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GARP INTERNATIONAL JOURNAL OF HEALTH SCIENCES



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Vol. 1, Issue 5, Pp.73-95; OCT., 2026

PREVALENCE AND PERCEIVED EFFECT OF OCCUPATIONAL BACK PAIN ON WORK PERFORMANCE AMONG EMERGENCY NURSES IN SELECTED HOPITALS IN BENIN CITY

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Abstract

ARTICLE INFO

Received Date: 17th Sept., 2026

Date Revised Received: 4th Oct., 2026

Accepted Date: 12th Oct., 2026

Published Date: 19th Oct., 2026

Citation: Ibhasuemonjie, Glory (2026):
Prevalence and perceived Effect of
Occupational Back Pain on Work
Performance among Emergency Nurses
in Selected Hospitals in Benin City:
GARP INTER. J. of Health Sciences Vol.1,
Issue 5, Pp. 73-95, Oct. 2026

This study examined the prevalence and perceived effect of occupational back pain on work performance among emergency nurses in selected healthcare facilities in Benin City, Edo State, and explored factors influencing its occurrence. A cross-sectional quantitative design and qualitative interviews were used. Data were collected from 210 emergency nurses using structured questionnaires, with a 99.1% response rate, while 12 nurses participated in in-depth interviews. Quantitative data were analyzed using descriptive and inferential statistics, while qualitative data were thematically analyzed. Findings showed that 74.8% of respondents had experienced occupational back pain, most commonly on a weekly basis, with moderate severity and predominant lower-back location. Occupational back pain had a generally negative perceived effect on work performance, with increased fatigue and physical exhaustion recording the highest mean score. Frequent lifting and transferring of patients and poor ergonomic workplace design were the leading contributing factors. Years of nursing experience and shift pattern were significantly associated with both the prevalence and perceived effect of occupational back pain, whereas age, gender, educational level, and job designation were not. Qualitative findings revealed that back pain developed gradually and was worsened by manual handling, prolonged standing, and staff shortages. Nurses reported restricted movement and reduced clinical performance and relied mainly on self-directed coping strategies in an environment with limited institutional support. The study concluded that occupational back pain was highly prevalent and negatively affected work performance. It recommended provision of ergonomic equipment, improved staffing, structured rest breaks, ergonomics education, occupational health policies, and modified duties for affected nurses.

Keywords: Occupational back pains, prevalence, effect on work performance, work performance, emergency nurses, emergency department.

Introduction

Occupational back pain is pain or discomfort in the back associated with work activities and workplace conditions. It is commonly linked to lifting, bending, twisting, repetitive movements, prolonged standing, and awkward postures. Among nurses, these exposures arise during patient lifting, transferring, repositioning, bedside care, and emergency procedures. Occupational back pain is a major work-related musculoskeletal concern because it can affect nurses' physical functioning, wellbeing, productivity, and ability to provide safe care (Jacquier-Bret & Gorce, 2023; Sun et al., 2023).

Evidence from different regions indicates that back pain is common among nurses. Reviews and cross-sectional studies report substantial prevalence across countries and clinical settings, although estimates vary according to population, measurement period, and work conditions. In African and Nigerian settings, limited staffing, heavy workloads, lack of patient-handling equipment, and weak ergonomic support may add to the burden (Kgakge et al., 2024; Ijabadeniyi & Fasae, 2023; Onigbanjo & Olu-Abiodun, 2025).

Emergency departments are especially demanding. Nurses respond to unpredictable patient needs, perform urgent procedures, move patients rapidly, and work rotating shifts under time pressure. These demands may encourage unsafe body mechanics and reduce opportunities for rest and recovery. Workload, shift work, sleep disturbance, and occupational stress can interact with physical exposures to aggravate musculoskeletal symptoms (Dong et al., 2022; Alrimali et al., 2024).

Back pain may restrict movement, reduce endurance and concentration, increase fatigue, and make routine nursing activities more difficult. Nurses may continue working despite pain, a pattern that can lower productivity even when it does not result in formal sick leave. In emergency settings, these effects are important because prompt action, concentration, safe patient handling, and accurate clinical decisions are essential to patient safety (Yang-Kun et al., 2021; Hou et al., 2025).

Although occupational back pain has been studied among general nursing populations, fewer studies focus specifically on emergency nurses across several facilities in Benin City. Local evidence is needed on prevalence, perceived effects on performance, and associated factors to guide practical workplace interventions. This study therefore assessed occupational back pain among emergency nurses in selected hospitals in Benin City, Edo State.

Statement of the problem

Emergency nurses regularly lift and transfer patients, reposition trauma victims, stand for extended periods, and perform physically strenuous procedures. These tasks can expose the spine to repeated mechanical stress. Inadequate staffing, heavy workload, long shifts, limited assistive equipment, and poor ergonomic practices may further increase risk. Occupational back pain can lead to discomfort, restricted movement, fatigue, reduced efficiency, absenteeism, and presenteeism, potentially affecting the quality and safety of patient care (Chowdhury et al., 2024; Gari et al., 2023).

Despite evidence of high prevalence among nurses, the burden and performance implications among emergency nurses in Benin City are not sufficiently documented. Without context-specific evidence, hospital managers may lack the information required to prioritise ergonomic equipment, staffing, training, and occupational health support. This study addresses that gap by examining prevalence, perceived effects on work performance, and factors associated with occupational back pain among emergency nurses in selected healthcare facilities.

Objectives of the study

The general objective of this study is to assess the prevalence and perceived effect of back ache on work performance: an occupational health hazard among emergency nurses in selected hospitals in Benin City. The specific objectives are to:

1. assess the prevalence of occupational back pain among emergency nurses in the selected healthcare facilities in Benin City;
2. assess the perceived effect of occupational back pain on work performance among emergency nurses in the selected healthcare facilities in Benin City;

Research questions

1. What is the prevalence of occupational back pain among emergency nurses in the selected healthcare facilities in Benin City?
2. What is the perceived effect of occupational back pain on work performance among emergency nurses in the selected healthcare facilities in Benin City?

Research hypothesis

The following null hypotheses will be tested in this study:

1. H_{01} : There is no significant relationship between the prevalence of occupational back pain and the perceived effect of occupational

back pain on work performance among emergency nurses in the selected healthcare facilities in Benin City.

2. H₀₂: There is no significant association between the prevalence of occupational back pain and selected socio-demographic characteristics (age, gender, marital status, educational qualification, years of professional experience, and work facility) among emergency nurses in the selected healthcare facilities in Benin City.
3. H₀₃: There is no significant association between the perceived effect of occupational back pain on work performance and selected socio-demographic characteristics (age, gender, marital status, educational qualification, years of professional experience, and work facility) among emergency nurses in the selected healthcare facilities in Benin City.

Literature Review

Concept of Occupational Back Pain

Occupational back pain refers to pain, discomfort, or functional limitation in the back that arises from or is aggravated by work-related activities. It may involve muscles, ligaments, intervertebral discs, joints, and nerves. The condition is multifactorial: physical exposures such as lifting and bending interact with psychosocial and organisational factors, including stress, workload, staffing, shift schedules, and availability of equipment (Rezaei et al., 2021; Gari et al., 2023).

Back pain can be classified by duration as acute, sub-acute, or chronic. Acute pain usually lasts less than six weeks, sub-acute pain persists for approximately six to twelve weeks, and chronic pain lasts longer than twelve weeks. It can also be described by anatomical location as upper, middle, or lower back pain. The lower back is frequently affected among nurses because patient handling, bending, and prolonged standing place repeated demands on the lumbar region (Bozic et al., 2022; Zafar et al., 2023).

Occupational Back Pain among Nurses

Nursing work involves repeated physical tasks, including supporting patients, lifting and transferring them, repositioning dependent patients, and maintaining awkward postures. Prolonged standing and repetitive movements add to cumulative strain. Emergency nurses may face additional risk because the work is unpredictable, time-sensitive, and characterised by high patient turnover. Limited time to obtain assistance or use equipment can make manual

handling more likely (Alrimali et al., 2024; Chowdhury et al., 2024).

A meta-analysis by Sun et al. (2023) estimated a high annual prevalence of work-related musculoskeletal disorders among nurses, with the lower back among the most affected body regions. Studies in Serbia, Palestine, South Africa, and Nigeria also report substantial prevalence, although estimates differ according to setting and period measured (Bozic et al., 2022; Zaitoon et al., 2024; Tafaune, 2021; Onigbanjo & Olu-Abiodun, 2025). Sahebi et al. (2022) estimated a pooled prevalence of low back pain of 50.3% among emergency medical services personnel, illustrating the occupational burden among emergency-care workers.

Nigerian evidence is relevant to the present study. Ijbadeniya and Fasae (2023) reported low back pain among nurses in tertiary health institutions in Ondo State and described effects on job performance. Osunde et al. (2023), studying nurses at the University of Benin Teaching Hospital, identified work-environment exposures such as manual lifting, awkward posture, prolonged shifts, and standing as relevant concerns. Onigbanjo and Olu-Abiodun (2025) also reported a substantial prevalence among nurses in a tertiary hospital in Ogun State.

Factors Associated with Occupational Back Pain

Physical and ergonomic factors include lifting or transferring patients, repositioning, bending, twisting, sustained awkward posture, repetitive movements, and prolonged standing. These activities may place repeated loads on the spine, especially when assistive equipment is unavailable or tasks are performed without adequate help (Rezaei et al., 2021; Ayane et al., 2023).

Organisational factors include understaffing, high patient load, work overload, extended shifts, rotating or night duty, insufficient rest, and inadequate equipment. These conditions increase the frequency of physically demanding tasks and may limit recovery between shifts. Research among hospital caregivers and nurses has linked workload, standing, night shifts, and patient-positioning tasks with back-pain risk (Medeni et al., 2024; Tefera et al., 2021).

Psychosocial factors such as occupational stress, emotional exhaustion, poor support, and sleep disturbance may worsen pain or limit coping. Individual characteristics including years of experience, body mass index, physical activity, and previous back-pain history may also influence vulnerability. Findings on demographic characteristics are not uniform across studies, suggesting that local work conditions and

exposure patterns should be considered alongside individual factors (Sun et al., 2021; Dong et al., 2022; Kim & Jeong, 2024).

Work Performance and the Effects of Back Pain

Work performance in nursing includes task performance such as patient assessment, medication administration, clinical procedures, and care-plan implementation and contextual performance, including communication, teamwork, and professional conduct. Back pain may affect both by reducing mobility, endurance, concentration, and speed. It can also increase fatigue and make patient handling or emergency procedures more difficult (Yang-Kun et al., 2021; Koyuncu et al., 2025).

The consequences may include reduced productivity, task avoidance, lower job satisfaction, and increased likelihood of errors. Absenteeism occurs when pain prevents attendance, whereas presenteeism occurs when nurses continue working while functioning below their usual capacity. Nurses may avoid taking leave despite discomfort because of professional commitment or staffing pressures, so self-reported effects on performance are important even where sick leave is uncommon (Hou et al., 2025; Rainbow et al., 2024).

Coping Strategies and Workplace Support

Nurses may respond to back pain by changing posture, adjusting bed height, seeking help from colleagues, taking short breaks, using lumbar support, stretching, taking medication, or seeking clinical care. Perumal and Lukman (2024) found that adjusting bed or plinth height was a commonly reported strategy. However, individual coping does not remove the occupational exposure when staffing, equipment, and work organisation remain unchanged.

Workplace prevention therefore requires a combination of safe patient-handling education, mechanical lifting aids, height-adjustable beds, adequate staffing, planned rest breaks, appropriate shift schedules, occupational health screening, and access to physiotherapy or modified duties. Supportive management and equipment availability can reduce the physical demands placed on nurses and help sustain performance.

Theoretical Framework: Job Demands–Resources Model

The Job Demands–Resources (JD-R) Model, developed by Bakker and Demerouti (2001), explains how job demands and job resources influence

employee wellbeing and performance. Job demands are physical, psychological, social, or organisational aspects of work that require sustained effort and carry costs. In emergency nursing, these include manual patient handling, prolonged standing, heavy workload, time pressure, and rotating shifts. Job resources are features that help workers achieve goals, reduce demands, or recover, including ergonomic equipment, adequate staffing, supervisory support, training, and rest opportunities.

The model is appropriate because high job demands combined with insufficient resources may contribute to strain and back pain, which can then reduce performance through fatigue, movement restriction, and impaired concentration. The model also supports practical interventions: improving equipment, staffing, training, shift arrangements, and management support may reduce demands or strengthen resources. Individual factors may modify vulnerability, but workplace conditions remain important targets for prevention.

Empirical Review

Studies reviewed consistently show that occupational back pain is common among nurses, although prevalence varies. Gilchrist and Pokorná (2021) reported that 84.7% of responding Czech nurses experienced low back pain in the previous year, while Bozic et al. (2022) reported 93.95% among nurses in Serbia. Zaitoon et al. (2024) found an annual prevalence of 78% among nurses in Palestine. In South Africa, Tafaune (2021) reported a 12-month prevalence of 73.2%. These differences reflect variation in populations, definitions, and work settings. Evidence from emergency and critical-care settings is particularly pertinent. Alrimali et al. (2024) found that 68.9% of emergency-department nurses in Saudi Arabia reported low back pain during the previous year. Tefera et al. (2021) reported a 76% prevalence among intensive-care nurses in Ethiopia and identified lack of assistive devices, lack of training, physical inactivity, and job stress as associated factors. Sahebi et al. (2022) estimated a pooled prevalence of 50.3% among emergency medical services personnel.

Studies also link pain to work performance. Rainbow et al. (2024), in a survey of 2,312 nurses in the United States, reported that pain particularly back pain was associated with perceived negative effects on work performance; patient load and shift length were modifiable work factors. Ijabadeniyi and Fasae (2023) described effects on job performance among Nigerian nurses. Yang-Kun et al. (2021) reported relationships between musculoskeletal disorders and work

performance among nursing staff. Together, these findings support examining both prevalence and perceived performance effects.

Research on risk factors points to patient handling, awkward posture, prolonged standing, workload, shift arrangements, and inadequate equipment. Onigbanjo and Olu-Abiodun (2025) found a 64.9% prevalence among nurses in a Nigerian tertiary hospital and identified patient lifting and movement as common contributors. Osunde et al. (2023) similarly highlighted work-environment exposures among nurses at UBTH. Medeni et al. (2024) found associations between low back pain and factors such as prolonged standing and working under stress. Perumal and Lukman (2024) examined both risk factors and coping strategies, identifying adjustment of bed or plinth height as a common response.

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Summary of Literature

The literature reviewed for this study examined occupational back pain (OBP) among nurses, with emphasis on its prevalence, occupational and individual risk factors, and coping strategies. Occupational back pain refers to back pain occurring in relation to work-related activities or exposures and is an important occupational health concern among nurses. The physical demands of nursing work, including lifting and transferring patients, repositioning dependent patients, prolonged standing, repeated bending, pushing and pulling equipment, and working in awkward postures, were consistently identified as important contributors. Inadequate staffing, high workload, prolonged shifts, limited access to lifting and transfer devices, and poor ergonomic practices may further increase nurses' exposure to occupational back strain. The consequences extend beyond individual discomfort and disability to include reduced work performance, absenteeism, sick leave, reduced quality of patient care, and possible workforce attrition.

The review showed that the prevalence of back pain among nurses varies across countries and healthcare settings, reflecting differences in occupational demands, work organisation and working conditions. Reported prevalence ranged from 39.6% in Uganda to over 78% in China. Occupational factors associated with increased risk included frequent patient handling, prolonged standing, awkward working postures, heavy workloads, inadequate staffing, shift work and assignment to high-intensity units such as intensive care and emergency departments.

Individual factors such as increasing age, longer work experience, female sex, high body mass index, poor posture and inadequate physical activity were also reported. Psychosocial factors, including work-related stress, role conflict and job dissatisfaction, may further contribute to the occurrence or persistence of occupational back pain.

The literature also identified several coping strategies used by nurses to manage occupational back pain and maintain their ability to work. These include modifying working posture, adjusting bed or plinth height, using appropriate body mechanics, taking short rest periods, performing stretching or physical exercises, using analgesics, seeking assistance from colleagues, and obtaining social support. However, the effectiveness and use of these strategies may depend on workplace conditions, availability of ergonomic resources, workload and organisational support. The ergonomic and biopsychosocial perspectives reviewed in this study therefore suggest that occupational back pain results from the interaction of physical work demands, workplace organisation, psychosocial conditions and individual characteristics rather than from a single cause.

Methodology

The study adopted a convergent parallel mixed-methods research design, comprising a descriptive cross-sectional quantitative design and a phenomenological qualitative design. It was conducted in four selected healthcare facilities in Benin City, Edo State: University of Benin Teaching Hospital (UBTH), Edo Specialist Hospital, Federal Neuro-Psychiatric Hospital, and Central Hospital. The target population consisted of 212 emergency nurses across the four hospitals.

Census sampling was used for the quantitative component, targeting all 212 eligible nurses, while purposive sampling was employed for the qualitative component. A total of 210 nurses participated in the quantitative survey, representing a 99.1% response rate, while 8–12 nurses were targeted for in-depth interviews until data saturation was achieved. Data were collected using a self-structured questionnaire

covering socio-demographic characteristics, prevalence of occupational back pain, its effects on work performance, and influencing factors. An in-depth interview guide was used to explore nurses' lived experiences, coping strategies, and perceptions.

The questionnaire was subjected to face and content validation by the project supervisor and an expert. Reliability was assessed through a pilot study involving 15 nurses outside the selected hospitals, using Cronbach's alpha, with a coefficient of 0.70 or above considered acceptable. Trustworthiness of the qualitative data was addressed through credibility, dependability, transferability, and confirmability. Data were collected through questionnaire administration and private, audio-recorded interviews, with informed consent obtained from participants.

Quantitative data were analysed using SPSS version 27.0. Frequencies, percentages, means, and standard deviations were used for descriptive analysis, while the Chi-square test examined associations between selected variables at a significance level of p less than 0.05. Qualitative interviews were transcribed verbatim and analysed thematically following Braun and Clarke's (2006) approach, with NVivo 14 used to organize and code the data. The findings from both components were considered together to provide a comprehensive understanding of occupational back pain, coping strategies, and perceived effects on work performance among emergency nurses.

Analysis, Results and Discussions

The study presents the analysis and interpretation of data collected on the prevalence and perceived effect of occupational back pain on work performance among emergency nurses in selected healthcare facilities in Benin City. A total of 212 questionnaires were administered to respondents during the period of data collection. Out of these, 210 questionnaires were properly completed and found suitable for analysis, resulting in a response rate of 99.1%. The data obtained were analyzed and presented using tables and figures in line with the research questions guiding the study.

Table 1: Socio-Demographic Characteristics of Respondents (n = 210)

Variable	Frequency (n)	Percentage (%)
Age		
18–24 years	11	5.2
25–34 years	81	38.6
35–44 years	71	33.8
45–54 years	35	16.7
55–64 years	12	5.7
65 years and above	0	0.0
Gender		
Male	45	21.4
Female	165	78.6
Marital Status		
Single	72	34.3
Married	125	59.5
Divorced/Separated	8	3.8
Widowed	5	2.4
Highest Educational Level		
No formal education	0	0.0
Primary	0	0.0
Secondary	6	2.9
Tertiary	204	97.1
Years of Nursing Experience		
Less than 1 year	10	4.8
1–5 years	59	28.1
6–10 years	63	30.0
11–15 years	43	20.5
Above 15 years	35	16.7

Table 1b Cont'd

Variable	Frequency (n)	Percentage (%)
Job Designation		
Staff Nurse	55	26.2
Senior Staff Nurse	64	30.5
Nursing Officer	72	34.3
Nursing Administrator	7	3.3
Others	12	5.7
Shift Pattern		
Day only	34	16.2
Night only	25	11.9
Rotating shifts	151	71.9
Ethnicity		
Edo	108	51.4
Igbo	54	25.7
Yoruba	34	16.2
Hausa	6	2.9
Others	8	3.8
Religion		
Christianity	192	91.4
Islam	14	6.7
Traditional/Other	4	1.9
Average Monthly Income		
Less than ₦50,000	4	1.9
₦50,000–₦100,000	29	13.8
₦101,000–₦200,000	101	48.1
Above ₦200,000	76	36.2

Table 1 presents the socio-demographic characteristics of the respondents. The findings showed that the highest proportion of respondents, 81 (38.6%), were aged 25–34 years, followed by 71 (33.8%) who were aged 35–44 years. The majority of the respondents were female, 165 (78.6%), while 45 (21.4%) were male. Regarding marital status, 125 (59.5%) were married, 72 (34.3%) were single, 8 (3.8%) were divorced/separated, and 5 (2.4%) were widowed. Concerning educational level, almost all the respondents, 204 (97.1%), had tertiary education, while 6 (2.9%) had secondary education. In terms of years of nursing experience, 63 (30.0%) had 6–10 years of experience, 59 (28.1%) had 1–5 years, 43 (20.5%) had 11–15 years, 35 (16.7%) had more than 15 years, and 10 (4.8%) had less than one year of experience. Regarding job designation, 72 (34.3%) were Nursing Officers, 64 (30.5%) were Senior Staff Nurses, 55 (26.2%) were Staff Nurses, 12 (5.7%) belonged to other designations, and 7 (3.3%) were Nursing Administrators. With respect to shift pattern, the majority of respondents, 151 (71.9%), worked rotating shifts, while 34 (16.2%) worked day shifts only and 25 (11.9%) worked night shifts only. Ethnically, 108 (51.4%) were Edo, 54 (25.7%) were Igbo, 34 (16.2%) were Yoruba, 8 (3.8%) belonged to other ethnic groups, and 6 (2.9%) were Hausa. Christianity was the predominant religion, reported by 192 (91.4%) respondents, followed by Islam with 14 (6.7%) and Traditional/Other religions with 4 (1.9%). Regarding average monthly income, 101 (48.1%) earned ₦101,000–₦200,000, 76 (36.2%) earned above ₦200,000, 29 (13.8%) earned ₦50,000–₦100,000, and 4 (1.9%) earned less than ₦50,000.

Research Question 1: What is the prevalence of occupational back pain among emergency nurses in the selected healthcare facilities in Benin City?

Table 2: Prevalence of Occupational Back Pain among Emergency Nurses (n = 210)

Item	Frequency (n)	Percentage (%)
Have you ever experienced back pain while performing nursing duties?		
Yes	157	74.8
No	53	25.2
How frequently do you experience back pain at work? (n = 157)		
Daily	51	32.5
Weekly	60	38.2
Monthly	30	19.1
Rarely	16	10.2
How long does your back pain usually last? (n = 157)		
Less than 1 week	83	52.9
1–4 weeks	48	30.6
1–3 months	19	12.1
More than 3 months	7	4.4
How would you describe the severity of your back pain? (n = 157)		
Mild	36	22.9
Moderate	79	50.3
Severe	34	21.7
Very severe	8	5.1
Which area of your back is mostly affected? (n = 157)		
Upper back	14	8.9
Middle back	24	15.3
Lower back	88	56.1
Multiple regions	31	19.7
When do you usually experience the pain? (n = 157)		
During duty	46	29.3
After duty	39	24.8
Both during and after duty	72	45.9
Do you consider your back pain to be work-related? (n = 157)		
Yes	139	88.5
No	18	11.5
Have you sought medical attention for your back pain? (n = 157)		
Yes	70	44.6
No	87	55.4
Does back pain affect your ability to perform nursing tasks effectively? (n = 157)		
Yes	117	74.5
No	40	25.5
Have you taken any preventive measures against back pain at work? (n = 157)		
Yes	101	64.3
No	56	35.7

Table 2 presents the prevalence and characteristics of occupational back pain among emergency nurses. The findings showed that 157 (74.8%) respondents had experienced back pain while performing nursing duties, while 53 (25.2%) had not. Among those who experienced back pain ($n = 157$), 60 (38.2%) reported experiencing it weekly, 51 (32.5%) daily, 30 (19.1%) monthly, and 16 (10.2%) rarely. Regarding duration of back pain, 83 (52.9%) reported that their pain usually lasted less than one week, 48 (30.6%) reported 1–4 weeks, 19 (12.1%) reported 1–3 months, and 7 (4.5%) reported more than three months. In terms of severity, 79 (50.3%) experienced moderate pain, 36 (22.9%) experienced mild pain, 34 (21.7%) experienced severe pain, and 8 (5.1%) experienced very severe pain. The lower back was the most commonly affected area, reported by 88 (56.1%) respondents, followed by multiple regions with 31 (19.7%), middle back with 24

(15.3%), and upper back with 14 (8.9%). Also, 72 (45.9%) respondents experienced pain both during and after duty, 46 (29.3%) during duty, and 39 (24.8%) after duty. Furthermore, 139 (88.5%) respondents considered their back pain to be work-related, while 18 (11.5%) did not. Concerning medical attention, 87 (55.4%) had not sought medical attention compared with 70 (44.6%) who had. A total of 117 (74.5%) reported that back pain affected their ability to perform nursing tasks effectively, while 40 (25.5%) reported no effect. Finally, 101 (64.3%) respondents had taken preventive measures against back pain at work, whereas 56 (35.7%) had not. Overall, the findings showed that occupational back pain was prevalent among the emergency nurses, with weekly occurrence, moderate severity, and lower back involvement being the most commonly reported characteristics.

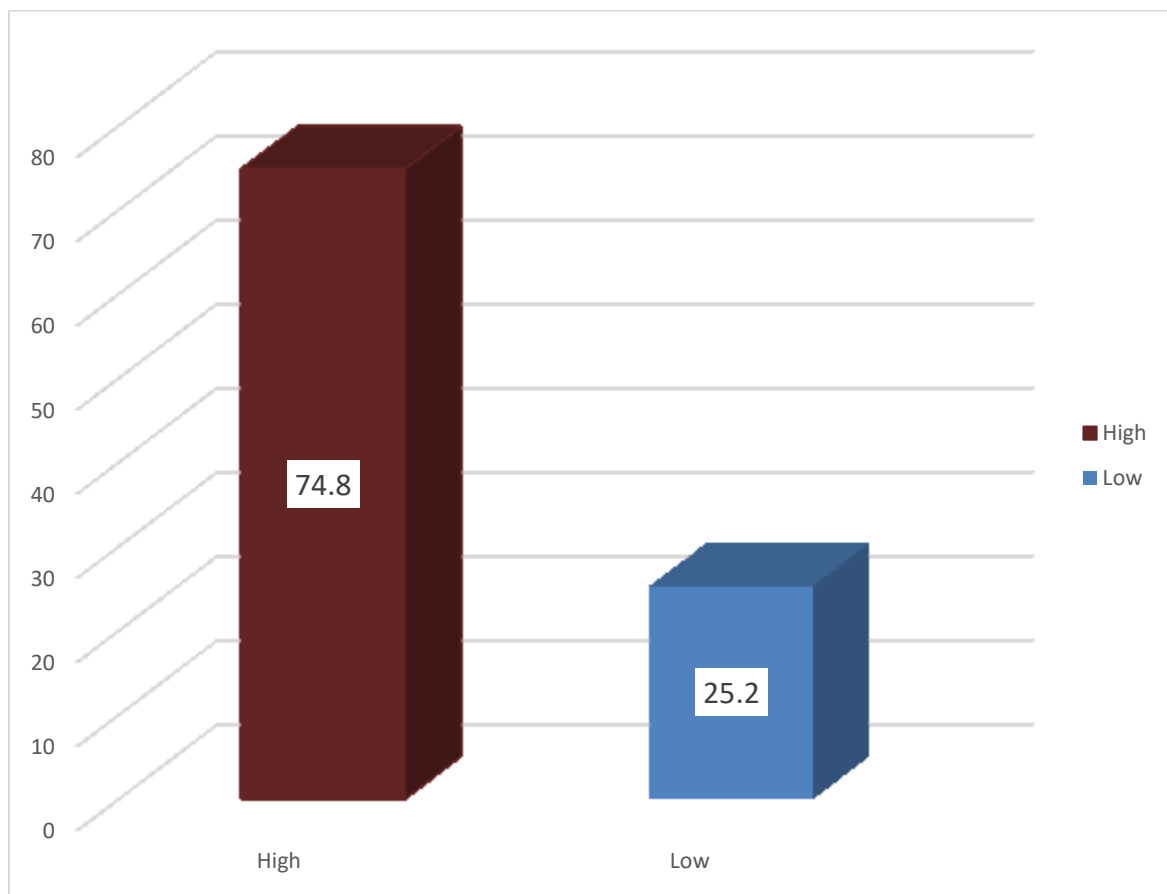


Figure 1: Bar Chart Showing Prevalence of Occupational Back Pain among Emergency Nurses

Figure 1 shows the prevalence of occupational back pain among the emergency nurses studied. Out of the 210 respondents, 157 (74.8%) reported experiencing occupational back pain, indicating a high prevalence, while 53 (25.2%) reported that they had not experienced occupational back pain.

Research Question 2: What is the perceived effect of occupational back pain on work performance among emergency nurses in the selected healthcare facilities in Benin City?

Table 3: Perceived Effect of Occupational Back Pain on Work Performance among Emergency Nurses (n = 210)

Item	Strongly Agree n (%)	Agree n (%)	Disagree n (%)	Strongly Disagree n (%)	Mean $\pm$ SD	Remark
Back pain reduces my ability to lift or transfer patients.	101 (48.1)	77 (36.7)	24 (11.4)	8 (3.8)	3.3 $\pm$ 0.8	PNE
Back pain affects my concentration while performing nursing tasks.	82 (39.0)	86 (41.0)	31 (14.8)	11 (5.2)	3.1 $\pm$ 0.9	PNE
I am less productive at work because of back pain.	87 (41.4)	83 (39.5)	29 (13.8)	11 (5.2)	3.2 $\pm$ 0.9	PNE
Back pain makes it difficult to stand or walk for long periods during duty.	105 (50.0)	73 (34.8)	25 (11.9)	7 (3.3)	3.3 $\pm$ 0.8	PNE
Back pain increases my fatigue and physical exhaustion.	111 (52.9)	72 (34.3)	20 (9.5)	7 (3.3)	3.4 $\pm$ 0.8	PNE
Back pain forces me to take more frequent breaks during duty.	78 (37.1)	81 (38.6)	38 (18.1)	13 (6.2)	3.1 $\pm$ 0.9	PNE
Back pain compromises the quality of care I provide to patients.	82 (39.0)	84 (40.0)	32 (15.2)	12 (5.7)	3.1 $\pm$ 0.9	PNE
I have considered taking sick leave because of back pain.	61 (29.0)	68 (32.4)	54 (25.7)	27 (12.9)	2.8 $\pm$ 1.0	PNE
Back pain limits my ability to perform emergency procedures effectively.	91 (43.3)	81 (38.6)	29 (13.8)	9 (4.3)	3.2 $\pm$ 0.8	PNE
I avoid certain nursing tasks because of back pain.	69 (32.9)	77 (36.7)	47 (22.4)	17 (8.1)	2.9 $\pm$ 0.9	PNE
Back pain affects my overall job satisfaction.	75 (35.7)	80 (38.1)	40 (19.0)	15 (7.1)	3.0 $\pm$ 0.9	PNE
Work-related back pain interferes with my personal life.	85 (40.5)	78 (37.1)	34 (16.2)	13 (6.2)	3.1 $\pm$ 0.9	PNE
Grand Mean $\pm$ SD					3.1 $\pm$ 0.8	PNE

Mean cut off = 2.5, * PNE= Perceived Negative Effect

Table 3 shows that all the assessed items had mean scores above the 2.5 decision cut-off and were therefore rated positive. The highest mean score was recorded for increased fatigue and physical exhaustion with a mean score of 3.4, indicating that these were the most noticeable effects of occupational back pain on the work performance of the emergency nurses. This was followed by reduced ability to lift or transfer patients and difficulty standing or walking for long periods during duty, which both recorded mean scores of 3.3. Reduced productivity and limitation in performing emergency procedures also recorded mean scores of 3.2 each, suggesting that occupational back pain affected the nurses' ability to carry out their duties effectively and efficiently. The lowest mean score was recorded for consideration of taking sick leave because of back pain with a mean score of 2.8,

although this still exceeded the decision cut-off. The grand mean of 3.1, which was above the 2.5 cut-off, indicates that occupational back pain had a negative perceived effect on the work performance of the emergency nurses.

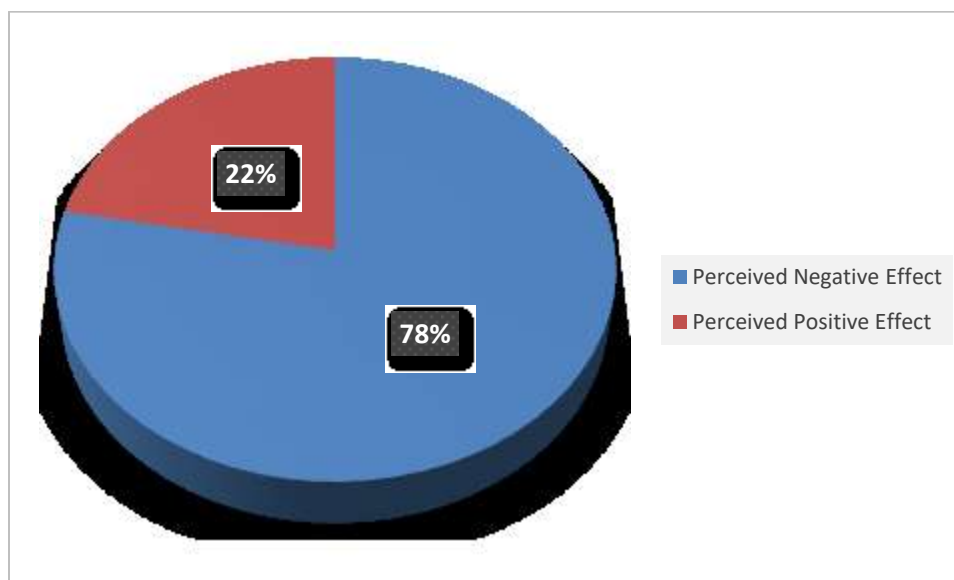


Figure 2: Pie Chart Showing Perceived Effect of Occupational Back Pain on Work Performance Among Emergency Nurses

The figure shows that 164 (78%) perceived occupational back pain as having a negative effect on their work performance, while 46 (22%) perceived a positive effect. Thus, the majority of the emergency nurses reported a positive perceived effect of occupational back pain on their work performance.

Hypothesis Testing

H_{01} There is no significant relationship between the prevalence of occupational back pain and the perceived effect of occupational back pain on work performance among emergency nurses in the selected healthcare facilities in Benin City

Table 4: Relationship between Prevalence of Occupational Back Pain and Perceived Effect on Work Performance among Emergency Nurses in Selected Healthcare Facilities in Benin City (n = 210)

Prevalence of Occupational Pain	Perceived Effect on Work Performance	Test Statistic (χ ²)	df	p-value	Decision	
	Negative n (%)	Positive n (%)				
High	138 (87.9)	19 (12.1)	39.42	1	0.000	Rejected
Low	26 (49.1)	27 (50.9)				

Table 4 shows the relationship between the prevalence of occupational back pain and its perceived effect on work performance among emergency nurses. There was a statistically significant relationship between prevalence of occupational back pain and perceived effect on work performance ($\chi^2 = 39.42$, $df = 1$, $p < 0.001$). Nurses with high prevalence of occupational back pain reported a higher proportion of negative effects on work performance (87.9%) compared with those with low prevalence (49.1%). Conversely, a positive effect was reported by 50.9%

of nurses with low prevalence compared with 12.1% of those with high prevalence. This indicates that nurses with high prevalence of occupational back pain were more likely to report a negative effect on their work performance.

H₀₂: There is no significant association between the prevalence of occupational back pain and socio-demographic characteristics among emergency nurses in the selected healthcare facilities in Benin City.

Table 5: Multivariate Logistic Regression Showing Association between Socio-Demographic Characteristics and Prevalence of Occupational Back Pain among Emergency Nurses (n = 210)

Variable	p-value	OR	95% CI for OR
Age Group			
18–24 years (Ref)	–	1.00	–
25–34 years	0.091	3.39	0.82 – 13.91
35–44 years	0.125	3.11	0.73 – 13.20
45–54 years	0.533	1.60	0.36 – 7.15
55–64 years	0.822	1.17	0.22 – 6.18
Gender			
Male (Ref)	–	1.00	–
Female	0.368	1.46	0.64 – 3.32
Highest Educational Level			
Secondary (Ref)	–	1.00	–
Tertiary	0.281	3.08	0.39 – 24.12
Job Designation			
Staff Nurse (Ref)	–	1.00	–
Senior Staff Nurse	0.264	1.61	0.70 – 3.73
Nursing Officer	0.435	1.33	0.65 – 2.73
Nursing Administrator	0.518	0.55	0.09 – 3.20
Others	0.781	0.82	0.21 – 3.25
Years of Nursing Experience			
Less than 1 year (Ref)	–	1.00	–
1–5 years	0.015*	6.55	1.44 – 29.80
6–10 years	0.021*	5.77	1.30 – 25.62
11–15 years	0.065	3.88	0.92 – 16.38
Above 15 years	0.142	3.27	0.68 – 15.82
Shift Pattern			
Day only (Ref)	–	1.00	–
Night only	0.926	1.05	0.37 – 2.96
Rotating shifts	0.004*	2.95	1.41 – 6.17

Key: OR = Odds Ratio; CI = Confidence Interval. *Significant at $p < 0.05$

Source: Researcher's computation using IBM SPSS Statistics version 27 (2026)

Table 5 shows the multivariate logistic regression analysis of the association between socio-demographic characteristics and the prevalence of occupational back pain among emergency nurses.

Age group, gender, highest educational level, and job designation were not statistically significantly associated with occupational back pain. Nurses aged 25–34 years had higher odds of experiencing back pain (OR = 3.39; 95% CI = 0.82–13.91; $p = 0.091$) compared with those aged 18–24 years, while those aged 35–44 years also had higher odds (OR = 3.11; 95% CI = 0.73–13.20; $p = 0.125$), although these associations were not statistically significant. Female nurses had higher odds of experiencing back pain than male nurses (OR = 1.46; 95% CI = 0.64–3.32; $p = 0.368$), but the association was not statistically significant.

Years of nursing experience was significantly associated with occupational back pain. Nurses with 1–5 years of experience had approximately 6.6 times higher odds of experiencing back pain (OR = 6.55; 95% CI = 1.44–29.80; $p = 0.015$), while those with 6–10 years of experience had approximately 5.8 times higher odds (OR = 5.77; 95% CI = 1.30–25.62; $p = 0.021$) compared with nurses with less than 1 year of

experience. However, the associations among nurses with 11–15 years (OR = 3.88; 95% CI = 0.92–16.38; $p = 0.065$) and above 15 years of experience (OR = 3.27; 95% CI = 0.68–15.82; $p = 0.142$) were not statistically significant.

Regarding shift pattern, nurses working rotating shifts had significantly higher odds of experiencing occupational back pain (OR = 2.95; 95% CI = 1.41–6.17; $p = 0.004$) compared with those working day-only shifts. Nurses working night-only shifts did not differ significantly from those working day-only shifts (OR = 1.05; 95% CI = 0.37–2.96; $p = 0.926$). Overall, after adjustment for the other socio-demographic characteristics, years of nursing experience and rotating shift work remained significant predictors of occupational back pain, whereas age, gender, educational level, job designation, and night-only shift pattern were not statistically significant.

H₀₃: There is no significant association between the perceived effect of occupational back pain on work performance and selected socio-demographic characteristics among emergency nurses in the selected healthcare facilities in Benin City.

Table 6: Association between Socio-Demographic Characteristics and Perceived Effect of Occupational Back Pain on Work Performance among Emergency Nurses (n = 210)

Variable	Perceived Negative Effect n (%)	Perceived Positive Effect n (%)	χ^2	p-value
Age Group			3.12	0.538
18–24 years	8 (72.7)	3 (27.3)		
25–34 years	66 (81.5)	15 (18.5)		
35–44 years	56 (78.9)	15 (21.1)		
45–54 years	25 (71.4)	10 (28.6)		
55–64 years	9 (75.0)	3 (25.0)		
Gender			0.31	0.578
Male	33 (73.3)	12 (26.7)		
Female	131 (79.4)	34 (20.6)		
Highest Educational Level			0.86	0.354
Secondary	4 (66.7)	2 (33.3)		
Tertiary	160 (78.4)	44 (21.6)		
Job Designation			2.94	0.568
Staff Nurse	41 (74.5)	14 (25.5)		
Senior Staff Nurse	52 (81.3)	12 (18.8)		
Nursing Officer	58 (80.6)	14 (19.4)		
Nursing Administrator	5 (71.4)	2 (28.6)		
Others	8 (66.7)	4 (33.3)		
Years of Nursing Experience			10.28	0.036*
Less than 1 year	5 (50.0)	5 (50.0)		
1–5 years	50 (84.7)	9 (15.3)		
6–10 years	51 (81.0)	12 (19.0)		
11–15 years	33 (76.7)	10 (23.3)		
Above 15 years	25 (71.4)	10 (28.6)		
Shift Pattern			8.79	0.012*
Day only	22 (64.7)	12 (35.3)		
Night only	17 (68.0)	8 (32.0)		
Rotating shifts	125 (82.8)	26 (17.2)		

Key: n = Frequency; % = Percentage; χ^2 = Chi-square *Significant at p < 0.05

Source: Researcher's computation using IBM SPSS Statistics version 27 (2026).

Table 6 shows the association between socio-demographic characteristics and the perceived effect of occupational back pain on work performance among emergency nurses. Age group (p = 0.538), gender (p = 0.578), highest educational level (p = 0.354), and job designation (p = 0.568) were not statistically significantly associated with the perceived effect of occupational back pain. However, years of nursing experience (p = 0.036) and shift pattern (p = 0.012) were statistically significantly associated with perceived effect. The proportion reporting a negative effect was highest among nurses with 1–5 years of experience (84.7%), followed by those with 6–10 years (81.0%), while it was lowest among those with less than 1 year of experience (50.0%).

Similarly, nurses working rotating shifts reported a higher proportion of negative effects (82.8%) compared with those working night-only (68.0%) and day-only shifts (64.7%).

Thematic Presentation of Qualitative Results

The qualitative component of this study yielded six primary thematic domains derived from in-depth interviews with emergency nurses regarding their experience of occupational back pain. A total of twenty-four subthemes emerged from the analysis, capturing distinct dimensions of participants' pain experiences, work-related contributors, performance impacts, coping strategies, institutional support realities, and recommended improvements. These themes are presented in Table 4.13 below.

Table 7: Themes and Subthemes

THEMES	SUBTHEMES
Lived Experience	• Pain Progression • Shift Timing • Severity Levels • Spinal Strain
Work Contributors	• Manual Handling • Static Standing • Awkward Posture • Staff Shortages
Performance Impact	• Movement Restriction • Activity Avoidance • Concentration Loss • Procedure Interruptions
Coping Strategies	• Postural Adaptations • Pharmacological Treatments • Lumbar Support • Spinal Decompression
Institutional Support	• Support Absence • Workforce Provision • Peer Assistance • Clinical Referrals
Recommended Improvements	• Ergonomic Equipment • Workforce Expansion • Ergonomic Education • Policy Reform

Theme 1: Lived Experience**Subtheme 1.1: Pain Progression**

The data reveal that occupational back pain among emergency nurses typically develops gradually rather than suddenly, emerging as a persistent complication of years spent in physically demanding clinical roles. Participants traced the onset of their pain to specific periods in their careers, often linking its emergence to repetitive lifting, bending, and prolonged periods of physical exertion associated with emergency nursing duties. Rather than resolving over time, the pain was described as progressively worsening, evolving from an occasional discomfort into a persistent, radiating condition. These accounts are illustrated in the excerpts below:

"It's been terrible. I've been having back pain for the past, let me say, three or four years now." (N01)

"It's a horrible experience in the sense that I remember like a few years back, three years ago, when I had such experience..." (N02)

"Over the last two years, I started experiencing persistent lower back stiffness that radiates to my right hip..." (N08)

"It began about two years ago... The repetitive lifting caused a dull, persistent ache in my lower spine that worsens after every shift." (N12)

Subtheme 1.2: Shift Timing

Findings show that the timing of pain onset relative to work shifts varied among participants, with some experiencing pain during active duty and others noticing it predominantly after their shifts ended. This variation appeared linked to participants' capacity to remain focused on patient care while on duty, with pain awareness often suppressed during active clinical engagement and surfacing once attention was no longer divided.

For others, the accumulation of physical strain across successive shifts, particularly nights and busy mornings, produced a pattern of gradually intensifying discomfort. These dynamics are captured in the following excerpts:

"I've had back pain on several occasions while working or while on duty as a nurse, but especially in Emergency Department..." (N03)

"Mine personally, it's most times after the shift. Because while working, my focus is on the patient..." (N05)

"Sometimes after... when I finish working for the day, that is when I experience the back pain. But sometimes, I also feel back pain while doing my job." (N07)

"I feel it after almost every night shift and busy morning shift. It is usually mild to moderate, but it builds up gradually..." (N10)

Subtheme 1.3: Severity Levels

Participants described a spectrum of subjective pain severity, ranging from mild discomfort to moderate pain that intensified under specific working conditions. The evidence suggests that severity was not static but fluctuated according to workload intensity, physical exertion, and patient volume on a given day. While some nurses characterized their pain as consistently manageable, others acknowledged that particularly demanding shifts pushed their discomfort into more severe territory. These perspectives are reflected in the excerpts below:

"Mine is mild; mine is not too severe." (N01)

"It's usually after working there... Okay, it's moderate." (N04)

"It's during the shift. Maybe when I put in extra effort... It's usually maybe moderate." (N06)

"The severity ranges from moderate to severe depending on the patient volume that day." (N09)

Subtheme 1.4: Spinal Strain

Beyond routine discomfort, several participants recounted acute episodes in which their back pain escalated dramatically, at times becoming incapacitating enough to interrupt clinical duties entirely. The evidence points to a trajectory of cumulative spinal injury, where sustained years of bedside physical labor produced diagnosable chronic conditions such as lumbar spondylosis among the most experienced nurses. These episodes illustrate the long-term physical toll of unmanaged occupational strain. These experiences are detailed in the excerpts below:

"So, there was this particular night I was on duty, and the back pain became so severe that I... almost collapsed." (N03)

"There was one day, as I was walking, in the process of wearing my trouser, my scrub, I just had sharp pain. I could not even move again." (N06)

"It has been a constant challenge... Over the last two years, I started experiencing persistent lower back stiffness..." (N08)

"Having spent decades in clinical nursing, my back pain is severe and chronic. Over time, cumulative spinal strain from bedside care has left me with lumbar spondylosis." (N11)

Theme Recommended Improvements

Subtheme Ergonomic Equipment

Participants consistently called for the provision of ergonomically designed equipment and infrastructure, particularly height-adjustable beds, mechanical patient lifters, and modern slide-sheets, as a direct means of reducing the physical strain associated with manual patient handling and prolonged bending. This recommendation reflects a shared understanding among nurses that structural and equipment-based solutions, rather than individual coping alone, are necessary to address the root causes of occupational back pain. These recommendations are illustrated in the excerpts below:

"For the hospital, they should provide comfortable chairs that will help us to sit well while we are on duty, and also those equipment that will help to lift the patient..." (N04)

"There should be proper equipment to work with, then especially maybe beds... Adjustable beds, yes, to our height, so that you will not need to bend too much..." (N05)

"Management should procure hydraulic adjustable beds and mechanical patient lifters." (N08)

"Management should equip all emergency bays with height-adjustable electronic beds, modern slide-sheets for smooth patient transfers..." (N12)

Discussion of Major Findings

The study found that 74.8% of emergency nurses had experienced occupational back pain. The lower back was the most commonly affected region, and respondents most frequently described weekly occurrence and moderate severity. This prevalence is comparable to the 73.2% 12-month prevalence reported by Tafaune (2021) among South African nurses and the high overall burden reported in the meta-analysis by Sun et al. (2023). It is also consistent with Nigerian studies documenting back pain among

nurses (Ijabadeniyi & Fasae, 2023; Onigbanjo & Olu-Abiodun, 2025). Differences between studies may reflect variations in setting, case definitions, work organisation, and measurement period. The high prevalence in this study is plausible given the physical demands and unpredictable workload of emergency nursing.

The lower back predominated, supporting research that identifies the lumbar region as especially vulnerable to patient handling, bending, and prolonged standing (Bozic et al., 2022; Zafar et al., 2023). Most affected respondents considered the pain work-related. However, 55.4% had not sought medical attention, indicating that a substantial proportion may manage symptoms without formal care. This finding supports the need for accessible occupational health screening and referral systems.

The overall mean for perceived effects on work performance was 3.1, above the decision cut-off. Fatigue and physical exhaustion had the highest mean, while difficulties with lifting, transferring, standing, and walking were also prominent. These findings align with Rainbow et al. (2024), who found that pain affected nurses' perceived work performance, and with Yang-Kun et al. (2021), who linked musculoskeletal disorders to work performance. The relatively lower mean for considering sick leave suggests that nurses may continue working despite pain. Continued attendance should not be interpreted as absence of impairment, because presenteeism may reduce capacity and make demanding tasks more difficult.

The association between prevalence and perceived effect was statistically significant. Nurses in the high-prevalence group were more likely to report negative effects on performance. Years of experience and rotating shifts were significantly associated with prevalence, and both years of experience and shift pattern were associated with perceived effects. These results suggest that cumulative exposure and work scheduling may be important targets for prevention. Other demographic characteristics were not statistically significant in the analyses presented. This is consistent with the view that workplace exposures and organisation may be more actionable than demographic factors alone.

Interview findings added context to the quantitative results. Participants described a gradual onset of pain linked to repeated patient handling and static postures, with symptoms sometimes becoming more noticeable after work. They reported movement restrictions, task avoidance, and interruptions to clinical duties.

The accounts of limited institutional support and reliance on individual coping strategies indicate that personal adjustments may be insufficient when the work environment remains unchanged. Participants' recommendations ergonomic equipment, adequate staffing, education, and policy reform are consistent with prevention strategies discussed in the literature (Gari et al., 2023; Perumal & Lukman, 2024).

The JD-R Model helps explain these findings: emergency nursing has high physical and psychological demands, while limited equipment, staffing, rest, and formal support may constrain the resources available to nurses. Prevention should therefore address both individual practice and organisational conditions. The study's cross-sectional design limits causal inference, and self-reported measures may be affected by recall or perception. Nevertheless, the high response rate and inclusion of qualitative interviews provide a useful picture of the problem in the selected facilities.

Hypothesis Testing

The hypothesis testing results revealed a statistically significant relationship between the prevalence of occupational back pain and its perceived effect on work performance, resulting in the rejection of the null hypothesis. Nurses with high prevalence of back pain reported a markedly higher proportion of negative effects on work performance than those with low prevalence. This finding directly supports Rainbow *et al.* (2024), who established a clear relationship between the presence and severity of pain and its negative impact on nursing work performance, and reinforces Yang-Kun *et al.* (2021), who found that increasing workload and associated musculoskeletal risk correspondingly reduced work ability among nursing staff. It similarly corroborates Tuna *et al.* (2022), who identified a statistically significant, though weak, positive correlation between musculoskeletal discomfort and reduced professional quality of life, and Ijabadeniyi and Fasae (2023), whose Nigerian sample similarly reported that low back pain reduced nurses' ability to care for patients and increased absenteeism.

The significant associations between years of nursing experience, shift pattern, and both the prevalence and perceived effect of occupational back pain, as demonstrated in the chi-square and logistic regression analyses, are consistent with Oluwanifemi (2025), who found a significant relationship between identified occupational risk factors, including long shifts and night duty, and the prevalence of low back pain among emergency nurses in Kwara State, and with Medeni *et al.* (2024), who similarly found that night shift work and

prolonged standing were significantly associated with elevated workload and low back pain scores among hospital caregivers. This pattern further validates Alrimali *et al.* (2024) and Dong *et al.* (2022), both of whom identified shift pattern as a key occupational determinant of musculoskeletal strain among emergency personnel specifically. Collectively, these findings reinforce the broader empirical consensus that occupational back pain is not merely a physical complaint isolated from clinical duty, but an active determinant of work performance among nursing personnel.

Summary of the Study

The study assessed the prevalence and perceived effect of occupational back pain on work performance among emergency nurses in four selected healthcare facilities in Benin City. It used a convergent mixed-methods design, with questionnaires completed by 210 nurses and interviews conducted with 12 purposively selected nurses. Quantitative data were analysed using descriptive and inferential statistics, while interview data were analysed thematically.

Occupational back pain was reported by 74.8% of respondents. Weekly occurrence, moderate severity, and lower-back location were common. The overall perceived effect on work performance was negative, with fatigue and physical exhaustion the most prominent effect. Prevalence was significantly associated with perceived effect. Years of nursing experience and rotating shifts were associated with prevalence, while years of experience and shift pattern were also associated with perceived effect. Qualitative findings indicated that pain developed gradually and was aggravated by manual handling, prolonged standing, awkward posture, and staff shortages. Nurses described reduced movement and performance, self-directed coping, limited institutional support, and a need for equipment and organisational change.

Conclusion

Occupational back pain is highly prevalent among emergency nurses in the selected hospitals in Benin City and is perceived to negatively affect work performance. Fatigue, difficulty handling patients, and difficulty standing or walking were prominent effects. Years of experience and rotating shift patterns were associated with the prevalence and perceived effect of pain. The qualitative findings suggest that individual coping is common but cannot replace workplace-level prevention. Coordinated action on ergonomics,

staffing, shift scheduling, training, and occupational health support is needed.

Recommendations

Based on the findings of the study, the following recommendations are made:

1. Healthcare facilities should provide and maintain height-adjustable beds, mechanical patient lifters, slide sheets, and other ergonomic equipment to reduce manual handling and prolonged bending.
2. Nursing management should review staffing levels and workload distribution and ensure structured rest breaks, particularly during periods of high emergency activity.
3. Hospital administrators should review shift schedules to reduce excessive exposure to rotating shifts and provide adequate recovery time between duties.
4. Pre-service and in-service nursing education should include practical ergonomics, safe patient-handling techniques, posture correction, and correct use of assistive equipment.
5. Facilities should establish occupational health procedures for routine screening, early reporting, clinical referral, physiotherapy access, and psychosocial support for nurses with back pain.
6. Nurse managers should consider temporary modified duties or redeployment for affected nurses to prevent worsening symptoms and reduce the risk of chronic disability.
7. Management should strengthen the support workforce, including porters and health assistants, and promote team-based patient handling rather than relying on informal assistance alone.

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