Journal of Preventive and Population Health
https://jpphealth.com/

ORIGINAL ARTICLE

Perception of workplace safety climate and its association with safety behaviors among workers attending occupational health clinics in Saudi Arabia: a cross-sectional study

Roua Ali[1*], Fayo Haje[2], Najoud Alotaibi[3], Ghadeer Adel Alghamdi[3], Elaf Mudathir Osman Elgahori[4], Sujood Fathi Elbashir Elhassan[4], Maha Raed Theayb Eissa Roua Ali[3], Shahd Yousri Siddiq[5], Zakia Isam Ahmed Ibrahim[6], Basma Elshahat Gadallah[3], Elsayed Elfatih Elsayed Elhag[5]

Full list of author information is available at the end of the article

ABSTRACT

Background: Work safety is a set of measures taken to prevent hazards originating from the work environment, prevent events threatening the health of workers, and protect workers' health. Workers are exposed to a wide range of workplace risks. The perception of workers regarding work safety can affect their safety behavior and, consequently, their outcomes. The aim of this study was to assess the association between the perception of workplace safety climate and the safety behavior of workers attending occupational health clinics in Saudi Arabia.

Methods: This was a cross-sectional study that was conducted on workers attending occupational health clinics in Saudi Arabia. The study was conducted during July 2026 using a survey for data collection. The candidates were invited to participate in the study via email and social media.

Results: A total of 365 workers from different occupations were recruited. The mean ± SD scores of perception and safety behavior were 21.85 ± 3.45 and 45.05 ± 6.46, respectively. Perception and safety behavior were significantly related to reporting danger (p = 0.002 and p < 0.001, respectively, for perception and safety behavior). There was a significant positive correlation between perception dimensions and safety behavior.

Conclusion: The workers in this study from different occupations exhibited high perception of safety climate and high practice of safety behavior. There was a significant positive association between perception of safety climate and high practice of safety behavior, with the strongest association found between safety behavior and the safety training and awareness dimension.

Keywords: Perception, safety behavior, workers, safety climate.

Introduction

Safety climate is defined as shared thoughts and perceptions of workers on how their workplace prioritizes and conceptualizes workplace safety policies, practices, and procedures [1]. Occupational safety aims to prevent events threatening the health of the workers, protect workers' health, and harm the

Correspondence to: Roua Ali
*CMR, Riyadh, Saudi arabia.
Email: rouya123@hotmail.com
Received: 11 August 2026 | **Revised:** 23 August 2026 | **Accepted:** 24 August 2026

national economy [2]. Facilities with a positive safety culture are characterized by shared perceptions of the importance of safety, confidence in the efficacy of preventive measures, and communications founded on mutual trust [3]. Workers are exposed to various workplace risks in their daily work, which can potentially affect their safety, health, and well-being [4]. The risk of such accidents and injuries is greater in developing countries where there are inadequate safety measures and protective equipment [5].

It was suggested that the perception of workers regarding work safety can affect their safety behavior [4]. Addressing the perception of workers regarding workplace safety is important in improving the overall performance outcomes. Additionally, the physical work environment, such as the cleanliness of the facility and the availability of personal protective equipment, can affect the perception of workers regarding safety and willingness to adhere to safety protocols [4]. Previous literature revealed that nurses' and physicians' perceptions of safety culture and working conditions vary despite working in the same settings [6,7]. A study from the USA conducted on three companies discovered that perceived workplace safety climate was positively linked with optimal sleep and physical activity. Stronger perceived workplace health and well-being and safety climates were linked with less depression and pain, greater general health, and greater job and life satisfaction [8]. However, there is a lack of Saudi research investigating this subject, and the available literature in Saudi Arabia focuses on healthcare settings only and healthcare personnel.

Subjects and Methods

Design, settings, and subjects

This was a cross-sectional study conducted on workers attending occupational health clinics in Saudi Arabia. The study was conducted during July 2026 using a survey for data collection. The inclusion criteria were those who attended occupational health clinics in Saudi Arabia, of both genders, and provided consent, whereas non-workers, those who attended other clinics, and those who refused to provide consent were excluded. Ethical approval was obtained from Care IRB committee before the initiation of the study with a number: H-01-R-178. Each subject signed informed consent before being incorporated into the study.

Data collection and scoring

The data were collected via a survey that was designed by the researcher to collect the data of interest. The questionnaire included permission to participate in the study. The questionnaire was designed after reviewing related literature, and it included one part that focused on questions investigating the demographics of the workers. Other parts included questions investigating five dimensions of perceptions of workplace safety climate. The patterns of some behaviors were investigated via 10 questions, and work accidents were investigated via three questions.

Each domain score was first calculated by summing the responses to the items belonging to that domain and dividing the resulting total by the number of items, thereby obtaining a mean subscale score ranging from 1 to 5. Five subscale scores were calculated: Management Commitment to Workplace Safety (five items), Workplace Safety Environment (five items), Safety Training and Awareness (five items), Safety Communication (four items), and Safety Culture (four items). The overall perception score was then calculated by summing the five subscale mean scores, giving a theoretical range of 5–25, with higher scores indicating a more positive perception of workplace safety.

Pilot study

A pilot study was conducted on 25 participants with the same inclusion criteria as the original study and using the same questionnaire as the original study. The validity and reliability of the survey were investigated.

The questionnaire demonstrated satisfactory internal consistency across the workplace safety climate and safety behavior dimensions, with Cronbach's alpha coefficients ranging from 0.524 to 0.876 across different domains. The workplace safety climate domains, including management's commitment to safety, work environment, training and awareness, safety communication, and safety culture among colleagues, showed acceptable-to-good item homogeneity, with corrected item-total correlations ranging from 0.511 to 0.820. The safety behavior domain, which assessed the use of personal protective equipment, adherence to safety instructions, hazard and incident reporting, participation in safety activities, and compliance with emergency procedures, also demonstrated satisfactory internal consistency, with a Cronbach's alpha of 0.818 and corrected item-total correlations ranging from 0.531 to 0.881. Furthermore, evidence of construct validity was supported by the significant positive correlation between the overall workplace safety climate score and safety behavior score (**Spearman's** $\rho = 0.574$, $p = 0.005$) indicating that more favorable perceptions of the workplace safety climate were associated with better reported safety behaviors. These findings provide preliminary evidence that the questionnaire has acceptable reliability and construct validity for assessing workplace safety climate and safety behaviors among workers attending occupational health clinics.

Statistical analysis

Data analysis was conducted using SPSS version 26; numerical and qualitative data were presented as mean (±SD) and frequency (%), respectively. The association between workplace safety and climate dimensions and safety behavior scores was assessed using Pearson›s correlation coefficient (r). The comparisons of mean perception and safety behavior scores between

two independent groups were performed using the independent samples *T*-test, whereas comparisons among three or more groups were established using one-way analysis of variance. A two-sided *p*-value was deemed significant at ≤0.05.

Results

A total of 365 participants were included in this study; the mean ± SD of age of the participants was 37 ± 9 years. The largest proportions of the workers were non-Saudi, 276 (75.6%), had university education, 228 (62.5%), and had experience over 10 years, 140 (38.4%). The largest proportions of the workers were administrative employees, 110 (30.1%), followed by technicians, 87 (23.8%). Additionally, the largest frequency reported receiving occupational safety training was 262 (71.8%), as shown in Table 1.

The perception of the participants was assessed via a total of 23 questions with five answers ranging from strongly agree to strongly disagree. The range of perception scores was 5-25, with a mean ± SD of 21.85 ± 3.45. Five questions assessed management commitment to the workplace, which provided a mean ± SD score of 4.47 ± 0.73. Additionally, five questions investigated the perception regarding the workplace safety environment, and the responses of the participants provided a mean ± SD score of 4.42 ± 0.73. The perception regarding safety training and awareness was investigated via five questions, which provided a mean ± SD score of 4.24 ± 0.86. Each of the perceptions regarding safety communication and regarding safety culture was investigated via four questions, which provided mean ± SD scores of 4.23 ± 0.73 and 4.39 ± 0.71, respectively.

The safety behavior among the participants was investigated via ten questions. The largest proportion of the participants answered "always" regarding all the questions. The questions and answers of the participants regarding the safety behavior are illustrated in Table 2. The range of practicing safety behavior was 10-50 scores, with a mean ± SD of 45.05 ± 6.49.

Regarding injuries, 110 (30.1%) and 114 (31.2%) reported experiencing work-related injuries and witnessed an accident at the workplace, respectively, within the previous 12 months. More than one-half, 208 (57%), stated that they reported a danger before, as shown in Table 3.

The perception of the participants was found to have no association and was not varied with the demographics of the participants, where all the correlations were not significant ($p > 0.05$), as shown in Table 4.

The investigation of the correlations between practicing safety behavior and demographics of the participants revealed no significant association with gender, nationality, or education, whereas the sole correlation was found with years of experience ($p = 0.02$), as shown in Table 5.

Regarding correlations, significant positive correlations were found between practicing safety behavior and workplace safety climate dimensions (Table 6).

The mean score of practicing safety behavior of the workers displayed a significant association with reporting injuries ($p = 0.001$), Table 7.

The mean score of perception displayed a significant correlation with reporting danger ($p = 0.002$), as shown in Table 8.

Discussion

Occupational safety aims to prevent events threatening workers, protect workers' health, and protect the national economy [2]. The majority of the available studies focused on medical personnel [9,10]. Therefore, this study was conducted to assess the perception and safety behavior of workers attending occupational health clinics in Saudi Arabia regarding workplace safety climate.

Table 1. *Sociodemographic and occupational characteristics of the study participants (N = 365).*

Characteristic	Category	*n* (%)
Age (years)	Mean ± SD	**37 ± 9**
	Range	**20-67**
Nationality	Non-Saudi	276 (75.6)
	Saudi	89 (24.4)
Education	Primary or lower	18 (4.9)
	Intermediate	16 (4.4)
	Secondary	54 (14.8)
	Diploma	49 (13.4)
	University	228 (62.5)
Years of experience	Under 1 year	22 (6.0)
	1-5 years	114 (31.2)
	6-10 years	89 (24.4)
	Over 10 years	140 (38.4)
Occupation	Construction worker	16 (4.4)
	Factory worker	40 (11.0)
	Technician	87 (23.8)
	Driver	26 (7.1)
	Administrative employee	110 (30.1)
	HCW	57 (15.6)
	Unknown	29 (7.9)
Have you ever received occupational safety training	No	103 (28.2)
	Yes	262 (71.8)

Table 2. *Safety behaviors among the study participants.*

Safety behavior item	1 - Never *n* (%)	2 - Rarely *n* (%)	3 - Sometimes *n* (%)	4 - Often *n* (%)	5 - Always *n* (%)
I use the required personal protective equipment.	2 (0.5)	9 (2.5)	33 (9.0)	86 (23.6)	235 (64.4)
I follow safety instructions while working.	2 (0.5)	2 (0.5)	21 (5.8)	94 (25.8)	246 (67.4)
I report hazards when I observe them.	2 (0.5)	11 (3.0)	17 (4.7)	89 (24.4)	246 (67.4)
I participate in safety activities and programs.	14 (3.8)	16 (4.4)	49 (13.4)	79 (21.6)	207 (56.7)
I review safety instructions before starting hazardous tasks.	9 (2.5)	12 (3.3)	42 (11.5)	84 (23.0)	218 (59.7)
I help colleagues adhere to safety procedures.	3 (0.8)	3 (0.8)	35 (9.6)	92 (25.2)	232 (63.6)
I stop working if I observe an immediate hazard.	4 (1.1)	7 (1.9)	23 (6.3)	84 (23.0)	247 (67.7)
I report accidents or near misses.	3 (0.8)	7 (1.9)	23 (6.3)	88 (24.1)	244 (66.8)
I use equipment correctly.	1 (0.3)	4 (1.1)	13 (3.6)	93 (25.5)	254 (69.6)
I follow emergency procedures when necessary.	1 (0.3)	5 (1.4)	14 (3.8)	86 (23.6)	259 (71.0)

Table 3. *Occupational injuries, workplace accidents, and incident reporting among participants.*

Variable	Response	*n* (%)
Work-related injury within the last 12 months	No	255 (69.9)
	Yes	110 (30.1)
Witnessed an accident at the workplace within the last 12 months	No	251 (68.8)
	Yes	114 (31.2)
Ever reported a danger or incident	No	157 (43.0)
	Yes	208 (57.0)

In the current study, we found that the prevalence of work-related injuries within the previous 12 months was 30.1%, and this proportion was slightly lower compared to that reported in a previous Ethiopian study that focused on construction workers and reported a prevalence of self-reported injuries in the last 12 months of 35.7% [11]. In our study, the construction workers represented only 4.4% of the sample, and the largest proportion was for administrative employees. Additionally, our study included workers from several occupations, and this explains the low prevalence of injuries reported in our study compared to the previous one [11]. Another study from North Carolina conducted on youth farmworkers revealed that only 14% experienced injury within the previous 12 months [12]; the previous prevalence was much lower compared to ours, and this may be related to the less aggressive nature of farming work compared to some professions included in our study such as health care workers (HCWs), factory workers, and technicians.

Safety climate refers to the shared perceptions of workers regarding their organization's commitment to safety, and it can affect safety outcomes considerably in high-risk industries [11]. In the present study, perception regarding safety climate was investigated through five dimensions with a total mean score of 21.85, which indicated high perception among our participants. Regarding each dimension, the highest perception was recorded for management commitment of the workplace, as the mean score was slightly higher compared to other dimensions (4.47 ± 0.73).

One study was conducted to assess safety climate among a petroleum company across three sectors. The perception of the workers was investigated through many domains, including management commitment, safety rules and procedures, safety training, and others. The study revealed that each domain significantly varied between the workers of the three sectors [13]. Such findings indicate that the perception of workers regarding safety climate can vary even in the same facility due to working in different sectors. However, we found that the perception of our participants did not vary with any of the demographics, including occupation. This may relate to the variation in the tools used between our study and other studies and the population under investigation.

Safety climate perception among dentists in one study was found to be higher compared to other professions [14]. This finding was in contrast to ours, as we found no significant variations in perception among different occupational workers.

However, we found that the perception of the workers was significantly associated with reporting danger.

Table 4. *Mean perception score according to demographic.*

Variable	Category	Mean ± SD	*p* value
Gender	Female	21.75 ± 3.39	0.62
	Male	21.95 ± 3.52	
Nationality	Non-Saudi	21.89 ± 3.49	0.59
	Saudi	21.72 ± 3.36	
Education	Diploma	21.78 ± 3.82	0.28
	Intermediate	21.46 ± 3.30	
	Primary or lower	23.42 ± 2.08	
	Secondary	22.29 ± 3.69	
	University	21.66 ± 3.40	
Occupation	Construction worker	21.73 ± 3.21	0.26
	Factory worker	22.74 ± 3.42	
	Technician	22.25 ± 3.21	
	Driver	21.90 ± 3.91	
	Administrative employee	21.86 ± 3.40	
	HCW	20.94 ± 3.81	
	Unknown	21.32 ± 3.19	
Years of experience	Under 1 year	21.14 ± 4.10	0.64
	1-5 years	21.77 ± 3.39	
	6-10 years	21.73 ± 3.77	
	Over 10 years	22.11 ± 3.18	

Those who reported danger significantly tended to have higher perception. This finding indicates the impact of real events on the perception of the workers.

In one study, enrolled youth workers revealed that perceptions of work safety climate were significantly associated with pesticide exposure risk factors for rewearing wet shoes ($p = 0.01$), wet clothes ($p = 0.01$), and shorts ($p = 0.03$). It should be noted that the previous study was conducted on farm workers; therefore, the factors affecting their perception totally varied from those found in our study [12].

Safety behavior is the behavior of an individual in compliance with safety procedures and policies [15]. In our study, we found a high mean score of practicing safety behavior among the workers. Unsafe worker behavior is a main contributing element in work site accidents, and almost 98% of all accidents are in some aspect related to unsafe behaviors [16]. In this work, we found that higher practice was significantly associated with reporting a danger. Such findings indicate that workers who reported danger were more prone to follow safety protocols and practice safety behavior to avoid repeating injuries.

One study conducted on youth farmworkers found that few youths reported appropriate work safety behavior [12]. This may be due to the low prevalence of injuries experienced within the previous 12 months, which was 14%. On the other hand, the prevalence in our study was higher, and there was an association between previous injuries and higher safety behavior. Another study from Turkey conducted on healthcare professionals reported high safety behavior [15]. Such findings may indicate more compliance of health personnel due to the nature of their work that requires more adherence to safety protocols in hospitals.

Practicing safety behavior was found to have an association with the years of experience only, where those with the longest years of experience reported the highest safety behavior. In contrast to our findings, a study from Indonesia found that safety behavior among nurses was significantly linked with gender ($p = 0.03$) and management communication ($p = 0.003$) [17].

In this study, we found significant positive correlations between practicing safety behavior and perception of safety climate dimensions. Similar to our findings, one study enrolled workers from building construction sites in Taiwan and found a significant positive correlation between safety climate and safety behavior of

Table 5. *Practice (safety behavior) score according to sociodemographic and occupational characteristics.*

Variable	Category	Mean ± SD	*p*-value
Gender	Female	44.96 ± 6.33	–
	Male	45.13 ± 6.65	**0.79**
Nationality	Non-Saudi	45.14 ± 6.58	–
	Saudi	44.78 ± 6.21	**0.79**
Education	Diploma	45.57 ± 8.53	
	Intermediate	45.25 ± 5.86	0.159
	Primary or lower	48.56 ± 3.82	
	Secondary	45.15 ± 6.93	
	University	44.62 ± 6.03	–
Occupation	Construction worker	41.50 ± 7.87	0.34
	Factory worker	46.48 ± 5.53	
	Technician	46.08 ± 6.67	
	Driver	46.38 ± 7.34	
	Administrative employee	44.75 ± 5.98	
	HCW	43.37 ± 7.01	
	Unknown	45.17 ± 5.29	–
Years of experience	Under 1 year	43.86 ± 7.82	**0.027**
	1-5 years	44.75 ± 5.90	
	6-10 years	44.55 ± 7.52	
	Over 10 years	45.79 ± 5.99	–

Table 6. *Correlation of safety behavior (practice score) with workplace safety climate dimensions.*

Safety climate dimension	Pearson's *r*	*p*-value
Safety culture	0.612	<0.001
Management commitment to workplace safety	0.533	<0.001
Safety training and awareness	0.637	<0.001
Workplace safety environment	0.622	<0.001
Safety communication	0.561	<0.001

workers, and in turn, safety climate level had a positive impact on safety behavior participation and overall safety perceptions. Additionally, it was found that the dimension of "safety commitment and safety training" had the greatest relationship with safety behavior. Safety training also had a deep impact on the cognition of safety behavior [16]. In our study, the perception of safety training and awareness revealed the greatest association with safety behavior. This indicates the importance of conducting training and awareness programs for workers to increase their safety behavior.

A study focused on laboratory employees found a significant relationship between safety practices and safety perceptions [18]. A study from Indonesia found quite a strong relationship between safety climate and safety behavior. The study emphasized that increasing the level of safety climate could improve safety behavior [19]. Such findings emphasize the importance of safety climate for safety behavior. Furthermore, a positive perception was found to be reported 4.2 times more likely by those who received training ($p = 0.04$) in one study [20].

Conclusion

The workers in this study from different occupations exhibited a high perception of safety climate and high practice of safety behavior. There was a significant positive association between perception of safety climate and high practice of safety behavior, with the strongest association found between safety behavior and the safety training and awareness dimension, which indicates the importance of training and increasing awareness among workers to increase their safety behavior. Additionally, perception and safety behavior were associated with reporting danger.

Table 7. *Safety behavior score according to work-related safety experiences.*

		Safety behavior		*p* value
		Mean	Standard deviation	
Have you suffered a work-related injury within the last 12 months	Yes	46.00	6.76	0.066
	No	44.64	6.33	
Have you witnessed an accident at the workplace within the last 12 months	Yes	45.75	5.80	0.167
	No	44.73	6.76	
Have you ever reported a danger or an incident	Yes	46.17	5.74	<0.001
	No	43.56	7.11	

Table 8. *Perception score according to work-related safety experiences.*

		Perception		*p* value
		Mean	SD	
Have you suffered a work-related injury within the last 12 months	Yes	22.18	3.71	0.25
	No	21.71	3.34	
Have you witnessed an accident at the workplace within the last 12 months	Yes	21.81	3.32	0.88
	No	21.87	3.52	
Have you ever reported a danger or an incident	Yes	22.36	3.18	0.002
	No	21.17	3.69	

List of Abbreviations

HCW health care worker

Conflict of interest

The authors declare that they have no conflicts of interest regarding the publication of this article.

Funding

None.

Consent to participate

Participants provided online consent through the online survey.

Ethical approval

Ethical approval was obtained from Care IRB committee before the initiation of the study with a number: H-01-R-178. Each subject signed informed consent before being incorporated into the study.

Author details

Roua Ali[1], Fayo Haje[2], Najoud Alotaibi[3], Ghadeer Adel Alghamdi[3], Elaf Mudathir Osman Elgahori[4], Sujood Fathi Elbashir Elhassan[4], Maha Raed Theayb Eissa Roua Ali[3], Shahd Yousri Siddiq[5], Zakia Isam Ahmed Ibrahim[6], Basma Elshahat Gadallah[3], Elsayed Elfatih Elsayed Elhag[5]

1. CMR, Riyadh, Saudi arabia
2. General Practitioner, Care Medical Alrawabi, Riyadh, Saudi arabia
3. Obgyn Resident, Care Medical Alrawabi, Riyadh, Saudi arabia
4. General Practitioner, Care Medical Hospital, Riyadh, Saudi arabia
5. General Physician, ER, Dr Suliman Alhabib, Riyadh, Saudi arabia
6. Obgyne General Practitioner, Care Medical Hospital Rawabi, Riyadh, Saudi arabia

References

1. Arzahan IS, Ismail Z, Yasin SM. Safety culture, safety climate, and safety performance in healthcare facilities: a systematic review. Saf Sci. 2022;147:105624. https://doi.org/10.1016/j.ssci.2021.105624
2. Özer O, Özkan O, Özmen S, Çirakli U. Investigation of the perception of occupational safety, work stress and happiness in healthcare workers.

J Health Manag. 2023;25(4):813–9. https://doi.org/10.1177/09720634221078413

3. Wagner A, Rieger MA, Manser T, Sturm H, Hardt J, Martus P, et al. Healthcare professionals' perspectives on working conditions, leadership, and safety climate: a cross-sectional study. BMC Health Serv Res. 2019;19(1):53. https://doi.org/10.1186/s12913-018-3862-7
4. Naveen D, Tripathi DG. The influence of healthcare workers' awareness and attitudes on occupational safety and performance outcomes. S East Eur J Public Health. 2025;1:1402–10. https://doi.org/10.70135/seejph.vi.3944
5. Ceesay OM, Wen HC, Peng GS, Kao SY. Health care workers' safety perception and its relation to accidents, near accidents and physical complaints. Int J Adv Res Publ. 2019;3(5):183–91.
6. Kristensen S, Hammer A, Bartels P, Suñol R, Groene O, Thompson CA, et al. Quality management and perceptions of teamwork and safety climate in European hospitals. Int J Qual Health Care. 2015;27(6):499–506. https://doi.org/10.1093/intqhc/mzv079
7. Mchugh MD, Rochman MF, Sloane DM, Berg RA, Mancini ME, Nadkarni VM, et al. Better nurse staffing and nurse work environments associated with increased survival of in-hospital cardiac arrest patients. Med Care. 2016;54(1):74–80. https://doi.org/10.1097/MLR.0000000000000456
8. Katz AS, Pronk NP, Mclellan D, Dennerlein J, Katz JN. Perceived workplace health and safety climates: associations with worker outcomes and productivity. Am J Prev Med. 2019;57(4):487–94. https://doi.org/10.1016/j.amepre.2019.05.013
9. Alrasheadi BA, Alamri MS, Aljohani KA, Al-Dossary R, Albaqawi H, Alharbi J, et al. Nurses' perception of safety culture in medical–surgical units in hospitals in Saudi Arabia. Medicina (Kaunas). 2022;58(7):897. https://doi.org/10.3390/medicina58070897
10. Al Muharraq EH, Abdali F, Alfozan A, Alallah S, Sayed B, Makakam A. Exploring the perception of safety culture among nurses in Saudi Arabia. BMC Nurs. 2024;23(1):412. https://doi.org/10.1186/s12912-024-02077-7
11. Abegaz T, Deressa W, Moen BE. Association between safety climate, safety participation, safety compliance, and occupational injuries among workers in large-scale building construction projects in Ethiopia. Int Arch Occup Environ Health. 2025;98(7):685–94. https://doi.org/10.1007/s00420-025-02164-5
12. Kearney GD, Rodriguez G, Quandt SA, Arcury JT, Arcury TA. Work safety climate, safety behaviors, and occupational injuries of youth farmworkers in North Carolina. Am J Public Health. 2015;105(7):1336–43. https://doi.org/10.2105/AJPH.2014.302519
13. Hosny G, Elsayed EA, Shalaby EA. A comparative assessment of safety climate among petroleum companies. Egypt J Occup Med. 2017;41(2):307–24.
14. Silver SR, Boiano JM. Differences in safety climate perception by health care worker, work schedule, and workplace characteristics. Am J Med Qual. 2019;34(2):165–75. https://doi.org/10.1177/1062860618791757
15. Uzuntarla F, Kucukali S, Uzuntarla Y. An analysis on the relationship between safety awareness and safety behaviors of healthcare professionals. J Occup Health. 2020;62(1):e12129. https://doi.org/10.1002/1348-9585.12129
16. Chen WT, Merrett HC, Huang YH, Bria TA, Lin YH. Exploring the relationship between safety climate and worker safety behavior on building construction sites in Taiwan. Sustainability (Basel). 2021;13(6):3326. https://doi.org/10.3390/su13063326
17. Martiana T, Suarnianti. The determinants of safety behavior in hospital. Indian J Public Health Res Dev. 2018;9(4):147. https://doi.org/10.5958/0976-5506.2018.00273.5
18. Kumar L, Radhakrishnan B, Khalith M, Mateti Devi V, Venkatraman Vaidya A, Senthilnathan M, et al. Safety practices and perceptions among laboratory employees at a tertiary care hospital. Cureus. 2024;16(11):e73245. https://doi.org/10.7759/cureus.73245
19. Hertanto A, Erwandi D, Widanarko B, Tejamaya M. Relationship between safety climate and safety behavior in company X in Indonesia. Safety (Basel). 2023;9(4):89. https://doi.org/10.3390/safety9040089
20. Alshahrani A, Alshahrani R, Alshahrani H, Garmush S, Alshatwi H, Elmoughazi K, et al. Occupational health risk perception and determinants among sanitary workers in armed forces hospital of Southern Region. Egypt J Occup Med. 2026;50(1):45–63. https://doi.org/10.21608/ejom.2025.430048.1387