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Workplace Stress, Occupational Hazards, and Sickness Absenteeism among Healthcare Workers in a Pediatric Hospital in Baghdad, 2025

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ABSTRACT

Healthcare workers endure considerable occupational stress, workplace hazards, and increased sickness absenteeism undermining wellbeing and service delivery. This study assessed workplace stress, occupational hazards, and sickness absenteeism among Baghdad healthcare workers, exploring their prevalence, contributing factors, and interconnections. A cross-sectional study was conducted from April to June 2025 at Pediatric Hospital in Baghdad Al-Karkh, enrolling 210 healthcare workers through convenience sampling (response rate: 80.8%). Data were collected using a validated self-administered questionnaire (Cronbach's α=0.89) covering demographics, workplace stress, occupational hazards, and sickness absenteeism. Statistical analysis employed descriptive statistics, Chi-square tests, and multivariate logistic regression using SPSS version 26. Ethical approval was obtained per the Declaration of Helsinki. Among 210 participants (mean age 31.7±7.2 years; 81.0% female), 41.4% experienced frequent work-related stress (>5 days/week) and 47.6% reported high perceived stress. Primary stressors were long working hours (35.2%) and high workload (29.5%), negatively affecting physical health (87.1%) and mental health (80.5%). Needle stick injuries (38.6%) and infectious exposure (20.0%) were predominant hazards, with only 25.2% reporting consistent PPE availability. Sickness absenteeism affected 31.0% of participants over three months, mainly for ⩽7 days. Significant associations existed between sick leave and age, job title, work hours, and perceived stress ($p<0.05$). High perceived stress independently predicted sick leave (AOR=9.12, 95% CI: 4.15-20.04, $p=0.001$). Healthcare workers face significant occupational stress and hazards, with stress being the primary absenteeism predictor. Interventions require stress management, workload redistribution, improved safety measures, and mental health support. This pioneering comprehensive study linking workplace stress, hazards, and absenteeism in an Iraqi pediatric hospital provides crucial evidence for occupational health policy development in resource-constrained settings.

Keywords: Workplace Stress, Occupational Hazards, Sickness Absenteeism, Healthcare Workers, Baghdad

INTRODUCTION

Healthcare workers constitute the foundation of healthcare delivery systems globally, yet they encounter significant occupational challenges that threaten their health, wellbeing, and ability to provide optimal patient care (1). The healthcare sector is marked by high-stress environments, varied occupational hazards, and demanding working conditions that collectively result in elevated rates of sickness absenteeism (2). Comprehending the complex interconnections between workplace stress, occupational hazard exposure, and absenteeism patterns is crucial for developing evidence-based interventions that safeguard healthcare workers and maintain continuity of quality patient care (3).

Workplace stress among healthcare workers constitutes a critical public health issue worldwide (4). Current evidence demonstrates that healthcare workers experience stress levels surpassing 70%, substantially impairing their capacity to deliver optimal care (4). Following the pandemic, burnout rates among U.S. healthcare workers reached between 35.4% and 39.8% annually (2). The Centers for Disease Control and Prevention documented that healthcare workers experienced considerably more poor mental health days and elevated burnout rates in 2022 compared to 2018, with positive working conditions correlating with reduced mental health symptoms and burnout (5). Healthcare professionals regularly face multiple stressors including excessive workloads, emotional demands associated with patient care, inadequate resources, interpersonal conflicts, and organizational pressures that result in burnout syndrome and diminished performance (3).

Occupational hazards within healthcare settings include biological, chemical, physical, ergonomic, and psychosocial risks. Needlestick injuries constitute a particularly common hazard, with systematic review and meta-analysis showing a global incidence of 43% among healthcare workers, reaching 51% in Africa (6). Despite implementing safety measures, needlestick injuries continue to occur, with tertiary care hospitals documenting 1.82 episodes per 100 full-time equivalents annually (7). Approximately 8.6% of healthcare workers sustained needlestick and sharps injuries within the past year, occurring most frequently in operation theaters (8).

Sickness absenteeism presents a considerable challenge in healthcare organizations, impacting workforce availability, intensifying workload burden on remaining personnel, and potentially compromising patient care quality. Healthcare workers demonstrate higher absences attributable to psychological distress and job burnout compared to other sectors (9). During the COVID-19 pandemic, one-fifth of healthcare workers reported unplanned absenteeism, with burnout significantly associated with work absence (10). Among French healthcare workers, 55.2% reported burnout and 20.5% reported absenteeism, with poor sleep quality significantly linked to both outcomes (11).

In Iraq, particularly Baghdad, healthcare workers face distinctive challenges arising from prolonged conflict, infrastructure deterioration, resource constraints, and ongoing security concerns. Pediatric hospitals introduce additional complexities due to heightened emotional demands of caring for children, intensive family interactions, and specialized technical requirements. Pediatric healthcare workers face elevated risks of developing post-traumatic stress disorder, with workplace bullying identified as a significant predictor (12, 13).

Despite extensive international research on occupational health among healthcare workers, substantial knowledge gaps remain regarding these interconnected factors in Iraqi healthcare settings. No previous studies have comprehensively evaluated the simultaneous relationships between workplace stress, occupational hazard exposure, and sickness absenteeism patterns among healthcare workers in Baghdad's pediatric hospitals.

This study addresses this gap by providing the first comprehensive assessment of these occupational health determinants in an Iraqi pediatric hospital, aiming to assess workplace stress prevalence and associated factors, identify types and patterns of occupational hazards, and explore relationships between workplace stress, occupational hazard exposure, and sickness absenteeism patterns among healthcare workers in a Pediatric Hospital in Baghdad Al-Karkh, Iraq.

METHODS

Study Design and Setting

A cross-sectional study conducted from April to June 2025 at Pediatric Hospital in Baghdad Al-Karkh examined occupational health challenges among healthcare workers. This major Iraqi facility operates multiple departments with high patient volumes, employing diverse staff including physicians, nurses, technicians, and administrators across various shifts, creating an ideal environment for investigating workplace health issues.

Study Population and Sampling Strategy

The research targeted all healthcare workers at Pediatric Hospital in Baghdad Al-Karkh during the study period. Inclusion criteria required active employment with minimum one-year continuous service, ensuring adequate workplace exposure and organizational familiarity, plus voluntary participation with written informed consent. Exclusion criteria eliminated workers with under one-year tenure, those on extended leave, temporary/contractual staff with limited institutional engagement, and consent refusers.

Of 260 eligible healthcare workers approached, 210 completed questionnaires, achieving an 80.8% response rate. The study employed census-based convenience sampling, inviting all accessible eligible participants. While this non-probability approach enhanced feasibility in resource-limited settings and secured high participation, it constrains generalizability beyond this institutional context, necessitating caution when extrapolating findings to other Iraqi or regional healthcare facilities.

Data Collection Instrument

A structured, self-administered questionnaire was developed following comprehensive literature review and contextual adaptation, available in English and Arabic. The 33-item instrument comprised four sections:

Section 1 gathered demographic and occupational data including age, gender, marital status, education, professional role, experience duration, shift patterns, weekly hours, and departmental assignment.

Section 2 evaluated workplace stress through eight questions examining stress frequency, sources (workload, extended hours, inadequate support, conflicts, emotional burden, resource deficiencies, management problems), self-rated severity, employment termination consideration, managerial support satisfaction, and health consequences. Frequent stress was defined as exceeding five days weekly; high stress exceeded moderate intensity levels.

Section 3 assessed occupational hazards via five questions addressing hazard types (needlestick injuries, infectious exposures, musculoskeletal strain, chemical exposure, violence, falls), exposure frequency, safety measure adequacy, training receipt, and protective equipment availability.

Section 4 examined sickness absenteeism through eleven questions on sick leave utilization over three months, duration, reasons, decision-influencing factors, organizational support, and perceived administrative effectiveness.

Validity and Reliability

Content validity was established through expert review by occupational health specialists and administrators. Pilot testing with 20 healthcare workers (excluded from final analysis) evaluated clarity, comprehension, and feasibility, leading to minor refinements. Internal consistency reliability achieved Cronbach's alpha of 0.89, indicating excellent scale reliability.

Statistical Analysis

Data were analyzed using IBM SPSS Statistics version 26.0 with systematic quality assurance. Descriptive statistics characterized demographic profiles, stress prevalence, hazard patterns, and absenteeism. Continuous variables used means and standard deviations; categorical variables employed frequencies and percentages. Bivariate analyses examined associations between independent variables (demographics, stress, hazards) and sickness absenteeism using chi-square tests (Fisher's exact when appropriate). Multivariate logistic regression identified independent sick leave predictors, adjusting for confounders, with results as adjusted odds ratios and 95% confidence intervals. Statistical significance was set at $p<0.05$.

Ethical Considerations

Institutional Review Board approval followed national and Helsinki guidelines. Written informed consent was obtained after comprehensive explanation. Data anonymization and stringent privacy protections were maintained throughout.

RESULTS

Demographic and Occupational Characteristics

The study enrolled 210 healthcare workers with a mean age of 31.7 ± 7.2 years, predominantly in the 30–39 age group (50.5%). Females constituted the majority (81.0%), and most participants were married (56.7%). Educational attainment was high, with 57.6% holding bachelor's degrees and 17.6% doctoral qualifications. Medical staff represented the largest occupational category (71.0%), followed by nursing (11.0%), technical (9.0%), and administrative personnel (9.0%). Most workers had ≤7 years of experience (61.9%, mean: 7.9 ± 6.8 years), worked day shifts (67.6%), and reported a mean of 50.5 ± 11.3 weekly work hours, with 42.9% working 31–45 hours. The majority were assigned to pediatric departments (70.5%), while smaller proportions worked in outpatient clinics (11.4%) and surgical units (10.0%). (Table 1)

Table 1. Socio-demographic and occupational characteristics.

Variable	Category	n (%)
Age Group (years)	20–29	83 (39.5)
	30–39	106 (50.5)
	40–49	12 (5.7)
	≥50	9 (4.3)
	Mean ± SD: 31.7 ± 7.2	
Sex	Male	40 (19.0)
	Female	170 (81.0)
Marital Status	Single	88 (41.9)
	Married	119 (56.7)

	Divorced/Separated	3 (1.4)
Educational Level	Secondary School or Equivalent	14 (6.7)
	Diploma	28 (13.3)
	Bachelor's Degree	121 (57.6)
	Master's Degree	10 (4.8)
	Doctoral Degree	37 (17.6)
Job Title	Medical Staff	149 (71.0)
	Nursing Staff	23 (11.0)
	Technical Staff	19 (9.0)
	Administrative Staff	19 (9.0)
Years of Work Experience	≤7	130 (61.9)
	8–14	50 (23.8)
	15–21	18 (8.6)
	≥22	12 (5.8)
	Mean ± SD: 7.9 ± 6.8	
Work Shift	Day Shift	142 (67.6)
	Night Shift	9 (4.3)
	Day and Evening Shifts	59 (28.1)
Weekly Work Hours	≤30	55 (26.1)
	31–45	90 (42.9)
	46–60	59 (28.1)
	>60	6 (2.9)
	Mean ± SD: 50.5 ± 11.3	
Department of Work	Pediatrics	148 (70.5)
	Outpatient Clinics	24 (11.4)
	Surgery	21 (10.0)
	Emergency	10 (4.8)
	Intensive Care Unit	7 (3.3)

Workplace Stress Characteristics

Workplace stress was prevalent, with 41.4% experiencing frequent stress (defined as experiencing work-related stress more than five days per week) and 58.6% experiencing occasional stress. The primary stressors identified were long working hours (35.2%) and high workload (29.5%), followed by lack of resources (8.6%) and interpersonal conflicts (6.2%). Nearly half (47.6%) reported high perceived stress levels, and 66.2% had considered leaving their jobs due to stress, while 61.9% were dissatisfied with workplace support. The health impact was substantial, affecting physical health in 87.1% and mental health in 80.5% of workers. Notably, 54.3% felt uncomfortable discussing mental health issues at work, highlighting inadequate psychosocial support within the hospital environment (Figure 1, Table 2).

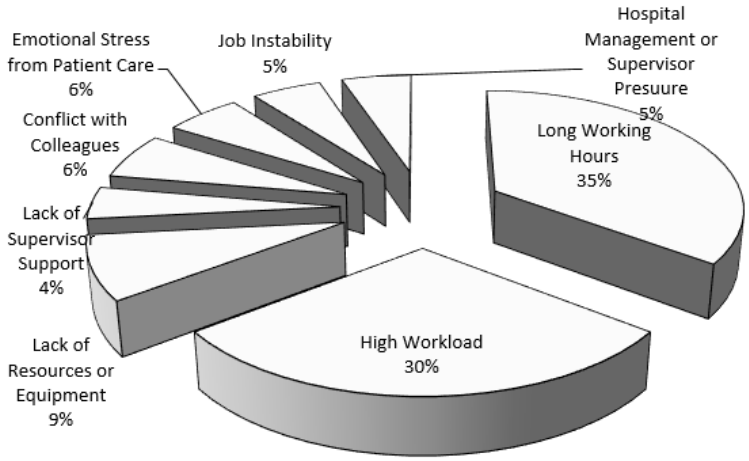

Figure 1. Main sources of work stress.

Table 2. Workplace stress and its sources.

Variable	Category	n (%)
Work-Related Stress Frequency	Never/Sometimes (1–2 days/week)	124 (58.6)

	Frequent (>5 days/week)	87 (41.4)
Perceived Stress Level	High	100 (47.6)
	Moderate/Low	110 (52.4)
Considered Leaving Job Due to Stress	Yes	139 (66.2)
	No	71 (33.8)
Satisfaction with Workplace Support	Dissatisfied	130 (61.9)
	Satisfied	80 (38.1)
Impact on Physical Health	Yes	183 (87.1)
	No	27 (12.9)
Impact on Mental Health	Yes	169 (80.5)
	No	41 (19.5)
Comfort Discussing Mental Health	Yes	96 (45.7)
	No	114 (54.3)

Occupational Hazards and Safety Measures

Needle stick injuries were the most common occupational hazard (38.6%), followed by exposure to infectious diseases (20.0%) and physical strain such as back pain (12.9%). Most participants (63.3%) experienced hazards occasionally (1–2 times/week), while 27.6% faced frequent exposure (≥3 times/week). Workplace safety measures were perceived as inadequate by 51.9% of respondents. Although 57.6% had received formal safety training, only 25.2% reported that personal protective equipment (PPE) was always available, with 47.6% indicating intermittent availability and 27.1% reporting it was never available, highlighting significant gaps in safety infrastructure and adherence to occupational health standards (Figure 2, Table 3).

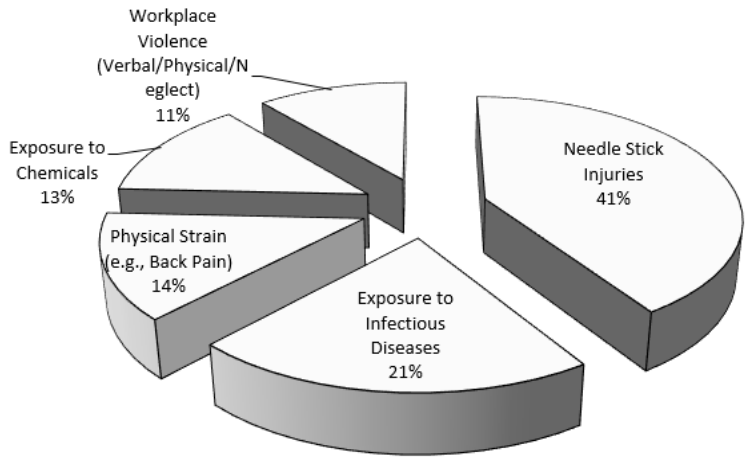

Figure 2. Types of occupational hazards experienced.

Table 3. Occupational hazards, safety measures, and PPE availability.

Variable	**Category**	**n (%)**
Frequency of Hazard Exposure	Frequently (≥3 times/week)	58 (27.6)
	Sometimes (1–2 times/week)	133 (63.3)
	Never (0 times/week)	19 (9.0)
Perception of Safety Measures at Workplace	Adequate	101 (48.1)
	Inadequate	109 (51.9)
Formal Safety Training Received	Yes	121 (57.6)
	No	89 (42.4)
Availability of Personal Protective Equipment (PPE)	Always Available	53 (25.2)
	Sometimes Available	100 (47.6)
	Never Available	57 (27.1)

Sickness Absenteeism and Management Practices

Approximately 31.0% of healthcare workers reported taking sick leave in the past three months, predominantly for short durations of ≤7 days (27.2%). Physical illness (25.7%) and psychological issues (3.3%) were the main reasons for absence, with work-related fatigue (26.7%) and need for rest or treatment (16.2%) influencing the decision to take leave. Conversely, responsibility toward patients (38.0%) and fear of work accumulation (27.7%) were major barriers to taking sick leave. Organizational support was limited, with only 39.5% reporting workplace support during illness and 47.1% rating management efficiency as poor. Furthermore, 61.9% indicated that employee feedback was not collected, 66.2% noted the absence of formal stress or hazard reporting policies, and 67.1% reported inadequate staffing levels for stress-free patient care (Figure 3, Table 4).

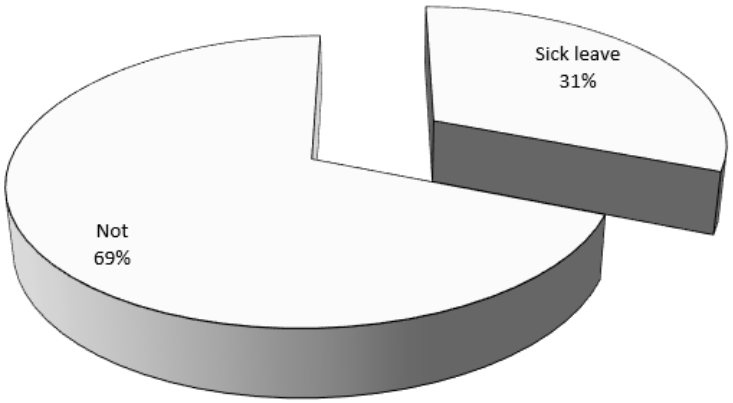

Figure 3. Prevalence of sick leave in past 3 months.

Table 4. Sick leave, stress impact, and management practices.

Variable	Category	n (%)
Number of Sick Leave Days (if Yes)	≤7 Days	57 (27.2)
	≥8 Days	8 (3.8)
Main Reason for Sick Leave	Physical Illness	54 (25.7)
	Psychological Issue	7 (3.3)
	Chronic Disease	4 (1.9)
	Family/Childcare Responsibilities	6 (2.9)
Factors Influencing Decision to Take Sick Leave	Work-Related Fatigue	56 (26.7)
	Need for Rest/Treatment	34 (16.2)
	Availability of Substitute Staff	30 (14.3)
	Doctor's Advice	17 (8.1)
Reasons for Avoiding Sick Leave	Responsibility Toward Patients	80 (38.0)
	Fear of Work Accumulation	58 (27.7)
	Lack of Substitute Staff	43 (20.5)
	Pressure from Management	29 (13.8)
Workplace Support During Illness	Yes	83 (39.5)
	No	127 (60.5)
Hospital Management Efficiency	Good	111 (52.9)
	Poor	99 (47.1)
Employee Feedback Collection	Yes	80 (38.1)
	No	130 (61.9)
Policy for Reporting Work Stress/Hazards	Yes	71 (33.8)
	No	139 (66.2)
Management Response to Reports	Responsive	100 (47.6)
	Not Responsive	110 (52.4)
Adequate Staffing for Stress-Free Care	Yes	69 (32.9)
	No	141 (67.1)

Association Between Demographic Variables and Sick Leave

Bivariate analysis revealed significant associations between sick leave and age group ($p=0.033$), job title ($p=0.006$), weekly work hours ($p=0.007$), and perceived stress level ($p=0.027$). Younger workers aged 20–29 years exhibited the highest sick leave prevalence (42.2%), while administrative staff reported markedly higher rates (63.2%) compared to medical (28.2%) and nursing staff (17.4%). Healthcare workers with high perceived stress were substantially more likely to take sick leave (55.0%) than those with moderate or low stress (9.0%). No statistically significant associations were observed for gender ($p=0.345$), marital status ($p=0.616$), educational level

(p=0.088), years of experience (p=0.326), work shift (p=0.324), department (p=0.073), or stress frequency (p=0.365) (Table 5).

Table 5. Demographic variables associated with sick leave.

Variable	Category	Sick Leave		p-value
		Yes (n=65)	No (n=145)	
Age Group (years)	20–29	35 (42.2)	48 (57.8)	**0.033**
	30–39	24 (22.6)	82 (77.4)	
	40–49	3 (33.3)	6 (66.7)	
	≥50	3 (25.0)	9 (75.0)	
Gender	Male	15 (37.5)	25 (62.5)	0.345
	Female	50 (29.4)	120 (70.6)	
Marital Status	Single	27 (30.7)	61 (69.3)	0.616
	Married	38 (31.9)	81 (68.1)	
	Divorced/Separated	0 (0.0)	3 (100.0)	
Educational Level	Secondary/Equivalent	2 (14.3)	12 (85.7)	0.088
	Diploma	12 (42.9)	16 (57.1)	
	Bachelor's	42 (34.7)	79 (65.3)	
	Master's	1 (10.0)	9 (90.0)	
	Doctoral	8 (21.6)	29 (78.4)	
Job Title	Medical Staff	42 (28.2)	107 (71.8)	**0.006**
	Nursing Staff	4 (17.4)	19 (82.6)	
	Technical Staff	7 (36.8)	12 (63.2)	
	Administrative Staff	12 (63.2)	7 (36.8)	
Work Experience (years)	≤7	44 (33.8)	86 (66.2)	0.326
	8–14	11 (22.0)	39 (78.0)	
	15–21	7 (38.9)	11 (61.1)	
	≥22	2 (20.0)	8 (80.0)	
Work Shift	Day	47 (33.1)	95 (66.9)	0.324
	Night	4 (44.4)	5 (55.6)	
	Both	14 (23.7)	45 (76.3)	
Weekly Work Hours	≤30	13 (23.6)	42 (76.4)	**0.007**
	31–45	23 (25.6)	67 (74.4)	
	46–60	25 (42.4)	34 (57.6)	
	>60	4 (66.7)	2 (33.3)	
Department of Work	Pediatrics	43 (29.1)	105 (70.9)	0.073
	Emergency	7 (70.0)	3 (30.0)	
	ICU	1 (14.3)	6 (85.7)	
	Surgery	6 (28.6)	15 (71.4)	
	Outpatient Clinics	8 (33.3)	16 (66.7)	
Work-Related Stress Frequency	Sometimes	41 (33.9)	82 (66.1)	0.365
	Frequent (>5 days/week)	24 (27.6)	63 (72.4)	
Perceived Stress Level	High	55 (55.0)	45 (45.0)	

Association between Workplace Stress, Occupational Hazards

A statistically significant association was observed between the frequency of occupational hazard exposure and workplace stress levels (p=0.001). Workers with no hazard exposure predominantly reported low stress (63.2%), while those with occasional exposure (1–2 times/week) showed a more balanced distribution across stress levels (48.9% low, 39.8% moderate, 11.3% high). Notably, frequent hazard exposure (≥3 times/week) was predominantly associated with moderate stress (87.9%), demonstrating a clear dose-response relationship between the frequency of hazard exposure and stress intensity among healthcare workers (Table 6).

Table 6. Association between workplace stress and occupational hazard exposure.

Frequency of Hazard Exposure	Low Stress (n, %)	Moderate Stress (n, %)	High Stress (n, %)	p-value
Never (0/week)	12 (63.2)	6 (31.6)	1 (5.3)	**0.001**
Sometimes (1–2/week)	65 (48.9)	53 (39.8)	15 (11.3)	
Frequently	3 (5.2)	51 (87.9)	4 (6.9)	

(≥3/week)				

Association between Workplace Stress and Sick Leave

A highly significant association was demonstrated between workplace stress and sick leave utilization. Healthcare workers with high perceived stress levels exhibited substantially elevated sick leave rates (55.0%) compared to those with low or moderate stress (9.1%) (p=0.001). Similarly, the frequency of work-related stress showed a significant association (p=0.005), with workers experiencing frequent stress (more than five days per week) reporting higher absenteeism (34.5%) than those with occasional stress (28.9%), while none of the participants reporting no stress took sick leave. These findings establish a strong stress-absenteeism relationship among healthcare staff (Table 7).

Table 7. Association between workplace stress and sick leave.

Variable	Sick Leave		p-value
	Yes (n, %)	No (n, %)	
Work-Related Stress Frequency			
Never (0/week)	0 (0.0)	2 (100.0)	**0.005**
Sometimes (1–2 days/week)	35 (28.9)	86 (71.1)	
Frequent (>5 days/week)	30 (34.5)	57 (65.5)	
Perceived Stress Level			
Low/Moderate	10 (9.1)	100 (90.9)	**0.001**
High	55 (55.0)	45 (45.0)	

Multivariate Predictors of Sick Leave

The multivariate logistic regression analysis revealed that high perceived stress was the strongest independent predictor of sick leave (AOR=9.12, p=0.001), indicating healthcare workers experiencing high stress were over nine times more likely to take sick leave compared to those with low-to-moderate stress. Administrative staff showed nearly three times higher odds of sick leave than medical personnel (AOR=2.90, p=0.013), while working over 45 hours weekly (AOR=1.78, p=0.041) and frequent hazard exposure (AOR=1.65, p=0.011) also significantly increased absenteeism risk. Notably, demographic factors including age, work experience, and gender showed no significant associations with sick leave patterns, suggesting that workplace conditions and psychological factors—particularly stress levels—are more critical determinants of sickness absenteeism than individual characteristics among healthcare workers at this pediatric hospital (Table 8).

Table 8. Multivariate logistic regression for predictors of sick leave.

Variable	Adjusted Odds Ratio (AOR)	95% CI	p-value
Perceived Stress Level (High vs Low/Moderate)	9.12	4.15–20.04	0.001
Job Title (Administrative vs Medical)	2.90	1.25–6.72	0.013
Weekly Work Hours (>45 vs ≤45)	1.78	0.95–3.13	0.041
Hazard Exposure (Frequent vs Never)	1.65	0.88–3.08	0.011
Age (20–29 vs ≥50 years)	1.25	0.98–1.43	0.18
Years of Work Experience (>7 vs ≤7)	1.11	0.48–1.73	0.77
Gender (Male vs Female)	0.82	0.45–1.51	0.52

DISCUSSION

This cross-sectional study provides comprehensive insights into workplace stress, occupational hazards, and sickness absenteeism among healthcare workers in a Pediatric Hospital in Baghdad Al-Karkh, Iraq. The findings reveal a concerning prevalence of work-related stress, substantial exposure to occupational hazards, and significant associations between these factors and absenteeism patterns, with important implications for healthcare workforce management and patient care quality.

The study identified a high prevalence of workplace stress, with 41.4% of healthcare workers experiencing frequent stress and 47.6% reporting high perceived stress levels. Long working hours and high workload emerged as the primary stressors, affecting over 64% of participants. The health impact was substantial, with stress affecting

physical health in 87.1% and mental health in 80.5% of workers. Notably, 66.2% had considered leaving their jobs due to stress. Needle stick injuries were the most prevalent occupational hazard (38.6%), followed by infectious disease exposure (20.0%). Regarding absenteeism, 31.0% of healthcare workers reported taking sick leave in the past three months. The multivariate analysis revealed that high perceived stress was the strongest independent predictor of sick leave (AOR=9.12, 95% CI: 4.15–20.04, p=0.001), underscoring the critical role of psychological wellbeing in workforce attendance.

The prevalence of workplace stress observed in this study aligns with findings from healthcare settings globally. A systematic review of healthcare worker stress in low- and middle-income countries reported stress prevalence ranging from 37% to 91% (14). The 47.6% high perceived stress level in our study is comparable to findings from a multicenter study in Iran, where 52.3% of hospital staff reported high stress levels (15), but exceeds those reported in European contexts, where stress prevalence ranges from 28% to 35% (16), potentially reflecting resource constraints and security challenges characteristic of post-conflict healthcare systems in Iraq.

The identification of long working hours and high workload as predominant stressors is consistent with international literature documenting these factors as universal contributors to healthcare worker burnout. The substantial proportion of workers considering job departure (66.2%) signals a workforce retention crisis comparable to that observed in other resource-limited settings.

The needle stick injury rate of 38.6% is considerably higher than the 15–20% reported in developed countries (17), but consistent with findings from other Middle Eastern contexts. A Lebanese study reported 42% prevalence among hospital workers (18), while a Saudi Arabian investigation documented 34.7% (19). This elevated risk may reflect inadequate safety infrastructure, limited training opportunities, and resource constraints affecting PPE availability. The finding that only 25.2% of workers reported PPE was always available is particularly concerning and contrasts sharply with international occupational health standards requiring universal PPE access (20).

The dose-response relationship between the frequency of occupational hazard exposure and stress levels identified in this study corroborates international evidence. A multicenter European study similarly demonstrated that frequent hazard exposure significantly increased burnout and psychological distress among healthcare workers (21). The finding that workers with frequent hazard exposure (≥3 times/week) predominantly experienced moderate stress (87.9%) provides quantitative evidence for the cumulative psychological burden of occupational safety concerns.

The 31.0% sick leave prevalence falls within the range reported in regional studies. A systematic review of absenteeism among Asian healthcare workers documented rates between 18% and 45% (22), while European studies typically report lower rates of 12–25% (23). The predominance of psychological stress as a predictor of absenteeism, compared to physical health factors, distinguishes our findings from some Western studies where chronic diseases and musculoskeletal disorders are more prominent absenteeism drivers (24).

The finding that administrative staff exhibited nearly three-fold higher absenteeism risk (AOR=2.90) compared to medical staff warrants particular attention. Administrative personnel face unique stressors including bureaucratic demands, limited professional recognition, and insufficient organizational support, yet receive less attention in occupational health interventions. This finding underscores the necessity of adopting a comprehensive approach to workforce wellbeing that extends beyond clinicians.

Policy Relevance and Healthcare System Implications

High perceived stress emerging as the strongest absenteeism predictor (AOR=9.12) has profound implications for Iraqi healthcare policy. Unlike unchangeable demographic factors, workplace stress represents a modifiable risk factor amenable to organizational intervention. The nine-fold absenteeism increase among highly stressed workers quantifies psychological distress's workforce impact, providing compelling evidence for prioritizing mental health support in resource allocation. This necessitates shifting from traditional physical hazard-focused approaches toward comprehensive psychosocial risk management.

The association between extended work hours (>45 hours weekly) and increased absenteeism (AOR=1.78) supports implementing evidence-based work hour regulations. Current staffing patterns create unsustainable cycles: understaffing leads to extended hours, increasing stress and absenteeism, further exacerbating shortages. Breaking this requires strategic workforce planning acknowledging overwork's productivity costs and investing in adequate staffing as cost-effective absenteeism reduction.

Multi-Level Healthcare System Recommendations

At the **institutional level**, hospitals must establish dedicated occupational health units for stress surveillance, hazard monitoring, and absenteeism tracking. The 66.2% lacking formal reporting policies represents critical governance gaps undermining worker protection. At the **governorate level**, Baghdad's health directorate should develop standardized protocols across pediatric facilities ensuring consistent safety standards, PPE provision, and psychosocial support. At the **national level**, Iraq's Ministry of Health should integrate occupational health

indicators into workforce planning, recognizing worker wellbeing as inseparable from healthcare system sustainability.

The 38.6% needlestick injury prevalence and 74.8% inadequate PPE availability constitute urgent priorities requiring immediate resource mobilization. Current safety investment appears insufficient, with occupational injury and absenteeism costs likely exceeding comprehensive safety program implementation costs.

Practical Interventions Required

Priority interventions include comprehensive mental health support programs with stress management training, psychological services, and workplace counseling, particularly given 54.3% feeling uncomfortable discussing mental health. Evidence-based sharps safety programs, universal PPE availability, and post-exposure protocols need immediate implementation. Organizational reforms must address workload distribution, staffing adequacy (67.1% reported inadequacy), and work hour regulation. Establishing formal reporting policies and employee feedback mechanisms addresses significant governance deficiencies.

Study Strengths and Limitations

Strengths include comprehensive multi-domain assessment, multivariate analysis strengthening causal inference, large sample size, high response rate (80.8%), and validated instrument (Cronbach's α=0.89). Limitations encompass cross-sectional design precluding causation, potential recall bias, single-center setting limiting generalizability, and convenience sampling restricting broader extrapolation. Future research requires longitudinal/multicenter designs, intervention effectiveness studies, and qualitative investigations exploring stress-absenteeism mechanisms.

CONCLUSION

This study provides the first comprehensive evidence on workplace stress, occupational hazards, and sickness absenteeism among healthcare workers in an Iraqi pediatric hospital, revealing significant burden that threatens both workforce wellbeing and healthcare service sustainability. Psychological stress emerged as the primary determinant of absenteeism, with highly stressed workers demonstrating nine-fold greater likelihood of taking sick leave compared to their less-stressed counterparts. Long working hours, excessive workload, frequent needle stick injuries, and limited access to personal protective equipment were identified as major contributors to stress and safety risks. A clear dose-response relationship between exposure to occupational hazards and stress severity underscores the cumulative psychological impact of unsafe conditions. The high rate of workers considering job resignation indicates a serious retention problem that threatens healthcare quality and service continuity. Administrative staffs were identified as particularly vulnerable, emphasizing the need for targeted interventions. Comprehensive strategies are urgently needed, including mental health support programs, enhanced safety infrastructure, equitable workload distribution, and adequate resource provision. Strengthened leadership commitment, policy reform, and investment in occupational health systems are crucial to protect worker wellbeing and sustain healthcare delivery. Future longitudinal and intervention-based studies are recommended to clarify causal links and assess the effectiveness of workplace health promotion in resource-limited settings.

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