



Received: 09-06-2026
Accepted: 19-07-2026

International Journal of Advanced Multidisciplinary Research and Studies

ISSN: 2583-049X

The Influence of Nurses Physical Health on Job Performance: Exploring the Role of Exercise in Enhancing Patient Care

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Abstract

Background: Nurses play an essential role in maintaining the quality and safety on patient care. With the physical demands of their workloads, they were exposed to occupational health challenges that reduce physical capacity, repetitive movements, fatigue that may compromise job performance. Maintaining good physical health through regular exercise is known as an effective strategy for improving cardiovascular fitness, muscular strength, endurance, stress management, and overall well-being, however, there is limited evidence on relationship between perceived physical health among nurses and the factors that influence performance.

Aim: This study explores the relationship between nurses' physical activity and exercise habits and their perceived job performance, and explored differences according to age, gender, years of nursing experience, and work setting.

Method: A cross-sectional survey was conducted among 43 nurses employed in various health settings in Saudi Arabia using convenience sampling. A self-administered questionnaire collected data on demographic characteristics, exercise participation, frequency, type and duration, perceived effects of exercise on job performance, work-related strain and injuries, barriers to exercise, and interest

in workplace fitness programs. Descriptive statistics and chi-square tests were used to analyze the data.

Results: Findings have shown that majority of nurses (67.4%, $p = .022$) engaged in regular physical activity, mainly cardiovascular exercise (69.8%, $p = .010$), performed 1–2 times weekly (58.1%, $p = .001$) for 30–60 minutes (48.8%, $p = .003$). The majority (79.1%, $p < .001$) perceived that regular exercise improved their job performance, mostly by enhancing stamina during long shifts and reducing injury risk. Nearly half (48.8%) experienced work-related physical strain or injury within the past year, while 53.5% reported that exercise aided recovery or prevention ($p = .010$). Lack of time due to work schedules was the most frequently reported barrier (76.7%, $p < .001$). Interest in workplace fitness programs was almost universal (97.7%, $p < .001$). Sports participation, better stamina, cardio exercise and improved patient handling were predictors in enhancing patient care.

Conclusion: Improving nurses job performance were attributed to physical activity, better stamina and recovery from work strain. Workplace wellness initiatives should be implemented to address the scheduling constraints and promote participation in the exercise and improve workforce well-being.

Keywords: Physical Health, Job Performance, Patient Care, Occupational Health, Workplace Wellness Program

Introduction

Nursing is a physically demanding profession that requires long hours of standing, lifting, and repetitive movements, often leading to musculoskeletal disorders, fatigue, and other health complications. These physical challenges can negatively impact nurses' job performance, increasing the likelihood of medical errors and reducing the quality of patient care. Maintaining good physical health is essential for nurses to effectively perform their duties and provide high-quality healthcare services.

Regular physical activity has been widely recognized for its benefits in improving overall health, reducing stress, and enhancing work performance. In the healthcare sector, physically active nurses may experience improved endurance, reduced fatigue, and greater efficiency in performing their responsibilities. However, many nurses face barriers to maintaining an active lifestyle, including long working hours, demanding shifts, and workplace constraints.

Nursing is a noble profession that represents the largest proportion in the healthcare workforce. It is physically demanding that requires nurses to stand for a long time and perform routine repetitive tasks for about eight hours. A systematic reviews and meta-analyses reported that work-related musculoskeletal disorders affect more than eighty percent of nurses globally, with the lower back, neck, and shoulders identified as the most commonly affected regions (Gorce & Jacquier-Bret, 2025) ^[6]. Hence, understanding the relationship between nurses' physical health and job performance is crucial for developing effective strategies to improve healthcare outcomes. This study aims to examine how exercise habits influence nurses' physical well-being and job efficiency, ultimately contributing to better patient care. The findings will highlight the importance of workplace wellness programs that encourage exercise and support nurses' well-being.

Aim

This study aims to explore how nurses' physical health influences their ability to perform their job effectively. It determines whether regular physical activity contributes to better health, increased efficiency, and improved patient care.

Hypotheses

This study tested the following hypotheses:

H1: There is no significant association between age and exercise-related variables among nurses.

H2: There is no significant association between gender and exercise-related variables among nurses.

H3: There is no significant association between years of experience and Exercise-related variables among nurses.

H4: There is no significant association between work setting and exercise-related variables among nurses.

Materials and Methods

Research Design

This research was conducted through a descriptive, cross-sectional survey targeting nurses working in both public and private hospitals across Saudi Arabia. The survey gathered information on: Nurses' physical health conditions; their exercise habits and level of physical activity; how their physical well-being affects their job performance; the challenges they face in maintaining good physical health.

Data Collection Methods

This study focused on the physical health and job performance of nurses. A structured questionnaire was designed to collect data on the above aspects. This self-reported questionnaire contains questions that will measure the exercise related variables such as Physical activity participation; Exercise frequency; Cardio exercise; Strength training; Flexibility exercise; Sports participation; Workout duration; Perceived improvement in nursing performance; Improved patient handling; Better stamina; Reduced injury risk; Mental focus; Work-related injury; Exercise aids recovery; Lack of time; Fatigue; Lack of fitness facilities; Lack of motivation; and Interest in workplace fitness program. The scoring depends on each item's composition and options.

Sampling Characteristics

This study utilized a convenience sampling method across various hospital settings (public vs. private). This study has a total of 43 study participants. Eligibility criteria include nurses who are Saudi and Non Saudi working in the hospitals. Those incomplete responses and not willing to participate in the study will be considered exclusion criteria.

Survey Administration

This study was conducted from the period of March 1, 2025, to June 30, 2025. Once approved by the research committee of the university, the researchers started to distribute the survey link to the study participants. Using an online tool such as Google Forms, the link was sent to the respondents who consent to participate in the study. The survey was distributed electronically via email and online survey platforms to enhance accessibility and participation. The participants received an invitation that explains the study's purpose, procedures, - and confidentiality assurance. Informed consent was obtained from all participants before they begin the survey administration.

Study Preparation

Before conducting this research, the researchers ensure that all necessary documents such approval letters, permissions letters are secured. The researchers were attending a meeting with their research supervisor to discuss data collection approaches and ethical considerations.

Ethical Considerations

After obtaining informed consent and approval from the institutional review board (IRB) and hospital administration, the researchers ensure the anonymity and confidentiality of the data gathered. Participants were having the right to withdraw from the study at any time without due consequences.

Statistical Treatment

Once data collection is completed, the datasets were cleaned and prepared for statistical analysis. This is to ensure its accuracy and completeness. To proceed, the following were implemented: (1) Data Cleaning: Remove incomplete or inconsistent responses and prepare the dataset for analysis. (2) Descriptive Statistics: Summarize demographic characteristics and key variables using frequencies, percentages, mean and standard deviation. (3) Inferential Statistics: Conduct correlation analysis to explore relationships between physical health, exercise habits, and job performance. Pearson's Chi-square test to test for association of the demographic background and the exercise related health variables. (4) Statistical Software: The analysis was performed using SPSS version 29.0 for comprehensive statistical analysis.

Results and Findings

This part reveals the narrative interpretation of the study findings, situating the results supported by existing literature. It focuses on the meanings, direction and the significance as well as the implication of the results which focused on physical health affecting job performance.

Table 1: Demographic Characteristic of the Nurses (N=43)

Variables	Categories	Frequency (n)	Percentage (%)
Age	20 – 29 years old	15	34.9
	30 – 39 years old	18	41.9
	40 – 49 years old	4	9.3
	More than 50 years old	6	14.0
Gender	Male	10	23.3
	Female	33	76.7
Years of Nursing Experience	0 – 5 years	13	30.2
	6 – 10 years	8	18.6
	11 – 15 years	9	20.9
	Above 16 years	13	30.2
Work Setting	Hospital	37	86.0
	Clinic	4	9.3
	Community Health Center	2	4.7

The Table 1 shows the frequency distribution of the 43 nurses. Based on the results, it indicates that the largest proportion of respondents were aged 30–39 years, accounting for 41.9% (n = 18) of the sample. This was followed by those aged 20–29 years, representing 34.9% (n = 15). Participants aged 50 years and above constituted 14.0% (n = 6), while the smallest proportion belonged to the 40–49 years age group, representing 9.3% (n = 4). As for gender, females constituted the majority of respondents, representing 76.7% (n = 33) of the total sample, whereas males accounted for 23.3% (n = 10). As for length of experience, the respondents with 0–5 years of experience and those with 16 or more years of experience each represented the largest proportion of the sample, accounting for 30.2% (n = 13) respectively. Participants with 11–15 years of experience constituted 20.9% (n = 9), while those with 6–10 years of experience represented the smallest proportion at 18.6% (n = 8) and for the work setting, majority of respondents were employed in hospitals, accounting for 86.0% (n = 37) of the total sample. In contrast, 9.3% (n = 4) of participants worked in clinics, while only 4.7% (n = 2) were employed in community health centers.

Table 2: Frequency Distribution and chi-square according to question (Do you engage in any form of physical activity or exercise?) as perceived by nurses (n=43)

Responses	Frequency (n)	Percentage (%)	Chi-square	Sig.
Yes	29	67.4	5.233*	0.022
No	14	32.6		

Note: * The value of the chi-square is significant at 0.05 at 1 degree of freedom = 3.84

Table 2 presents that the majority of the study participants engage in physical activity or exercise, representing 67.4% of the sample, compared with 32.6% who reported not engaging in physical activity. The chi-square test revealed a statistically significant difference between the responses ($\chi^2 = 5.233$, $p = 0.022$), indicating that the proportion of participants who engage in physical activity was significantly higher than those who do not, reflecting a relatively high prevalence of physical activity participation among the study sample.

Table 3: Frequency Distribution and chi-square according to question (If yes, how often do you exercise in a week?) as perceived by nurses (n=43)

Responses	Frequency (n)	Percentage (%)	Chi-square	Sig.
1-2 times	25	58.1	14.140*	0.001
3-4 times	13	30.2		
More the 5 times	5	11.6		

Note: * The value of the chi-square is significant at 0.05 at 2 degree of freedom = 5.99

Table 3 reveals that the largest proportion of the study participants reported exercising 1–2 times per week, accounting for 58.1% of the sample, followed by those who exercised 3–4 times per week (30.2%), while only 11.6% reported exercising 5 or more times per week. The chi-square test revealed a statistically significant difference among the response categories ($\chi^2 = 14.140$, $p = 0.001$), indicating that exercising 1–2 times per week was significantly more prevalent than the other exercise frequency categories. These findings suggest that although physical activity is common among the participants, most engage in exercise at a moderate rather than a high frequency.

Table 4: Frequency Distribution and chi-square according to question (What type of physical activity do you usually perform?) as perceived by nurses (n=43)

Responses		Frequency	Percentage	Chi-square	Sig.
Cardio (running, walking, cycling)	Yes	30	69.8	6.721*	0.010
	No	13	30.2		
Strength Training (Weightlifting, resistance exercise)	Yes	7	16.3	19.558*	0.000
	No	36	83.7		
Flexibility (Yoga, stretching)	Yes	6	14.0	22.349*	0.000
	No	37	86.0		
Sports (Basketball, swimming etc)	Yes	7	16.3	19.558*	0.000
	No	36	83.7		

Note: * The value of the chi-square is significant at 0.05 at 1 degree of freedom = 3.84

Table 4 illustrates the distribution of participants according to the type of physical activity they usually perform. The results implies that cardiovascular activities (running, walking, and cycling) were the most commonly practiced form of exercise, with 69.8% of respondents reporting participation, compared to 30.2% who did not engage in such activities. The chi-square test showed a statistically significant predominance of participation in cardiovascular activities ($\chi^2 = 6.721$, $p = 0.010$). In contrast, participation in strength training exercises was reported by only 16.3% of respondents, while 83.7% did not engage in this type of activity, with the difference being statistically significant ($\chi^2 = 19.558$, $p < 0.001$). Similarly, flexibility exercises such as yoga and stretching were practiced by 14.0% of participants, whereas 86.0% reported not performing them, reflecting a statistically significant difference ($\chi^2 = 22.349$, $p < 0.001$). Participation in sports activities, including basketball and swimming, was also limited, with only 16.3% reporting engagement compared to 83.7% who did not participate ($\chi^2 = 19.558$, $p < 0.001$). Overall, these findings suggest that

cardiovascular activities constitute the predominant form of physical activity among the study participants, whereas participation in strength training, flexibility exercises, and sports activities remains relatively low.

Table 5: Frequency Distribution and chi-square according to question (How long is your average workout session?) as perceived by nurses (n=43)

Responses	Frequency	Percentage	Chi-square	Sig.
Less than 30 minutes	18	41.9	11.488*	0.003
30-60 minutes	21	48.8		
More than 1 hour	4	9.3		

Note: ** The value of the chi-square is significant at 0.05 at 2 degrees of freedom = 5.99

Table 5 shows that the most common average workout duration among the study participants was 30–60 minutes, reported by 48.8% of respondents, followed by less than 30 minutes (41.9%), whereas only 9.3% reported exercising for more than one hour per session. The chi-square test revealed a statistically significant difference among the response categories ($\chi^2 = 11.488$, $p = 0.003$), indicating that workout sessions lasting 30–60 minutes were significantly more prevalent than longer-duration sessions. These findings suggest that most participants engage in exercise sessions of moderate duration, which is generally consistent with recommended physical activity guidelines for maintaining health and physical fitness.

Table 6: Frequency Distribution and chi-square according to question (Do you feel that regular physical activity helps you perform your nursing duties more effectively?) as perceived by nurses (n=43)

Responses	Frequency (n)	Percentage (%)	Chi-square	Sig.
Strongly Agree	11	25.6	37.349*	0.001
Agree	23	53.5		
Neutral	6	14.0		
Disagree	1	2.3		
Strongly Agree	2	4.7		

Note: * The value of the chi-square is significant at 0.05 at 4 degrees of freedom = 9.49

Table 6 presents that the majority of participants believed that regular physical activity help them perform their nursing duties more effectively. More than half of the respondents (53.5%) agreed with this statement, while 25.6% strongly agreed. In contrast, only 2.3% disagreed and 4.7% strongly disagreed, whereas 14.0% remained neutral. The chi-square test revealed a highly statistically significant difference among the response categories ($\chi^2 = 37.349$, $p < 0.001$), indicating a clear tendency toward agreement. These findings suggest that most nurses perceive regular physical activity as an important factor that enhances their effectiveness in performing nursing responsibilities, potentially through improvements in physical fitness, energy levels, and work capacity.

Table 7: Frequency Distribution and chi-square according to question (In what ways do you think exercise has impacted your job performance?) as perceived by nurses (n=43)

Responses		Frequency (n)	Percentage (%)	Chi-square	Sig.
Improved strength for patient handling	Yes	19	44.2	0.581	0.446
	No	24	55.8		
Better stamina during long shifts	Yes	14	32.6	5.233*	0.022
	No	29	67.4		
Reduced risk of injury	Yes	12	27.9	8.395*	0.004
	No	31	72.1		
Enhanced mental focus and reduced stress	Yes	23	53.5	0.209	0.647
	No	20	46.5		

Note: * The value of the chi-square is significant at 0.05 at 1 degree of freedom = 3.84

Table 7 outlines participants' perceptions of how exercise has influenced their job performance. The results indicate that 44.2% of respondents believed that exercise improved their strength for patient handling, while 55.8% did not report this benefit; however, the difference was not statistically significant ($\chi^2 = 0.581$, $p = 0.446$). Similarly, 53.5% of participants reported that exercise enhanced their mental focus and reduced stress compared with 46.5% who did not, with no statistically significant difference observed ($\chi^2 = 0.209$, $p = 0.647$). In contrast, statistically significant differences were found regarding better stamina during long shifts ($\chi^2 = 5.233$, $p = 0.022$) and reduced risk of injury ($\chi^2 = 8.395$, $p = 0.004$). Specifically, 32.6% of respondents indicated that exercise improved their stamina during long working shifts, while 27.9% reported that it reduced their risk of injury. Overall, the findings suggest that participant's most commonly perceived exercise as contributing to enhanced mental focus and stress reduction, whereas perceptions regarding improvements in physical endurance and injury prevention showed statistically significant response patterns.

Table 8: Frequency Distribution and chi-square according to question (Have you experienced any physical strain or injury at work in the past year?) as perceived by nurses (n=43)

Responses	Frequency (n)	Percentage (%)	Chi-square	Sig.
Yes	21	48.8	0.023	0.879
No	22	51.2		

Note: *The value of the chi-square is significant at 0.05 at 1 degree of freedom = 3.84

Table 8 shows that 48.8% of the participants reported experiencing physical strain or injury at work during the past year, whereas 51.2% indicated that they had not experienced any physical strain or injury. The chi-square test revealed no statistically significant difference between the response categories ($\chi^2 = 0.023$, $p = 0.879$), indicating that the proportions of respondents who experienced physical strain or injury and those who did not were relatively similar. These findings suggest that work-related physical strain and injuries remain a common concern among nurses, affecting nearly half of the study sample.

Table 9: Frequency Distribution and chi-square according to question (If yes, do you believe engaging in physical exercise has helped with recovery or prevention?) as perceived by nurses (n=43)

Responses	Frequency (n)	Percentage (%)	Chi-square	Sig.
Yes, significantly	23	53.5	9.116*	0.010
Yes, somewhat	13	30.2		
No impact	7	16.3		

Note: * The value of the chi-square is significant at 0.05 at 2 degree of freedom = 5.99

Table 9 reveals that more than half of the study participants (53.5%) believed that engaging in physical exercise significantly helped with recovery from or prevention of work-related physical strain and injuries. Additionally, 30.2% reported that exercise helped to some extent, whereas only 16.3% indicated that exercise had no impact. The chi-square test revealed a statistically significant difference

among the response categories ($\chi^2 = 9.116$, $p = 0.010$), indicating a clear tendency toward positive perceptions of the role of exercise in recovery and injury prevention. These findings suggest that most nurses recognize physical exercise as an effective strategy for reducing the adverse effects of occupational physical demands and promoting recovery from work-related strain and injuries.

Table 10: Frequency Distribution and chi-square according to question (What are the main barriers preventing you from exercising regularly?) as perceived by nurses (n=43)

Responses		Frequency (n)	Percentage (%)	Chi-square	Sig.
Lack of time due to work schedule	Yes	33	76.7	12.302*	0.000
	No	10	23.3		
Fatigue after shifts	Yes	23	53.5	0.209	0.647
	No	20	46.5		
Lack of access to fitness facilities	Yes	8	18.6	16.953*	0.000
	No	35	81.4		
Lack of motivation	Yes	9	20.9	14.535*	0.000
	No	34	79.1		

Note: *The value of the chi-square is significant at 0.05 at 1 degree of freedom = 3.84

Table 10 presents the main barriers that prevent participants from exercising regularly. The results indicate that lack of time due to work schedules was the most frequently reported barrier, with 76.7% of respondents identifying it as an obstacle to regular exercise, compared with 23.3% who did not perceive it as a barrier. This difference was statistically significant ($\chi^2 = 12.302$, $p < 0.001$). Fatigue after shifts was also commonly reported, with 53.5% indicating it as a barrier; however, the difference was not statistically significant ($\chi^2 = 0.209$, $p = 0.647$).

In contrast, lack of access to fitness facilities and lack of

motivation were reported by smaller proportions of participants, accounting for 18.6% and 20.9%, respectively. Nevertheless, the distributions of responses for both barriers were statistically significant ($\chi^2 = 16.953$, $p < 0.001$ and $\chi^2 = 14.535$, $p < 0.001$, respectively), reflecting a clear predominance of participants who did not consider these factors to be major obstacles. Overall, the findings suggest that work-related constraints, particularly limited time availability, represent the primary barrier to regular physical activity among the study participants.

Table 11: Frequency Distribution and chi-square according to question (Would you be interested in workplace programs that promote physical fitness for nurses?) as perceived by nurses (n=43)

Responses	Frequency (n)	Percentage (%)	Chi-square	Sig.
Yes	42	97.7	39.093	0.000
No	1	2.3		

Note: *The value of the chi-square is significant at 0.05 at 1 degree of freedom = 3.84

Table 11 shows that an overwhelming majority of the study participants expressed interest in workplace programs designed to promote physical fitness among nurses, with 97.7% responding "Yes," compared with only 2.3% who responded "No." The chi-square test revealed a highly statistically significant difference between the response categories ($\chi^2 = 39.093$, $p < 0.001$), indicating a strong

preference for and acceptance of workplace-based physical fitness initiatives. These findings highlight the substantial demand for organizational programs that support nurses' physical well-being and suggest that implementing such initiatives may be well received and could contribute to improving nurses' health, work performance, and overall quality of patient care.

Table 12: The Association between Age and Exercise-Related Variables among Nurses

Variable	χ^2	df	p-value	Decision	Interpretation
Physical activity participation	1.962	3	.580	Fail to reject H_0	Not significant
Exercise frequency	5.692	6	.459	Fail to reject H_0	Not significant
Cardio exercise	10.392	3	.016*	Reject the H_0	Significant
Strength training	7.210	3	.065	Fail to reject H_0	Not significant
Flexibility exercise	3.346	3	.341	Fail to reject H_0	Not significant
Sports participation	6.803	3	.078	Fail to reject H_0	Not significant
Workout duration	13.408	6	.037*	Reject the H_0	Significant
Perceived improvement in nursing performance	13.148	12	.358	Fail to reject H_0	Not significant
Improved patient handling	10.516	3	.015*	Reject the H_0	Significant
Better stamina	10.159	3	.017*	Reject the H_0	Significant
Reduced injury risk	0.834	3	.841	Fail to reject H_0	Not significant
Mental focus	7.650	3	.054	Fail to reject H_0	Not significant
Work-related injury	3.245	3	.355	Fail to reject H_0	Not significant
Exercise aids recovery	8.442	3	.207	Fail to reject H_0	Not significant
Lack of time	1.662	3	.645	Fail to reject H_0	Not significant
Fatigue	4.100	3	.251	Fail to reject H_0	Not significant
Lack of fitness facilities	4.039	3	.257	Fail to reject H_0	Not significant
Lack of motivation	8.860	3	.031*	Reject the H_0	Significant
Interest in workplace fitness program	1.422	3	.700	Fail to reject H_0	Not significant

Note: χ^2 = Pearson's Chi-square test; df = degrees of freedom; $p < .05$ indicates statistically significant*

The Table 12 outlines the association between age and exercise-related variables as perceived by nurses. Based on the results, majority of the exercise-related variables were not significant. However, five of the variables such as cardio exercise ($\chi^2 = 10.392$, $p = .016$), workout duration ($\chi^2 = 13.408$, $p = .037$), improved patient handling ($\chi^2 = 10.516$, $p = .015$), better stamina ($\chi^2 = 10.159$, $p = .017$), and lack of motivation ($\chi^2 = 8.860$, $p = .031$) shows a statistically significant results. This indicates that age has implication in

the exercise-related activities. This implies that older nurses (≥ 40 years) were significantly less likely to meet recommended physical activity levels at work than younger colleagues. This is consistently aligned to the study of **Dharmarajan, T.S. (2021)** ^[4] which argued that a physically active lifestyle helps preserve aerobic capacity and cardiac function with aging, though age-related physiological decline continues regardless.

Table 13: The Association between Gender and Exercise-Related Variables among Nurses

Variable	χ^2	df	p-value	Decision	Interpretation
Physical activity participation	0.039	1	1.000	Fail to reject H_0	Not significant
Exercise frequency	0.934	2	.627	Fail to reject H_0	Not significant
Cardio exercise	2.414	1	.140	Fail to reject H_0	Not significant
Strength training	0.377	1	1.00	Fail to reject H_0	Not significant
Flexibility exercise	0.170	1	1.00	Fail to reject H_0	Not significant
Sports participation	5.380	1	.040*	Reject the H_0	Significant
Workout duration	0.021	2	.989	Fail to reject H_0	Not significant
Perceived improvement in nursing performance	4.314	4	.365	Fail to reject H_0	Not significant
Improved patient handling	0.093	1	1.00	Fail to reject H_0	Not significant
Better stamina	0.936	1	.456	Fail to reject H_0	Not significant
Reduced injury risk	0.405	1	.698	Fail to reject H_0	Not significant
Mental focus	0.222	1	.728	Fail to reject H_0	Not significant
Work-related injury	4.337	1	.069	Fail to reject H_0	Not significant
Exercise aids recovery	0.419	2	.811	Fail to reject H_0	Not significant
Lack of time	0.077	1	1.00	Fail to reject H_0	Not significant
Fatigue	2.890	1	.148	Fail to reject H_0	Not significant
Lack of fitness facilities	1.117	1	.362	Fail to reject H_0	Not significant
Lack of motivation	3.449	1	.089	Fail to reject H_0	Not significant
Interest in workplace fitness program	0.310	1	1.00	Fail to reject H_0	Not significant

Note: χ^2 = Pearson's Chi-square test; df = degrees of freedom; $p < .05$ indicates statistically significant*

The Table 13 depicts the association between gender and exercise-related variables as perceived by nurses. Based on the results, sports participation was the only variables that is statistically significant to gender ($\chi^2 = 5.380$, $p = .040$) while almost all were not significant. This indicates that gender-related structural barriers should be considered as exercise a program differs between men and women. Hospital Fitness

programs should offer varied formats (individual and groups fitness options) so participation isn't inadvertently gendered by design. **Warne et al., (2025)** ^[12] study concluded that their physical activity levels were positively impacted as a result of their participation. This supportive impact seemed to be largely affected by the concepts of competition and team driving motivation to exercise.

Table 14: The Association between Years of Experience and Exercise-Related Variables among Nurses

Variable	χ^2	df	p-value	Decision	Interpretation
Physical activity participation	0.830	3	.842	Fail to reject H_0	Not significant
Exercise frequency	5.385	6	.495	Fail to reject H_0	Not significant
Cardio exercise	0.878	3	.831	Fail to reject H_0	Not significant
Strength training	3.742	3	.291	Fail to reject H_0	Not significant
Flexibility exercise	2.281	3	.516	Fail to reject H_0	Not significant
Sports participation	1.461	3	.691	Fail to reject H_0	Not significant
Workout duration	10.932	6	.090	Fail to reject H_0	Not significant
Perceived improvement in nursing performance	9.753	12	.638	Fail to reject H_0	Not significant
Improved patient handling	1.711	3	.634	Fail to reject H_0	Not significant
Better stamina	13.047	3	.005*	Reject the H_0	Significant
Reduced injury risk	3.406	3	.333	Fail to reject H_0	Not significant
Mental focus	4.660	3	.198	Fail to reject H_0	Not significant
Work-related injury	1.974	3	.578	Fail to reject H_0	Not significant
Exercise aids recovery	6.237	6	.397	Fail to reject H_0	Not significant
Lack of time	0.019	3	.999	Fail to reject H_0	Not significant
Fatigue	2.070	3	.558	Fail to reject H_0	Not significant
Lack of fitness facilities	0.811	3	.847	Fail to reject H_0	Not significant
Lack of motivation	1.606	3	.658	Fail to reject H_0	Not significant
Interest in workplace fitness program	2.363	3	.501	Fail to reject H_0	Not significant

Note: χ^2 = Pearson's Chi-square test; df = degrees of freedom; p < .05 indicates statistically significant*

The Table 14 explains the association between years of experience and exercise-related variables as perceived by nurses. Based on the table, the results indicate that only stamina is the variable that was significantly associated with years of experience. ($\chi^2 = 13.047$, $p = .005$) whereas other variables were not significantly related. The result implies that nurses' perceived physical resilience more than their actual exercise behaviors or preferences. This relates with previous study of *Liao et al., (2024)* ^[9] which reported a

non-linear relationship between years of nursing experience and burnout/physical strain. For *Li et al., (2025)* ^[8], their study concluded that a significant negative association between physical activity and job burnout among nurses. They point out the multidimensional contributions of recovery experiences to this relationship. Thus, stamina differs with each nurse's tenure; initiatives should be implemented in the workplaces that emphasize recovery-oriented and stamina-preserving activity.

Table 15: The Association between Work Setting and Exercise-Related Variables among Nurses

Variable	χ^2	df	p-value	Decision	Interpretation
Physical activity participation	0.966	2	.617	Fail to reject H_0	Not significant
Exercise frequency	3.672	4	.452	Fail to reject H_0	Not significant
Cardio exercise	9.717	6	.008*	Reject the H_0	Significant
Strength training	2.447	2	.294	Fail to reject H_0	Not significant
Flexibility exercise	1.131	2	.568	Fail to reject H_0	Not significant
Sports participation	13.601	2	.001*	Reject the H_0	Significant
Workout duration	6.470	4	.167	Fail to reject H_0	Not significant
Perceived improvement in nursing performance	6.603	8	.640	Fail to reject H_0	Not significant
Improved patient handling	3.493	2	.174	Fail to reject H_0	Not significant
Better stamina	3.366	2	.186	Fail to reject H_0	Not significant
Reduced injury risk	2.095	2	.351	Fail to reject H_0	Not significant
Mental focus	5.846	2	.054	Fail to reject H_0	Not significant
Work-related injury	6.007	2	.050	Fail to reject H_0	Not significant
Exercise aids recovery	5.935	4	.204	Fail to reject H_0	Not significant
Lack of time	2.037	2	.361	Fail to reject H_0	Not significant
Fatigue	1.474	2	.479	Fail to reject H_0	Not significant
Lack of fitness facilities	1.594	2	.451	Fail to reject H_0	Not significant
Lack of motivation	2.091	2	.352	Fail to reject H_0	Not significant
Interest in workplace fitness program	0.166	2	.920	Fail to reject H_0	Not significant

Note: χ^2 = Pearson's Chi-square test; df = degrees of freedom; p < .05 indicates statistically significant*

The Table 15 explicates the association between work setting and exercise-related variables as perceived by nurses. Based on the table, the results indicate that only two of the exercise-related variables were significantly associated which are: cardio exercise ($\chi^2 = 9.717$, $p = .008$) and sports participation ($\chi^2 = 13.601$, $p = .001$). Work-related injury approached but did not reach significance ($\chi^2 = 6.007$, $p = .050$). This implies that physical activity differs on each

work setting. Study have shown that a study tracking nurses' steps and distance across medical, surgical, ICU, and emergency units found activity was consistently highest in the emergency room, followed by ICU, surgical, and medical wards, in that order (*Yoon et al., 2022*). A separate study similarly identified the specific care unit as the dominant factor shaping nurses' physical activity level; more so than career stage *Fitria et al., (2025)* ^[5]. Thus, physical

demands built into different clinical settings likely translate into different cardio fitness and structured exercise/sports habits outside of work.

Discussion

The study participants of the current research were predominantly registered nurses on their early-to-mid stages of their careers. Majority of them fall under 30-39 years old. The results are consistent with the demographic composition of most nurses in Gulf Region. This represents a substantial number of nursing workforces which are very young professionals. It was also found that female nurses constituted the majority of study participants, reflecting the well-documented gender composition of the nursing profession internationally, in which women continue to represent the overwhelming share of the clinical nursing workforce (**Owen et al., 2025**)^[11]. Study of **Mariano et al., (2023)**^[10] reported that majority of the nurses were females as their study found a gender distribution of 94% female nurses. For the length of experience, reflects the highly experienced nurses showing a recruitment trend in most clinical health facilities. This relates with the study of **Chang & Cho (2022)**^[3] which found that majority of the nurses employed in the hospital in the areas of acute, high-intensity clinical environments.

Majority of the nurses who participated on this study engaged to some of the exercises to improve physical health. There are exercises which considered being cardiovascular exercise such as walking; cycling and running. These were considered as the preferred form of exercise among nurses. Few of the nurses perform strength training, flexibility exercises, and organized sports. The results of the current study align with **Chang & Cho (2022)**^[3] which reported that cardio-based activity tends to be the most accessible and most frequently adopted form of exercise among healthcare workers navigating demanding and unpredictable shift schedules. **Indrayani et al., (2024)**^[7] elaborated that low uptake of strength training and flexibility work is a notable gap, given that resistance and flexibility exercises have specifically been shown to help prevent musculoskeletal pain and disorders in health facility settings involving repetitive lifting and patient handling. Correspondingly, the nurses perform a moderate duration for exercise ranging from half hour to one our session which seems to be appropriate for the health workforce such as nurses.

Interestingly, large proportion of nurses agreed that regular exercise helps their nursing duties effectively. This was paralleled with the other study that nurses' physical activity to occupational functioning: exercise physically was found to alleviate nurse job burnout in part through the recovery and mastery experiences it provides during off-duty time (**Li et al., 2025**)^[8], and lifestyle health promotion interventions for the nursing workforce demonstrate a significant relationship with improvements in physical activity behaviors, mobility, and endurance (**Chan & Perry, 2012**)^[2]. The results of this study imply that having stamina during hospital shifts improve handling patient and helps in maintaining the nurse's mental focus.

This study found a significant difference on the exercise-related variables when grouped according to their age, gender, length of experience and work setting. In terms of age, most of them do not differs but cardio exercise participation, workout duration, perceived improvement in patient handling, perceived improvement in stamina, and

lack of motivation as a barrier found to be significant. **Cathy et al., (2018)** concluded that older nurses (≥ 40 -years) were significantly less likely to report engaging in recommended physical activity levels at work than younger nurses. Gender has shown that participation in organized sports influenced their ability to take part in the workplace. It has been found that male participated well in an organized sports as compared to women (**Owen et al., 2025**)^[11]. In terms of Years of nursing experience, it was found that perceived stamina is a factor that influences those nurses' tenure. This infers with the study of **Liao et al., (2024)**^[9] which reported a non-linear relationship between years of nursing experience and physical and psychological strain, including burnout, which does not decline in any straightforward linear fashion as tenure increases. This implies the need for an initiative to emphasize recovery-oriented and stamina-preserving activities which benefitted the nurses in the workplace. As to work setting, it was revealed that cardio exercise and sports participation were the strongest predictors as perceived by nurses. In contrast, **Fitria et al., (2025)**^[5] found a no significant correlation with unit room as they study the relationship between physical activity level and work-related demographic factors. Overall, this study finding depicts the current nursing workforce around the world. Majority of them were receptive and moderately engaged in physical activity and aware on the relevance of exercise-related variables to their patient care in the workplace.

Conclusion

The current research examine the influence of nurses' physical health on job performance by exploring the role of exercise in enhancing patient care. This concluded that nurses recognized that regular physical activity improve their wellbeing and job performance. This physical exercise positively contributes to the physical strength and mental health focus while performing their demanding nursing tasks and duties.

Most of the exercise related variables were not significantly associated with demographic characteristics of the nurses based on the chi-square analysis. This indicates that nurses were generally aware on the benefits that can be derived from physical activity in relation to their every work. However, significant associations were identified between age and cardio exercise, workout duration, improved patient handling, better stamina during long shifts, and lack of motivation. Gender was significantly associated only with sports participation, while years of nursing experience showed a significant association with better stamina during long shifts. Educational level demonstrated significant associations with participation in cardio exercise and sports activities.

Overall, the study findings implies regular physical activity contribute to the nurses improved job performance and enhance patient care. Regardless of the nurse's age, gender, educational level, years of experience, and work setting, the perceived benefits of physical activity were consistent with all the demographic variables of nurses. Thus, encouraging physical health among nurses may improve the quality of healthcare services.

Recommendation

The following recommendations were drawn based on the study findings:

1. The healthcare facilities such as hospitals should implement wellness program initiatives to improve nurse's physical health. They should provide exercise facilities for nurses. This fitness and wellness activities would accommodate not just the nurse's work schedule but also their healthy lifestyle.
2. The nursing administrators should address it by fostering a supportive environment. This wellness initiative may allow flexibility and helps them to be healthy motivated workforce.
3. The nursing education unit of the nursing services should continue providing the continuing professional education to nurses. This should highlight the increasing awareness towards regular physical activity, better stamina, and minimize the physical injury.
4. For future researchers, a similar study should be conducted using longitudinal or experimental studies to determine the causal effects of regular physical activity on the job performance of nurses.
5. The future studies should include a much larger population for generalizability of the study. A more diverse sample should be utilized from various healthcare settings.

Data Availability

The data used in the present study are not available to others in order to protect the privacy of the participants. However, they are available from the corresponding author upon reasonable request.

Declaration of Interests

Conflicts of interest the authors have no financial or even relevant non-financial interests in the material presented.

Conflict of Interest Statement

The authors have no conflicts of interest for this study.

Acknowledgments

The researchers are extremely grateful to all who participated in the conduct of this study especially the nurses for their support and cooperation during the course of this study.

Funding

No external funding is involved in the study.

References

1. McCarthy VJC, Wills T, Crowley S. Nurses, age, job demands and physical activity at work and at leisure: A cross-sectional study. *Applied Nursing Research*. 2018; 40:116-121. Doi: <https://doi.org/10.1016/j.apnr.2018.01.010>
2. Chan CW, Perry L. Lifestyle health promotion interventions for the nursing workforce: A systematic review. *J Clin Nurs*, Aug 2012; 21(15-16):2247-2261. Doi: 10.1111/j.1365-2702.2012.04213.x
3. Chang HE, Cho SH. Nurses' steps, distance traveled, and perceived physical demands in a three-shift schedule. *Hum Resour Health*. 2022; 20:72. Doi: <https://doi.org/10.1186/s12960-022-00768-3>
4. Dharmarajan TS. Physiology of Aging. In: Pitchumoni, C.S., Dharmarajan, T. (eds) *Geriatric Gastroenterology*. Springer, Cham, 2021. Doi: https://doi.org/10.1007/978-3-030-30192-7_5
5. Fitria N, Karisa P, Manseur GH, Yanti SD, Fitrianingrum A, *et al.* Exploring the relationship between physical activity level and work-related demographic factors among emergency and outpatient nurses: A cross-sectional correlational study. *BMC Nurs*, Sep 2, 2025; 24(1):1159. Doi: 10.1186/s12912-025-03792-5
6. Gorce P, Jacquier-Bret J. Work-related musculoskeletal disorder prevalence by body area among nurses in Europe: Systematic review and meta-analysis. *Journal of Functional Morphology and Kinesiology*. 2025; 10(1), Article 66. Doi: <https://doi.org/10.3390/jfmk10010066>
7. Indrayani NLD, Kao CY, Suyasa IGP, Padmalatha KMS, Chang JH, *et al.* Effectiveness of exercise programs to reduce low back pain among nurses and nursing assistants: A systematic review and meta-analysis. *J Safety Res*, Jun 2024; 89:312-321. Doi: 10.1016/j.jsr.2024.01.001
8. Li X, Zhang T, Zhao G, Li J, Chen C. How does physical activity alleviate nurse job burnout? The important role of recovery experiences. *Front Public Health*, Sep 11, 2025; 13:1658020. Doi: 10.3389/fpubh.2025.1658020
9. Liao T, Liu Y, Luo W, Duan Z, Zhan K, Lu H, *et al.* Non-linear association of years of experience and burnout among nursing staff: A restricted cubic spline analysis. *Front Public Health*, Jan 31, 2024; 12:1343293. Doi: 10.3389/fpubh.2024.1343293
10. Mariano MEM, Woodman A, Al Zahrani EM, Al Naam YA, Farrelly RR, Al-Jamea LH, *et al.* Turnover-attachment motive of Saudi Arabia nursing workforce: A Cross-Sectional study. *Nurs Open*, Feb 2023; 10(2):988-997. Doi: 10.1002/nop2.1366
11. Owen KB, Corbett L, Ding D, Eime R, Bauman A. Gender differences in physical activity and sport participation in adults across 28 European countries between 2005 and 2022. *Annals of Epidemiology*. 2025; 101:52-57. Doi: <https://doi.org/10.1016/j.annepidem.2024.12.011>
12. Warne SJ, Ainge JA, Ozakinci G. I think office environments aren't really conducive to physical activity: A qualitative interview study with participants of a workplace physical activity programme. *BMC Public Health*. 2025; 25:3803. Doi: <https://doi.org/10.1186/s12889-025-25007-x>
13. Yoon HJ. The Effect of Nurse Staffing on Patient Outcomes in Acute Care Hospitals in Korea. *Int J Environ Res Public Health*, Nov 23, 2022; 19(23):15566. Doi: 10.3390/ijerph192315566