

# A Study on Work-Related Factors and Safety Concerns Among Indian Migrant Workers in Islamic Gulf Countries

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## Abstract

*This current study aims to identify the work-related factors that impact both their work and health outcomes. The cross-sectional study conducted from June to October 2023 in Warangal, Telangana, focused on Indian male migrants, especially those working in Saudi Arabia and the UAE. The survey included 350 male migrant workers aged 20 and above, excluding females due to industry-specific regulations. The carefully crafted questionnaire covered physical strain, workplace factors, and safety. Data analysis, conducted in MS Excel, employed statistical measures and tests such as the Chi-square test and Fischer's exact test. In this study, a survey encompassed 350 male migrant workers (204 from Saudi Arabia, 146 from the UAE). Notably, 36.37% were above 41 years old, 50.86% were married, and nearly half had a secondary education, with the UAE showing the highest percentage (69.86%). A significant majority had over 6 years of experience, and a predominant portion worked in construction (35.71%), industry (22.57%), and cleaning (14.29%). Physical strain elements were prevalent, with 63.43% experiencing prolonged sitting and 82.57% facing lengthy standing. Workplace factors included exposure to noise (85.72%), varying temperature conditions, and encounters with dust, smoke, and gas. Concerns were raised about safety at the workplace, with almost 28.57% lacking appropriate personal protective equipment, and 29.14% reporting a lack of emergency response planning. Despite these issues, 72% adhered to safe practices, while 38.86% reported insufficient training. The study underscores the multifaceted challenges faced by migrant workers, necessitating targeted interventions to enhance their working conditions and safety.*

**Keywords:** Indian, Migrant, Physical Strain, Workplace, Safety, Gulf Countries

## INTRODUCTION

The global public health agendas are increasingly acknowledging the impact of migration, emphasizing the health concerns faced by migrants in their host countries (Jain 2005). The surge in immigration has raised various issues, particularly for migrant workers who encounter elevated risks in their host nations, including exposure to hazardous occupational conditions, injuries, and fatalities. In states like Uttar Pradesh, Bihar, Telangana, Andhra Pradesh, and Tamil Nadu in India, substantial populations of unskilled, low-skilled, and semi-skilled migrant workers contribute significantly to both host and origin regions (Czaika 2012; Khan et al 2012). Notably, the Kingdom of Saudi Arabia and the United Arab Emirates (UAE) are prime destinations for Indian immigrants, jointly accounting for over 60 percent of total Indian migrant worker deployment (Sasikumar and Hussain 2002). The reluctance of local workers to take certain jobs has led low-skilled workers to undertake risky positions, resulting in serious health issues and contributing to occupational health inequalities among Indians. The perilous employment conditions and associated work environments for blue-collar migrant workers are well-documented in numerous studies (Benach et al 2009; Tsai 2012).

The unprecedented surge in global migration has positioned Indian migrant workers in crucial roles within the labor markets of Gulf nations, especially in physically demanding sectors like heavy industry and construction (Khadria 2004; Shah 2012; Jain 2005). As these Indian male workers pursue employment in foreign lands, their experiences unfold against a backdrop of unique challenges, including physical strain, workplace intricacies, and safety concerns (Porru and Baldo 2022). The physical toll of labor-intensive tasks on their health becomes a central focus, while the complexities of workplace interactions shaped by cultural nuances and organizational structures play a pivotal role in shaping their overall working experience (see the 2022). Ensuring the safety of migrant workers in foreign environments emerges as a critical facet, marked by the need for harmonizing safety standards, regulatory compliance, and the provision of resources for occupational well-being (Moyce and

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Schenkar 2018). The current lack of evidence regarding workplace factors among migrant laborers prompts the present study's aim to identify work-related factors impacting their work and health.

## METHODOLOGY

A cross-sectional research endeavor took place among Indian male migrants in Warangal, Telangana, India, from June to October 2023. Warangal, known for its significant migrant laborer population, particularly those employed in Gulf countries, served as the research locale. Ethical standards were adhered to, with approval from the institutional ethics committee of SRM University and participants provided written informed consent. Warangal was strategically chosen for its practicality and relevance to the study, focusing on areas with a concentration of migrant workers such as Subedari, Raipura, Mandi bazaar, and L.B.Nagar. The sample size of 350 migrant workers was determined based on occupational workplaces' prevalence.

The questionnaire used in the study, incorporating questions from previous research, was presented in English. Data collection involved structured, interviewer-administered questionnaires, targeting three sections: physical strain elements, workplace factors, and safety at the workplace. To ensure a representative sample, researchers reached out to migrants through familial and relational connections. Rigorous verification procedures, including scrutiny of residency IDs and employment status, were implemented to adhere to inclusion criteria. Upon completing data collection, MS Excel was used for data entry, followed by a descriptive analysis employing statistical measures. Statistical tests like the Chi-square test and Fischer's exact test were applied to unravel patterns and associations within the dataset. The predefined level of statistical significance was set at  $P \leq 0.05$ , aiming to provide a robust foundation for drawing conclusions and implications from the study's findings, contributing to a nuanced understanding of physical strain, workplace dynamics, and safety concerns among the migrant workforce in the specified Gulf countries.

## RESULTS

### Sociodemographic Characteristics

Surveying a total of 350 male migrant workers for this study, 204 were from Saudi Arabia, and 146 were from the UAE. The sociodemographic characteristics of these workers are detailed in Table 1. Migrant workers aged 41 and above comprised 36.37% of the total sample. Approximately half of the workers were married (50.86%), with a subtle but statistically non-significant difference ( $p=0.057$ ) observed between Saudi Arabia and the UAE. Nearly half of the migrant workers held a secondary level of education, with the UAE exhibiting the highest percentage (69.86%). A significant majority of the surveyed migrants possessed experience exceeding 6 years (73.42%), and a predominant portion were engaged in occupations such as construction (35.71%), industry (22.57%), and cleaning (14.29%).

**Table 1 Sociodemographic characteristics of migrant workers.**

Characteristics	Saudi Arabia (n=204)	%	UAE (n=146)	%	Total (350)	%	P Value
<b>Age</b>							
20-30	69	33.82	48	32.88	117	33.43	0.252
31-40	83	40.69	23	15.75	106	30.29	
Above 41	52	25.49	75	51.37	127	36.29	
<b>Marital Status</b>							
Unmarried	62	30.39	43	29.45	105	30.00	0.057
Married	105	51.47	73	50.00	178	50.86	
Divorced	37	18.14	30	20.55	67	19.14	
<b>Education Level</b>							
Primary Level	77	37.75	28	19.18	105	30.00	0.258
Secondary Level and above	72	35.29	102	69.86	174	49.71	
None	55	26.96	16	10.96	71	20.29	
<b>Experience</b>							
1-5 Years	54	26.47	39	26.71	93	26.57	0.116
6-10 Years	97	47.55	56	38.36	153	43.71	
Above 11	53	25.98	51	34.93	104	29.71	
<b>Employment</b>							
Construction workers	83	40.69	42	28.66	125	35.71	0.128
Industrial workers	43	21.08	36	24.66	79	22.57	

Cleaners	34	16.67	16	10.96	50	14.29
Drivers	16	7.84	11	7.53	27	7.71
Technicians	15	7.35	29	19.86	44	12.57
Others	13	6.37	12	8.22	25	7.14

### Physical Strain Elements

Concerning physical strain elements among migrant workers, a significant portion reported experiencing lengthy sitting (63.43%). When it came to lengthy standing, the combined responses for "sometimes" and "often" constituted 82.57%. Regarding lifting or carrying activities, a notable 88.57% of workers reported engaging in this task, with the breakdown showing "sometimes" at 50.0% and "often" at 31.71%. Interestingly, both Saudi Arabia and the UAE displayed similar percentages (50%) in the category of "sometimes" lifting or carrying during work. Additionally, a majority of workers reported regularly bending down (82%), encompassing the combined levels of "sometimes" and "often." The detailed breakdown of physical strain elements is available in Table 2. However, a statistical comparison between Saudi Arabia and the UAE did not reveal any significant differences in these reported physical strain elements.

**Table 2 Physical strain elements of migrant workers**

Physical strain	levels	Saudi Arabia(n=204)		UAE(n=146)		Total (n=350)		P Value
		N	%	N	%	N	%	
Lengthy sitting	Never	24	11.76	16	10.96	40	11.43	0.194
	Sometimes	138	67.65	84	57.53	222	63.43	
	Often	42	20.59	46	31.51	88	25.14	
Lengthy standing	Never	33	16.18	28	19.18	61	17.43	0.155
	Sometimes	113	55.39	65	44.52	178	50.86	
	Often	58	28.43	53	36.30	111	31.71	
Lifting or carrying	Never	16	7.84	24	16.44	40	11.43	0.149
	Sometimes	102	50.00	73	50.00	175	50.00	
	Often	86	42.16	49	33.56	135	38.57	
Regular bending down	Never	37	18.14	26	17.81	63	18.00	0.066
	Sometimes	93	45.59	58	39.73	151	43.14	
	Often	74	36.27	62	42.47	136	38.86	

### Workplace Factors

In the context of workplace factors, a substantial majority of workers reported exposure to noise (85.72%), with "sometimes" and "often" constituting 46.86% and 38.86%, respectively. A slight difference was observed when comparing the two countries (P=0.061). About half of the participants reported sometimes working in cold conditions (53.43%). The study revealed that 60% often worked under heat conditions, and 52.0% dealt with dust. Notably, a significant number reported working in areas with smoke (78%) and gas (62.57%). The detailed breakdown of workplace factor elements among migrant workers is available in Table 3.

**Table 3 Workplace factors of migrant workers**

Factors at the workplace	Levels	Saudi Arabia(n=204)		UAE(n=146)		Total (n=350)		P Value
		N	%	N	%	N	%	
Noise	Never	32	15.69	18	12.33	50	14.29	0.061
	Sometimes	87	42.65	77	52.74	164	46.86	
	Often	85	41.67	51	34.93	136	38.86	
The cold	Never	42	20.59	38	26.03	80	22.86	0.228
	Sometimes	124	60.78	63	43.15	187	53.43	
	Often	38	18.63	45	30.82	83	23.71	
The heat	Never	17	8.33	11	7.53	28	8.00	0.277
	Sometimes	46	22.55	66	45.21	112	32.00	
	Often	141	69.12	69	47.26	210	60.00	
Dust	Never	23	11.27	11	7.53	34	9.71	0.088
	Sometimes	86	42.16	48	32.88	134	38.29	
	Often	95	46.57	87	59.59	182	52.00	
smoke	Never	40	19.61	37	25.34	77	22.00	0.150
	Sometimes	83	40.69	36	24.66	119	34.00	
	Often	81	39.71	73	50.00	154	44.00	
Gas	Never	84	41.18	47	32.19	131	37.43	0.091
	Sometimes	56	27.45	52	35.62	108	30.86	
	Often	64	31.37	47	32.19	111	31.71	

## Safety at Workplace

Concerning safety at the workplace, a noteworthy 28.57% of respondents reported never receiving appropriate personal protective equipment, displaying marginal significance in comparison ( $p=0.058$ ). The majority reported adherence to safe work practices and procedures (72%). Slightly over a quarter (29.14%) reported not having emergency response planning. Notably, 38.86% reported never receiving sufficient training in their organizations. Table 4 provides a detailed illustration of safety at the workplace for migrant workers.

**Table 4 Safety at workplace of migrant workers.**

Factors at the workplace	Levels	Saudi Arabia(n=204)		UAE(n=146)		Total (n=350)		P Value
		N	%	N	%	N	%	
Appropriate personal protective equipment supplied	Never	66	32.35	34	23.29	100	28.57	0.058
	Sometimes	93	45.59	74	50.68	167	47.71	
	Often	45	22.06	38	26.03	83	23.71	
Adherence to safe work practices and procedures	Never	80	39.22	18	12.33	98	28.00	0.247
	Sometimes	70	34.31	88	60.27	158	45.14	
	Often	54	26.47	40	27.40	94	26.86	
Implementation of emergency response planning	Never	84	41.18	18	12.33	102	29.14	0.283
	Sometimes	96	47.06	72	49.32	168	48.00	
	Often	24	11.76	56	38.36	80	22.86	
Utilization of hazard identification and risk assessment	Never	46	22.55	22	15.07	68	19.43	0.052
	Sometimes	112	54.90	84	57.53	196	56.00	
	Often	46	22.55	40	27.40	86	24.57	
Provision of sufficient training	Never	96	47.06	40	27.40	136	38.86	0.201
	Sometimes	75	36.76	74	50.68	149	42.57	
	Often	33	16.18	32	21.92	65	18.57	
Routine workplace inspections conducted by the organization	Never	67	32.84	14	9.59	81	23.14	0.239
	Sometimes	64	31.37	36	24.66	100	28.57	
	Often	73	35.78	96	65.75	169	48.29	

## DISCUSSION

In the present study, the sociodemographic profile of the surveyed migrant workers offers valuable insights into the composition of the labor force in the studied regions, providing illumination on key factors that may influence their occupational health and safety. Notably, a significant proportion of migrant workers were aged above 41 years, comprising 36.37% of the total sample. This demographic distribution underscores the importance of addressing the specific needs and challenges faced by older migrant workers, as they may be susceptible to different health and safety considerations compared to their younger counterparts. In contrast, previous study has highlighted similar trends in the age distribution and occupational patterns of migrant workers in the Gulf region, offering a broader context for interpreting the current findings (Khraif et al 2019). The marital status of the participants revealed that approximately half of the migrant workers were married (50.86%). Although a slight non-significant difference ( $p=0.057$ ) was observed between Saudi Arabia and the UAE (Table 1). One study reported that married individuals may have additional responsibilities and considerations, potentially influencing their occupational well-being (Thomas et al 2017). In this study, nearly half of the migrant workers had a secondary level of education, with the UAE exhibiting the highest percentage at 69.86%. Similar findings have been reported, emphasizing the importance of tailoring occupational health and safety programs to accommodate varying levels of educational attainment, ensuring that information is accessible and comprehensible for all workers (Zachariah et al 2002; O'Connor et al 2014).

The extensive work experience reported by a significant majority of migrants, with 73.42% having more than 6 years of experience, highlights the seasoned nature of the workforce. This wealth of experience could potentially contribute to a nuanced understanding of occupational risks and best practices. It is imperative for workplace safety initiatives to tap into this reservoir of knowledge, fostering a collaborative approach that incorporates the insights of experienced workers (Sorensen et al 2018). Occupational distribution among migrant workers revealed a predominant presence in construction (35.71%), industry (22.57%), and cleaning (14.29%) sectors (Table 1). These findings suggest the need for targeted safety measures tailored to the specific risks associated with each industry. For instance, numerous studies have documented that construction workers

may face distinct hazards compared to those in industrial or cleaning occupations, necessitating tailored training and safety protocols (Chan et al 2023; Mosly and Makki 2021).

A significant portion of participants in this study reported enduring prolonged periods of sitting (63.43%). This finding aligns with similar studies linking sedentary work to various health issues, including musculoskeletal disorders and cardiovascular problems (Park et al 2020; Dzakpasu et al 2021). Emphasizing the importance of incorporating strategies to mitigate the adverse effects of prolonged sitting, such as ergonomic interventions and regular breaks, into occupational health programs for migrant workers is essential (Hoe et al 2018). Long periods of standing emerged as a prevalent issue, with 82.57% of respondents reporting this condition either sometimes or often. The current results strongly support the association between prolonged standing and musculoskeletal discomfort and fatigue (Dzakpasu et al 2021; Jo et al 2021). Lifting or carrying heavy loads was reported by a substantial majority (88.57%), with a breakdown indicating that sometimes (50.0%) and often (31.71%) were common occurrences (Table 2). These findings align with existing literature highlighting the association between manual handling activities and the risk of musculoskeletal injuries (Dzakpasu et al 2020; Mueller et al 2021). Regular bending down was reported by the majority of workers (82%), combining the levels of sometimes and often. Bending down is often associated with an increased risk of back injuries (Villanueva-Gómez et al 2023). Therefore, recommending interventions focusing on proper lifting techniques, mechanization of tasks, and the provision of personal protective equipment can help mitigate the risks associated with these activities.

A significant majority of workers in this study reported exposure to noise (85.72%), with a considerable proportion experiencing it sometimes (46.86%) and often (38.86%). These results align with similar findings, indicating that prolonged exposure to high levels of noise is a recognized occupational hazard associated with various health issues, including hearing impairment and stress-related conditions (Chen et al 2020; Pretzsch 2021). Approximately half of the participants reported sometimes working in cold conditions (53.43%), emphasizing the need for protective measures to prevent cold-related health issues. Conversely, 60% reported often working under heat conditions, aligning with existing literature on the challenges posed by heat stress in certain occupations (Al-Bouwarthan et al 2019; Ahmadalipour and Moradkhani 2018). The study uncovered that over half of the participants dealt with dust (52.0%), while a substantial number reported working in areas with smoke (78%) and gas (62.57%) (Table 3). Occupational exposure to airborne contaminants poses inherent health risks, including respiratory disorders and other long-term health implications (Boadu et al 2023). This underscores the importance of implementing stringent safety measures, including the provision of personal protective equipment and adequate ventilation, to mitigate the adverse effects of exposure to airborne hazards.

A notable concern is that almost 28.57% of migrant workers reported never receiving appropriate PPE (Table 4). This discovery holds particular significance, as inadequate access to PPE can expose workers to various occupational hazards, jeopardizing their safety and well-being (Balkhyour et al 2019; Moyce and Schenkar 2018). Encouragingly, the majority of migrant workers (72%) reported adherence to safe work practices and procedures. This indicates a positive trend in terms of safety consciousness among the workforces. It is crucial to identify and reinforce the factors contributing to this adherence, as promoting a safety culture is integral to reducing the risk of workplace accidents and injuries (Naji et al 2021). However, the study revealed that just over a quarter of the participants (29.14%) reported a lack of emergency response planning (Table 4). This is a critical gap that requires urgent attention, as timely and effective emergency response planning is paramount for mitigating the impact of unforeseen incidents (Sorensen et al 2018; Fischer et al 2019). The significant finding that 38.86% of migrant workers reported never receiving sufficient training in their organizations raises concerns about the adequacy of the training programs in place. Adequate training is fundamental for equipping workers with the knowledge and skills necessary to navigate potential hazards and emergencies (Morando and Brullo 2022). Organizations should prioritize the development and communication of comprehensive emergency response plans to ensure the safety and well-being of all workers.

The study utilized a convenient sampling method, which may introduce bias; however, efforts were made to mitigate this by maintaining a large sample size. Geographical limitations are acknowledged, as the findings may not be generalized to other districts or states in India. Despite these constraints, the study provides significant

insights into working conditions and workplace factors, offering valuable information for host countries to better support migrant workers.

## CONCLUSIONS

In conclusion, the sociodemographic analysis of migrant workers in the studied regions has yielded crucial insights into the composition of the labor force. The prevalence of older workers, married individuals, and those with varying educational levels and extensive work experience emphasizes the need for tailored interventions to address the unique challenges faced by different segments of this diverse population. The examination of physical strain elements has shed light on the occupational hazards encountered by migrant workers, highlighting the necessity for targeted interventions. Prolonged sitting, standing, lifting heavy loads, and regular bending down were prevalent issues, suggesting the importance of implementing ergonomic interventions and safety protocols tailored to each industry. Workplace factors, including exposure to noise, temperature extremes, and airborne contaminants, present additional challenges. Measures such as protective equipment, hydration protocols, and ventilation are crucial for safeguarding the health of migrant workers operating in diverse environments. In summary, a comprehensive and targeted approach is necessary to address the multifaceted challenges identified in this study.

## Acknowledgment

This research did not receive any financial support. The author like to thank the migrant workers for participating in the study.

## Conflict of Interest

The authors declare no conflicts of interest.

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