current study may contradict a considerable body of research which indicates that poor psychosocial working conditions largely predict harm to psychological health (Leka & Houdmont, 2010). They can lead also to stress-related disorders (Nieuwenhuijsen et al., 2010), depression (Bonde, 2008), and negative

effects on musculoskeletal health (Eatough et al., 2012). One of the explanations can be that migrant workers in the current study may be reluctant to disclose their actual health problem for fear of losing employment. This justification corroborates the findings of Robertson and Lamm's (2008) study conducted in the construction industry in Kuwait. The study found that migrant workers do not report accidents trying to protect their employability. The same factor may hold true here, as workers may not report their health concerns for fear of losing employment. As reported in the study by Joshi et al. (2011) which was conducted among Nepalese migrant workers in three Gulf countries, these workers are reluctant to access medical services for fear of losing their jobs or displeasing their employers among other reasons. Another justification for the perception of relatively good health may be the low literacy of migrant workers, particularly regarding psychological wellbeing. They only consider physical health in relation to their working conditions, despite the potential psychological disorder resulting from stressful working conditions. For instance, there is evidence of rising suicide cases among migrant workers in the Middle East (Randeree, 2008). Therefore, it is more likely that workers disregard the psychological consequences and psychological ill health caused by poor psychosocial working conditions.

Another possibility is that the workers are unaware of the potential psychological implications induced by the psychosocial hazards in the workplace. In a study conducted in the UAE, Loney et al. (2012) found that migrant workers lack both the knowledge and the needed training on the negative consequences associated with occupational hazards. Therefore, the findings of the current study indicate that migrant workers either do not want to disclose their psychological health concerns or may not be cognitively aware of the

presence of such concerns. Taken together with the poor working conditions and recruiter payment obligation, migrant workers are expected to report a higher ratio of poor health conditions. In a study conducted among migrant workers in Saudi Arabia, the prevalence of depression is 30%, and it ranges from 13% to 25% in Bahrain and the UAE (Nadim et al., 2016). The suggested reasons for depression in these studies are low income, debt, heavy workload, and generally working in the construction sector. These causes of depression are largely found among migrant workers as per the findings of the current quantitative and the previous qualitative parts of this study.

Overall, the current study has shown that in comparison with other studies conducted in the same context, potential ill-health can be anticipated. However, migrant workers seldom report poor health despite initial expectations. In view of the previously listed justifications for this finding, further studies are warranted to investigate the physical and psychological health of these workers within the same context. Future studies could focus on the objective health status to determine whether the trend is consistent with subjective perceptions and whether health mediates the relationship between recruiter payments and worksite accidents. However, the current study has demonstrated the link between recruiter payment obligation and poor health among skilled workers. This connection is crucial for organizations seeking to improve migrant workers' living conditions.

Recruiter Payment and Migrant Workers' Safety

The current study has revealed that 58% of the surveyed workers have made payments to their home countries, and 40% of the participants have experienced workplace accidents. Moreover, labourers and skilled workers (but not foremen) who are obligated to

pay recruiters are more likely to be subjected to workplace accidents. The study has demonstrated an association between labour recruiter payments and workers' safety. A possible explanation is that the workers perceive the opportunity to maximize income to be more important than following safety procedures. This is particularly the case where the workers are paid based on productivity and overtime. Both options provide the opportunity for workers to improve their financial status. This was discussed earlier on and has been demonstrated by Choudhry and Fang (2008) in their qualitative interview study of construction workers in Hong Kong. Their study revealed that the opportunities to enhance earnings through increased productivity do motivate workers to commit unsafe acts. Guldenmund et al.'s (2013) study among migrant workers in three European countries found that the workers accept poor safety standards against the financial gains. In my view, it is possible that the migrant construction workers in this region who are obliged to make payments to recruiters at home are more likely to ignore safety rules and procedures. This is because their current employers neglect to provide them with necessary safety knowledge and training. As this study has demonstrated, it is evident that in the long run, such ignorance and negligence of safety would lead to heightened accident rates. However, the strongest possibility is that recruiter payments put considerable economical stress upon these workers, as they have to meet this huge obligation or find an alternative. This economic stress, in turn, may lead to psychological disorders such as depression, anxiety, and burnout. Such disorders impair the worker's mental judgment and prompt involvement in accidents. When these workers suffer adverse psychosocial working conditions aggravated by economic stress, this makes them more vulnerable to accidents.

As explained by the Transactional Stress Theory (TST), when an individual faces a level of economic stress that exceeds his coping capacity, the outcomes can be detrimental to health and cause exposure to accidents because of possible associated psychological disorders. A number of previous studies have supported this conclusion. These studies have linked economic stress with unsafe behavior, accident involvement, and ill health. For instance, Probst (2005) has argued that impaired health, negative job attitudes, and work withdrawal might result from economic stress. Houdmont et al. (2012) posited that exposure to psychosocial hazards at the workplace is more likely during an economic recession than during a stable economic period. Therefore, it is highly possible that the economic stress caused by this payment obligation to recruiters has a harmful effect on the workers' health and wellbeing, an impact that may impair their decision-making and hamper proper judgment, resulting in workplace accidents. However, such a conclusion cannot be empirically established by this exploratory cross-sectional study. Therefore, future studies may elect to use longitudinal research design to ascertain the influence of payment to recruiters on migrant workers' health and safety.

A study conducted by Gardner et al. in 2013 among migrant workers in Qatar found that 46% of the participants were vulnerable to forced labour, debt bondage, and trafficking because of the payment obligation to recruiters. In the qualitative part of this study, several psychosocial stressors have been identified including high job demands, poor management support, financial strain, poor safety performance, and poor organizational health. As stated throughout the course of this study, these stressed migrant workers are not legally permitted to switch their employer to escape adverse working conditions. If a migrant worker resigns and moves to a better job, his current company can ban him for 2 years as documented by

Jureidini (2014). Therefore, these workers must suffer work stress and its potential implications throughout the period of their contract and/or the project duration. Subject to psychosocial problems associated with recruiter payments, these workers are faced with huge work-related stress. This mounting stress, as stated previously, probably impairs the mental wellbeing of migrant workers. Such impairment may result in workplace accidents, in addition to the emotional stress of migration and living in a foreign country away from their families. Study findings have demonstrated that among other factors, the recruiter payments are associated with the likelihood of involvement in workplace accidents. This being established, I believe that it is essential that future studies focus on identifying if there is a causal relationship between the labour recruiter payments and negative effects on occupational health and safety. Such information will facilitate the development of specific interventions to break the links that exist between these phenomena.

On the other hand, some existing literature has addressed the links between job insecurity and occupational safety which provides useful insights. Probst and Brubaker (2001), for example, have established that job insecurity is associated with the injuries that take place in the workplace because of high rates of reduced compliance and motivation. As well, previous studies can shed more light on issues related to workplace safety culture and, in turn, the job security–safety relationship (Probst, 2004). Therefore, these factors may moderate the relationship between recruiter payments and workplace accidents. Lastly, there is a possibility that labour recruitment arrangements inflate accident risks through the dynamics related to immigration policies, wage theft, and societal hierarchies prevalent in the construction industry. This can cause workers to miss out on their monthly payments to lenders back home as indicated in the Human Rights Watch (2009).

This study has established that no relationship exists between labour recruiter payments and the risk of workplace accidents among the foremen group. This can probably be attributed to factors such as lower inherent risk of accidents in the type of work taken up by foremen, their relatively higher education in comparison with the labourers, or the accessibility of better financial arrangements for the foremen. It is commonly known that the income of labourers and skilled workers is far lower than that of the foremen. Therefore, the workers in these two groups tend to work longer hours to increase their income, putting them at higher risk of accidents. Another justification for the vulnerability of these two groups is the nature of the work they do which is inherently associated with a higher risk of accidents. In order to reduce the accident risk to which these two groups are exposed, future studies must focus on the identification of mitigating tools and mechanisms efficient enough to resolve these stressors. Based on role-specific investigations carried out throughout this study, these findings are very useful for organizations seeking to improve the circumstances of their vulnerable working groups.

Legality of Recruiter Payment

Labour recruiter payment, as described in this study, is illegal in most destination countries. As per the law, the employing company should incur all fees related to the recruitment process. The UAE's ministerial resolution pertaining to recruitment fees, for example, states:

> The recruitment agency is prohibited from acquiring, directly or indirectly, from the worker himself or through mediation, any sums, monies, rights or gains under the name of the commission, fees, or anything else for any reason and through any means whatsoever. The Ministry may oblige the Agency to submit a pledge to such

> effect while obliging it to refund to the worker any amounts paid to any entity or person inside or outside the country with whom the Agency had dealt on the matter. (The United Arab Emirates, Ministerial Resolution for 2010)

Despite the clear-cut legislation devised to control the recruitment process, recruiting agencies, locally or in the receiving countries, are still able to violate the law and profit from the recruitment process. Most recruitment agencies receive the recruitment fees without receipts or records to circumvent the law. There is evidence from existing research that no formal contract is provided to the migrant workers before departure informing them of their salaries, positions, and other rights. This is another gap brokers and agents can take advantage of. It is imperative to note that in the country of origin, workers' recruiters can legally only charge workers nominal fees equal to approximately one-month's salary (Jureidini, 2014). However, these recruiters demand large sums of money from these potential workers. This suggests possible corruption and exploitation of migrant workers in their countries of origin. The whole recruitment process, from the beginning in the departure country to the destination country, is plagued with gaps that allow the exploitation of migrant workers.

5.7.2 Practical Implications of the Study and Recommendations

Despite the scarcity of data on the working conditions of migrant workers in the region combined with the difficulties of conducting such research (Mehmood et al., 2018; Fass et al., 2017), the current investigation has generated crucial insights into this neglected area. This study has exposed the existence of a large-scale illegal recruiter payment practice. It shows that the current legislation is not strictly enforced and falls short of breaking or controlling the vicious cycle of this malpractice. The current recruitment

process is wide open for abuse and exploitation of prospective migrant workers. Therefore, decision-makers and authorities in both the sending and the receiving countries should take up the responsibility of revising, monitoring, and enforcing the set legislation. Importantly, authorities from sending countries should appoint government agencies in coordination with their embassies to monitor the employment process. This study has also informed construction companies and organizations about the potential consequences of indirect recruiting through agencies, brokers, and mediators. The employing companies suffer economically due to the injuries and time loss resulting from the recurrence of accidents. As the study demonstrates, one of the key stressors contributing to accidents is the payment to recruiters in countries of origin. The findings of the current study also implicitly indicate potential corruption and exploitation of migrant workers by senior staff of the employing companies. Therefore, companies should plan to recruit workers directly from the countries of origin through accredited agencies, and not through independent brokers. Besides accident rates, the current investigation has also linked recruiter payment to poor health. This connection is crucial for development of future intervention strategies aiming at the elimination of recruiter payments which will greatly improve migrant working conditions.

This study has distinctly demonstrated two important facets of the recruiter payment phenomenon. The first is that the majority (58%) of the surveyed migrant workers have paid recruiters money. The second is that payment to recruiters is linked with health and safety outcomes. Importantly, the study provides insights important to researchers and occupational health practitioners about migrant workers' possible health problems and potential links to recruiter payment. Moreover, the study indicated that further research is

warranted, particularly in the domain of occupational health psychology and mental wellbeing of migrant workers.

Most of the researched issues in this field have in many ways affirmed my conviction of their validity based on 18 years of experience in the field of health and safety in the Middle East construction sector. Through the years, I have engaged in a vast number of accident investigations. However, not a single investigation has identified the possible influence of work-related stress on accident causes. In fact, there is a semi-consensus on avoiding interpreting psychosocial hazards as a possible cause or even one of the causes of accidents in these investigations or in risk assessment proceedings. This is probably because of political considerations and sensitivity regarding migrant workers' living conditions. Gardner et al. (2013) have established that the United Nations and other human rights organizations have criticized several countries in the region—in published reports—on migrant workers' poor living conditions. Therefore, companies working in the region as well as possibly researchers and safety practitioners are cautious regarding this topic that may irritate the relevant authorities. Unsurprisingly, in all projects that involved different sizes of companies and public sector clients, the author has not encountered any appraisal of the psychological and psychosocial aspects of working conditions. Even European and American national companies at which I had the opportunity to work in the region did not consider work-related stressors in their health and safety systems. This shortcoming can be attributed to the deficiency in the existing legislation where no obligation exists for these companies to assess and manage work-related stress.

With that in mind, this study has diligently demonstrated the importance of identification of payment to recruiters as a hazard that may (among other factors) contribute

to workplace accidents. Legislators, companies, and other stakeholders should develop systematic assessment, identification, and monitoring strategies of psychosocial hazards in the construction industry. Management of work-related stress and associated psychosocial hazard exposure is a legal requirement in other parts of the world and must be introduced in this region to protect both the local and expat workforce as well as the quality of the work. For instance, stress management is a legal requirement in the UK as per the HSE Management Indicator Tool (MSIT: HSE, n.d.), while (to the best of the author's knowledge) it is absent in the legislations and laws of most of the countries in the Middle East region. In view of the current study findings, recruiter payment causes economic loss incurred not only by the underprivileged workers but also by the employing companies because of potential workplace accidents, loss of time and, ultimately, diminished productivity. Therefore, the study highlights the importance of collaborative efforts from all involved parties and encourages all to address the psychosocial hazards associated with the construction working conditions in the region. Governments, companies and researchers should work together to first control, and then, eliminate the psychosocial hazards specifically related to the recruiter payment practice.

5.7.3 Limitations of the Study

The current investigation has revealed interesting findings, however several limitations should be acknowledged. There is a possibility of a moderating effect of safety climate on the relationship between labour recruiter payments and health and safety outcomes. I suspect this shortcoming in light of Probst's (2004) claim that safety climate is perceived to have a moderating influence on the relationship between job insecurity and safety that goes beyond the construction context. Since exploring this matter is beyond the

scope of the current study, it is recommended that future studies consider the possibility of such a moderating effect. The changes in the ORs that resulted from the addition of the socio-demographic and occupational characteristics to the regression models do indicate that there may be a persistent influence on the relationship. Additional factors have yet to be considered that may have further influence on the explored relationship. For example, the higher the number of dependents in a household in the home country, the higher the number of negative effects associated with the failure to secure enough monthly funds to send home. Failure to secure the monthly family money may prompt additional mental stress, thus leading to cutting corners and breaches of safety procedures. Once again, it is the recommendation of this research that futures studies should explore the mechanisms by which these and other socio-demographic and occupational variables affect the relationship between labour recruiter payments and occupational safety. Moreover, in the study, single-item measures are in place to ensure that questionnaire brevity inspires the desired response rate. Based on the limitations associated with such measures, it is possible to conclude that the use of multi-item and multi-dimensional health measures may yield better results. That is why I recommend that future studies use the multi-item scales of both physical and psychological health in order to determine whether the current conclusions include both psychological and physical health ratings.

A further potential limitation, the cross-sectional research design, is a possible indication of common method variance which must not be neglected. However, several procedural remedies came up in the study to decrease the possibility of having the problem in the future (Podsakoff et al., 2003). These included the use of anonymous responses and established scales. However, future studies should consider the predictive effects of

recruiter payments on health and safety while adopting longitudinal research design. Additionally, this study is able to measure workers' current health status, but it would have been beneficial if a pre-migration baseline status had been obtained so that a valid comparison could be controlled weighing all the given variables in the research data. Measurement of the perceived changes in health status both before and after migration must be considered by future studies.

The final potential limitation is that the surveyed workers came from a single project, though employed by four companies. The concern is whether this sample is truly representative of the larger pool of migrant construction workers in the region. However, the current study has clearly demonstrated the seriousness of recruiter payment as a psychosocial stressor. Similar conclusions from previous studies by Buckley (2012), Jureidini (2014), Randeree (2008) and the findings of the Human Rights Watch (2009) have been reached in regard to the same stressor magnitude. In view of these findings, the existence of the recruiter payment practice warrants further investigation and immediate intervention from governments and agencies in the sending and receiving countries in order to eliminate such an exploitative practice.

5.7.4 Strengths of the Study

Despite the limitations facing this research and others before it, this study has been able to establish that the South Asian migrant construction workers in this region are at high risk of occupational accidents and poor health. This risk has been proven by the study to increase when workers are obliged to make payments to labour recruiters in their home countries. By highlighting this risk, this study seeks to stimulate further research on this critical neglected issue, hoping for the development of effective interventions that can

improve migrants' prospects of economic gain and positive health and safety outcomes in their host countries.

In view of the huge construction boom underway in the region, the number of studies conducted is surprisingly disproportionate. The current study is among the first to have explored migrant workers' psychosocial working conditions, keeping in view that delving into this area of research is sensitive and even taboo in some countries in the region. This factor makes the current study more important and its contributions to the existing knowledge gap timelier and more valuable. As previously established, one of the highlights of the current investigation is that it has not only demonstrated the existence of the detrimental practice of payment to labour recruiters in home countries, but it has also been able to link such malpractice to workers' health and safety indicators. The finding is crucial in paving the way for organizations seeking sustainable business, safety practitioners, and researchers who seek answers and insights into this neglected area of research. The current study provides evidence that the rate of deteriorated health and involvement in recurring workplace accidents can be increased by, among other factors, the economical stressors induced by the harmful practice of recruiter payment. The identification of the mechanism by which payment to recruiters is linked to migrant workers' health and safety warrants further investigation which this study rightfully calls for.

The study has also demonstrated the association of this practice not only with the migrant workers' health and safety, but with possible economic loss from potential recurring workplace accidents. This study has repeatedly highlighted the link between the abusive recruiter payment practice and the ineffective legal framework surrounding it. The legal system is supposedly responsible for controlling the employment process and it

should be fair and just. The study has shown that all parties involved in the employment process of migrant workers must seriously reevaluate the growing gap between the written standards, codes, and regulations allegedly devised to serve the wellbeing of migrant workers, and the exploitative practice on the ground.

Finally, the design of the current investigation, which is role-specific risk assessment, provides valuable information that will prove beneficial in addressing the problems of vulnerable worker groups among the majority of migrant construction workers. The study has, in many ways, demonstrated that labourers and skilled workers are at higher risk of recurring workplace accidents and poor health. It is why the study insists on the critical importance of such information as a basis for future interventions aiming to develop better work design, organization and management.

Summary

This chapter has discussed in detail the lengths to which the migrant construction workers venture to pay a labour recruiter hoping to secure employment in this region. The study has simultaneously established the relationship between labour recruiter payments and the health and safety parameters. The study has strongly recommended that government and industry organizations make all necessary efforts to break the recruiter-worker relationship.

The following chapter discusses another key stressor identified in the qualitative study: job strain. The investigation attempts to cross-sectionally examine the prevalence of job strain exposure and its possible association with health and safety outcomes.

6 Chapter Six: Quantitative Study Results 2 – Links between Job Strain and Health and Safety

Chapter Summary

The core aim of the investigation described in this chapter is to examine the relationship between stress-related working conditions and health and safety indices among migrant construction workers in the region. Cross-sectional associations between job strain, on the one hand, and perceived overall health, worksite accident involvement, and job satisfaction on the other will be examined. The findings indicate the existence of associations between job strain and occupational health indices. Job strain was associated with job satisfaction among participants in certain groups of workers. Findings are discussed in light of the existing literature and potential implications.

6.1 Introduction

The following chapter discusses job strain and its associated health and safety outcomes. As stated in Chapter 2 in agreement with Karasek & Theorell (1990), job strain is manifested in situations where the individual is under high-stress circumstances with little control over the work processes. In the model, the authors proposed that the combination of low job control and high job demands presents job strain, which is potentially harmful to workers' health. Several studies have identified job strain as being associated with indices of occupational health and safety (Goldenhar et al., 2003; Hakanen et al., 2008; Hofmann & Stetzer, 1996; Turner et al., 2010). Job strain has also been associated with other health issues, such as cardiovascular diseases, lung cancer, depression, suicide, fatigue, sleeping problems, headaches, and stomach problems (Aasa et al., 2005; de Croon et al., 2002; Tsutsumi et al., 2007; Alfredsson et al., 1982). On the

other hand, several studies have examined job strain and health and safety outcomes among migrant workers (Grzywacz et al., 2007; Lee et al., 2011; Lee et al., 2012). In a study conducted among Latino migrant farm workers in the United States, it was found that isometric load (when workers repeatedly held incorrect postures for long periods) is associated with poor physical health, and high worker control is associated with improved mental health (Grzywacz et al., 2007).

To date, only a few studies have examined job strain and its health and safety effects among migrant workers in the construction sector worldwide. However, I have not located a single study that has investigated job strain and its health and safety consequences in the construction industry in the Middle East. Therefore, the main aim of the following part of this study is to explore this neglected area of research.

6.2 Research Questions

Exploring the job strain stressor in the existing literature, bearing in mind the paucity of research in the Middle East construction business, has prompted the following research questions:

Descriptive Questions

1. What are the indices of job strain categories among the three migrant construction worker groups (labourers, skilled workers, and foremen)?
2. What are the correlations between job strain categories and poor health, accident involvement and job satisfaction?

Inferential Questions

1. How do job strain categories link to migrant workers' health, involvement in accidents and job satisfaction, among the three worker group?

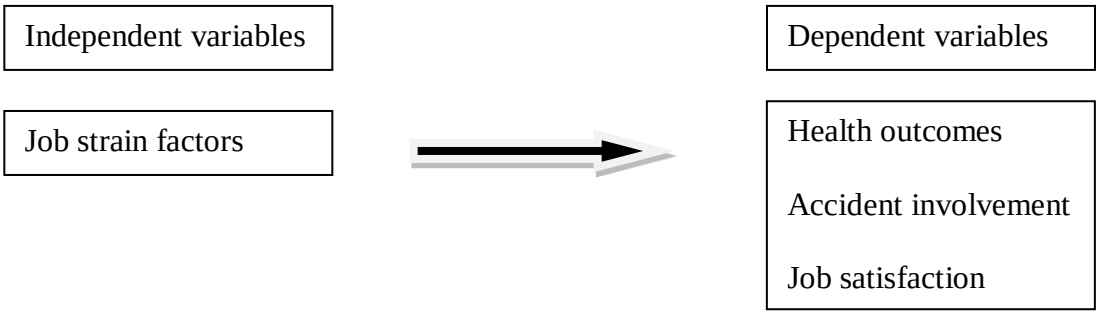
2. How do job strain categories link to migrant workers' health, involvement in accidents, and job satisfaction, controlling for socio-demographic factors?
3. How do job strain categories link to migrant workers' health, involvement in accidents, and job satisfaction, controlling for socio-demographic factors and occupational factors?

6.3 Aims of the Current Investigation

To the best of my knowledge, no study has to date examined the correlates of job strain among migrant workers in the region's construction sector. In response to this paucity of research, the analyses presented in this chapter have two aims: first, to examine the role-specific prevalence of exposure to job strain; and second, to assess the association between job strain and indices of health and safety including job satisfaction among migrant construction workers in the region. It is hypothesized that workers who are subjected to high job strain are at increased risk of poor health, involvement in worksite accidents, and low job satisfaction (see Figure 6-1). The combination of high demands and low control is important, as it predicts mental strain and poor physical health according to the Job Strain Model (Karasek, 1979). The current investigation will allow for a separate comparison of the relationship between job strain factors and other variables among the three workers groups under study (labourers, skilled workers and foremen).

Figure 6-1

Relationship Between Variables in the Investigation (Job Strain)



6.4 Methods

The sampling strategy and procedure for the quantitative study is outlined in Chapter 3 of this thesis.

6.4.1 Measures

Job Strain: Job demands are assessed using the eight items relating to job demands featured in the UK Health and Safety Executive's Management Standards Indicator Tool (MSIT: HSE, n.d.). Job control is measured using the six items relating to job control featured in the MSIT. Each item has a 5 point response scale: either 1 (never), 2 (seldom), 3 (sometimes), 4 (often) and 5 (always); or 1 (strongly disagree), 2 (disagree), 3 (neutral), 4 (agree) and 5 (strongly agree). Sample items from each of the scales include: "I have unachievable deadlines" (demands), "I have a say in my own work speed" (control). The scores of each scale are summed. Based on Karasek's (1979) job demand–control model, the analysis has followed the approach taken by Tsuboya, Tsutsumi, and Kawachi (2015). This approach involves the performance of a median split of the job demand sum score and the job control sum score to define four categories: 'High strain' (high demands/low control), 'Low strain' (low demands/high control), 'Active' (high demands/high control),

and 'Passive' (low demands/low control). It is common practice in job strain studies to divide participants into the four job type categories for analysis (e.g. Dong et al., 2018).

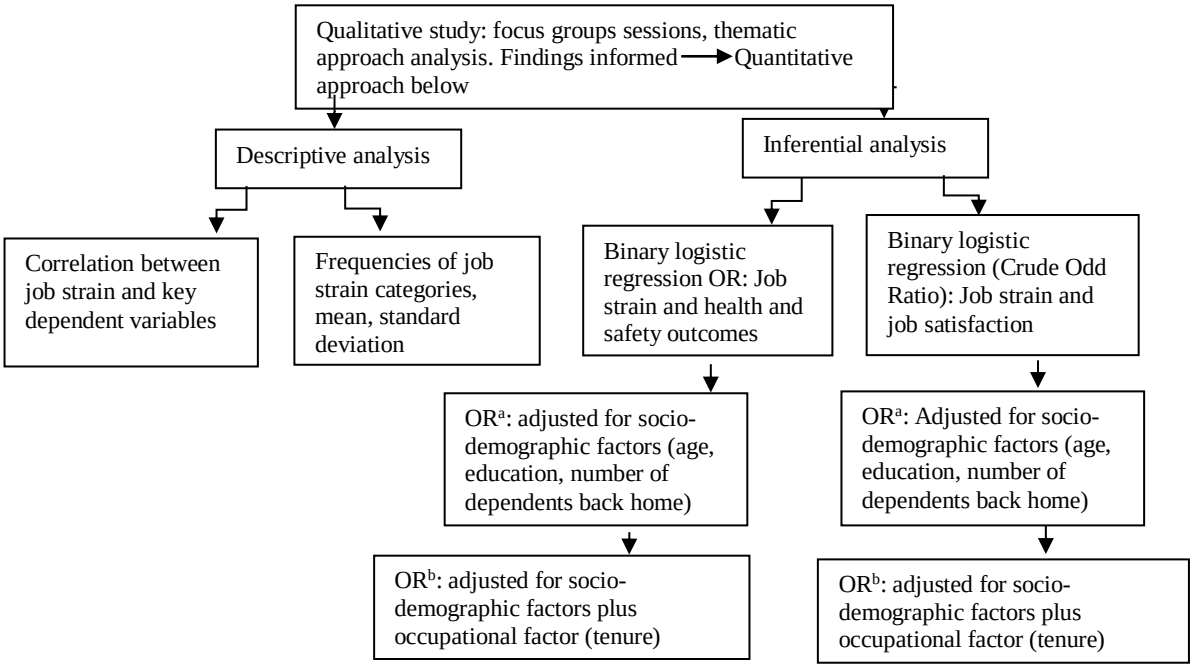
Covariates: Socio-demographic characteristics included age, education, and number of dependents. In addition, one occupational factor (tenure) is assessed.

6.4.2 Analytical Approach

The data analysis started with descriptive data and a correlation matrix. Then a sequence of logistic regression analyses with 95% confidence intervals (CI) was conducted (see Figure 6-2). Adjustment for socio-demographic characteristics (age, education, and number of dependents) was made, followed by socio-demographic characteristics in addition to the occupational factor (tenure). The low strain job type was used as the reference category. The aim of the analysis was to determine the prevalence of exposure to job strain as well as the association between job strain categories on the one hand, and the health and safety outcomes and job satisfaction, on the other.

Figure 6-2

Analysis Process for Examination of Relations Between Job Strain and Health and Safety



6.5 Results

Table 6-1 shows the participants' frequency and percentage in the four-job strain categories (high stain, active, passive, and low strain). The frequency rates among the three worker groups are different. High strain is found more often among foremen and skilled workers 29% (n = 36) and 19% (n = 64), respectively, compared with the labourer group 12% (n = 22). While in the active category the labourer group has shown a higher rate compared with skilled workers and foremen: 33% (n = 62), 29% (n = 94) and 31 % (n = 25), respectively. The labourer group has also shown higher frequency in the low strain category 24% (n = 46), whereas skilled workers' and foremen's frequencies are relatively lower at 23% (n = 77) and 21% (n = 27), respectively. In the passive category, labourers and skilled workers are equal at 30% and slightly higher than foremen 28% (n = 35). From the table, it can be postulated that among the whole population, foremen and skilled workers have reported higher levels of job strain compared to the labourers.

Table 6-1

Frequencies and Percentages of Job Strain Categories

	Low Strain (Low Demands / High Control)	Active (High Demands / High Control)	Passive (Low Demands / Low Control)	High Strain (High Demands / Low Control)
	n (%)	*n* (%)	*n* (%)	*n* (%)
Labourers (*n* = 188)	46 (24)	62 (33)	58 (30)	22 (12)
Skilled workers (*n* = 337)	77 (23)	94 (29)	102 (30)	64 (19)
Foremen (*n* = 126)	27(21)	31 (25)	35 (28)	36 (29)

Notes: n = frequency. % = percentage

Descriptive Data and Correlation Matrix for the 3 Worker Groups

The Tables 6-2, 6-3, and 6-4 show the descriptive analysis and correlation between job strain categories and the three selected variables, namely poor health, accident involvement, and job satisfaction. Among labourers and skilled workers, high job strain is positively correlated with poor health, while among the skilled worker group high job strain is negatively correlated with job satisfaction. Similarly, active job type is positively correlated with poor health and negatively correlated with job satisfaction among skilled workers. Passive job type is negatively correlated with job satisfaction among the skilled worker group. However, among foremen, workers' high job strain is negatively correlated with job satisfaction.

Table 6-2

Descriptive Data and Correlation Matrix (Labourer Group n =188)

Variables	*Mean (SD)*	Poor health (Mean = 2.04 SD = 0710)	Accident involvement	Job satisfaction (Mean = 3.86 SD = 1.22)
High job strain	0.32 (0.47)	**0.252***	0.083	-0.013
Active job	0.57 (0.49)	0.146	0.093	-0.012
Passive job	0.59 (0.60)	0.068	-0.177	-0.084

Notes: Accident involvement: 0 = exposed to accident; 1 = not exposed to accident.
Significant findings in bold.
*. Correlation is significant at the 0.05 level (2-tailed).
**. Correlation is significant at the 0.01 level (2-tailed).

Table 6-3

Descriptive Data and Correlation Matrix (Skilled Worker Group n =377)

Variables	*Mean (SD)*	Poor health (Mean = 2.08 SD = 0.84)	Accident involvement	Job satisfaction (Mean = 3.88 SD = 1.33)
High job strain	0.45 (0.50)	**0.185***	0.053	**-0.368****
Active job	0.55 (0.49)	**0.175***	0.063	**-0.183***
Passive job	0.57 (0.49)	0.026	-0.044	**-0.165***

Notes: Accident involvement: 0 = exposed to accident; 1 = not exposed to accident.
Significant findings in bold.
*. Correlation is significant at the 0.05 level (2-tailed).
**. Correlation is significant at the 0.01 level (2-tailed).

Table 6-4

Descriptive Data and Correlation Matrix (Foremen Group n =126)

Variables	*Mean (SD)*	Poor health (Mean = 2.19 SD = 0.94)	Accident involvement	Job satisfaction (*Mean = 3.78 SD* = 1.27)
High job strain	0.56 (0.50)	-0.163	0.116	**-0.260***
Active job	0.53 (0.50)	0.151	-0.016	-.056
Passive job	0.56 (0.49	-0.167	0.115	0.051

Notes: Accident involvement: 0 = exposed to accident; 1 = not exposed to accident.
Significant findings in bold.
*. Correlation is significant at the 0.05 level (2-tailed).
**. Correlation is significant at the 0.01 level (2-tailed).

6.5.1 Regression Analyses: Labourers

Table 6-5 shows the crude and adjusted results from the logistic regression analyses of odds of poor health, accident involvement, and job satisfaction in the labourer group. The crude analysis showed that the association between high job strain and the odds of accident involvement was not significant. Similarly, the association between the high job strain type and the odds of job satisfaction was not significant. There are too few cases to

permit significance testing for the association between high job strain and elevated odds of poor health.

The crude analysis also showed that the association between an active job and the odds of accident involvement was not significantly elevated. Similarly, the association between the active job type and the odds of poor health is not significant. Finally, there was no significant association between the active job type and the odds of high job satisfaction.

Table 6-5

Binary Logistic Regression of Job Strain and Health and Safety Outcomes Including Job Satisfaction for the Labourer Group (n = 188)

	Poor health			Accident involvement			Job satisfaction		
	OR (95% CI)	AOR[a] (95%CI)	AOR[b] (95%CI)	OR (95% CI)	AOR[a] (95%CI)	AOR[b] (95%CI)	OR (95% CI)	AOR[a] (95%CI)	AOR[b] (95%CI)
High strain (n = 22)	--[a]			1.43 (0.52–3.96)	1.24 (0.41–3.73)	1.42 (0.45–4.45)	0.94 (0.30–2.96)	0.87 (0.26–2.93)	0.90 (0.26–3.08)
Active (n = 62)	--[a]			0.98 (0.46–2.10)	1.44 (0.60–3.44)	1.73 (0.69–4.33)	1.02 (0.43–2.42)	1.30 (0.48–3.52)	1.53 (0.54–4.35)
Passive (n = 58)	2.02 (0.28–14.7)	2.09 (0.23–18.51)	2.33 (0.27–20.25)	0.49 (0.23–1.07)	0.56 (0.25–1.29)	0.54 0.23–1.26)	0.75 (0.38–1.47)	0.81 0.40–1.64)	0.76 (0.37–1.56)
Low strain (n = 46)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

OR: Odds ratio.
AOR[a] : adjusted OR for socio-demographic factors (age, education and number of dependents).
AOR[b] : adjusted OR for occupational-demographic factors plus occupational factors (tenure).
Note: Significant findings are in bold.
Note. [a] = Too few cases to permit significance testing.

6.5.2 Regression Analyses: Skilled Workers

Table 6-6 shows the association between job strain types, poor health, accident involvement, and job satisfaction in the skilled worker group. Skilled workers who have reported high job strain are less likely to have a high level of job satisfaction (OR 0.19, 95% CI 0.09–0.41). The relationship remains significant, but the estimate does not change considerably when controlling for socio-economic characteristics and occupational factors (tenure) (OR^a 0.18, 95% CI 0.08–0.41; OR^b 0.18, 95% CI 0.08–0.40). Skilled workers who have reported high job strain are not at risk of accidents or poor health, as high strain is not significantly associated with either. Adjustment for covariates did not notably change this estimate. For the active job type, skilled workers in this category are more likely to be at risk of poor health (OR 8.05, 95% CI 1.00–65.00). The relationship remains significant and the estimates increase considerably when socio-demographic and occupational factors are controlled (OR^a 10.86, 95% CI 1.19–98.87; OR^b 18.88, 95% CI 1.8–191). However, this finding should be interpreted with caution, as the confidence interval is large. Active job type is not associated with accident involvement. Adjustment for covariates has not changed this estimate. Skilled workers in the active job category are less likely to have high levels of job satisfaction (crude OR); however, controlling for covariates deflates the relationship. For the passive job type, no significant association is found with either risk of accidents or poor health. Unsurprisingly, skilled workers who have reported the passive job type are less likely to have high levels of job satisfaction.

Table 6-6

Binary Logistic Regression of Job Strain and Health and Safety Outcomes Including Job Satisfaction for the Skilled Worker Group (n = 337)

	Poor health			Accident involvement			Job satisfaction		
	OR (95%CI)	AOR[a] (95%CI)	AOR[b] (95%CI)	OR (95% CI)	AOR[a] (95%CI)	AOR[b] (95%CI)	OR (95%CI)	AOR[a] (95%CI)	AOR[b] (95%CI)
High strain (n = 64)	7.86 (0.92–67.12)	7.76 (0.87–69.06)	8.11 (0.91–72.39)	1.24 (0.64–2.42)	1.31 (0.65–2.64)	1.30 (0.64–2.64)	**0.19 (0.09–0.41)**	**0.18 (0.08–0.41)**	**0.18 (0.08–0.40)**
Active (n = 94)	**8.05 (1.0–65.0)**	**10.86 (1.19–98.87)**	**18.88 (1.80–191.4)**	1.29 (0.70–2.37)	1.55 (0.78–3.05)	1.55 (0.78–3.09)	**0.41 (0.19–0.81)**	0.51 (0.23–1.14)	0.51 (0.23–1.16)
Passive (n = 102)	1.52 (0.14–17.08)	2.81 (0.19–41.25)	2.78 (0.19–40.62)	0.84 (0.46–1.53)	0.81 (0.43–1.53)	0.84 (0.44–1.60)	**0.44 (0.21–0.92)**	**0.39 (0.18–0.84)**	**0.38 (0.18–0.83)**
Low strain (n = 77)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

AOR: Odds ratio.
AOR[a] : adjusted OR for socio-demographic factors (age, education and number of dependents).
AOR[b] : adjusted OR for occupational-demographic factors plus occupational factors (tenure).
Note: Significant findings are in bold.

6.5.3 Regression Analyses: Foremen

Table 6-7 shows the association between job strain types, poor health, accident involvement, and job satisfaction among foremen. For the high strain job type, the crude analysis does not show a significant association between high strain and the odds of accident involvement. Adjustment for covariates has not notably changed this estimate. Similarly, the association between the high strain job type and poor health is not significant. Adjustment for covariates has not changed this estimate. However, foremen who have reported high strain are less likely to have a high level of job satisfaction (OR 0.34, 95% CI 0.12–0.96). The relationship remains significant, but the estimates decrease when socio-demographic and tenure factors are controlled (OR^a 0.23, 95% CI 0.07–0.81) and (OR^b 0.14, 95% CI 0.03–0.62). For active and passive job types, no association was found with poor health, accident involvement, and job satisfaction. Adjustment for the covariates has not changed the estimates.

Table 6-7

Binary Logistic Regression of Job Strain and Health and Safety Outcomes Including Job Satisfaction for the *Foremen Group (n = 126)*

	Poor health			Accident involvement			Job satisfaction		
	OR (95%CI)	AOR[a] (95%CI)	AOR[b] (95%CI)	OR (95% CI)	AOR[a] (95%CI)	AOR[b] (95%CI)	OR (95%CI)	AOR[a] (95%CI)	AOR[b] (95%CI)
High strain (n = 36)	0.23 (0.02–2.42)	0.14 (0.01–6.33)	0.14 (0.01–6.80)	1.61 (0.56–4.43)	1.52 (0.46–5.03)	1.31 (0.38–4.51)	**0.34 (0.12–0.96)**	**0.23 (0.07–0.81)**	**0.14 (0.03–0.62)**
Active (n = 31)	2.33 (0.54–10.11)	3.96 (0.31–50.01)	4.03 (0.32–51.13)	0.94 (0.32–2.73)	1.18 (0.33–2.73)	1.24 (0.32–4.79)	0.80 (0.27–2.33)	0.55 (0.15–2.10)	0.52 (0.13–2.01)
Passive (n = 35)	0.24 (0.02–2.40)	0.81 (0.04–15.51)	1.28 (0.45–36.62)	1.61 (0.58–4.47)	1.45 (0.46–4.55)	1.45 (0.46–4.62)	1.25 (0.42–3.70)	0.85 (0.25–2.88)	0.77 (0.22–2.67)
Low strain (n = 27)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

OR: Odds ratio.
AOR[a] : adjusted OR for socio-demographic factors (age, education and number of dependents).
AOR[b] : adjusted OR for occupational-demographic factors plus occupational factors (tenure).
Note: Significant findings are in bold.

6.6 Discussion

This study aimed to examine the association between job strain, health and safety outcomes, and job satisfaction among the surveyed migrant construction workers in the region. The results of the investigation have revealed that no association exists between job strain and accident involvement among the three respondent groups. However, job strain is negatively associated with job satisfaction among skilled workers and foremen. The active job type among skilled workers is associated with poor health. In other words, significant findings indicate that skilled workers and foremen who are exposed to high levels of job strain are more likely to have low levels of job satisfaction; however, skilled workers who get exposed to the active type of job strain are more likely to have poor health. Finally, no association was found between job strain factors and any of the outcome variables in the labourer group.

6.6.1 Job Strain and Accident Involvement:

Job strain was found to be higher among foremen and skilled workers (29% and 19%, respectively) compared to the labourer group (12%). However, there is no association between job strain and accident involvement. Several previous studies have demonstrated that higher psychological job demands are associated with higher levels of unsafe work behavior (Hofmann & Stetzer, 1996), more frequent near-misses (Elfering et al., 2006), and a higher likelihood of workplace injuries (Chmiel, 2005). Unlike the preceding studies, the current study has not found an association between high job strain and accident involvement. This may be attributed to several factors. First, the study has been conducted in an oil and gas construction project where accidents can have serious implications for

both production and the reputation of the company. Therefore, accident prevention and health and safety standards are usually higher compared to construction sites in other industries. In addition, a considerable number of accidents may have gone unreported by the workers for fear of being sacked from the project. As argued by Robertson and Lamm (2008) in a study conducted in the construction industry in Kuwait, workers refrain from reporting accidents in trying to protect their employability among other reasons. Moreover, in construction projects, accidents may result in the contractor being removed from the project or blacklisted, particularly in the oil and gas sector. This is a possible reason why contractors deliberately hide accident statistics and implicitly instruct employees not to report them. These justifications are not baseless allegations as similar concerns were raised by the sampled workers during the focus group sessions of this research (see the qualitative study in Chapter 4). Nonetheless, the main findings above pertaining to accident involvement remain important, as they pave the way for future research that may support or oppose the results of this investigation. In view of these results, future studies in the region should attempt to adopt more progressive data collection methods and designs, in addition to optimized surveys. For instance, workplace observations and interviews can be effective for data collection. As well, future studies can use an enhanced mixed-methods approach similar to the one used in this study which has yielded crucial findings.

6.6.2 Job Strain and Health

The study has revealed that job strain is associated with poor health among skilled workers (in active job types). It is notable that this relationship between active job strain and general health is not significant among labourers and foreman. This can be attributed to the nature of skilled workers' activities. Their job is usually a demanding one since they

have the responsibility of carrying out the hard physical work. On the contrary, labourers are only helpers, while the foremen are tasked only with the supervision. The finding that skilled workers have higher job strain contradicts Karasek and Theorell's (1990) characteristics of active job types, since in the current case, skilled workers have high control of their work alongside a high level of demands. However, Karasek and Theorell (1990) posit that this situation creates learning opportunities and may be beneficial to workers. In the current study, the active job type among skilled workers is associated with poor health. The finding that there is no association between high job strain and health also contradicts several previous studies (Aasa et al., 2005; de Croon et al., 2002; Tsutsumi et al. 2007; Alfredsson et al., 1982). In Grzywacz et al.'s (2007) study which was conducted among Latino migrant farm workers in the United States, high physical job demands were found to be significantly associated with poorer physical health, and high worker control was notably associated with better mental health.

One specific study (Boschman et al., 2013) was found to be similar to the current study, as it was conducted among Dutch construction workers. To explain why this study is important for the critique and discussion section, Table 6-8 shows the comparisons between the current study and the Boschman study. In the current study, the general health of the skilled workers is linked to job strain (active job type). In other words, skilled workers who are exposed to high job demands and high control are at risk of poor health. It worth explaining that the skilled worker job title in the construction industry is usually given to workers who have mastered a certain construction trade, for instance welders, bricklayers, steel fixers, and carpenters. In Boschman's study, high job demands are significantly associated with symptoms of depression among bricklayers and supervisors.

Such findings are not in line with the results of the current study, where the active job type is associated with general health among skilled workers only, while there is no association found among foremen and labourers. As interpreted earlier, this can be attributed to the nature of the job skilled workers handle, which is more physically demanding compared to that of the labourers and the foremen. However, the unexpectedly active job type was associated with poor health while other job types were not. As posited by Karasek and Theorell (1990), active job labourers would transform the energy coming from the high level of demands into improved problem solving, resulting in learning more effectively. Surprisingly, only the active job type is associated with poor health among skilled workers. However, high levels of control in active jobs might be interpreted as more responsibility for the workers which can create the perception of higher workload. As argued by Hockey and Earle (2006), control, which is perceived as additional demand or responsibility rather than resources, can create harmful effects rather than beneficial ones. This can be the case in active jobs among skilled workers who reported poor health, less job satisfaction and subsequently, less motivation, rather than good health and more motivation.

Table 6-5

Comparison Between Current Study and the J.S. Boschman et al. (2013) Study

Difference or similarity	Current study	J.S. Boschman et al. (2013) study	Remarks
Industry	Construction	Construction	
Location	Middle East	Netherlands	
Population	Migrant construction workers	Dutch construction workers	
Sample group	Labourers, skilled workers, foremen	Bricklayers, supervisors	Bricklayers are considered skilled workers in the construction industry, foremen are considered supervisors.
Model used	Job strain model	Job strain model	
Variables tested	Job strain components (demand, control), general health and safety outcomes (accident involvement), and job satisfaction	Psychosocial risks (which involve demand, control, social support), job variety, future perspective, and mental health.	
Findings	No association between job strain and involvement in accidents among all groups. Active job type associated with poor general health and job satisfaction among skilled workers. While job strain was associated with job satisfaction among skilled workers and foremen.	Bricklayers experienced worse job control, learning opportunities, future perspective, and symptoms of mental health problems**.** Supervisors experienced high psychological demands, need for recovery, and symptoms of mental health problems.	
Measures used	HSE Management Standards Indicator Tool for demand and control	Dutch questionnaire for psychosocial risks	

In Boschman et al.'s study, bricklayers have experienced the worst psychosocial consequences related to job control, learning opportunity, future perspective, and

symptoms of mental health problems; while supervisors have experienced high psychological demands, need for recovery and symptoms of mental health problems. However, in the current study, job strain has negatively affected the job satisfaction among skilled workers and foremen. It is worth mentioning that the two studies have independently examined the different psychosocial factors. However, the overall comparison demonstrates how psychosocial factors in general and job demands and job control in particular are associated with construction workers' health and job satisfaction.

The discussion above meant to demonstrate the importance of monitoring psychosocial workplace stressor exposure in addition to physical workplace stressor exposure to improve workers' health and safety. This comparison has also demonstrated that job demands and job control do affect migrant workers in Europe and in the Middle East. However, to the best of my knowledge, this area of research in the region has not been adequately explored. Therefore, further studies are warranted, particularly studies focusing on specific psychosocial factors, such as job demands and control that have a potential impact on specific safety outcomes, physical health, and psychological wellbeing of migrant workers.

6.6.3 Job Strain and Job Satisfaction

The results of the current investigation show that job strain is associated with job satisfaction among skilled workers and foremen. However, there is no significant relationship found in the case of the labourer group. This finding is expected given the results of the job strain categories for the three groups in Table 6-1, where the labourer group is less exposed to job strain (12%) compared to the foremen and the skilled worker groups (29% and 19%, respectively). It is important to keep in mind that labourers in the

construction work setting are usually less pressured and less overloaded than the foremen and skilled workers, who are usually responsible for work progress and meeting tight deadlines.

Previous studies have found similar results. Hurrell and McLaney (1989) have found that high job demands influence job dissatisfaction, and increased job control is associated with greater job satisfaction. Furthermore, Alavinia et al. (2007) have found that lack of job control, dissatisfaction with work, and lack of support are significantly related to an increase of sick leave requests. Moreover, job demands and control have predicted work satisfaction and voluntary absence parameters according to Dwyer and Ganster (1991). On the other hand, an additional factor that may contribute to job satisfaction among construction workers is the 'hire and fire' culture, which is a genuine stressor according to Beswick et al. (2007). An additional unsettling factor is that these migrant workers are usually recruited for one project at a time, and once the project completed, they are likely to be laid off. This situation may eventually prompt job insecurity and job dissatisfaction.

The current study has explored the psychosocial factors of job strain and its association with job satisfaction among construction workers. Nonetheless, further research is required to investigate in detail the whole range of risk factors that may influence job satisfaction. Furthermore, future studies are urged to examine the mechanisms by which job strain affects job satisfaction.

6.7 Implications of the Study

The present study has gained insights into the psychosocial working conditions of the construction sector in the region. It has added to the existing body of knowledge that is

crucial for future interventions seeking to improve the working environment of migrant construction workers. The key finding the study has revealed is the relationship between job strain and health, safety, and job satisfaction among these construction workers. The study has explored the association of job strain with the health and safety status of the three investigated worker groups. Moreover, the current study has explored the level of exposure to job strain and its consequences. The resulting outcomes are important for future intervention, as they enable conscious intervention strategies that target the groups at risk among the migrant worker population. The current study has also revealed that workers (labourers) who were exposed to job strain are not at risk of poor health, accident involvement, or job dissatisfaction, unlike the skilled workers, who are affected by job strain which, in turn, results in poor health and lower job satisfaction. Job strain is also associated with job satisfaction in the foremen group. The findings of the current study are crucial in carrying out job-specific risk assessments. Organizations can benefit from using them by identifying the psychosocial risks in their work environment and thus being able to introduce effective intervention strategies for practical risk mitigation. The study has identified job strain as a key psychosocial hazard associated with the working conditions of these migrant workers. Therefore, the findings of the current investigation may inform organizations about the importance of monitoring and improving these psychosocial working conditions to reduce job strain and promote the health and safety of their workers.

6.8 Strengths of the Study

The first and key strength of the current study is that it has been conducted in an unexplored area of research. By examining the psychosocial working conditions of these migrant workers, particularly job stain, the study became a pioneer in this field. This study

has thus paved the way for future research to further examine the psychosocial hazards of job strain and their impact on workers' health, safety, and wellbeing. An additional strength is the exploration of the reasons for poor health and safety performance in the workplace which could prove beneficial for future interventions. However, future researchers are required to examine the impact of job strain not only on general health, but more specifically on psychological wellbeing and the safety of migrant construction workers in the region.

An additional strength is that the current study design has used the mixed-methods approach. In the qualitative segment of the study, workers were interviewed, and the areas of concern have been appropriately identified. A subsequent quantitative segment of the study was then administered on the basis of the qualitative study findings. The quantitative segment has aimed to examine the psychosocial hazards (particularly the job strain elements) and their association with health and safety outcomes. This research design has offered useful in-depth insights into the psychosocial working conditions of the pool of respondents.

Another strength of the study is that it examines role-specific factors, identifying the impact of job strain on health, safety, and job satisfaction of the main three groups of workers under investigation. The study has thus pointed to the importance of the different impacts of job strain on these groups for future interventions. Companies and organizations can benefit from such results in directing their interventions towards addressing such stressors for the benefit of their vulnerable worker groups. Moreover, the current study has added insights and knowledge to existing policies, research, and practice as stated in the main discussion chapter (8).

6.9 Limitations

The study has carefully examined the existing models, explored available research in the area, and conducted relevant investigations which yielded crucial findings. However, as discussed in previous chapters, certain limitations must be acknowledged. One of the main limitations is that the cross-sectional design does not allow for causative statements on the relationship between job strain, health, safety outcomes, and job satisfaction. However, a huge body of research has used a cross-sectional design which has proven reliable in predicting psychosocial risk association with health and safety outcomes. Another limitation is that the study has used self-reporting in measuring health and safety outcomes. For instance, the study has used self-reports in measuring accident involvement, even though it is likely that this may lead to under-reporting of accidents (Marottoli et al., 1997). However, several previous studies have demonstrated that self-reported measures of involvement in accidents are a reliable method of measuring safety outcomes (Siu et al., 2003; Siu et al., 2004; Young et al., 1997). Future studies may elect to refer to other supplementary sources of data, such as company accident records or the public domain.

The language barrier is considered a limitation which could have impaired participants' ability to appropriately understand and respond to all questionnaire items. However, Brislin's (1970) back translation approach has been used to ensure proper translation into languages that workers better understood, namely Hindi and Urdu. Another concern about the questionnaire is that workers live in the same camp, and there is a possibility of biased responses. To overcome this limitation, participants were carefully selected from four different companies and the questionnaire has been randomly distributed to workers who have voluntarily chosen to participate.

6.10 Conclusion and Recommendations

In exploring the existing model and running analyses to verify disparities and similarities, the current study must acknowledge the validity of Karasek's (1979) demand–control model. In exploring the hypothesis that job strain is associated with job satisfaction and general health among skilled workers and job satisfaction among foremen in particular, the study has thus aligned itself with a number of existing similar studies which have sought to prove the same hypothesis. The study does acknowledge, though, that there is a need to develop worksite interventions to reduce job strain as a means by which to promote the health and job satisfaction of migrant construction workers. The study proposes the following measures through which this objective can be attained:

1. To develop practicable methods of assessing work-related stress in a framework similar to the UK Health and Safety Executive (HSE) Management Standards Indicator Tool. This will enable decision makers to identify work-related stressors and introduce practicable corrective measures.
2. To consider the job strain hazards in the risk assessment exercises used in the construction industry.
3. To review the existing HSE legislations to ensure that employers and organizations are legally held accountable for the physical health and psychological wellbeing of their workers.
4. To conduct regular surveys in order to assess job strain, health, safety and job satisfaction levels among employees.

These measures may apply to any other region; however, the study emphasizes that their effectiveness in this region may prove significant. Further research and studies are

warranted to extensively explore this area and to identify job strain and other psychosocial hazards the impact of which has yet to manifest in poor health, poor safety performance, and low satisfaction.

7 Chapter Seven: Quantitative Study Results – Links Between Safety Climate and Health and Safety

Chapter Summary

The current chapter examines the association between safety climate on the one hand, and health, job satisfaction, and worksite accidents on the other. Findings indicated the existence of associations between safety climate, overall health and job satisfaction among participants from certain migrant workers groups. In this chapter, the findings were discussed in view of similar existing studies' findings. The end of the chapter detailed the strengths of the current investigation and potential contribution to existing knowledge and practices.

7.1 Introduction

In reviewing a number of previous works in Chapter 2 (Zohar, 1980; Hofmann & Stetzer, 1998; Glendon & Litherland, 2001; Shannon et al., 2001), I come to the conclusion that safety climate is one of the most important factors that needs to be considered when examining the psychosocial working conditions. It can be confirmed that safety climate is a reliable predictor of an organization's health and safety performance. A poor safety climate correlates positively with poor health and safety performance. As Baram and Schoebel (2007) have asserted, organizations with a strong safety culture/climate are better prepared to prevent or greatly limit workplace accidents and injuries. Previous research, notably that of Nahrgang et al. (2011), has demonstrated that safety climate is associated with workplace injuries and unsafe behavior. Furthermore, many studies have shown safety climate as a predictor of accident rates and safety performance (Choudhry et al., 2009; Lingard et al., 2010; Zhou et al., 2011; Siu et al., 2003; Siu et al., 2004).

As illustrated in Chapter 2, this study has located few studies that have engaged in investigating safety climate as a predictor of safety performance and health outcomes in this region (e.g. Mohamed, 2002). However, no studies have examined safety climate and its association with health and safety outcomes specifically among migrant construction workers in the region. As previously been established, this knowledge gap has inspired the research questions of the current study. Here are the leading research questions relating to safety climate and its links to health and safety outcomes of migrant workers in the region.

Descriptive Research Questions

1. How do the migrant workers in the three groups under investigation perceive the attitude of site managers towards workers' health and safety?
2. What is the strength and direction of relations between safety climate and poor health, accident involvement, and job satisfaction?

Inferential Questions

1. Is safety climate associated with migrant workers' health, involvement in accidents and job satisfaction among the three worker groups?
2. Is safety climate associated with migrant workers' health, involvement in accidents and job satisfaction controlling for socio-demographic factors?
3. Is safety climate associated with migrant workers' health, involvement in accidents, and job satisfaction controlling for socio-demographic factors and occupational factors?

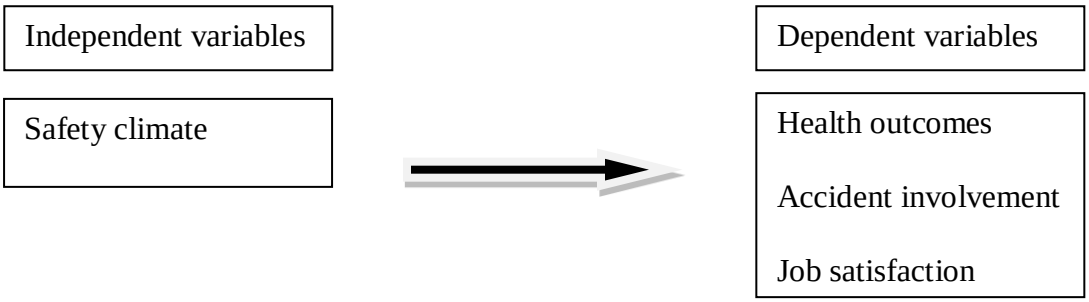
Aims of the Study

The main aim of this part of the investigation is to profile the safety climate in terms of workers' perception of site managers'/supervisors' attitudes towards health and safety

at the workplace. Moreover, the study aims to assess the links of safety climate with workers' health, accident involvement and job satisfaction. The figures below show the relationships between variables involved in the current investigation.

Figure 7-1

Relationships Between Variables Involved in the Current Investigation

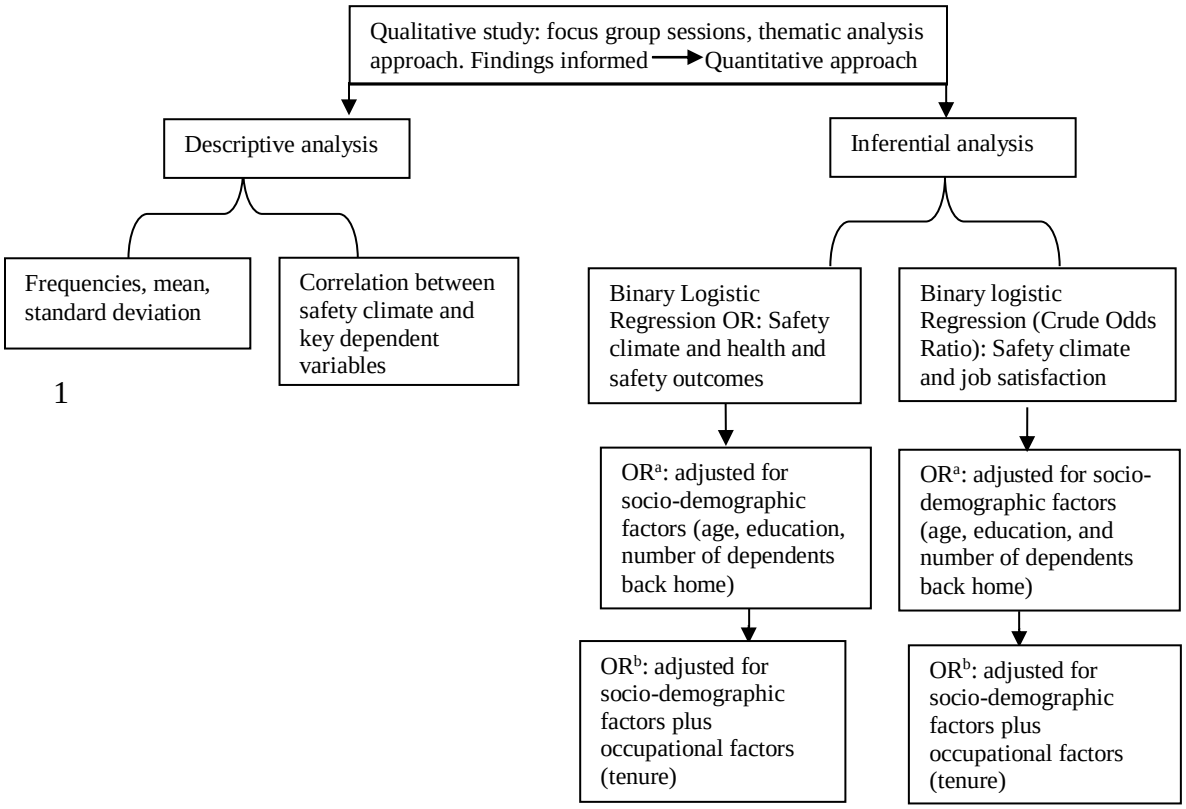


7.2 Method

As stated earlier, the study has employed a mixed-methods approach with an initial qualitative segment followed by a quantitative one. The qualitative segment informed the design and content of the quantitative questionnaire (see Figure 7-2). See the full description of the qualitative and quantitative methods in Chapter 3 of the thesis.

Figure 7-2

Analytical Process for Examination of Relations Between Safety Climate and Health and Safety Outcomes



7.2.1 Materials

Measurement of safety climate, health, accident involvement and job satisfaction was described in Chapter 3.

7.3 Results

Table 7-1 shows the frequency of the dichotomized safety climate variable. The table demonstrates the perception of migrant workers about safety climate. Around 50% of

the labourers perceived the safety climate in the workplace as poor, and the other 50% perceived the safety climate as good. However, the perception of the safety climate was slightly positive among the skilled workers and foremen, where the score was 53% and 47% for poor safety. On the other hand, Tables 7-2, 7-3, and 7-4 below show descriptive data, which presents the mean and standard deviation (SD) for the eight selected key variables. These variables in the tables consisted of socio-demographic variables, namely age, gender, marital status and number of dependents, as well as the occupational variable (tenure at the company). The key remaining variables for the current investigation are safety climate, health, workplace accidents, and job satisfaction. The analysis results shown in the descriptive data tables also include correlations between different variables to examine possible relationships.

7.3.1 Correlation Analysis

The three Tables 7-2, 7-3, 7-4 show the correlation between the key variables, namely safety climate, overall health rating, involvement in accidents, and job satisfaction. Moreover, socio-demographic and occupational variables were included in the correlation matrix.

Table 7-1

Frequencies of Migrant Workers' Perception of Safety Climate (3 Groups)

	Labourers		Skilled Workers		Foremen	
	Frequency (n)	%	Frequency (n)	%	Frequency (n)	%
Good safety climate	94(188)	50	157(337)	53	68(129)	54
Poor safety climate	94(188)	50	180(337)	47	61(129)	46

Table 7-2 depicts that safety climate is found to be correlated positively with job satisfaction for the labourer group. Safety climate is also negatively correlated with the number of dependents in the labourers' households back home, meaning that the higher the number of dependents the labourer has, the lower the value this worker assigns to safety climate at the workplace. Interestingly, the number of dependents back home also positively correlates with the rate of accidents a labourer may have, indicating that the higher number of dependents may correspond to a higher number of accidents experienced by the labourer in question. Level of education is negatively correlated with poor health. Moreover, the table shows a positive correlation between age and the number of dependents back home. However, the current investigation focuses on the relationship between the safety climate on one hand, and the safety outcomes, health conditions, and job satisfaction on the other hand.

Table 7-2

Descriptive Data and Correlation Matrix (Labourer Group n =188)

Variable	*Response Scale*	*M(SD)*	1	2	3	4	5	6	7	8
1. Age	-	30.7 (6.45)	1							
2. Education	-	9.22 (2.78)	.001	1						
3. Dependents back home	1-4	7.22 (4.14)	**.192***	.126	1					
4. Job tenure	6 months–2 years	2.57 (1.13)	.059	.089	-.047	1				
5. Safety climate	1–5	4.12 (0.71)	-.031	-.073	**-.251****	-.061	1			
6. Poor Health	1–5	2.04 (0.71)	-.034	**-.156***	-.033	.043	-.121	1		
7. Job satisfaction	1–5	3.86 (1.22)	.052	-.084	.003	.025	**.382****	-.012	1	
8. Accident involvement	-	-	.040	.103	**.151***	.054	-.130	.093	.133	1

Notes: Accident involvement: 0 = exposed to accident; 1= not exposed to accident.
Significant findings in bold.
*. Correlation is significant at the 0.05 level (2-tailed).
**. Correlation is significant at the 0.01 level (2-tailed).

In the case of the skilled worker group, Table 7-3 shows a positive correlation between safety climate and job satisfaction. Safety climate is negatively correlated with poor health. Job satisfaction is negatively correlated with poor health. However, accident involvement is positively correlated with poor health and the respondent's age. Moreover, poor health is negatively correlated with the level of education. Table 7-3 also shows that involvement in accidents is positively related to the respondent's age.

Table 7-3

Descriptive Data and Correlation Matrix (Skilled Worker Group n = 337)

Variable	*Response scale*	*M(SD)*	1	2	3	4	5	6	7	8
1. Age	-	31.7 (6.22)	1							
2. Education	-	10.03 (2.74)	-.005	1						
3.Dependents	1- 4	6.24 (3.20)	**.**091	.045	1					
4. Job tenure	(6 months–2 years)		.030	.090	.039	1				
5. Safety climate	1–5	4.09 (0.73)	.032	.002	-.070	-.071	1			
6. Poor Health	1–5	2.08 (0.84)	-.035	**-.153****	.074	.097	**-.175****	1		
7. Job satisfaction	1–5	3.88 (1.33)	.011	.083	-.001	-.074	**.422****	**-.259****	1	
8. Accident involvement	-	-	**.111***	.019	.032	-.025	-.077	**.113***	-.027	1

Notes: Accident involvement: 0 = exposed to accident; 1= not exposed to accident.
Significant findings in bold.
*. Correlation is significant at the 0.05 level (2-tailed).
**. Correlation is significant at the 0.01 level (2-tailed).

In the case of the foremen group, Table 7-4 shows that safety climate is positively correlated with job satisfaction and negatively with poor health. The table also shows that the occupation factor (tenure) is positively correlated with age and the number of dependents, but negatively correlated with the level of education. Moreover, the number of dependents back home is negatively correlated with the level of education.

Table 7-4

Descriptive Data and Correlation Matrix (Foremen Group n = 126)

Variable	*Response scale*	*M(SD)*	1	2	3	4	5	6	7	8
1. Age	-	30 (7.043)	1		.					
2. Education	-	14.1(3.19)	-.036	1						
3.Dependents	1– 4	5.63 (3.21)	**.**176	**-.188***	1					
4. Job tenure	(6 months–2 years)	2.72 (1.02)	**.317****	**-.285****	**.261****	1				
5. Safety climate	1–5	3.88 (0.81)	-.078	-.096	-.026	-.122	1			
6. Poor Health	1–5	2.19 (0.94)	-.088	-.048	.075	.009	**-.178***	1		
7. Job satisfaction	1–5	3.78 (1.27)	0.175	.010	.011	-.101	**.266****	-.118	1	
8. Accident involvement	-	-	.130	-.046	.104	.082	-.094	-.168	.165	1

Notes: Accident involvement: 0 = exposed to accident; 1= not exposed to accident. Significant findings in bold.
*. Correlation is significant at the 0.05 level (2-tailed).
**. Correlation is significant at the 0.01 level (2-tailed).

7.3.2 Inferential Analysis (Logistic Regression)

Following the descriptive data analysis, inferential data analysis has been conducted using logistic regression. In the inferential analysis, the relationship between safety climate, poor health, workplace accidents, and job satisfaction is measured by odds ratios (ORs) at 95% confidence intervals (CIs) using binary logistic regression models. The adjustment for socio-demographic and occupational factors is done for the effect of these covariates in the model.

Binary Logistic Regression Analysis for the Labourer Group

Table 7-5 shows the crude and adjusted results from the logistic regression analyses on odds related to safety climate, poor health, accident involvement, and job satisfaction in the labourer group. In the crude analysis, the association between safety climate and the odds of accident involvement and health ratings is not significant. Adjustment for covariates does not change this result. However, the association between safety climate and job satisfaction is found significant with an odds ratio of (OR 6.28, 95% CI 3.03–13). Adjustment for covariates of socio-demographic factors does notably increase these estimates (AOR[a] 8.68, 95% CI 3.72–20.27). In addition, adjustment for socio-demographic factors, together with the occupational factors, slightly increases the estimates (AOR[b] 8.99, 95% CI 3.83–21.11). These findings suggest that labourers who perceive safety climate in their workplace as positive are more likely to have high levels of job satisfaction.

Table 7-5

Binary Logistic Regression of Safety Climate and Health and Safety Outcomes Including Job Satisfaction (Labourer Group n = 188)

Variables	OR (95% Cl)	AOR[a] (95% Cl)	AOR[b] (95 % Cl)
Poor health	0.19 (0.02–1.67)	0.16 (.02–1.48)	0.17 (.01–1.62)
Accident involvement	0.59 (0.33–1.06)	0.64 (0.34–1.21)	0.65 (0.35–1.23)
Job satisfaction	**6.28 (3.03–13)**	**8.68 (3.72–20.27)**	**8.99 (3.83–21.11)**

Notes: Significant findings in bold. CI: Confidence Interval
AOR: Adjusted Odds Ratio
AOR[a] : adjusted for socio-demographic factors (age, education and number of dependents).
AOR[b] : adjusted for occupational-demographic factors plus occupational factors (tenure).

Binary Logistic Regression Analysis for the Skilled Worker Group

Table 7-6 shows the crude and adjusted results from the logistic regression analyses on odds related to safety climate and poor health, accident involvement, and job satisfaction among the skilled worker group. No significant association has been found between safety climate and accident involvement. However, safety climate is significantly associated with job satisfaction. The odds ratio is OR 7.13, 95% CI 4.22–12.08, and the adjustment for covariates does not notably change this estimate. This result indicates that the skilled workers who perceive the safety climate in their workplace as positive are more likely to have high levels of job satisfaction. Interestingly, safety climate is negatively associated with poor health in the skilled worker group. The odds ratio is OR 0.16, 95% CI 0.05–0.56, and the adjustment for covariates does not notably change these estimates. In line with the expectations, this result suggests that skilled workers who perceive safety climate in their workplace as positive are less likely to be subjected to the risk of poor health.

Table 7-6

Binary Logistic Regression of Safety Climate and Health and Safety Outcomes Including Job Satisfaction (Skilled Worker Group n = 337)

Variables	OR (95% Cl)	AOR[a] (95% Cl)	AOR[b] (95% Cl)
Poor health	**0.16 (0.05–0.56)**	**0.15 (0.04–0.54)**	**0.16 (0.04–0.58)**
Accident involvement	0.73 (0.47–1.13)	0.70 (0.45–1.09)	0.69 (0.44–1.08)
Job satisfaction	**7.13 (4.22–12.08)**	**7.05 (4.13–12.07)**	**6.96 (4.06–11.93)**

Notes: Significant findings in bold. CI: Confidence Interval.
AOR: Adjusted Odds Ratio.
AOR[a]: adjusted for socio-demographic factors (age, education and number of dependents).
AOR[b]: adjusted for occupational-demographic factors plus occupational factors (tenure).

Logistic Regression Analysis for the Foremen Group

Table 7-7 shows the crude and adjusted results from the logistic regression analyses on odds related to safety climate and poor health, accident involvement, and job satisfaction among the foremen worker group. The association of safety climate with overall health and accident involvement is not significant. However, the association of safety climate and job satisfaction is significant (OR 3.04, 95% CI 1.46–6.31). The adjustment for covariates has slightly changed this estimate as shown (OR[a] 4.24, 95% CI 1.84–9.74), and when adjusted for socio demographic plus tenure variables the odds are OR[b] 3.96, 95% CI 1.71–9.98. These results have indicated that foremen who perceive the safety climate in their workplace as positive are more likely to have high levels of job satisfaction.

Table 7-7

Binary Logistic Regression of Safety Climate in Relation to Health and Safety Outcomes Including Job Satisfaction (Foremen Group n = 126)

Variables	OR (95% Cl)	AOR[a] (95% Cl)	AOR[b] (95% Cl)
Poor health	0.27 (0.07–1.03)	0.12 (0.01–1.23)	0.13 (0.01–1.37)
Accident involvement	0.68 (0.31–1.39)	0.65 (0.31–1.39)	0.65 (0.30–1.41)
Job satisfaction	**3.04 (1.46–6.31)**	**4.24 (1.84–9.74)**	**3.96 (1.71–9.98)**

Notes: Significant findings in bold. CI: Confidence Interval
AOR: Adjusted Odds Ratio
AOR[a]: adjusted for socio-demographic factors (age, education and number of dependents).
AOR[b]: adjusted for occupational-demographic factors plus occupational factors (tenure).

7.4 Discussion

The main aim of the current investigation has been to profile for safety climate among migrant workers and to examine the relationship between safety climate, health, workplace accidents, and job satisfaction. To examine this potential role-specific association, data is analyzed using correlations and logistic regression to assess the relationship between safety climate and risk of poor health, involvement in accidents, and job satisfaction among the three investigated groups of workers. Interestingly, there is a significant association between safety climate and skilled workers' health. Skilled workers who perceive the safety climate as good are less likely to be at risk of poor health. Moreover, the analysis results have revealed that among the three worker groups, safety climate is significantly associated with job satisfaction. This means that workers who perceive the safety climate in their company as good are more likely to have high levels of job satisfaction. In other words, workers' perceptions of the importance of safety

maintained by their site managers are associated with the level of job satisfaction. Needless to say, this relationship works both ways, as workers who perceive the safety climate as poor in their workplace are more likely to have lower levels of job satisfaction. On the other hand, no significant relationship is found between safety climate and workplace accidents among workers in the three investigated groups. These findings are discussed in detail in the following section examining safety climate in relation to each element of health and safety outcomes.

7.4.1 Safety Climate and Workplace Accidents

The current study has not detected any significant association between safety climate and workplace accidents among the three groups of workers. These findings apparently contrast with a number of previous studies which have demonstrated that safety climate predicts workplace injuries and accidents (Ajslev et al., 2018; Baram & Schoebel, 2007; Sui et al., 2004). Moreover, in a meta-analysis study which covered 203 independent studies, Nahrgang et al. (2011) found that safety climate accounts for 15.5% of accident variance in workplaces. Other studies conducted in the construction industry have indicated that safety climate is negatively related to workplace injuries (Fang et al., 2006; Hon et al., 2014). Interestingly, another study has found that workplace injuries and ill health negatively influence safety climate among employees (McCaughey et al., 2013). In other words, workplace injuries are antecedent to safety climate and not vice versa, as has been reported by previous studies. Nonetheless, Clarke (2006) has not found any significance in the relationship between workplace accidents and safety climate. While the findings of the current study support Clarkes' conclusion, they do contradict a number of other studies that have claimed safety climate as a reliable predictor for workplace injuries. One reason for

this contradiction may be the workers' perceptions of safety which may weaken the relationship. Workers' safety knowledge and perception is probably influenced by their past experiences pre-migration to the host countries. To reiterate, most of these workers have migrated from countries like India, Bangladesh, and Nepal. In these countries, the health and safety standards are relatively poor in comparison to safety standards reported by Borthwick and McAndrew (2012) in the region. Coming from a background that is poor in safety standards may have inspired these workers' positive perceptions of the workplace safety provisions in this region, which may lead them to ignoring minor work injuries and deviating from safety instruction. Borthwick and McAndrew (2012) have indicated that 77% of participants who are mostly from Asian countries have reported that health and safety standards in the UAE are better than the standards in their home countries. That is to say, the poor safety background of these workers does play a role in the under-reporting of accidents. For instance, minor injuries such as abrasions and cuts during work may not be reported, since these workers do not consider them to be real injuries.

A similar situation exists for work-related diseases which may not be reported, with these workers assuming that such diseases are not work-related. As demonstrated in the qualitative study in Chapter 4, a considerable number of the surveyed workers are cautious and reluctant to disclose information about work-related accidents for fear of losing their jobs, as argued by Robertson and Lamm (2008) in a study conducted in the Kuwaiti construction industry. The study has found that accidents are not reported because of the following main reasons: (a) workers do not report accidents for fear of losing their employment; (b) workers are ignorant, lack the necessary education, and are faced with language and cultural barriers; (c) workers perceive that accidents occur because of their

own negligence; and (d) project managers suppress the accident records in order to avoid the cost of corrective actions and the potential loss of production time. Robertson and Lamm's (2008) study in the construction sector in the region has supported almost all the justifications on accident under-reporting. It is, therefore, understood that accident under-reporting is probably caused by job insecurity due to employees' fear of losing employment. A similar study in the United States by Probst, Brubaker, and Barsotti (2008) has proven that safety climate is negatively related to accident under-reporting. There is a possibility that job insecurity is a confounding variable that weakens the relationship between safety climate and accident involvement. In addition, poor safety perception and poor safety knowledge influence the overall safety climate. My view here is augmented by the fact that the qualitative investigation of this research has documented the association between under-reporting and job insecurity. Similarly, the qualitative findings support that this association can influence an organization's safety climate.

One of the practices that I have experienced while working in the construction business in the region is the tendency on the part of the contracting companies to hide or falsify the accident record. The objective of this is to minimize severity level to claim that their work is accident-free which boosts their performance standing. In fact, such companies get rewarded for this fraudulent record of good safety performance. Unwittingly, their clients may be persuaded that their project has been delivered without any loss of time or inflicted injury. Unfortunately, this misconception is somehow ingrained into the workers' perception as well. The workers, possibly unknowingly, seem to support such a negative practice. It is my understanding that the notion that there is no association between safety climate and accident involvement warrants further

investigation. It is crucial to explore the resulting impact of safety climate on accident involvement in light of these new findings concerning job insecurity and accident under-reporting.

As this study has asserted a number of times, the resulting findings are important in informing future interventions improving workplace safety climate, which will ultimately result in better health and safety outcomes. A study conducted among migrant workers in the UK found that these workers are more exposed to accidents, and then summarized the conclusions of previous studies on the subject (McKay et al., 2006). Some of the causes of accidents identified by the study are inadequate knowledge of local safety provisions among migrant workers, lack of experience, inadequate knowledge of their rights, poor communication, and insufficient training. Parallel with the findings of the current study, the UK study demonstrates shared views and provides a number of plausible accident causes, in spite of the different geography and socio-economic characteristics of its respondents. That is why this study strongly recommends the development of key intervention strategies in the region aiming towards raising migrant workers' safety knowledge and motivating accident reporting. This is something that will definitely contribute in promoting a positive safety climate. On the other hand, future studies must examine safety climate in relation to workplace accidents depending not only on self-reported data, but also on objective data from hospitals, site clinics, and safety records. In addition to examining safety climate and accident association, this method of data collection will allow the validation and verification of data from various sources for further investigation of possible accident under-reporting.

7.4.2 Safety Climate and Health

As previously established, this study has found that safety climate is negatively associated with poor health among the skilled worker group. However, safety climate is not associated with poor health among the foremen and labourers. In line with these outcomes, the findings of the study support previous research. A recent study conducted among construction workers in Ontario, Canada, has found a negative association between safety climate and psychological stress symptoms (Chen et al., 2017). In addition, many studies have demonstrated that an organization's environment (e.g. climate, culture) influences employee outcomes such as psychological wellbeing, job satisfaction, and organizational commitment (Carr et al., 2003; Danna & Griffin, 1999; Evans et al., 1994; Parker et al., 2003). Moreover, health psychologists suggest that safety climate is an important component of a healthy work environment (Danna & Griffin, 1999; Taylor et al., 1997). It is obvious that the findings of the current study support previous results from other studies that have established that safety climate is associated with the health indicator.

It is important to note that the level of health and safety awareness is poor among migrant workers as stated earlier in Section 7.4.1. This factor of low awareness makes it hard to rely on obtained data, suggesting that psychological illness may not be regarded as a work-related health problem by the surveyed migrant workers. Moreover, the definition or the concept of "health condition" may not be clear to migrant workers given their level of education compared to their counterparts in, for example, western countries. It is the perception of these workers that physical work-related health issues such as musculoskeletal disorders, dermatitis, and backache are probably the only work-related illnesses. Needless to say, psychological disorder and stress-related illness may be neither

considered nor reported by these migrant workers. In other words, psychological and psychosocial problems may not even be identified by the workers or their employers. As has been statistically reported by Leung and Cooper (2015) in their work-related stress studies between 1989 and 2013, 50% of the studies originated from Hong Kong, 22% from Europe, 15% from Australia, and 2% from the United States. Surprisingly, in spite of the huge construction boom in the Middle East, there is not a single study published in that period as per their findings. This shows that work stress and its related health implications have not received the required attention from researchers, institutions, and organizations. Therefore, if organizations do not consider the psychological aspects of work, migrant workers cannot be expected to recognize the possible psychological and psychosocial health problems induced by poor working conditions. On the other hand, with so many financial, psychosocial and work stressors, workers may tend to cognitively convince themselves that their health is good simply because they cannot afford to fall sick or complain lest their income be affected (Guldenmund et al., 2013; Varia, 2011). As argued by Joshi et al. (2011) in a study conducted in the GCC countries, migrant workers were not accessing medical services for fear of losing their jobs, losing their income, or displeasing their employers. These factors influence the workers' rating of their health and, subsequently, their perception of their psychological wellbeing. That is why the obtained figures are probably under-estimated. Proper education and awareness training is required in order to raise these workers' level of knowledge and their sense of their own psychological health and safety.

Worldwide studies do highlight shared values and issues but as the findings of this study are specific to this region, I encourage future researches to consider the outcomes of

this study within the demographic and social context of the region among other criteria of workers' native culture and language. As reported earlier, migrant workers' perceptions and attitudes are largely shaped by contextual standards and norms together with the social norms of their upbringing in their home countries. While studying Pakistani construction projects, Ali (2006) found that workers' attitudes towards safety are influenced by their national cultural norms. This conclusion indicates that migrant workers' attitudes and perceptions in this region are shaped by factors permeated by both the prevalent norms of the host country as well as the background norms of their home countries. In other words, the cultural backgrounds of migrant workers may develop a certain personal disposition that influences the perception of their current health conditions. Realistically, migrant workers perceive health partially in accordance with their cognitive capacity and the experiences they have had back home. As has been reported by Borthwick and McAndrew (2012), migrant workers perceive the health and safety standards in the UAE as far better than those of their native countries. In summary, this should alert researchers that migrant workers may steeply overestimate their health condition and such erroneous perceptions will undermine the interpretation of the collected data.

The findings of the current study, though, are in line with the expectations regarding the association between safety climate and poor health among the skilled worker group. Importantly, the current study does shed light onto this neglected area of research. It indicates that future research must focus on the psychological wellbeing of migrant workers with specific attention to psychosocial working conditions in the construction sector. The current study provides crucial insights necessary to design suitable future interventions targeting the group at risk of poor health, which is skilled workers.

Furthermore, the current study findings may pique researchers' interest and trigger further questions that warrant satisfactory answers, explanations and clarifications. Particularly in the context of this region, future research and studies must consider the design of proper psychometric measurements that can accurately assess the work stress and the migrant workers' psychological health condition. More importantly, special attention must be paid to the workers' psychological and the psychosocial wellbeing.

7.4.3 Safety Climate and Job Satisfaction

Safety climate is significantly associated with job satisfaction among the workers in the three surveyed groups. In other words, workers who have positively perceived the safety climate in the workplace are more likely to have high levels of job satisfaction. These findings support those of previous similar studies which have demonstrated safety climate as being a predictor of employee outcomes, such as job satisfaction (Morrow & Crum, 1998; Clarke, 2010; Michael et al., 2005). The reason for the association between safety climate and job satisfaction may be that the workers' improved perception of what their company provides for safety, in turn, gives rise to positive feelings towards their job. Clarke (2010) has found a direct relationship between safety climate perceptions and job satisfaction. Similarly, the current study has justified that the safety resources organizations provide for their workers have improved the level of the workers' job satisfaction. Furthermore, this justification agrees with the traditional hierarchy of needs theory (e.g. Maslow, 1954) where the perception of safety can give rise to the feeling of belonging, followed by self-esteem. Therefore, positive safety climate among workers may prompt the feeling of belonging to the organization, which can manifest in higher levels of job satisfaction.

Another recent study conducted by Huang et al. (2016) has found that safety climate is related to factors beyond conventional safety outcomes. According to the authors, safety climate predicts job satisfaction, employee engagement, and the rate of turnover. In this regard, what the company provides for safety creates a generalized climate of safety belief which, in turn, influences specific attitudes such as job satisfaction. It can also be simply explained that when workers believe that the company and the management care for their safety and wellbeing, this produces a high level of job satisfaction. Michael et al. (2005) have suggested that employees who have positive safety climate perceptions are more likely to recognize support from their organizations as favorable treatment and positive commitment to their personal wellbeing. This may create more motivation to safely perform at the workplace, and result in other beneficial outcomes for the organization, such as high levels of job satisfaction. On the other hand, safety climate, in the context of the current study, is the shared perception among migrant workers of the safety priorities set by their site managers. As such, the decisions and instructions made by site managers regarding safety are the main determinant of workers' attitudes towards safety in their workplace. As suggested by Zohar (2010) in his review of 30 years of related safety climate research, safety climate should be operationalized in view of other competing tasks or missions. In other words, when site managers are faced with situations where they must choose between safety and production, the receptive decision would shape the workers' attitude towards workplace safety. Should the site managers set high safety priorities and choose safety over production, for instance, the message sent to the workers would be positive and supportive of the site safety climate. Needless to say, a decision to prioritize production over safety would negatively influence workers' attitudes towards safety on

site. In the construction industry, these scenarios of competing tasks arise more often because of the tight schedules and the strict deadline for a project's completion. From the researcher's experience as a safety practitioner in the construction field, site managers are usually under considerable pressure to make progress. Particularly, when the project is delayed or when the commissioning is due, site managers would be forced to make progress often at the expense of safety. This is where the safety climate would be at its lowest point and, subsequently, job satisfaction would be at its lowest level. Top management should carefully examine work plans and schedules early on and provide adequate resources to avoid such harmful scenarios where safety is compromised. It is highly recommended from a practical research standpoint that future safety climate studies should be conducted periodically during the life span of a project. This is because site managers' priorities may change and, subsequently, affect safety priorities which would inevitably affect the global safety climate and, ultimately, job satisfaction. This assertion is in line with Zou & Sunindijo (2010) who have posited that safety climate changes over time and therefore it should be regularly examined in order to identify and address gaps and weaknesses.

As shown in Tables 7-5, 7-6, and 7-7, the skilled worker group and the labourer group are twice as likely to have high levels of job satisfaction compared to the foremen group, assuming that all the workers in the three groups equally perceive a positive safety climate. The variance influenced by the safety climate on job satisfaction among the labourers and skilled workers is higher than the variance in the case of the foremen. As per the current study findings, the skilled worker group and labourer group who believe that their site managers positively prioritize safety over productivity in the workplace are twice as likely to have higher job satisfaction levels compared to the foremen group. The reason

for this is probably that the labourers and skilled workers are more influenced by the safety orientation of site managers than the foremen. As per the organization and structure of work in most construction projects, the labourers and skilled workers are usually at the bottom level of the job organogram. They are the force and muscle that carries out the hard physical work on site, while the foremen—as senior workers—are tasked only with the supervision of the work without having to engage in the physical element. As a result of the precarious nature of the construction work done by labourers and skilled workers, as well as its inherent associated hazards, these two groups probably appreciate the safety priority exhibited by site managers more than the foremen do. In other words, these workers may positively receive the safety signals and messages expressed by site managers' behaviour onsite more than foremen. For instance, as documented by Alshebani and Wedawatta (2014) and from my experience and observations onsite, when the temperature in the region exceeds 40 degrees Celsius the workers would promptly welcome and embrace the care and attention of the site manager advising them to take rest. Nonetheless, the same safety attention can be received with less appreciation by the foremen, as they do not carry out their work under the sun in such high temperatures. Consequently, improved attitudes towards a site manager's safety actions result in higher levels of job satisfaction for labourers and skilled workers compared to foremen. On the other hand, job satisfaction may lead to safe behaviour onsite and improved productivity (DeJoy et al., 2010).

This proposed mechanism is better explained by the social exchange theory where transactions and interactions between work parties create a norm of reciprocity (Blau, 1960). In the current study, the favourable treatment by site managers is received by

labourers and skilled workers who respond in a similar favourable fashion, such as liking the job and behaving safely. This is in line with Huang et al. (2016) who have demonstrated that the safety climate directly impacts an employee's outcomes. The study used the social exchange theory to explain the impact of safety climate on an employee's outcomes in terms of job satisfaction and human resources outcomes in relation to employee engagement and turnover. Nonetheless, the relationship between safety climate and job satisfaction can work in reverse as well. A poor safety climate can lead to lower job satisfaction among an organization's members, whereas low job satisfaction can result in a poor safety climate. Therefore, it is incumbent upon safety practitioners, decision makers, and future researchers to consider the operationalization of safety climate and its subsequent corresponding job satisfaction levels.

7.4.4 Implications of the Study

The study findings augment existing knowledge and literature as they demonstrate that an improvement in safety climate can be positively associated with both health and job satisfaction. This, in turn, may improve work performance. Companies and decision makers should always promote a positive safety climate to yield better results concerning workers' health, job satisfaction, and ultimately, work production. DeJoy et al. (2010) have argued that safety climate might relate to outcomes which are highly important to an organization's performance and success (e.g. job satisfaction, engagement, and turnover). Another implication of the study is that it provides insights into the safety climate association with factors beyond ordinary health and safety outcomes (e.g. work-related accidents and diseases). Safety climate has been examined in relation to employees' outcomes, namely job satisfaction levels. Furthermore, the study has compared the findings

obtained from three worker groups. The current investigation has demonstrated that skilled workers' perception of the workplace safety climate is associated with the perception of their health condition. This is a crucial conclusion that can inform future intervention strategies targeting groups at higher risk of poor health. On the other hand, safety climate was found to be more clearly associated with job satisfaction among labourers and skilled workers compared to foremen, as demonstrated above. This is an important contribution to researchers' knowledge as well as that of safety practitioners and decision makers.

The current study has demonstrated that safety climate can be used as a reliable and proactive indicator that can benefit safety practitioners in examining workers' health status and job satisfaction levels. Moreover, companies should plan to invest more to ensure that site managers promote good safety practices. Site managers' safety behaviour and safety decisions have a direct influence on the workers' attitudes towards overall workplace safety. As such, this research makes an important contribution to safety climate literature by showing that migrant workers' attitudes towards safety are directly influenced by site managers' behaviour and prioritization of safety onsite. The migrant workers' attitudes towards site managers' safety prioritization simply determine whether workers would like their job or not, bearing in mind that almost 50% of surveyed migrant workers perceived safety climate as poor in their workplace. This is an alarming finding that must be taken seriously by organizations keen enough to promote safety climate and job satisfaction to improve work performance.

On the one hand, the current study has shown that safety climate is associated with an employee's outcomes in terms of job satisfaction. On the other hand, as per the current study findings, safety climate is not associated with safety outcomes in terms of

involvement in accidents. These are equally important findings that should be considered by both safety practitioners and decision makers to better plan for intervention strategies. The current study also provides contributions to existing literature and knowledge regarding psychosocial working conditions of migrant workers and the various constructs that safety climate may or may not influence within the organization. The current study also raises some concerns regarding migrant workers' perceptions of accident reporting and overall health conditions. It has been noted during the qualitative study and indicated in this quantitative study that workers are probably reluctant to disclose their experiences related to workplace accidents. As reported earlier, this can be due to the fear of being sacked from the project should the company find out that they have reported accidents. Therefore, future studies must account for this factor when designing data collection techniques.

As well, the current study has expressed concerns about the workers' perceptions of their overall health condition. The study has suggested that migrant workers are overly optimistic in rating their health since there is no consideration of psychological health aspects. Therefore, it is highly recommended that future research use objective data from hospitals for both physical and psychological wellbeing. It is also recommended that the research approach include observation methods in addition to interviews and questionnaires in the data collection process.

7.4.5 Limitations of the Study

The current study has resulted in findings that have crucial implications and are an important contribution to the literature and existing knowledge related to migrant workers in the region. Nonetheless, the study acknowledges a number of limitations. The cross-

sectional design of the study is a limitation that restricts generalization. The nature of the cross-sectional approach makes it difficult to draw causal conclusions. Collecting the data at one point in time prevents identifying the direction of the resulting relationships. To overcome this limitation, the current research has reviewed the existing literature and studies that used similar scales to measure the same outcomes. It is commonly known, though, that the most robust and valid method of research in this situation would be a longitudinal approach, which is appropriate for future studies. Another limitation is that the instruments used to measure workers' health assumed that the workers' health knowledge is reasonable enough to include psychological health conditions. Although this instrument has been used by previous studies (Idler & Benyamini, 1999; DeSalvo et al., 2006), future studies should establish a clear distinction between assessment of physical health and psychological wellbeing. It would add value to include clinical data in future studies. To assist in overcoming these limitations, the current study has adopted the mixed-methods approach. Initially, a qualitative study was carried out to identify concerns relating to migrant workers' psychosocial working conditions in the region. The outcomes of the qualitative study have informed the design of the subsequent quantitative study. This mixed-methods research design has proven to be more reliable and valid for similar types of research (refer to mixed methods in Chapter 3). For instance, the role of the site manager in shaping the attitudes of the workers as well as problems associated with job satisfaction are identified by the qualitative study. Accordingly, the subsequent quantitative study explores these areas as previously discussed.

7.4.6 Conclusion

Despite the limitations of the study, the findings provide crucial insights into psychological and psychosocial working conditions in relation to health and safety performance. The findings also demonstrate that improving the safety climate is key for fostering high levels of job satisfaction and promoting health. Interestingly, positive attitudes towards site managers' safety priorities improve workers' perceptions of their job and likely their productivity. This is essential for any company's success. Therefore, organizations and companies should implement proper interventions and measures to promote a positive safety climate in the workplace, emphasizing the role of the site managers in promoting good safety practices. The current study also expressed concerns in relation to accident reporting and workers' perceptions of their overall health. Future studies need to focus on exploring the probabilities of accident under-reporting and the reasons behind it. In addition, the study calls for further research using adequate psychometric measures to assess both the physical health and the psychological wellbeing of these migrant workers.

8 Chapter Eight: Discussion and Conclusion

The primary purpose of this chapter is to outline the aims of the investigation, the methodologies adopted, and the implications of the findings. The chapter will give a systematic presentation of the core issues. First, the reasoning behind these issues is stated, highlighting its importance in the referenced business. A section will follow stating the methodology used in the investigation and the reasons for selecting such a tool. A vital part of this chapter is raising all the research questions essential to paving the way for a sound and well-developed systematic research approach. A section then follows which discusses the main findings of both the qualitative and quantitative studies. It is vitally important afterwards to see what the research data, analysis, and postulated outcomes lead to. That section describes the extent of the potential impact and possible implications of the research for existing policies and the day-to-day practices adopted in the construction business. At the end of the chapter, strengths, limitations, and lessons learned will be outlined before the researcher's conclusions are laid out.

8.1 Aims of the Thesis

This thesis has the core aim of identifying stress-related working conditions and discovering how these conditions are associated with health and safety indices among migrant construction workers in the Middle East.

The study utilized a sequential research approach. This approach incorporates an initial qualitative study that informed the design of the subsequent quantitative study. The combined aims of the qualitative and quantitative parts of the study are as follows:

1. To identify work-related psychosocial hazards (stressors) from the viewpoint of migrant construction workers in the Middle East.
2. To explore relations between psychosocial hazard exposures and health and safety indices.
3. To explore relations between safety climate and indices of health, and safety.
4. To examine the health and safety correlates of a key work-related psychosocial hazard identified in the initial qualitative study: recruitment agent payments.
5. To examine cross-sectional relations between job strain on the one hand and perceived overall health, worksite accident involvement, and job satisfaction on the other.

8.2 Research Questions and Key Findings

The following qualitative research questions were developed upon reviewing the literature related to migrant workers' wellbeing in the construction sector in the Middle East, after determining the scarcity of research, and identifying the existence of knowledge gaps in this area of study. Moreover, the main findings related to each research questions are detailed.

What are the organizational stressors that migrant workers are exposed to in the construction sector in the Middle East?

The following organizational stressors emerged from the qualitative study:

1. High job demands manifested in heavy workload, poor working environment, and a hindering language barrier.
2. Poor management support that constitutes inadequate welfare provisions for workers and unattended complaints.

3. Financial strain induced by inadequate salary and payment/s that migrant workers are obliged to make to the recruitment agents back home.

How do migrant workers perceive the identified organizational stressors in relation to health and safety performance?

The study revealed that migrant construction workers perceived safety performance poorly, which was evident in the breaking of safety rules, accident under-reporting, and increased risk of workplace injuries.

How do migrant workers describe the potential effects of organizational stressors on organizational health?

Migrant workers reported evidence of poor organizational health induced by the above-mentioned organizational stressors. Poor organizational health was manifested in the desire to resign, low levels of job satisfaction, poor productivity, and job insecurity.

Can the themes identified in the qualitative study inform the subsequent quantitative study?

The findings of the qualitative study were utilized to inform the design and content of the subsequent quantitative study questionnaire.

The following questions guided the current quantitative study:

What is the prevalence of payments to local labour recruiters by migrant construction workers, and do prevalence rates differ by worker group (labourers, skilled workers, foremen)?

The study revealed that 59.1% of the labourers, 64.1% of skilled workers, and 52.0% of foremen had paid labour recruiters. It is noted that a higher percentage of the skilled worker group had made payments to recruiters compared to labourers and foremen.

How do migrant construction workers in the Middle East rate their overall health and what is their prevalence of involvement in worksite accidents?

The study revealed that 41.5% of labourers reported having an accident in the past 6 months. Similarly, 43.0% of skilled workers and 42.1% of foremen reported exposure to accidents. One out of ten migrant foremen perceived their health as poor, while 3.2% and 5.2% of labourers and skilled workers, respectively, perceived their health as poor.

Is the payment to labour recruiters associated with involvement in worksite accidents?

The inferential analysis revealed that both labourers and skilled workers (though not foremen) who had made payments to labour recruiters had elevated odds of experiencing workplace accidents in the past 6 months.

Is payment to labour recruiters associated with poor general health?

The study found links between payment to recruiters and risk of poor health among skilled workers. However, the association between payment to recruiters and poor health was not significant among labourers and foremen.

What are the indices of job strain categories among the three migrant construction worker groups (labourers, skilled workers, and foremen)?

The foremen reported the highest job strain at 29% (n = 36), followed by skilled workers at 19% (n = 64), while labourers reported the lowest exposure to job strain at 12% (n = 22). In the active job category, the three groups reported similar levels of exposure at

around 30% of the population in each group. The labourer group has also showed higher frequency in the low strain category at 24% (n = 46), whereas skilled workers' and foremen's frequencies were somewhat lower, at 23% (n = 77) and 21% (n = 27), respectively. In the passive category, labourers and skilled workers are equal at 30% and slightly higher than foremen at 28% (n = 35).

What are the correlates between job strain categories and poor health, accident involvement and job satisfaction?

Among labourers and skilled workers, high job strain was firmly established as positively correlated with poor health. As well, among skilled workers, high job strain was negatively correlated with job satisfaction. Similarly, active job type was positively correlated with poor health and negatively correlated with job satisfaction among skilled workers. Passive job type was negatively correlated with job satisfaction among the skilled worker group. However, among foremen, high job strain was negatively correlated with job satisfaction.

How do job strain categories affect migrant workers' health, involvement in accidents, and job satisfaction among the three workers group?

The study found that job strain (active type) is positively associated with poor health among skilled workers, while high strain is negatively associated with job satisfaction among skilled workers and foremen. In other words, skilled workers subjected to job strain are more likely to be at risk of poor health. On the other hand, skilled workers and foremen were more likely to exhibit low levels of job satisfaction. However, poor health and job satisfaction are not shown to be associated with job strain in the labourer

group. Moreover, no association has been determined between job strain categories and accident involvement among all three categories of migrant workers.

How do migrant workers in the three groups perceive the attitude of site managers towards health and safety onsite?

The study found that (50%) of the labourers believed that the safety climate was poor. However, slightly less than half of participants from the skilled worker and foremen groups perceived safety climate as poor.

What are the correlates between safety climate and poor health, accident involvement, and job satisfaction?

Throughout the course of this study, safety climate has been negatively correlated with poor health, but positively correlated with job satisfaction among labourers, foremen, and skilled workers. The study recognized no correlation between safety climate and workplace accidents for all respondents.

How is safety climate associated with migrant workers' health, involvement in accidents, and job satisfaction among the three worker group?

The study has identified that safety climate is negatively associated with poor health among skilled workers. In other words, skilled workers who perceive a positive safety climate are less likely to be exposed to risks of poor health. As well, safety climate can be positively linked to job satisfaction among all three migrant worker groups. Therefore, migrant workers who perceive a positive safety climate are more likely to exhibit high levels of job satisfaction.

8.3 Implications of the Study

This study—with all data collection, data analysis, and research postulations—has attempted to address a clear paucity of knowledge in the field of the health and safety of migrant construction workers in the Middle East. Accordingly, this study provides the necessary information and knowledge to introduce interventions targeting modifications to work design, management, and organization of work to identify and mitigate occupational health and safety risks associated with the existing psychosocial working conditions.

As stated in the beginning, the primary aim of this research was to identify the potential psychosocial hazards associated with the working conditions that migrant construction workers in the Middle East are experiencing. The ultimate target was then to identify and examine any possible links between the explored psychosocial hazards and health and safety outcomes. A mixed-methods research design was selected for the research investigation. An initial qualitative study was conducted, and the resulting findings subsequently guided the quantitative assessment. Interestingly, the investigation identified several psychosocial hazards and determined their potential impact on migrant workers' health and safety and beyond. This study has methodically and pragmatically recognized the direct links between the identified psychosocial hazards on the one hand, and health and safety performance and organizational health conditions on the other. These findings have crucial implications in connection with these existing hazards and their potential consequences in the future. The study attempts to tie the implications to existing policy, explores necessary future policy change aiming for remedy of current risks, and utilizes a versatile set of research approaches and best practices. Given that each of the previous chapters included a discussion section, the following sections present the implications only,

without extensive discussion of the findings in relation to existing literature and previous research

8.3.1 Implications for Research

In view of the knowledge gap and scarcity of research in the field of psychosocial working conditions of migrant construction workers in the Middle East, the current study targets the addition of important contributions to already existing, but scarce, research material. The implications of this study may speak to the research not only in the Middle East but also the home countries of the sampled migrant workers and beyond. The following sections present the significance of the current study in terms of research design and methodology, the measures applied, and the possible implications for future research. The implications are divided by chapter for clarity.

The study has utilized a series of different methodological approaches. As stated before, the mixed-methods approach proves beneficial to the validity and the integrity of a study in an exploratory field in a neglected area of research such as the one in question. In adopting this research method, the initial qualitative results have revealed significant insights into the context of the phenomena under investigation. Subsequently, the qualitative findings helped to establish the design of the quantitative settings. The qualitative study found evidence of high job demands, financial strain, and poor management support for migrant construction workers. Moreover, the qualitative research found a prevalent perception among migrant workers that these factors induced poor safety performance and contributed to poor organizational health. The quantitative study, as a result, focused on the empirical analysis to profile the key work stressors. Concurrently, the investigation examined possible correlations between the identified psychosocial

factors and indices of health and safety of the sampled groups of workers. In line with the expectations, the findings of the quantitative study indicated that job strain factors, safety climate, and payment to recruiters were independently associated with health and safety outcomes of migrant workers. Therefore, it is obvious that the mixed-methods approach used throughout the course of the study successfully reached significant findings that can pave the way for future research and interventions.

Mergler (1999) argued that the use of both quantitative and qualitative methods in a complementary study could contribute to a better understanding of the continuous changes that take place in the workplace, examine the worker situation, as well as provide the means for introducing suitable strategies for preventive interventions. This statement proved to be true in view of the current study. The findings obtained from both the qualitative and quantitative arenas broadly support Mergler's claim. Integrating the two approaches has clearly yielded an in-depth understanding of psychosocial challenges and their impact on migrant workers. This, in turn, enabled the identification of psychosocial hazards, as well as their potential links to health and safety performance and organizational health. In using a mixed-methods approach, the current study has joined a small number of studies in construction that followed this example. Zou et al.'s (2014) study traced the type of research methods used in the construction industry. Their work reviewed studies published in highly ranked journals and found that only 9 out of 88 used mixed methods. This small number of studies constitutes only around 10% of the whole. The study also called upon future construction research to utilize mixed methods in order to integrate university researchers with industry practitioners. These findings support the mixed-

methods research approach used in the current study, which proves to better incorporate research and practice than is otherwise possible using mono-method approaches.

Chapter 4 presents the qualitative study in which the focus group data collection technique was used. Various merits of this qualitative approach have been discussed in the methodology section in Chapter 4. However, among the essential benefits of this approach are the following:

1. It allows in-depth understanding of the meanings presented in participants' responses.
2. It is appropriate for exploring under-researched areas such as the working conditions of migrant workers in the Middle East.
3. It is flexible enough to express participants' opinions beyond the presented questions.
4. It allows the collection of in-depth and rich data, which may not be possible to obtain through other methods.

The point here is not to advocate for the use of qualitative research, but rather to practically show that the qualitative approach has proven useful for the study and yielded the required results. It is recognized that this approach has been widely used in occupational health psychology research and has proven to be an effective means by which to identify, analyze, and report themes in qualitative data (Galvin & Smith, 2017; Leka et al., 2011; Payne et al., 2012; Houdmont, 2012). Studies that use this approach are often unified by the fact that the paucity of evidence in their specific area warranted the use of qualitative methodology to identify stressors that might not have been captured using quantitative methodology alone. In this regard, a strong indicator that the qualitative approach is ideally

suitable for this under-explored area of the research is the recruiter payment stressor. This crucial psychosocial factor was identified as a concern during the qualitative study. Afterwards, it was included in the quantitative study, which has unveiled empirical evidence of the prevalence of this factor as a credible stressor. Furthermore, the investigation has demonstrated its association with health and safety outcomes. However, this important psychosocial stressor could have been missed if the initial qualitative study had not been conducted. Therefore, one of the research implications can be the successful selection, use, and administration of the qualitative approach.

It is worth mentioning that the study—in addition to using focus groups—has benefited from the utilization of Clarke and Braun's (2006) thematic approach for data analysis. One of the key implications of the qualitative study was the strategic links it found between psychosocial stressors, and workers' health and safety performance on the one hand, and organizational health on the other. Combining these two important outcomes was the correct method for this study. Although it is not always up to the researcher to dictate the significance of potential relationships between variables, it is still within the researcher's domain to choose certain important associations in line with the study objectives and its prospective contributions. The inclusion of safety performance and organizational health as indicators in the construction industry, in any research investigation, is especially important for organizations and other stockholders. It is fair to conclude that if these organizations are not willing to introduce the required interventions to improve their workforce's wellbeing, they now have a financial incentive to do so. Every entity's objective is to make a profit and remain competitive in the dynamic market. Therefore, it is more likely that organizations and other stakeholders will embrace the

findings of a study when, beyond a doubt, it demonstrates factors important to this entity's profit and its resilience capacity in the market. This is considered one of the key implications of the qualitative study. Such implications can also help bridge the gap between research and practice.

Informed by the findings of the qualitative study, the quantitative study has examined the prevalence of recruiter payments among migrant workers. To this end, the investigation has striven to follow a meaningful and reasonable approach. It has initially assessed the prevalence of recruiter payment, indicating that more than 58% of the sample population among the three worker groups had made such payment. Afterwards, the investigation proceeded to estimate the association of payment to recruiters and the workers' health and safety outcomes. This approach of a two stage-investigation has once again proven to be practicable and meaningful. This is reflected in the systematic approach of expressing the gravity of the problem in question at the first stage, and then moving on to demonstrate its evidence-based impact in a second stage. This approach can be influential, especially when immediate intervention is sought from the respective parties. Once again, the way the investigation was conducted is considered one of the important implications of the research. Future research may elect to follow a similar approach, and/or take the investigation farther. For instance, future research may elect to examine possible links that recruiter payment has with organizational health, job satisfaction, and job security.

The current research uses a single item for health self-rating, following Leineweber et al. (2010). This measure has been proven to predict morbidity and mortality in a variety of epidemiological investigations (e.g. Idler & Benyamini, 1999; DeSalvo et al., 2006).

The self-rated health approach was recently applied among Iraqi migrants in Sweden by Bennet and Lindstrom (2018). The study applied a single measure for assessing the health of migrants, and the results were consistent with clinical test data, thus indicating that the self-rated measure is undoubtedly reliable and valid. Similarly, the single-item measure of health was applied in the current study to ensure questionnaire brevity and encourage a higher response rate. Moreover, this study used single-item measures to assess other key variables, namely accident involvement and job satisfaction. In Wanous et al.'s (1997) meta-analysis study, overall job satisfaction was used to assess the reliability of single-item measures. Further studies support the psychometric properties of single-item measures to assess job satisfaction (Dolbier et al., 2005). These studies argued that it takes up less space, is more cost-effective, may contain more face validity, and is more flexible than multiple-item measures (Wanous et al., 1997). Within the current study context, the use of single-item measures to assess health, accident involvement and job satisfaction has proven easy to understand for respondents and straightforward for obtaining responses. Nonetheless, the validity and reliability of single-item measures should be acknowledged as a concern in the context of the current cross-sectional study.

The qualitative study also reported evidence of exposure to work stress caused by high job demands. In response to this concern, the quantitative study examined possible exposure to job strain applying Karasek's (1979) job demand–control model. The investigation then estimated the prevalence of job strain factors among the three worker groups in question. Such an estimation enables informed comparison between the groups' prevalence rates, allowing for conscious intervention targeted towards the most vulnerable. The investigation took a further important step to identify possible association of exposure

to job strain with the migrant workers' health and safety. The investigation did not stop at this point; rather, it was expanded to examine the association of job strain with job satisfaction. The findings revealed that high job strain was negatively associated with job satisfaction among skilled workers and foremen, but not among labourers. This finding paves the way for employers to explore the reasons job strain affects job satisfaction levels among certain groups and not others. The current research earlier described job strain and its links with health and safety outcomes among the three worker groups (refer to Section 6.6.2; Chapter 6). By identifying such links and comprehending their implications, caring organizations may take necessary steps to reduce their employees' exposure to job strain, keeping in mind that job satisfaction is one of the major factors influencing organizational health as indicated in the qualitative study (Section 4.8.4; Chapter 4). Several previous studies have found job satisfaction to be a predictor of staff turnover (Huang et al., 2016). Pauknerova et al. (2006) tied job satisfaction to work efficiency, while Judge et al. (2001) linked it to organizational outcomes. Lee and Moreo (2007) also saw it as a predictor of an organization's success. Therefore, examining the links between job strain and job satisfaction is crucial for organizations seeking to improve job satisfaction among their employees and positively act to resolve issues, thus achieving greater resilience and success in the market. Determining the links between job strain and job satisfaction in this study has distinctive implications. Future research may need to take the investigation further via an empirical examination of the relationship between job strain and organizational health, focusing on possible moderating effects of job satisfaction.

The qualitative study has also exposed concerns regarding site managers' behaviour and attitudes towards safety in the workplace. In an empirical investigation of this concern,

the study used Zohar's (2005) 16-item Multilevel Model to examine safety climate manifested in workers' perception of site managers' attitudes towards safety. However, the study only applied the 16 items for the conviction that it is sufficient for the objectives of this. A meta-analytic review by Alruqi et al. (2018) found that 34 of 107 studies used the supervisory safety response to measure safety climate. Interestingly, all the studies included in the meta-analysis were conducted within the construction industry, similar to the current study. The review found that the supervisory safety response is a reliable concept for measuring safety climate and subsequently predicting workplace injuries. The current study used the same measure of supervisor/site manager safety role to assess safety climate conditions in the workplace. The current study went on to examine safety climate as an important factor affecting psychosocial working conditions in agreement with previous studies (Zohar, 1980; Hofmann & Stetzer, 1998; Glendon & Litherland, 2001; Shannon et al., 2001). As reported earlier, one of the core aims of this study is to identify psychosocial working hazards on the one hand, and their relationship with workers' health and safety on the other. In conjunction with this, safety climate has also been examined in response to the concerns about site managers' attitudes towards safety raised by the qualitative study. Investigating the safety climate offers useful insights on site managers' attitudes and priorities when it comes to safety. Another reason to use the safety climate construct was its brevity, which ensured a high response rate. Besides, this measure offers the required insights related to site managers' role, behaviour, and attitude towards safety. It is worth reiterating here that safety climate is not the only factor examined during this research. Other psychosocial factors such as job strain, payment to a recruiter, and job satisfaction have also been investigated. Based on the findings of this study, selected site

managers' behaviour proved reliable as a determinant of the safety climate. Future studies may elect to adopt the same measure of safety climate, in addition to possibly using Zohar's entire multi-level model if the organizational climate is being investigated as well.

This investigation has estimated the status of safety climate among migrant workers. Approximately 50% of the examined sample population reported viewing safety climate as poor at the workplace. This approach of initial profiling of safety climate has substantial implications to both practice and research, as will be discussed in detail later in this chapter. The findings related to safety climate conditions are important for organizations and concerned project managers trying to see how to promote a positive safety climate. It has been noted that most existing literature on safety climate focuses largely on whether it predicts outcomes such as accidents, job satisfaction, and job performance among others (Siu et al., 2003; Siu et al., 2004; Lingard et al., 2010).. Safety climate independent of its links to possible outcomes is not widely explored in current research. The initial profiling for safety climate is a meaningful and practical way of "showcasing" safety issues more effectively. Therefore, the current set of findings can be seen to have great implications for current research.

After profiling for safety climate, the investigation took two additional steps:

1. Examining the potential relationship between safety climate and health and safety outcomes.
2. Exploring the links between safety climate and job satisfaction levels.

These findings have similarly important implications for the practice of construction safety management as they do for research in the field. Organizations which seek to improve their workers' wellbeing, prevent accidents, and enhance job satisfaction

need to improve safety climate as a prerequisite to attaining their objectives. Therefore, future research is urged to follow the same multi-level approach to investigation that has been successfully implemented in this study. Profiling for safety climate as a first step, followed by examining its relationships with health, safety, and job satisfaction, is an effective, empirically proven, and practically convincing approach. It would surely be convincing and beneficial to organizations in the construction industry.

8.3.2 Implications for Existing Practice

As previously stated, there is an existing paucity of knowledge in the occupational health and safety domain in the Middle East (Fass et al., 2017; Al-Tabtabai, 2002). Added knowledge in this area could usefully inform risk reduction practices via modification to the design, management, and organization of work as a means of intervention to protect and promote migrant workers' health and safety. The present findings are expected to have significant implications relevant to the wellbeing workers as well as the safety of the construction industry. This research may come to be of interest to organizations and companies, government authorities, the public sector, human resources managers, and health and safety practitioners.

The main qualitative study findings from Chapter 4 are discussed below alongside their respective implications.

High Job Demands

The study has found evidence of high job demands as perceived by migrant workers and showed that high job demands are linked to safety performance and organizational health. Upon examining task timeframes, this study has also determined that job demands gradually increased towards completion of projects. This finding is in line with Choudhry

and Fang (2008) and Hinze (1997) whose studies had a similar research focus. Both referenced studies found that work pressure and unreasonable work schedule usually force workers to engage in unsafe behavior and in seeking and taking shortcuts. A factor found to exacerbate the perception of high job demands was the communication breakdown at the workplace. Migrant workers tend to speak their native language, which is mostly Hindi; however, site managers tend to speak English. The communication breakdown between workers and their site managers was a factor in increasing risks of workplace injuries and discrepancies in work productivity. As noted by Loney et al. (2012), the low literacy of migrant workers and the language barrier in the Middle East might negatively influence health and safety performance. Moreover, the communication barrier exerts extra pressure upon migrant workers on a day-to-day basis, raising job demands even higher. According to these findings, the potential implications have far reaching effects, not only on workers' health and safety outcomes, but also on the production. Construction companies, as a result, may suffer the repercussions of workplace accidents on one hand, and production loss on the other. Therefore, the straightforward recommendations made by this study involve improving communications, setting reasonable schedules, and ensuring proper planning for the required resources during tendering and the very early stages of construction projects. Project managers should envisage all the potential challenges and delays and plan adequate time and resources accordingly. Safety practitioners and project managers are expected to explore and introduce solutions for any potential communication breakdown. For instance, the use of multiple languages for safety signage and safety procedures is recommended, in addition to the utilization of the translators at the workplace.

Poor Working Conditions

The qualitative study also revealed poor working conditions such as adverse weather, inadequate resource allocations, and unequal salary scales among migrant workers. The current study found that these factors can negatively affect workers' health and safety performance and organizational health. As part of the equity theory, Adams (1965) stated that employees who perceive inequality in pay exhibit negative behaviour such as absenteeism and desire to resign from the organization. In terms of weather conditions, Bates et al. (2009) stated that in GCC countries, hot weather posed a real risk of heat stress and other heat-related illnesses. Therefore, the potential implications of the current findings will require organizations to consider these factors during the planning and implementation of construction projects. Project managers should also ensure fair and equal salary scales among workers, proper allocations of work resources, and suitable work schedule arrangements during hot weather conditions. Human resources managers have a vital role to play in setting out equal and fair salary levels. Moreover, health and safety practitioners are required to arrange suitable working schedules during hot weather as well as regular medical checks on the workers' health conditions.

Financial Strain

One of the main findings of the qualitative study is the financial strain induced by poor salary scale and the payment/s that workers must make to local agents to secure employment in the Middle East. The reported low salaries combined with the payment obligations to recruiters create prevailing psychosocial stressors. There is evidence in previous research that migrant workers have exceptionally low salaries in the Middle East (Buckley, 2012). Suresh et al. (2017) found evidence of exploitative wages in the Middle

East among other factors of poor working conditions of migrant construction workers. Guldenmund et al. (2013) cited the same for Europe, while Leung et al. (2012) referenced that happening in other parts of the world. In addition to the impact of poor financial status upon the wellbeing of workers, there is a potential detrimental effect on the organizational health conditions in terms of job satisfaction and staff turnover. This finding coincides with that of Tnay et al. (2013) who found that job satisfaction related to pay was directly correlated to the rate of desired or actual turnover intention. Additionally, the payment obligation to local recruiters has a far reaching impact on workers' health and safety as will be detailed in the findings of the quantitative study. The recruiter payment factor will be discussed further in the upcoming sections.

Poor Management Support

The qualitative study revealed evidence of poor management support manifested in inadequate welfare provisions and unattended complaints. Within the context of the construction set up, site managers/supervisors are usually the representatives of the management at the workplace (Tan, 2008). Therefore, this concern about site managers' or supervisors' support at the site has informed the subsequent quantitative study. This finding imposes other important implications on organizations as it shows how much an organization cares about its workers' health and safety. The current study sides with the assertion made by Tan (2008) that supervisors reflect the organization's and management's views towards workers' health and wellbeing. Therefore, organizations seeking to improve their workers' health and safety should ensure adequate welfare provisions, address workers' complaints, and demonstrate adequate safety commitment.

Psychosocial Stressors and Organizational Health

One of the key findings of this study is the possible link between the identified psychosocial work stressors and organizational health. This finding reveals the potential negative impact of psychosocial stressors upon organizations' ability to operate effectively and remain competitive in the market. Poor organizational health is manifested in the form of low levels of job satisfaction, high levels of job insecurity, and high staff turnover. The current study has found evidence that psychosocial hazards/stressors can negatively affect job satisfaction and increase the feeling of job insecurity, probably leading to high staff turnover. Moreover, the study found that the identified psychosocial hazards are associated with safety performance in terms of increasing risk of injuries, accident under-reporting, and frequent breaking of safety rules and regulations. Therefore, it can be concluded that the qualitative study identified several psychosocial stressors (hazards) and their potential impact on organizational health and safety performance. There is plausible evidence in the literature supporting the findings of psychosocial hazards negatively affecting job satisfaction. Arshadi and Damiri (2013) found a negative relationship between job performance and job stress. They also established a positive relationship between job turnover intention and job stress. The literature shows that poor safety performance may create an undesirable perception of the organization, resulting in low job satisfaction (DeJoy et al., 2010). Huang et al. (2016) found that job satisfaction could predict the rate of employee turnover intention. Suresh et al. (2017), in a study conducted among migrant construction workers in Saudi Arabia, found that poor working conditions, unsafe site practice, and poor wages were among the factors that reduced job satisfaction, which, in turn, might affect productivity and work progress.

Several studies indicated that job satisfaction is considered a predictor for staff turnover and an organization's success (Huang et al., 2016; Pauknerova et al., 2006; Lee & Moreo, 2007). However, this study also found evidence that job insecurity is largely associated with safety performance and organizational health. When workers experience job insecurity, they are apt to engage in unsafe behavior which will lead to accident involvement and, ultimately, lower job satisfaction among employees. Probst et al. (2013) argued that the perception of job insecurity not only increases the likelihood of experiencing an accident at work, but also the likelihood that employees will choose not to report such an accident. From both literature and study findings, it is clear that psychosocial hazards are responsible for a vicious cycle of unsafe behavior which leads to accidents, resulting in lower job satisfaction and the rising intent of leaving the job. It has been established earlier that job insecurity, as a powerful psychosocial hazard, does negatively affect safety performance, and thus organizational health.

In conclusion of this discussion, and with due consideration to the causality and the direction of the relationship between variables, it can be agreed that psychosocial hazards (work stressors) are the antecedents to detrimental outcomes of poor safety performance, low job satisfaction, job insecurity, turnover intention, and ultimately, poor organizational health. In the Transactional Stress Theory, Cox and Griffiths (2010) adequately explained that when the effects of stressors as antecedents transcend the employee's coping capabilities, the detrimental physical, psychological, and behavioral outcomes are expected to manifest. In the case of this study, these outcomes include unsafe behavior, low job satisfaction, and intention to resign among others. This study has successfully obtained unique insights into negative psychosocial working conditions and their potential links

with organizational health and migrant workers' exposure to occupational health and safety risks. I believe this is one of the key strengths of this study. Therefore, the study concludes that these implications do affect existing practice and would undoubtedly instigate urgent modification for work design, work reorganization and diligent management. This would target the elimination of work psychosocial hazards and (where it is impracticable) at least the reduction of exposure to such hazards. Finally, what promotes the importance of these implications is the possible link of psychosocial stressors not only with migrant workers health and safety outcomes, but also with organizational health and companies' wellbeing and success. This element of the study's strength will encourage the targeted construction companies to introduce immediate interventions focused on curbing the mentioned psychosocial hazards. More importantly, this element will support the efforts of site managers and safety practitioners in improving safety performance for the benefit of migrant workers' wellbeing and organizational health.

Continuing the discussion on implications to practice, Chapter 5 reports on one key finding of the quantitative study which the payment to recruiters. This major factor in migrant workers' wellbeing will be further discussed in the following section.

Local Recruiter Payment

As informed by the findings of the qualitative study, the triangulation of studies revealed that the subsequent quantitative study supported the finding related to the prevalence of payments to recruiters. The key finding of the quantitative study showed that the majority (58%) of migrant construction workers are paying dues to a labour recruiter, and among participants, 40% have been exposed to worksite accidents. Between 3% (labourers) and 9% (foremen) perceived their health to be poor. Labourers and skilled

workers who are under obligation to pay a labour recruiter are more likely to have experienced a worksite accident in the previous 6 months. Skilled workers, but not labourers or foremen, who are under obligation to pay a labour recruiter are likely to be exposed to increased risk of poor health.

These findings reveal a two-fold set of implications. On the one hand, the study unveiled that most migrant workers are under the obligation of recruiter payments, and on the other hand, a link exists between such payments, workplace accidents, and the risk of poor health. According to the first part of the findings, migrant workers pay substantial sums of money to local recruiters to secure employment in one of the countries in the Middle East. Human Rights Watch (2006) has reported that migrant workers often pay an equivalent of their annual salary to these home recruiters. A study that investigated Indian migrant returnees concluded that home recruiters charge a fee that is more than 6000% higher than the legal maximum limit (Buckley, 2012). Another study conducted among migrant workers in Qatar found that 46% of participants were vulnerable to forced labour, debt bondage, and trafficking because of payment obligations to recruiters (Gardner et al., 2013). This practice of payment obligation is extremely concerning given the poor salaries migrant workers inherently earn. Migrant workers who lack the capital required to pay a labour recruiter usually take out one or more loans, often at a high rate of interest (Buckley, 2012). As a result, these workers may take several years to pay their migrant debts (Rajan, 2009). This payment arrangement constitutes a huge economic burden that results in high financial strain. This affirmation is in line with the findings of the qualitative study presented earlier. Importantly, the current study firmly establishes the link between the payment obligation to recruiters, accident involvement, and risks of poor health, thus also

establishing one of the key strengths of this study. The study, therefore, can firmly advocate that the implications of this payment practice have far reaching effects on all parties involved in the construction loop, and even beyond.

As a start, the migrant workers fall victim to the illegal practice of such payment (see UAE Federal Law 1980 for an example of legislation prohibiting the practice). Employing companies knowingly or unknowingly get involved in promoting and nourishing this negative practice. Human resources managers and project managers contribute to this practice by failing to follow legal channels to source construction workers. Authorities, both in the sending and receiving countries, become complacent or even turn a blind eye to the existence of this vicious cycle of workers' exploitation. Finally, human rights organizations, institutions, and researchers neither run adequate investigations nor produce firm evidence advocating the enforcement of adequate interventions to break and end these inhumane payment cycles. Jureidini (2014) stated that this payment practice largely exists in five sending countries, namely Nepal, Bangladesh, Pakistan, the Philippines, and India. With the construction boom in the Middle East that has been underway for decades, and the evidence that this practice existed decades ago (Randeree, 2008; Buckley, 2012), the magnitude of the recruiter payment problem can be huge, causing millions of migrant workers to be victimized. The production loss that companies might have suffered because of workplace accidents and occupational ill health can be attributed to the dangerous psychosocial stressor of recruiter payment. Paradoxically, managers and safety practitioners usually put a lot of effort into accident investigations aimed at preventing reoccurrences, but they tend to ignore identification and mitigation of such psychosocial hazards that possibly constitute the root cause of the

accidents. This claim is supported by Fass at el. (2017) who conducted one of the few studies in the construction industry in the Middle East. The study argued that very few pieces of research in the area focused on accident prevention and the actual root causes of accidents. Given the construction boom underway in the region and the huge number of migrant workers engaged in construction, urgent intervention is required to eliminate the practice of illegal payment to recruiters. All parties involved in the employment process should work collectively to fill the gaps used by recruiting agencies in the exploitation process. Companies and government authorities may make use of the evidence reported in the current thesis and similar research to make the necessary process modifications targeted to break the payment cycle. Companies may recruit workers directly or through approved legal agencies.

From personal experience that is worth sharing, some of the contracting companies changed the recruitment process after reading the paper that arose from this thesis regarding recruiter payment. Human resources managers now travel to the source countries to recruit workers to ensure no payment to third parties. This positive step may not eliminate the recruiter payment practice, but at least it can reduce workers' exposure to heavy payments and debt consequences. This intervention step taken by the contractors was considered a positive and practical intervention that can be implemented by other companies.

Local Recruiter Payment and Health and Safety Outcomes

One of the key strengths of this study regarding the practical implications is its design, which examined the impact of recruiter payment on the three groups of workers sampled. After estimating the prevalence of the recruiter payment practice, the investigation focused on identifying possible links of such payments to health and safety

outcomes. The current investigation identified the most vulnerable group out of the whole population of migrant workers. Among the migrant workers, skilled workers and labourers (but not foremen) were at risk of workplace accidents because of recruiter payment links. Furthermore, the study revealed that among the three groups of migrant workers, the skilled worker group is the one at risk of poor health. The plausible explanation of this disparity may be the nature of the skilled workers' jobs, which involve physical construction work such as carpentry, masonry, and block laying. It is, therefore, no surprise that the skilled worker group is the one actually at higher risk of poor health. Similarly, the skilled workers and labourers who are often engaged in physically demanding work are at higher risk of exposure to accidents compared to foremen, who are not usually subjected to physically demanding work. The plausible implications of these findings are worth further attention while remaining cautious regarding causality and possible moderation and mediation relationships.

The study does recommend, based on these conclusions, that safety practitioners and project managers pay more attention to screening the health of skilled workers and labourers. As this investigation has deduced, the recruiter payment obligation is associated with the health and safety of the migrant workers. This study proposes that future research could further examine the association of recruiter payments not only with health and safety, but also with job satisfaction, work performance, and other outcomes. Also worth exploring is the possible link of recruiter payment to symptoms of psychological ill health such as depression and burnout by using objective data, observations, and medical records. Future studies can be guided by the findings of the current study and existing literature that have

demonstrated links between psychosocial working conditions and psychological health (e.g. Bonde, 2008; Nieuwenhuijsen et al., 2010).

On the other hand, the qualitative study has indicated evidence of exposure of migrant workers to work-related stress in terms of high job demands. Such exposure and its potential consequences have been demonstrated in Chapter 6 of the quantitative study, which was designed to examine job strain factors using Karasek's (1979) Demand–Control Model.

Job Strain

Studies examining job strain among migrant workers in the Middle East are scarce. The current study succeeded in revealing significant findings regarding exposure to job strain, and it examined the possible consequences of job strain exposure for migrant workers' health, safety and job satisfaction. The findings indicated high strain among the foremen and the skilled workers at 29% (n = 36) and 19% (n = 64), respectively, compared with the labourer group at 12% (n = 22). The study findings show that job strain (active job type) is positively associated with poor health among the skilled worker group, while high strain has been negatively associated with job satisfaction among the skilled workers and foremen. However, it is not the case for the labourer group. It is noteworthy in the current research that job strain is not associated with exposure to workplace accidents. The study recommends that future studies further examine job strain in relation to accidents, bearing in mind the possibility of accident under-reporting factors while making use of any available medical data or site observations for their data analysis and evaluation. As stated earlier, the scarcity of research in this area of study has put some limitations on the data required to build the case for this investigation. The implications of this study have raised

issues pertaining to job-specific risk assessment, which organizations in the industry in the region should carry out. The focus should be on examining psychosocial work stressors and their possible links to health and safety outcomes and job satisfaction. Project managers and safety practitioners need to initiate direct intervention programs towards the vulnerable groups such as skilled workers. Organizations seeking efficient production and better organizational health and resilience must reduce workers' exposure to job strain to ensure job satisfaction and workers' wellbeing.

The following sections discuss the implications of safety climate and its associations with migrant workers' health and safety outcomes.

Safety Climate

One of the essential issues emerging from the findings of the initial qualitative study was the issue of site managers' attitudes towards health and safety. In addressing this concern, a cross-sectional investigation examined the relationship between the psychosocial safety climate as perceived by migrant construction workers and their health and safety outcomes. It is important to note that little discussion exists in research on the Middle East about psychosocial hazards, work-related stress, safety climate, and migrant workers' health and safety (Fass et al., 2017; Kronfol et al., 2014; Suresh et al., 2017; Al-Tabtabai, 2002).

The concern about site managers' attitude towards safety has been a focus throughout this study as one of the qualitative study findings. As a result, the research design was adjusted to incorporate the examination of the safety climate. The studies of Zohar (1980), Hofmann and Stetzer (1998), Glendon and Litherland (2001) and Shannon et al. (2001) all stressed the importance of safety climate as a factor, particularly when

addressing psychosocial working conditions. The consensus is that the conceptualization of safety climate often provides meaningful snapshots of an organization's preparedness towards addressing psychosocial hazards. It also indicates how much an organization cares about and maintains its workers' wellbeing. For this specific reason, the current study decided to examine the safety climate as an integral element of organizational health to fully comprehend fully existence of and exposure to the psychosocial hazards.

In agreement with Zohar's (1980) hypothesis, this study adopted the indicator of workers' perception of site managers'/supervisors' attitude towards health and safety. This indicator also measures safety climate conditions. As argued by Alruqi et al. (2018) and Lingard et al. (2012), this is because construction organizations are usually decentralized, and the role of site managers/supervisors in safety performance is crucial. In this paradigm, the group safety climate is entirely shaped by the attitude and behaviour of site managers/supervisors towards safety at the workplace. This greatly reflects on the decisions that site managers make about work and the priority they may place on safety. Zohar and Luria's (2005) study has established that the site managers' attitude and behaviour are largely driven by the company's policies and the extent to which the senior management is committed to safety. Therefore, the shared belief among migrant workers about their companies' commitment to their wellbeing is entirely driven by the site manager's behaviour and safety decisions at the site. It can be concluded that site managers' behaviour onsite is a crucial factor for overall safety performance in line with Lingard et al.'s (2012) argument. Therefore, it is fair to say that the current study has benefited to a large extent from previous studies in the safety climate domain (e.g. Zohar & Luria, 2005; Alruqi et al., 2018; Lingard et al., 2012).

Specifically defining the concept of safety climate is intended to fully clarify the implications of the study's findings. The current investigation revealed that almost 50% of the sampled migrant workers believed that the safety climate was poor onsite. This belief indicates the reality that their companies (represented by site managers) do not adequately care about their health and safety. The study deduced that the reason behind the site managers' safety negligence could only come from their focus on production at the expense of workers' health and safety. This led the workers to develop a negative perception of the whole company's commitment towards health and safety. This finding lays crucial implications at the feet of the construction industry. It is, therefore, the study's argument that if site managers set high safety priorities and incorporate the stipulated safety requirements into their production goals, the message to workers would be a positive one and a healthy site safety climate would improve production. In the construction industry, such scenarios of conflicting priorities (safety versus progress) arise more frequently because of tight schedules and a strict timeframe for project execution. Therefore, companies should practice better planning and project scheduling, and allocate adequate resources to assist site managers in achieving the desired production outcomes while maintaining the proper health and safety standards for their employees, thus promoting a positive safety climate. To reiterate, 50% of the workers perceived the safety climate at their company as negative. The study therefore has a set of important implications leading to a number of legitimate questions such as:

1. Why is safety climate perceived as poor among migrant workers?
2. Why is site managers' behaviour towards health and safety being received negatively by migrant workers?

3. How are companies' policies and procedures being implemented on sites?

Such questions will prompt a vital discussion and action, not only from project managers but from safety practitioners as well. The response expected should then target the improvement of site safety climate.

A review of safety climate literature showed that most studies focused on exploring links between safety climate and potential outcomes such as safety performance and work performance among others (Chen & Hyatt, 2017; Sui et al., 2004). To the best my knowledge, the previous studies rarely exhibited an emphasis on the initial profiling of safety climate prior to looking for relationships with potential outcomes. The current study meaningfully focused on exploring and measuring primarily the status of safety climate. The significant finding, as a result, indicated the association of safety climate and health and safety outcomes. It is incumbent upon safety practitioners to pay serious attention to the effects of such findings while running future job risk assessments. It is also my opinion that safety practitioners adopt the same approach in measuring the safety climate at each crucial interval throughout the lifespan of projects. It is not uncommon that during the project lifecycle, construction priorities change and so do the site managers' attitudes towards safety. Therefore, this study stresses the importance of measuring safety climate at different points in time throughout the project lifecycle for monitoring purposes (Zou & Sunindijo, 2010). It would then be possible to intervene in a timely manner in the case of degraded conditions of safety climate. Safety climate can be effectively used by organizations as a reliable and proactive indicator of workers' health and safety conditions at the workplace. This argument is in line with Ajslev et al.'s (2018) longitudinal study which demonstrated safety climate as a reliable predictor for workplace accidents.

Interestingly, this particular study used five items to measure safety climate. The current study used 16 items for examining safety climate, which was a relatively small number of questions aiming for a better response rate. It is, therefore, recommended that safety practitioners use a similar shorter questionnaire to measure safety climate frequently throughout the lifespan of the project as advocated earlier.

Safety Climate and Health and Safety Outcomes

The study has so far arrived at a clear identification of safety climate profile where its conditions are duly assessed and found to be relatively poor. The study then moved towards investigating the links between safety climate and health and safety outcomes. As indicated previously, the findings have revealed that safety climate is associated with poor health in the skilled worker group in particular. The study attributed the difference in findings among the three workers groups as largely related to the nature of the skilled workers' job in contrast to the two remaining groups. As discussed earlier, the role of skilled workers is psychologically and physically far more demanding than the other two. As the skilled workers are responsible for work progress at the site, it is expected that they are more susceptible to health risks caused by the demanding psychosocial working conditions. In other words, skilled workers, upon observing that site managers place a low priority on safety, are apt to feel vulnerable and widely subjected to occupational risks of poor health. The study reiterates the notion that site managers' behaviour towards health and safety is an important factor that is associated with skilled workers' health conditions.

The findings of the current study comport with that of several previous studies in relation to the links between safety climate and health conditions. A (2017) study conducted by Chen and colleagues among construction workers in Ontario, Canada, found

a negative association between safety climate and psychological stress symptoms. This study has supported the notion in agreement with Danna and Griffin (1999), as well as the assertion by Taylor et al. (1997) that health psychologists advocate that safety climate is an important component of a healthy work environment. Therefore, the implications of the current research are crucial to companies and project managers who seek to improve safety climate aiming to ensure workers' wellbeing. Such an endeavour would require concerned companies to introduce suitable interventions aimed at improving psychosocial working conditions, which are the prerequisite for a positive safety climate and enhanced workers' health conditions. Moreover, companies should address the safety climate alongside the health conditions of the skilled worker group. As one of the strengths of the thesis, the call for a role-specific assessment of the consequences of psychosocial factors is unique to this study. It has been demonstrated throughout the study that the skilled worker group is the main vulnerable one, while other psychosocial hazards, namely job strain and recruiter payments, have similar higher negative outcomes among workers in this vulnerable group. That is why this study calls for companies at large and safety practitioners in particular to closely monitor psychosocial work stressors in relation to health and safety of the skilled workers.

No single study conducted in the Middle East has reported on work-related stress and its consequence for migrant workers' health and safety. With a lengthy record in working in the field of health and safety, I have seldom encountered any organization in the construction industry that has incorporated stress management in its policies or procedures. This may come as surprising information given the boom in construction and the progressive development underway for decades in the region. In addition, Fass and

colleagues discussed in their (2017) study in the region that despite the precarious working conditions associated with the construction industry and the inherent risks in construction work, the research is unexpectedly scarce in the region. This current study would bridge existing gaps in research and practice in the field, and therefore place importance in its findings and implications. To that end, the current study demonstrated that safety climate could be a proactive indicator for occupational health status. In fact, the current study calls upon organizations to utilize proactive indicators such as safety climate rather than reactive indicators such as lost time, injury, or work-related ill health. This is an important implication that contributes positively to bridging the existing gap between research and practice.

The studies of Chen and Hyatt (2017), Sui et al. (2004), and Nahrgang et al. (2011) all establish a relationship between safety climate and workplace accidents. In contrast, the study has not established any significant relationship between safety climate and workplace accidents. This unexpected finding warrants further verification from any future research on the matter, keeping in mind that the qualitative study has shown the existence of accident under-reporting. For this reason, future studies must collect objective data from site medical clinics, accident records, and hospital records.

Safety Climate and Job Satisfaction

After profiling for safety climate and examining its link to health and safety, the current investigation explored the potential association of safety climate and job satisfaction. Safety climate is positively associated with job satisfaction levels. This means that migrant workers who believe that safety climate is positive are more likely to have high levels of job satisfaction. These findings support several previous studies, such as

those by Huang et al. (2016), Morrow and Crum (1998), Clarke (2010), and Michael et al. (2005). This study suggests that safety climate is linked to job satisfaction because when workers perceive that their companies positively prioritize safety, this perception gives rise to having good feelings about their jobs (job satisfaction). This line of reasoning is consistent with Clarke's (2010) argument that when a company adequately provides for safety, that usually improves the levels of job satisfaction among its workers. As concluded earlier, safety climate is driven by site managers' attitudes towards safety. That has significant links to the levels of job satisfaction among the workers. Corporate policies and safety procedures should ideally be reflected in site managers' behaviour and their direct decisions onsite. In his review of 30 years of related safety climate research, Zohar (2010) suggested that safety climate should be operationalized in view of other competing tasks or missions. Therefore, site managers must make conscious decisions in favour of site safety rather than purely progress-oriented preferences. However, organizations must set clear commitments, provide suitable planning, and allocate adequate resources to ensure site managers' positive behaviour and attitudes towards safety. Only with all these arrangements in place can a positive safety climate and, subsequently, high levels of job satisfaction be attained.

It is notable that the safety climate findings among skilled workers and labourers accounted for almost double variance (OR 7.13 95% CI 4.22–12.08) in job satisfaction than that of the foremen (OR 3.96, 95% CI 1.71–9.98). In other words, safety climate is twice as likely to be linked to the job satisfaction of skilled workers and labourers compared to foremen. Factoring in this vital finding, organizations must set priorities for intervention programs. Improving safety climate among workers will result in more chances to have

high levels of job satisfaction. This finding can also prompt informed comparisons of the effects of the group safety climate on role-specific job satisfaction levels.

Implications of the Role of Safety Practitioners

One of the significant implications of the study is related to the role of safety practitioners whose primary responsibility is the prevention of accidents and work-related ill health. The study's main strength stemmed from the links established between the identified psychosocial hazards and workplace accidents and ill health. Primarily, the research demonstrated evidence of some of the stress-related problems leading to accidents and work-related diseases. The research also established links between job strain, safety climate, payment to recruiters, and health and safety performance onsite. Moreover, factors such as high job demands, poor management support, and financial strain have been shown to be indicators of the level of safety performance and status of organizational health. It would be beneficial for safety practitioners to adopt this knowledge of psychosocial hazards in their development and implementation of accident prevention programs/activities. For instance, safety practitioners can make effective use of the insights and empirical evidence presented in this thesis on the profile of safety climate among migrant construction workers. As established earlier, this thesis has made further steps in the safety climate research paradigm by linking it to safety performance, poor health, and job satisfaction. Site managers' attitudes towards safety, as stated earlier, are a crucial factor in promoting a positive safety climate, reducing exposure to risks of accidents and poor health, and elevating the levels of job satisfaction. Therefore, safety practitioners and company managers should ensure that site managers and supervisors are leading by example in relation to safety behaviour. More importantly, the priorities that site managers

place on work progress and safety are instrumental in shaping workers' attitudes towards overall safety at the site. To prevent accidents and reduce the risks of ill health, all factors negatively influencing health and safety performance and workers' safety behaviour must be considered, and effective site safety programs must be devised and implemented by safety practitioners.

Practically, safety practitioners and project managers must adopt site stress management programs. At the very minimum, stress assessment and management can be achieved by using, for example, the UK HSE Executive Management Standards Indicator Tool (MSIT: HSE, n.d.). Furthermore, the safety climate measure adopted by this study has proven to be a very useful and practical tool in assessing site managers' attitudes influencing workers' perceptions of safety climate. Interestingly, this study revealed that approximately 50% of the sampled migrant workers perceive the safety climate as poor at the workplace, which is an alarming concern to safety practitioners. Of equal importance to safety practitioners is the link between safety climate, health and safety performance, and job satisfaction. Likewise, job strain measures have significant association with health ratings and job satisfaction.

From experience, I have noted that the duties of a safety practitioner include day-to-day observations, inspections, and frequent audits. Data collection of the daily observations by safety practitioners follows the same pattern. In addition, practitioners usually carry out analysis of their observations to identify the trends. Such analysis mimics the thematic analysis carried out as part of qualitative research. The only difference is that a review of literature typically precedes conducting research. This research emphasizes that safety practitioners and project managers should adopt the same research methodologies to

maximize the benefits of continuous improvement. The outcomes of this practice can be very useful and effective in earning their senior management's attention and support, since their reports will be fortified with convincing evidence that will compel senior management to adopt the proposed interventions and the necessary remedial actions. Such focused investigation and the resulting corrective actions can naturally lead to bridging the gap between research and practice which promotes more effective and lasting improvements.

In spite of the array of available safety climate research, there is little solid evidence that organizations are adopting research recommendations or proposed intervention strategies. This is documented especially in the Middle East, where the evident scarcity of research is coupled with a wide gap between research and practice. However, in the health and safety domain, I argue that there is a visible shift in managing health and safety performance. Currently used safety measures such as site inspections, supervision, personal protective equipment, and physical safety barriers are important but insufficient for preventing accidents. The attitudes and behaviours of workers, staff, and site managers towards safety are equally important in accident prevention. Therefore, safety climate as a shared belief among workers towards safety at the site is one of the main determinants of safety performance and job satisfaction.

As well, the current study has demonstrated the role of safety climate in attaining organizational objectives. Organizations led by their safety practitioners must seriously adopt relevant study findings, their implications, and proposed corrective actions. Therefore, the key implications of the current study are the 'showcase' of the research versus practice gap and the demonstration of how to bridge this gap.

To augment the findings of this research with personal experience, I was involved in a situation where a contractor in a recent project proposed adopting a novel methodology for carrying out electrical work in the construction project. The new method was immediately rejected, since it was unknown to the client's working team and not captured in any existing documented work procedures, although the contractor advocated for the benefits and merits of this new methodology. In my capacity as a safety practitioner, I was on the team assigned to review the new methodology, regardless of the collective inclination to reject the contractor's proposal. I advised the main electrical engineer to conduct some research exploring whether prior projects have adopted such methodology. The engineer was advised to use Google Scholar to obtain more information about the proposed method. The search produced several existing research papers on the issue and pilot studies that tested the reliability of the proposed method. The previous studies revealed a wealth of safety knowledge detailing the safe implementation of the new method. The small research conclusion was very satisfying to all parties involved in this project, and the contractor was given approval to use the proposed work method. As a result, considerable time and money was saved. It is noteworthy to mention that the new method proved to be safer than the conventional one used earlier in the project. This experience prompted the working team to be more engaged with the research area than before, and the management then offered undivided support trusting the team's decision-making capability. The lesson learned from this practical experience was to allow space for research and contemporary studies to inform decisions at the workplace. This experience, in a way, gave me confidence that the work carried out throughout this study can provide significant contributions to the improvement of work performance and safety

programs onsite. I therefore encourage safety practitioners and decision makers to make use of the current study findings and any relevant studies in the field. This way, the existing appreciable gap between research and practice can be bridged.

It should be noted that the findings and implications of this study are specifically relevant and applicable to the construction sector in the Middle East. Nonetheless, the outcomes of the current research could, to a large extent, add to the existing global literature. Individual studies normally build on existing literature while also adding their own new input. Therefore, the current findings and implications are expected to add value and knowledge to the existing practice in the Middle East and beyond, considering that the generalization of the findings may require longitudinal research or replication of studies. As is the case of every thesis conducted within an acceptable scientific standard, the current study obtained the targeted findings and insights into the chosen area of research, and therefore it is expected to produce equally important implications as discussed above.

8.3.3 Implications for Policy

This section reports on the potential implications of the current study's findings for existing policy, procedures, systems, standards and legislation. It will follow the same pattern of discussion as seen in previous sections.

Chapter 4 presents the qualitative study which identified several psychosocial stressors/hazards that have the potential to harm migrant workers' health and safety, as well as the overall organizational health. These findings have crucial implications for the legislation as well as organizational policies, procedures and standards. The first implication for legislation involves the need for an urgent review of the legal system as it pertains to health and safety in the workplace. The review should focus on whether current

legislation is adequate and enforceable. Relevant literature shows evidence of existing health and safety legislation, but the adequacy, specificity, and enforcement remain questionable (Suresh et al., 2017; Varia, 2011; Kronfol et al., 2014). Adequacy of the legislation constitutes the overall amount of legislation covering all aspects of the working and living conditions of workers. Enforcement requires close monitoring by competent authorities of both private and public organizations. Holding employers and organizations to responsibility and accountability is necessary to maintain higher standards of health and safety. Another element that must be considered in the legal system is the role of international organizations such as the Human Rights Watch, the United Nations, and the International Labour Organization. Such organizations' conventions are to be thoroughly reviewed for compliance and continuous improvement. For instance, several countries in the Middle East have been criticized for their poor human rights record, mainly regarding migrant workers (e.g. Amnesty International Report on Qatar, 2014). Therefore, the current findings and evidence from relevant literature call for urgent updating of the legal arrangements, their immediate review, and improvement of legislation, laws, and regulations. Another legal implication is the ratification of ILO occupational health and safety conventions. As discussed in Chapter 1 (Section 1-7), most of the countries in the region did not ratify all ILO (OHS) conventions (ILO, 2020). The current study calls upon all countries in the region to ratify and fully enforce these conventions' requirements.

Other implications of the current study's findings are related to organizations' policies and procedures. Organizations should devise health and safety management systems and procedures aiming to eliminate psychosocial hazards and reduce their impact. Furthermore, organizations should adopt the practice of auditing and certification to ensure

compliance of the set health and safety rules. As discussed earlier, the current study identified an association between several psychosocial hazards, workers' health and safety, and organizational health. It is, therefore, incumbent upon organizations to review the existing policies and procedures for adequacy and effectiveness. Most importantly, any policy and/or procedure developed to manage work-related stress must be effectively implemented, monitored, and subjected to continual improvement. The high job demand, poor management support, and financial strain findings of this study require adequate review and proper implementation of health and safety procedures to address.

Chapter 5 reports on one of the key findings of the quantitative study, namely the local recruiter payment that is a prevalent practice in the region. The study established the link between recruiter payment and health and safety performance. The implications of these findings involve two parties: organizations on one hand, and the authorities both in the destination country and the home country on the other hand. The organizations, if electing to contribute to the resolution of this problem, should modify their existing recruiting policies and procedures. The main aim of this modification is to eliminate the payment to recruiters made by workers. Organizations can ensure this through direct recruitment from the sending countries, or through approved and authorized agents. Moreover, the organizations should verify whether workers have made any repayment commitments to a third party. Legal action could be taken against any violating recruitment agents. Avoiding this sort of negative payment practice will save organizations a lot, since their employees' health and safety will stay intact and workers will not be burdened by such financial stress. With this conclusion, support from the existing literature has been found in studies by Sharma and Gupta (2012) and Xenidis and Theocharous (2014).

Moreover, authorities in the sending and hosting countries should have legislation in place that can govern the immigration process. Specific recruitment fees (if any) should be clearly stated in the regulations, and any deviations should be investigated and prosecuted. Moreover, stringent terms and conditions should be imposed on recruiting agents with the aim of ensuring a fair and transparent recruitment process. Authorities at both ends should make efforts to raise the awareness of those who seek employment against falling victim to misleading information and exploitation plots. In addition, one of the safeguards for workers' rights would be to allow the formation of trade unions and workers associations. Moreover, authorities in sending and receiving countries should initiate bilateral agreements to coordinate the monitoring of the recruitment process. Further research, ideally government-funded, can help shed more light on the causes of recruiter payment prevalence. Eliminating this harmful practice would have positive economic consequences not only for workers, but also for the national economies of their home countries. Moreover, future research should further explore the links between the recruiter payment practice and any relevant factors such as organizational health, job satisfaction, and job security.

Chapter 6 reports on exposure to job strain and the potential consequences in terms of health and safety performance and job satisfaction. The findings of this investigation can inform conscious intervention guided by specific policies targeting reduction of exposure to job strain. Naturally, urgent interventions should entail modifications of work design, management, and organization to improve psychosocial working conditions. However, this implication to practice needs development and implementation of policies and procedures devised to reduce exposure to psychosocial stressors/hazards. A stress

management policy should be the first to be crafted and implemented. Organizations in the Middle East should pay more attention to work-related stress and its consequences. In my view as a safety practitioner, companies in the region ignore work-related stress. However, legislation might also be inadequate pertaining to this important area. Therefore, a lot of work is needed from companies, authorities, and researchers to tackle the current absence of stress management policies and procedures. The current thesis is considered among the first that investigated this area of research. A lot of further research is required to provide more insights into migrant workers' psychosocial working conditions. It should be noted that research is the driving factor for intervention, as it provides the data, evidence-based findings, and recommendations needed to devise informed intervention strategies.

Chapter 7 presents the profile of safety climate and its links to health and safety outcomes, as well as job satisfaction. The findings revealed that half of the participants perceived that safety climate manifested in site managers' attitudes towards safety was poor. Organizations that seek improved psychosocial working conditions must promote a positive safety climate. Therefore, organizations should ensure that site managers' attitude towards safety is positive. This cannot be achieved without modifications to an organization's policies and procedures, as these must demonstrate true safety commitment. As suggested by Zohar and Luria (2005), organizations' top management often sets policies and procedures that set the reference for site managers'/supervisors' behaviour and attitudes in daily work. Therefore, in line with the current findings, organizations must make the necessary amendments to the existing policies particularly in the domain of supervisor recruitment and competence.

Moreover, the current thesis found links between safety climate and health and safety outcomes and job satisfaction. These findings are expected to have crucial implications for policy, as they empirically demonstrate the association of site managers' attitudes towards safety with migrant workers' health and safety performance and job satisfaction. Practically, organizations that seek to improve health and safety performance and job satisfaction should first improve the safety climate. The first intervention should be the development and implementation of effective work stress management policies. Organizations must then institute safety climate measuring programs to ensure it is being monitored. In addition, organizations should introduce comprehensive safety training and competence enhancement programs for site managers and supervisors. More importantly, organizations should have regular safety audits driven by senior management to ensure adequate safety commitment. Therefore, it can be concluded that the current findings call for urgent modifications to the existing policies and procedures of organizations that seek to have improved safety performance, high levels of workers' job satisfaction, and, ultimately, desirable organizational health.

8.4 Limitations of the Study

Despite the importance of the study findings and implications, certain limitations must be acknowledged as indicated earlier in previous chapters.

First, the use of self-reporting questionnaires in cross-sectional research design is an indication of possible Common Method Variance (CMV) where the variance might be attributable to the measurement method, rather than to the constructs the measures represent. However, several procedural remedies have been applied throughout the study aiming to decrease the possibility of having the problem in the research. These remedies

included the use of anonymous responses, as well as the use of established scales. One of the main remedies for CMV is the use of longitudinal rather than cross-sectional research. However, because of time and cost constraints, the current study reluctantly refrained from using the longitudinal research approach since the study was self-funded and no financial assistance was available. Future studies should consider using longitudinal research design to avoid possible CMV.

The second limitation is the use of single-item measures and the associated reliability and validity concerns. Nonetheless, the established single-item measures have been applied to ensure questionnaire brevity to generate the desired response rate. Given the objective of the research to explore and take a snapshot of the subject under investigation, the single-item measure is effective and in line with the conclusion of Wanous et al. (1997). However, future studies could carefully use single-item measures and multi-dimensional measures either alone or in combination, depending on research objectives.

The third limitation is that the study measured current health status which prevented it from controlling for the possible influence of the pre-migration health condition. Future studies should measure the perceived changes in health status over time and, where possible, take a measure of the health pre-migration.

The fourth limitation is related to accident involvement which was measured by asking participants if they had been involved in any accidents over the previous 6 months, and if so, to state the number. However, future studies may consider adjusting the instrument to indicate how many accidents the participants witnessed rather than experienced themselves. That may be a more concise and meaningful indicator of the safety

performance conditions onsite, since people are more likely to be honest about accidents that happened to others.

The fifth limitation is that the data collected for this study is only representative of a single project. Sample extrapolating of this magnitude to represent the whole construction industry of the Middle East is a concern to generalization. However, it was confirmed that the findings of the current study are in line with similar studies conducted in the region (Jureidini, 2014; Randeree, 2008; Robertson & Lamm, 2008). That said, more studies in various projects in the construction industry are warranted to validate the current findings and allow for valid generalization. Moreover, future studies may elect to use Structural Equation Modeling techniques for analysis of large datasets such as the one collected for this study. Structural Equation Modeling (particularly in behavioral science) provides a useful framework for the analysis of large datasets, and it comprises various conventional analyses such as factor analysis and regression analysis (Chou & Bentler, 1995). Considering the findings of this thesis which have demonstrated the prevalence of psychosocial stressors and their potential consequences, further investigation is warranted to enable practical interventions that will eradicate or at least reduce exposure to such stressors. This study strongly recommends that future researchers extend their investigations by adopting the longitudinal design with the aim of coming up with findings and interventions strategies to improve the psychosocial working conditions of construction migrant workers.

8.5 Strengths of the Study

Several points of strength have been presented throughout this investigation. These points can be listed as follows:

1. The key strength is the originality and novelty of the study given the scarcity of research on migrant workers in general, and in the Middle East in particular. The current study provides valuable insights into the psychosocial working conditions of a vulnerable and ignored population, namely migrant workers in the region.
2. Crucial psychosocial hazards were identified by the investigation. Furthermore, the study found links between these psychosocial hazards and important consequences, such as health and safety performance, job satisfaction, and organizational health. These findings have crucial implications not only for migrant workers' health and safety, but also for organizations' existing policies and respective countries' current legislation.
3. The study also provides vital findings that can have implications for national and international policy in relation to migration processes and migrants' working conditions.
4. The mixed-methods research design used in this thesis is also considered a strength, producing significant implications for future research.
5. The current investigation utilized a role-specific assessment of the relationship between psychosocial hazards and health and safety outcomes. This assessment allows for comparison of the different worker groups' behaviour in response to exposure to psychosocial hazards. Besides, the role-specific assessment helps to identify the vulnerable groups among workers, enabling informed and targeted intervention programs.

6. The thesis findings provide salient implications aiming to bridge the gap between research, theory and practice.
7. The thesis findings and pertinent implications can possibly attract the attention of the various stakeholders involved in construction projects. In other words, the thesis has usefully addressed concerns of migrant workers' health and safety, organizational health factors, existing migration problems, legislation inadequacy, and current migration process shortfalls. The combination of these factors presents an important strength and valuable contribution to existing knowledge, current policy and practice.

8.6 Concluding Remarks

As has been stated earlier, the main objective of the current investigation is to shed light on the psychosocial working conditions of the migrant workers in the Middle East. This area of research has seldom received the necessary attention. Only a few studies have specifically addressed the issue in the region. However, this limited number of studies has focused on investigating workplace accidents with little emphasis on the psychosocial factors (i.e. Fass et al., 2017 and Al-Tabtabai, 2002). Other studies, such as those by Kronfol et al. (2014) and Nadim et al. (2016) have focused on migrant workers' health while, for example, Buckley (2012), Jureidini (2014), and Randeree (2008) have limited themselves to the description of the poor working conditions of migrant workers. However, no single study has examined the psychosocial working conditions of migrant workers within a wider context, such as health and safety outcomes, job satisfaction, and organizational health.

To satisfy this knowledge gap and address existing research limitations, the current study set out to identify the potential psychosocial hazards that are associated with the working conditions of migrant workers. The investigation then expanded to include identifying the potential consequences of exposure to the psychosocial hazards in question. To achieve that, the current investigation adopted the mixed-methods approach where the findings of the qualitative segment of the study informed the design and content of the subsequent quantitative segment. The qualitative study revealed significant psychosocial hazards, namely high job demand, poor work environment, poor management support, and financial strain. It additionally revealed possible links between these psychosocial hazards, safety performance, and organizational health. Subsequently, a quantitative study was designed to further investigate these hazards and to examine their imposing consequences. The quantitative study established significant associations between psychosocial hazards and health and safety outcomes. An equally important later investigation demonstrated the possible association between psychosocial stressors and organizational health and safety performance. Once again, in an extended strategic investigation step, the research provided significant insights into the safety climate domain and succeeded in identifying its links to health and safety performance and job satisfaction. As well, the research unveiled important findings in relation to the recruiter payment practice and its detrimental consequences for the migrant workers' health and safety. Job strain, as a dominating factor, proved to be associated with workers' health and safety outcomes and job satisfaction.

Several implications have been highlighted in relation to current practice, existing policy and procedures, and for future research purposes. One of the key implications of this research was prompted by the revealed insights into the migrant workers' psychosocial

working conditions. Such knowledge can be beneficial to all stakeholders in the construction sector who seek to make effective modifications to work design, organization, and optimization of management practices with the aim of improving the health and safety of their workers. Furthermore, the examination of the recruiter payment practice throughout the course of this study proved to be crucial as it poses serious implications. Organizations and immigration authorities in both the sending and the receiving countries must make necessary amendments to their laws, regulations and procedures to curb the impacts of this harmful practice. The links this study established between psychosocial hazards, safety performance, job satisfaction, and organizational health are equally important and are expected to have far reaching implications. Based on such findings, the study calls upon organizations in the construction sector to frequently examine these psychosocial hazards and their potential consequences. The current thesis outlined two urgent motivating factors that may inspire organizations to eliminate or reduce psychosocial hazards in the workplace. The first factor is ensuring migrant workers' wellbeing in accordance with relevant procedures and legislations. The second motivating factor is the mitigation of the negative impact of any psychosocial hazards on the organization's health that may undermine its success in the market.

Finally, the findings of the current thesis have practical implications for safety practitioners and project managers who are keen to improve site safety performance and raise job satisfaction among workers. This study addresses the gap in existing literature to a great extent, particularly in relation to psychosocial working conditions and their potential negative consequences. Indeed, this thesis adds crucial insights to research areas such as migrant workers' health and safety, safety climate, job satisfaction, job strain, and

organizational health. This work opens the door for further investigations into the newly raised issues stemming from the psychosocial working conditions of migrant workers. Most importantly, this study's design, structure, findings and implications contribute to bridging an existing gap between research and practice in the construction sector.

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List of Appendices

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Appendix (A) Participant Information Form (Participant Ethical Rights)



Institute of Work, Health & Organizations

Participant Information Form

This interview forms part of a project being undertaken by Haitham Abdallah Hassan as part of a PhD in Workplace Health at the Institute of Work, Health & Organisations (I-WHO), which is a postgraduate institute of applied psychology at the University Of Nottingham, UK.

The overall purpose of the project is to identify problematic aspects of work and relations between these and the health of workers, as well as implications for health and safety in the organisation. The findings will be used to make appropriate recommendations for the enhancement of the health and wellbeing of workers in the construction industry in the Middle East region.

The purpose of this interview is to identify problematic aspects of the work environment from the perspective of construction workers. The interview will last between 1 and 1.5 hours. It will be recorded, if you are in agreement. The recording is purely to assist the interviewer in remembering what has been said and to save time during the interview. You may request that the recorder is switched off at any point during the interview. The content of the recording will not be disclosed to anyone beyond the research team, and the recording will be destroyed at the end of the project.

You may terminate the interview at any stage and withdraw your consent for the use of information gained from the interview.

Any personal material from your interview or reference to your organization that is used in project reports, academic papers, and feedback will be quoted anonymously, and anything that could identify you will be removed.

During the interview, you will be asked about your own experiences. You do not have to answer any question that you find upsetting and the interviewer will respect your decision. However, the interviewer is not a trained counsellor and if you find that you are upset during the interview or at some later time, you should approach the HSE team (0502604963).

Thank you for agreeing to take part in this interview.

Appendix (B) Interview Consent Form

Institute of Work, Health & Organizations

Interview Consent Form

I, the undersigned, agree to be interviewed as part of the project detailed in the attached applicant information form. By agreeing to take part in the session, I give my approval. I have been given an explanation of the study and have been assured that:

- I will not have to answer any questions that I find upsetting.
- I may withdraw from the interview at any time without having to justify my decision and may withdraw my consent for the use of any information already gained from the interview.
- I may switch off the recording device at any time during the interview.
- The content of the recording will not be disclosed to anyone outside the research team and will not be used for any purpose outside this project. The recording will be destroyed at the end of the project.
- Any material used in project reports, academic papers or organisational feedback will be used anonymously and will not identify me in any way.

Name of interviewee..…… Signature…… Date…….

Organization name……

Contact Details:

Study supervisor's name:	Jonathan Houdmont
Email address:	Jonathan.houdmont@nottingham.ac.uk
Telephone number:	00447977142860
Name of the researcher:	Haitham Abdalla Hassan
Email address:	lwxhah@nottingham.ac.uk Telephone: 0506286163

Appendix (C): I-WHO Ethics Committee Approval

Institute of Work, Health & Organisations
http://www.nottingham.ac.uk/iwho

The University of Nottingham
UNITED KINGDOM · CHINA · MALAYSIA

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11/07/2012

Dear Haitham

I-WHO Ethics Committee Review

Thank you for submitting your proposal on "Safety climate and safety performance amongst immigrant construction workers in the Arabian Gulf Region: The moderating role of work-related stressors". This proposal has now been reviewed by I-WHO's Ethics Committee to the extent that it is described in your submission.

I am happy to tell you that the Committee has found no problems with your proposal. If there are any significant changes or developments in the methods, treatment of data or debriefing of participants, then you are obliged to seek further ethical approval for these changes.

We would remind all researchers of their ethical responsibilities to research participants. The Codes of Practice setting out these responsibilities have been published by the British Psychological Society. If you have any concerns whatsoever during the conduct of your research then you should consult those Codes of Practice and contact the Ethics Committee.

You should also take note of issues relating to safety. Some information can be found in the Safety Office pages of the University web site. Particularly relevant may be:

The *Safety Handbook*, which deal with working away from the University.
http://www.nottingham.ac.uk/ssafety/
Safety circulars: Fieldwork P5/99A on http://www.nottingham.ac.uk/safety/fieldwork.htm
Overseas travel/work P4/97A on http://www.nottingham.ac.uk/safety/overseas.htm
Risk assessment on http://www.nottingham.ac.uk/safety/risk-assessment.htm

Responsibility for compliance with the University Data Protection Policy and Guidance lies with all researchers.

Ethics Committee approval does not alter, replace or remove those responsibilities, nor does it certify that they have been met.

We would remind all researchers of their responsibilities:

- to provide feedback to participants and participant organisations whenever appropriate, and
- to publish research for which ethical approval is given in appropriate academic and professional journals.

Yours sincerely

Nadina Lincoln

Professor Nadina Lincoln
Chair IWHO Ethics Committee

Appendix (D): Debriefing of the Study and Questionnaire

Institute of Work, Health & Organizations

Research Questionnaire

Introduction

This questionnaire forms part of a project being undertaken by Haitham Abdallah Hassan as part of a PhD in Workplace Health and Safety at the Institute of Work, Health & Organizations (I-WHO), which is a postgraduate institute of applied psychology at the University Of Nottingham, UK.

The overall purpose of the project is to identify problematic aspects of work in construction projects and relations between these and the health of workers, as well as implications for health and safety in the organization. The findings will be used to make appropriate recommendations for the enhancement of the health and safety of workers in the construction industry in the Middle East region.

I would be very grateful if you could answer the questions and hand over the completed questionnaire to me. Please call me once you complete the questionnaire on the phone number shown next to my name. Before you complete the questionnaire, please read the following:

- The results are entirely anonymous; you will not be asked for your name.
- A summary of the results may be given to your organization upon request, but no individual answers will be disclosed; your answers remain confidential to me and my research supervisor at the University of Nottingham.
- The results of the study may form the basis of a future academic journal article.
- All data will be stored in accordance with the Data Protection Act of 1998 in the UK.
- Your contribution is voluntary; you do not have to participate if you do not want to.
- This study has been approved by the Research Ethics Committee of the Institute of Work, Health and Organizations at the University of Nottingham.
- The questionnaire should take you only 10–15 minutes to complete.
- A summary of the findings will be available from the researcher on request, please use the contact:

Researcher: this research is being conducted by Haitham Hassan (0506286163), a PhD student at the University of Nottingham. Contact details: Tel: 0506286163 Email: lwxhah@nottingham.ac.uk

Supervisor: the academic supervisor for this research is Dr. Jonathan Houdmont, Lecturer in Occupational Health Psychology at the University of Nottingham. Contact details: Email: jonathan.houdmont@nottingham.ac.uk

Questionnaire:

(A) Please answer the following questions which are about yourself (Demographic information):

1. What is your job? Helper☐ Skilled worker ☐ Job Performer ☐

2. How long you have been with the current company? ☐ less than 6 months

☐ more than 6 months ☐ more than year

3. How many years of education do you have? ☐ years

4. What is your age? E.g. 25 years. ☐ years

5. What is your marital status? Single ☐ Married ☐ Divorced ☐

6. How many dependents are living with you back home? E.g. Kids, elderly relatives, disabled person/s. ☐ persons

7. What is your nationality? ☐

(B) Below are several statements about your direct supervisor; you may agree or disagree with these statements. Please circle one.

Example:

My direct supervisor: comes to work every day.

☐ Disagree strongly ☐ Disagree a little ☐ Neither agree nor disagree ☐ Agree a little ☐ Agree strongly

My direct supervisor:

1. Makes sure we receive all the equipment needed to do the job safely.

☐Disagree strongly☐Disagree a little☐Neither agree nor disagree☐Agree a little☐Agree strongly

2. Frequently checks to see if we are all obeying the safety rules

3. Discusses how to improve safety with us

4. Uses explanations (not just compliance) to get us to act safely

5. Emphasizes safety procedures when we are working under pressure

6. Frequently tells us about the hazards in our work

7. Refuses to ignore safety rules when work falls behind schedule

8. Is strict about working safely when we are tired or stressed

9. Reminds workers who need reminders to work safely

10. Makes sure we follow all the safety rules (not just the most important ones)

11. Insists that we obey safety rules when fixing equipment or machines

12. Says a "good word" to workers who pay special attention to safety

13. Is strict about safety at the end of the shift, when we want to go back to camp

14. Spends time helping us learn to see problems before they arise

15. Frequently talks about safety issues throughout the work time

16. Insists we wear our personal protective equipment (PPE) even if it is uncomfortable

(C) Below are several statements which you may agree or disagree. Please circle one

1. Different groups at work demand things from me that are hard to combine

☐ Never ☐ Seldom ☐ Sometimes ☐ Often ☐ Always

2. I have unachievable deadlines or work targets

3. I have to work very intensively

4. I have to neglect some tasks because I have too much to do

5. I am unable to take sufficient breaks

6. I am pressured to work long hours

7. I have to work very fast

8. I have unrealistic time pressures

9. I can decide when to take a break

10. I have a say in my own work speed

11. I have a choice in deciding how I do my work

12. I have a choice in deciding what I do at work

13. I have some say over the way I work

14. My working time can be flexible

15. I work for very long working hours daily

(D) The following question is related to stress at work. Please circle your answer.

1. How stressful do you find your job?

☐Not at all stressful☐Mildly stressful☐Moderately stressful☐Very stressful ☐Extremely stressful

2. How do you find working in the current hot weather?

☐Not at all stressful☐Mildly stressful☐Moderately stressful☐Very stressful ☐Extremely stressful

(E) Below are several statements with which you may agree or disagree. Please circle one.

1. I am satisfied with my job

☐ Disagree strongly ☐ Disagree a little ☐ Neither agree nor disagree ☐ Agree a little ☐ Agree strongly

2. I am satisfied with the food being served in the camp

3. Sometimes we have to break safety rules in order to complete the job in time

4. I think all my colleagues and crew members are competent for the job

5. Safety training provided by the company fits the job that we do

(F) Please answer the following questions:

1. Have you been involved in an accident or near-miss incident of any kind at work, but did not require absence from work in the last 6 months?

☐ Yes ☐ No

2. If yes, how many times? ☐ Times

3. How many times in the last 6 months have you been hurt in a specific accident (from the following) where you had to stop working for one hour or more?

"Strains or sprains, cuts or lacerations, burns, bruises or contusions, fractured bone, dislocated joint, pinch, hit, collision, electrical shock, fall on same level, fall from height, object in the eye, cut or scratch, violent threat, overstrain, being buried" ☐ Times

4. Did you pay money to an agent back home to get this job? ☐ Yes ☐ No

5. If yes, did you borrow that money? ☐ Yes ☐ No

6. How many hours do you work daily excluding commute from the camp? ☐ Hours

7. What is the daily commute time from the camp? ☐ Hours

8. How do you rate your general state of health? Please circle one answer.

☐ Very good ☐ Good ☐ Neither good nor bad ☐ Poor ☐ Very poor