Challenges and Opportunities in Safety Compliance for Saudi Arabian of MSMCs in Construction

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ABSTRACT

The construction industry in Saudi Arabia, like many developing countries, has a high rate of accidents, and MSMCs are disproportionately affected due to limited resources, a lack of expertise, and competitive pressures that prioritize cost reduction over safety. This research paper examines the challenges and opportunities faced by Micro, Small, and Medium Companies (MSMCs) in complying with safety regulations in the Saudi Arabian construction industry. The study employed a mixed-methods approach, combining quantitative data from questionnaires with qualitative insights from interviews with industry professionals. Quantitative analysis highlighted specific challenges, while qualitative analysis revealed the complexities and contextual factors contributing to these challenges. The study identifies 15 major occupational health and safety problems faced by MSMCs. These problems include a lack of skilled workers, employee constraints, communication gaps, reliance on temporary workers, high competition, limited access to external advice and support, constraints related to market share, time, and finances, limitations in business expertise, the absence of dedicated safety personnel on construction sites, low educational levels, employers' lack of safety knowledge, a dearth of safety motivation and campaigns, and the tendency to prioritize profit over safety in project tenders. Poor communication, financial constraints, and the competitive nature of the industry, which pressures MSMCs to cut costs at the expense of safety, were identified as key challenges. The paper concludes by offering recommendations to address the identified safety challenges. These recommendations include developing targeted training programs, providing financial support for safety equipment and training, and fostering partnerships with larger firms to share safety resources.

Keywords: challenges, opportunities, safety compliance, micro small and medium companies

INTRODUCTION

The construction industry is widely recognized as one of the most hazardous sectors globally, characterized by a high incidence of workplace accidents, injuries, and fatalities (Akcay & Arditi, 2022). This inherent risk is particularly pronounced in developing countries like Saudi Arabia, where safety management practices often lag behind more developed nations (Wahab et al., 2019). Within this context, Micro, Small, and Medium Companies (MSMCs) constitute a significant portion of the Saudi Arabian construction landscape, accounting for over 95% of all registered construction entities (Unnikrishnan et al., 2015 & Downes et al., 2017). While MSMCs play a crucial role in driving economic growth and job creation, they often face unique challenges in implementing robust safety protocols, primarily due to limited financial resources, lack of specialized expertise, and competitive pressures that prioritize cost-cutting measures over safety investments (Goetsch, 2012 & ILO, 2020).

The high rate of accidents in the Saudi Arabian construction industry is a pressing concern, as evidenced by the General Organization of Social Insurance (GOSI) statistics, which reveal a disproportionately high number of incidents occurring within this sector (Mosly, 2015; Azmat & Saad, 2018 & Suresh et al., 2017). MSMCs, in particular, experience a higher frequency of accidents compared to larger companies (Unnikrishnan et al., 2015), highlighting the urgent need to address the safety challenges within these organizations. Studies have attributed this elevated risk to various factors, including a lack of safety awareness among both employers and employees, inadequate safety training programs, and a tendency to perceive compliance with safety regulations as an unnecessary burden (Zoghi, 2017; Williams et al., 2019). Moreover, the reliance on unskilled labor due to financial constraints further exacerbates the safety risks on construction sites (Akcay & Arditi, 2022; Mohammad Ali et al., 2024).

Despite these challenges, the growing emphasis on occupational health and safety (OHS) within the Saudi Arabian construction industry presents a unique opportunity for MSMCs to improve their safety performance and enhance their competitiveness (Erogul & Alyami, 2017). Recognizing the economic and social benefits of a safer work environment, regulatory authorities are increasingly focusing on enforcing OHS regulations and promoting a culture of safety within the sector (Wahab et al., 2019). This shift towards a more stringent regulatory environment, coupled with the increasing availability of affordable safety technologies and support programs, creates a favorable climate for MSMCs to embrace safety as a core value and integrate it into their operational practices.

Previous studies have analysed Safety Management Systems (SMS) by extensively analysing the effectiveness of different SMS implemented in MSMCs (Noorhayatie & Mohd Saidin, 2019a). This analysis has often focused on comparing adopters and non-adopters of SMS, examining the impact on safety performance metrics such as accident rates and near-miss reporting (Stolzer et al., 2023 & Kalteh, et al., 2021). Researchers have also investigated the barriers to implementing SMS effectively, identifying factors like limited resources, lack of awareness, and resistance to change as key obstacles (De-Merich et al., 2018). Researchers have also examined Safety Climate Behaviour (Brunetto et al., 2022: Han et al., 2019 & Lyu et al., 2018); Safety Practices (Cheng et al., 2010). Researchers have worked on developing conceptual frameworks and practical models to guide safety management in MSMCs. These frameworks often incorporate elements of established safety management principles, such as the Plan-Do-Check-Act cycle, and adapt them to the specific needs and constraints of smaller companies (Sorensen et al., 2021 & Hou et al., 2021).

This research paper focuses on the critical issue of safety compliance among MSMCs in the Saudi Arabian construction industry. However, despite the acknowledged importance of safety, MSMCs often struggle to implement and maintain effective safety management practices due to a confluence of internal and external challenges. This results in an elevated risk of workplace accidents and injuries, impacting worker well-being, productivity, and the overall sustainability of the construction sector. The study aims to provide a comprehensive analysis of the challenges and opportunities in safety compliance for Saudi Arabian MSMCs in the construction industry by Identifying, establishing and assessing the occupational health and safety problems faced by MSMCs in implementing safety management practices for MSMCs to enhance their safety compliance, aimed at promoting a safer construction sector.

LITERATURE REVIEW

Concept and classification of MSMCs

MSMCs typically hold a minor share of the overall construction market, operate with informal management structures, and enjoy greater decision-making autonomy (Audet et al., 2022; Legg et al., 2015). MSMCs are characterized by informal management practices, poor record-keeping, and direct control over organizational roles (Kheni & Braimah, 2014; Legg et al., 2015). MSME owners often exhibit personalized and independent management styles, operate with limited resources, and face significant financial pressures (Legg et al., 2015). Additionally, MSMEs typically employ temporary and low-paid workers, and often fail to adhere to formal contractual arrangements, leading to poor working conditions and limited employee rights (Audet et al., 2022).

There is no universally accepted definition of a small company (Ocloo et al., 2014). The classification of MSMCs can vary across industries and countries. While quantitative criteria, such as the number of employees and revenue, are commonly used, the specific thresholds can differ. In Saudi Arabia, the Small and Medium Enterprises General Authority defines MSMCs based on employee numbers and revenue, with categories for micro, small, and medium-sized companies (Downes et al., 2017). These definitions are aligned with the European Commission's classification system.

MSMCS statistics in the construction industry

There is no universally accepted definition of a Micro, Small, and Medium-sized Companies (MSMCs) (Ocloo et al., 2014). Classifications of MSMEs vary across industries and countries, often relying on quantitative criteria like employee count and revenue, but the specific thresholds can differ. In Saudi Arabia, the Small and Medium Enterprises General Authority defines MSMEs based on these criteria, aligning with the European Commission's classification system (Downes et al., 2017). Majority of the companies in Saudi Arabia are micro enterprise (72.8%), followed by small (23.5%), and medium enterprise (3.0%), whereas large enterprise only accounts for (0.8%). Figure 2.2 also shows the construction activities under MSMCs (SCA, 2021).

Safety management and problems faced by MSMCs companies in implementing safety management

Safety management involves identifying and mitigating health and safety risks in construction projects (Saeed, 2017). MSMEs, often lacking resources and expertise, face unique challenges in implementing effective safety management practices (Boustras & Guldenmund, 2017; Noorhayatie & Mohd Saidin, 2019b). Prioritizing safety management is crucial for MSMEs to ensure employee well-being, comply with regulations, and improve overall performance (Wang et al., 2018).

Research suggests that MSMCs face a disproportionately high rate of work-related accidents and illnesses compared to larger companies (Targoutzidis et al., 2014). This is attributed to several factors, including a lack of awareness and compliance with safety regulations among MSME owners and employees (Targoutzidis et al., 2014; Zoghi, 2017). To mitigate this issue, it is imperative to promote safety awareness among MSMC owners and provide safety training to their staff (Zoghi, 2017). This will enhance their risk management capabilities and contribute to a safer working environment within the MSMC sector.

The safety problems encountered by Micro, Small, and Medium Companies (MSMCs) in the Saudi Arabian construction industry hinders the effective implementation of safety management practices and contribute to the high rate of accidents in the sector. The study identified 15 major occupational health and safety problems, highlighting the complexities and challenges these companies face in ensuring worker well-being.

Budget Constraint

MSMCs often face financial constraints that can hinder their ability to prioritize safety compliance (de Araújo Lima et al., 2020). Limited budgets may lead to reduced investments in safety measures, such as equipment and training, increasing the risk of accidents and injuries (Verbano & Venturini, 2013). To save costs, MSMCs may resort to shortcuts and compromises in safety procedures, further compromising safety standards.

Limited External Aid

MSMCs often face limited access to external financial aid due to their size and financial history (Verbano & Venturini, 2013). This lack of funding can hinder investments in safety measures, leading to increased risks of accidents and injuries. To compensate, MSMCs may resort to cost-cutting measures that compromise safety standards. However, studies suggest that direct government grants specifically allocated for safety investments can significantly contribute to building a strong occupational safety and health culture within MSMEs (Rostami et al., 2015).

External and Internal Barriers to Safety Intervention in MSMCs

Safety intervention barriers hinder the effective design, implementation, and evaluation of safety interventions. These barriers, often categorized as external or internal, primarily relate to regulation, resources, and information, and their impact increases with business size (Masi & Cagno, 2015). Legal constraints and government bureaucracy pose significant external barriers to safety interventions in MSMCs (ILO, 2020). Excessive or ineffective regulations, coupled with burdensome paperwork, can divert resources and hinder the development of a strong safety culture (Mohd Saidin et al., 2024). Additionally, a lack of technical support from authorities and labor unions can further impede safety efforts in MSMEs (Nkomo et al., 2018). Management and employee behaviors can hinder safety interventions in MSMCs. Management's inappropriate behaviors and lack of awareness, along with employee disregard for safety norms, can impede the success of safety initiatives (Nkomo et al., 2018; ILO, 2020).

RESEARCH METHODS

Given the identified problem and the objective of the research, this study required both qualitative and quantitative data, necessitating a mixed-methods research approach. Hendren et al., (2023) advocated for collecting data through multiple methods to leverage complementary strengths and minimize weaknesses. Therefore, a mixed-methods approach allows for a more holistic understanding of safety compliance by capturing both the statistical trends and the nuanced experiences of those involved. It allows for the triangulation of findings, leading to more robust and reliable conclusions.

Micro, medium, and small businesses in Saudi Arabia, their owners or employers, and construction professionals—such as builders, engineers, and architects are the research populations taken into consideration for this study. According to SCA (2021), there are 121,553, 39,200, and 5,070 micro, small, and medium-sized businesses in Saudi Arabia's construction industry, for a total of 165,823 micro, medium, and small businesses. Accordingly, Yamane and Israel (1967) determined that the minimum sample size needed for accuracy in estimating sample size from the study population was 400, and then added a 10% non-response rate, making it 440. Purposive random sampling technique was used to collect data from micro, small, and medium companies, owners/employers of micro, small-scale, and medium, and construction professionals in Saudi Arabia. However, with respect to the sample size (i.e. 440 respondents), all 440 questionnaires were distributed to micro, small and medium companies.

To gather data about MSMCs' challenges and opportunities, the researcher employed questionnaires and interviews. Questionnaires were administered through various methods: online, in-person, and self-administered hard copies. Interviews were conducted using voice recorders and later transcribed. To ensure data reliability and validity, a pilot study was conducted. Cronbach's Alpha was used to assess the internal consistency of the questionnaires, aiming for a reliability score between 0.7 and 0.99. (Wells & Wollack, 2003).

Data collected data was coded, tabulated, and analyzed using SPSS (Statistical Product and Service Solutions) software. Data was presented using tables and figures and simple percentage method, bivariate analysis, multinomial logistic regression, and Least Square Difference (LSD) were all the major analytical tools used for this study. Furthermore, thematic analysis was used to triangulate between data collected using questionnaires and data collected using interviews

RESULTS AND DISCUSSION

Demographic Profile of Respondents

The background information of respondents that participated in the survey is presented using descriptive statistics. Simple frequency distribution and percentages were used to describe the demographics which

include: Job position, category of project involved, annual company turnover, number of employees in company, working experience and state.

Table 1 Demographic Profile of Respondents

S/N	Variables	Categories	Frequency	Percent (%)
1	Job Position	HSE Engineer	19	6
		HSE Supervisor	93	27
		Site Engineer	37	11
		Safety Trainer	65	19
		Director	19	6
		Project Manager	55	16
		Assistant Manager	18	5
		Civil Engineer	15	4.3
		Planning Engineer	9	2.6
		Architectural Engineer	13	3.7
2	Category of projects involved	General Works	92	26
		Civil Engineering Works	98	29
		Electrical Engineering Works	68	20
		Mechanical Engineering Works	85	25
3	Years of working Experience	0-5 years	109	32
		6-10 years	118	34
		11-15 years	26	8
		16-20 years	55	16
		Over 20 years	35	10
4	Annual Company Turnover	Less than SR3M	123	36
		SR3m -SR50M	98	29
		SR50m - SR200M	49	14
		Above 200M	73	21

Source: Field Survey (2024)

From Table 1 it could be seen that highest percentage of the respondents were HSE Supervisors, Civil Engineering works was found to be the most dominant category of projects the respondents involve in, the annual turnover of the companies was found to be less than SR3M and most of the respondents have 6-10 years of working experiences.

Problems of Micro Small and Medium Companies in Implementing Safety Management Quantitative Analysis

The occupational health and safety challenges encountered by MSMCs during the implementation of safety management is presented in Table 2 which encapsulates a comprehensive analysis of these challenges, each itemized with its mean score and standard deviation.

Table 2: Safety Problems Faced by Micro Small and Medium Companies

Code	**Item**	**Mean**	**SD**
CPR35	Unskilled workers	3.22	1.243
CPR36	Limitation of employees	3.45	1.013
CPR37	Lack of communication	3.45	1.222

CPR38	Temporary workers	3.35	1.081
CPR39	High competition	3.38	1.255
CPR40	Limitation access to external sources of advice and support	3.76	1.024
CPR41	Limited market share	3.46	1.166
CPR42	Time constraints	3.26	1.175
CPR43	Financial constraints	3.55	1.122
CPR44	Limitation of business information or expertise	3.65	1.097
CPR45	Do not have safety personnel in charge on construction site	3.68	1.135
CPR46	Low level education	3.43	1.134
CPR47	Employers are not knowledgeable in term of safety aspect	3.21	1.293
CPR48	No and/or less safety motivation and campaign	3.31	1.267
CPR49	Put lower price and try to maximize the profit in project tender	3.51	.973

Source: Field Survey (2024)

From Table 2, among the challenges identified, limitations related to the availability of skilled workers (Mean: 3.22, SD: 1.243), employee constraints (Mean: 3.45, SD: 1.013), and communication gaps (Mean: 3.45, SD: 1.222) emerge prominently. Additionally, factors such as the reliance on temporary workers (Mean: 3.35, SD: 1.081), high competition (Mean: 3.38, SD: 1.255), and limited access to external advice and support (Mean: 3.76, SD: 1.024) present significant hurdles. Further challenges include constraints related to market share (Mean: 3.46, SD: 1.166), time (Mean: 3.26, SD: 1.175), and finances (Mean: 3.55, SD: 1.122), as well as limitations in business expertise (Mean: 3.65, SD: 1.097). Moreover, the absence of dedicated safety personnel on construction sites (Mean: 3.68, SD: 1.135), low educational levels (Mean: 3.43, SD: 1.134), and employers' lack of safety knowledge (Mean: 3.21, SD: 1.293) further compound safety management challenges. Furthermore, the dearth of safety motivation and campaigns (Mean: 3.31, SD: 1.267) and the tendency to prioritize profit over safety in project tenders (Mean: 3.51, SD: 0.973) underscore systemic issues within MSME safety management practices. This comprehensive analysis sheds light on the multifaceted challenges faced by MMSMCs in upholding occupational health and safety standards. Addressing these challenges is crucial for fostering a safer work environment and enhancing overall safety management practices within the MSME sector.

Qualitative Analysis

A qualitative analysis of interviews with eleven respondents in the construction sector has revealed a number of important themes regarding the safety issues that micro, small, and medium-sized businesses face. These themes include a lack of skilled workers, limited resources, a lack of safety personnel, low educational attainment, inadequate safety training, intense competition, communication issues, a lack of personal protective equipment, cheating, a lack of welfare services, and challenges evaluating pertinent and trustworthy information. These themes offer insightful information about the challenges Saudi Arabia's construction industry faces in maintaining worker and company safety on project sites.

DISCUSSIONS

Table 3 shows the summary of findings from interview and questionnaire. The assessment of the structured questionnaires revealed a number of difficulties MSMCs encountered when putting safety management procedures into practice. One major problem that hindered the effectiveness of safety measures was poor communication. In order to promote a positive safety culture, Mohamed (2020) underlined the significance of employee feedback and clear management communication. Another significant obstacle was money, which limited investments in safety equipment, infrastructure, and training. MSMCs were frequently under pressure to put cost-cutting measures ahead of safety investments due to the competitive nature of the construction industry. Safety lapses were often the result of this trade-off, particularly when contracts were underbid in

order to stay competitive. These difficulties were made worse by a lack of specialized safety staff and restricted access to business knowledge, which prevented many organizations from fully addressing safety hazards.

Several qualitative issues that MSMCs face were identified through thematic analysis of interview data. Often mentioned were poor communication, insufficient safety staff, and restricted training opportunities. According to Mohamed (2020), poor communication was especially harmful because it can lead to miscommunications and safety violations. These problems were made worse by financial limitations, which frequently resulted in a shortage of necessary safety gear and training opportunities. Participants also emphasized issues like MSMCs being forced to underbid contracts due to competitive pressures, which compromises safety standards. The use of inexperienced workers and the lack of skilled labor were identified as major barriers to attaining the best possible safety performance.

Table 3 Summary of Findings from Interview and Questionnaire

The problems / challenges		
SN	**Questionnaire findings**	**Interview findings**
1	Lack of communication	Shortage of Skilled Labor
2	High competition	Financial Constraints
3	Financial constraints	Inadequate Safety Personnel
4	Limitation of business information or expertise	Lack of Knowledge
5	Do not have safety personnel in charge on construction	Insufficient Safety Training
6	Put lower price and try to maximize the profit in tender	High Competition
7		Communication Problems
8		Insufficient or Inadequate Personal Protective Equipment (PPE)
9		Management Attitude

Source: Field Survey (2024)

CONCLUSION AND RECOMMENDATION

Conclusion

This study identified 15 safety problems faced by MSMCs in Saudi Arabia. Safety problems with the highest means (3.76, 3.68 and 3.65) include; limitation access to external sources of advice and support, not having safety personnel onsite, limitation of business information or expertise while safety problems with the least means (3.26, 3.22 and 3.21) includes; time constraints, unskilled workers, employers are not knowledgeable in terms of safety aspect.

Besides the quantitative analysis that was provided, the study also empirically examined (qualitatively) the challenges that MSMCs faced when putting safety protocols into place within the industry. According to the qualitative assessment, MSMCs face a number of significant challenges, including inadequate communication, intense competition that drives cost-cutting measures, financial limitations, restricted access to business information or expertise, and a lack of the resources, expertise, and knowledge required to evaluate safety risks. This thorough analysis clarifies the complex issues MSMCs face in maintaining occupational health and safety regulations. Resolving these issues is essential to improving overall safety management procedures in the MSMC industry and creating a safer workplace.

Recommendations

To address the safety challenges faced by micro, small, and medium-sized construction companies (MSMCs) in Saudi Arabia, it is recommended that targeted training programs be developed focusing on MSMCs" unique risks, emphasizing hazard identification, risk assessment, and PPE usage. Digital platforms and multilingual resources can enhance accessibility and inclusivity. Financial supports such as subsidies, grants, and tax incentives be provided to MSMCs for safety equipment and training. Partnerships with larger firms can offer shared safety resources, reducing costs.

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