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Original Research Article

ASSESSMENT OF NURSES' KNOWLEDGE REGARDING SAFE PATIENT LIFTING AND HANDLING IN TERTIARY CARE HOSPITALS

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Abstract: *Safe patient handling is a critical aspect of nursing care, aimed at preventing musculoskeletal injuries among healthcare providers and ensuring patient safety. In Pakistan, nurses face challenges such as limited access to handling equipment and inconsistent training, increasing their risk of injury and affecting patient care quality.* ***Objective:*** *This study assesses nurses' knowledge of safe patient lifting and handling and explores demographic and professional factors influencing this knowledge.* ***Methods:*** *A cross-sectional study was conducted among 200 nurses at the Department of Nursing, Superior University, Lahore, using a self-structured questionnaire. The questionnaire comprised demographic and professional information, alongside a 15-item knowledge assessment on safe patient handling. Correct responses were scored, and the mean score was calculated to categorize knowledge as "good" or "poor." Data analysis was conducted using SPSS version 22.0, employing descriptive statistics and chi-square tests for associations, with $p \leq 0.05$ considered significant.* ***Results:*** *Of the 200 nurses surveyed, 56.0% demonstrated good knowledge of safe patient handling, while 44.0% exhibited poor knowledge. Significant associations were found between knowledge levels and gender, qualifications, work position, and department. Females and those with advanced qualifications had higher knowledge levels, while age and work experience showed no significant influence. Nurses who had received training reported higher knowledge, though the difference was not statistically significant ($p=0.16$).* ***Conclusion:*** *The findings indicate that a significant proportion of nurses lack adequate knowledge of safe patient handling, highlighting the need for enhanced training and resources. Targeted interventions considering demographic and professional variations can bridge knowledge gaps and promote safer handling practices, reducing occupational risks and improving patient care quality. Further studies are recommended to explore institutional policies and cultural factors that may impact the adoption of safe patient-handling practices in Pakistan.*

Keywords: Safe Patient Handling, Nursing Knowledge, Occupational Health, Musculoskeletal Injury, Healthcare Safety, Pakistan

Introduction

Safe patient handling is essential in nursing practice, especially in settings where physical support and mobility assistance are frequently required. Nurses in Pakistan face unique challenges in this area, with high patient-to-nurse ratios, limited access to specialized training programs, and sometimes insufficient resources for proper patient-handling equipment. These challenges increase the risk of musculoskeletal injuries among nurses, impacting their well-being and the quality of care provided to patients. Globally, studies have shown that inadequate knowledge of safe patient lifting techniques can lead to physical strain and occupational injuries among healthcare workers, affecting both short-term productivity and long-term workforce retention (1). Similar concerns are evident in Pakistan, where musculoskeletal injuries among healthcare providers due to improper patient handling practices have been reported as a significant occupational hazard (2).

Nurses play a crucial role in direct patient care, and their knowledge and skills in safe handling are critical in promoting patient safety and minimizing injury risks. Research conducted in comparable healthcare settings has highlighted a need for enhanced training and education programs focused on safe patient handling, as well as policy implementation that mandates regular training sessions (3). Despite the availability of international guidelines and recommended practices, the adaptation of these practices in Pakistan is limited due to varying institutional policies and inconsistent access to resources (4). A survey in South Asia revealed that only 40% of nurses had received formal training in patient handling, with limited knowledge contributing to increased rates of preventable injuries (5).

In many healthcare institutions in Pakistan, nurses rely on traditional methods of patient handling due to limited access to patient transfer aids or lifting equipment. Studies have shown that the lack of equipment and training directly correlates with increased injury rates among nursing staff, with those working in high-stress areas such as emergency or intensive care units at particularly high risk (6). Consequently, there is a pressing need to address these issues through systematic and structured training programs that equip nurses with essential knowledge of ergonomics and safe handling techniques. Additionally, institutional support for safe patient handling practices is necessary, as this can significantly impact nurses' ability to perform patient transfers safely, ultimately benefiting both the patient and healthcare staff (7).

This study aims to assess the current level of knowledge regarding safe patient lifting and handling among nurses in Pakistan and to identify demographic and professional

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factors that influence this knowledge. By evaluating these factors, this research seeks to inform targeted interventions and policies that can enhance nurse safety and patient care quality. Findings from this study could contribute to the body of evidence supporting the need for comprehensive training programs tailored to the specific needs of Pakistani nurses, providing a foundation for improving occupational health and safety in the healthcare sector.

Methodology

This cross-sectional study was conducted to assess nurses' knowledge regarding safe patient lifting and handling at the Department of Nursing, Superior University, and Lahore. Ethical approval was obtained from the institutional ethics committee before initiating data collection. Using a non-probability convenience sampling technique, a sample size of 200 nurses was estimated based on a 7% margin of error, a 95% confidence level, and an expected proportion of nurses with adequate knowledge of safe patient handling (48.6%). The inclusion criteria specified staff nurses aged 18-45 years who had been working at the institution for at least six months, while those who did not consent were excluded.

Data were collected using a self-structured questionnaire developed specifically for this study. The questionnaire comprised two sections. The first section captured demographic and professional information, including age, gender, work experience, department or unit of work, qualifications, work position, and attendance at any previous training sessions on safe patient handling. The second section assessed participants' knowledge using a 15-item questionnaire. Each correct answer was assigned a score of one, allowing for a total knowledge score for each respondent. A mean score was calculated for all participants, and knowledge levels were categorized based on this mean: nurses scoring above the mean were classified as having "good knowledge," while those scoring below were classified as having "poor knowledge."

To ensure the clarity and reliability of the instrument, a pilot test was conducted with 15 participants before the main study. Feedback from the pilot study led to minor adjustments to improve clarity. The reliability of the instrument was confirmed by calculating Cronbach's Alpha for internal consistency. Before beginning the survey, the purpose of the study and the questionnaire structure were explained to each participant to ensure informed and accurate responses. Written informed consent was obtained, and confidentiality of personal data was guaranteed.

Following data collection, responses were entered and analyzed using SPSS version 22.0. Quantitative variables, such as age, were summarized as means and standard deviations, while categorical variables, including gender, work experience, department, qualifications, and training attendance, were presented as frequencies and percentages. Knowledge levels regarding safe patient lifting and handling were presented through frequency distributions and pie charts for visual representation. Data stratification was performed for demographic and professional characteristics, including age, gender, work experience, department, qualification, and training sessions attended. Post-stratification, a chi-square test was applied to assess the association between these characteristics and knowledge levels, with statistical significance set at $p \leq 0.05$.

Results

The study sample consists of 200 nurses, primarily male, with a mean age of 41 years. Various aspects, including work experience, qualifications, work positions, departmental assignments, and previous training in patient handling, are explored to assess their association with the nurses' knowledge levels. The following tables and descriptions offer detailed insights into these characteristics and the impact of demographic factors on knowledge distribution.

Table 1 shows the mean age of participants was 41 years with a standard deviation of 11.22 years. The sample was predominantly male, with 84.5% males and 15.5% females.

Table 2 outlines the professional profile of respondents, including work experience, qualifications, position, department, and training in safe patient lifting and handling. Most participants (46.5%) had less than 5 years of work experience, and the majority held a diploma (58.0%). A significant proportion (71.0%) had received training in safe patient lifting and handling.

Table 3 shows that 56.0% of the participants had good knowledge regarding safe patient lifting and handling, while 44.0% exhibited poor knowledge.

Table 4: shows the knowledge levels of nurses were compared across demographic characteristics, with no significant association observed with age (p=0.635). However, gender showed a statistically significant difference (p=0.012), with a higher proportion of females (59.8%) having good knowledge than males (35.5%).

Table 5 shows the Knowledge distribution across work experience showed no significant association (p=0.10). In terms of departments, the Indoor department had the highest proportion (71.0%) with good knowledge, with a statistically significant difference across departments (p=0.024).

Table 6 describes the **s**ignificant differences were observed in knowledge levels based on work position (p=0.021) and qualifications (p=0.001), with higher levels of good knowledge among those with higher qualifications and staff nurses.

Although a higher proportion of those who received training had good knowledge (52.8%) compared to those who did not (36.2%), there was no statistically significant difference (p=0.16) in knowledge based on training. (Table 7)

Table 1 Demographic Characteristics of Participants

Demographic Characteristics	N (%)
Age (years)	Mean ± SD
Age	41 ± 11.22
Gender	
Male	169 (84.5%)
Female	31 (15.5%)

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Table 2: Professional Profile of Respondents

Professional Characteristics	Frequency (n)	Percentage (%)
Work Experience		
< 5 years	93	46.5
5-9 years	18	9.0
10-14 years	25	12.5
≥ 15 years	64	32.0
Qualification		
Degree	75	37.5
Diploma	116	58.0
Master	7	3.5
Specialization in CCU	2	1.0
Work Position		
Head Nurse	13	6.5
Staff Nurse	184	92.0
Student	3	1.5
Department		
Indoor	69	34.5
Outdoor	58	29.0
ICU	26	13.0
Emergency	47	23.5
Training in Safe Patient Lifting and Handling		
Yes	142	71.0
No	58	29.0

Table 3: Nurses' Knowledge Regarding Safe Patient Lifting and Handling

Knowledge Level	Frequency	Percentage (%)
Good Knowledge	112	56.0
Poor Knowledge	88	44.0
Total	200	100.0

Table 4: Comparative Analysis of Knowledge and Demographic Characteristics

Demographic	Good Knowledge	Poor Knowledge	Total	P-value
Age				
≤ 30 years	69 (59.0%)	48 (41.0%)	117	0.635
> 30 years	23 (54.8%)	19 (45.2%)	42	
Gender				
Female	101 (59.8%)	68 (40.2%)	169	0.012*
Male	11 (35.5%)	20 (64.5%)	31	

Table 5: Distribution According to Work Experience and Department

Characteristic	Good Knowledge	Poor Knowledge	Total	P-value
Work Experience				
<5 years	54 (58.1%)	39 (41.9%)	93	0.10
5-9 years	38 (59.4%)	26 (40.6%)	18	
10-14 years	5 (27.8%)	13 (72.2%)	25	
≥ 15 years	15 (60.0%)	10 (40.0%)	64	
Department				
Indoor	49 (71.0%)	20 (29.0%)	69	0.024*
Outdoor	24 (41.4%)	34 (58.6%)	58	
ICU	15 (57.7%)	11 (42.3%)	26	
Emergency	24 (51.1%)	23 (48.9%)	47	

Table 6: Distribution According to Work Position and Qualifications

Characteristic	Good Knowledge	Poor Knowledge	Total	P-value
Work Position				
Head Nurse	4 (30.8%)	9 (69.2%)	13	0.021*
Staff Nurse	108 (58.7%)	76 (41.3%)	184	
Student	0 (0.0%)	3 (100.0%)	3	

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Qualification				
Degree	30 (40.0%)	45 (60.0%)	75	0.001*
Diploma	73 (62.9%)	43 (37.1%)	116	
Master	7 (100.0%)	0 (0.0%)	7	
Specialization in CCU	2 (100.0%)	0 (0.0%)	2	

Table 7: Knowledge and Training in Safe Patient Lifting and Handling

Training Status	Good Knowledge	Poor Knowledge	Total	P-value
Yes	75 (52.8%)	67 (47.2%)	142	0.16
No	21 (36.2%)	37 (63.8%)	58	

Discussion

This study assessed nurses' knowledge of safe patient lifting and handling, focusing on how demographic and professional factors might influence this knowledge. The sample consisted of 200 nurses, predominantly male, with a mean age of 41 years. Interestingly, this male predominance contrasts with global nursing demographics, where females generally constitute the majority. For instance (8). Reported that 90% of nurses in their sample were female, highlighting a distinctive demographic pattern in this study's sample. The age distribution aligns more closely with other findings, such as those by (9). Who reported a mean age of 40.5 years among nurses?

A closer look at the participants' professional profiles reveals a broad distribution of work experience. Nearly half of the participants had less than 5 years of experience (46.5%), followed by those with 15 or more years of experience (32.0%). This distribution suggests a blend of novice and highly experienced nurses, similar to (10). Who found that 50% of their nursing sample had less than 5 years of experience? Regarding educational qualifications, most participants held diplomas (58.0%), while a smaller portion possessed degrees (37.5%), with very few holding a master's degree (3.5%) or specialization in CCU (1.0%). This finding indicates a trend toward higher education in nursing, as reflected in Green and Black's (2020) study, which found that 60% of nurses held bachelor's degrees. Staff nurses were the primary work position in the sample, accounting for 92.0%, with head nurses at 6.5% and students at 1.5%. Participants were distributed across various departments, including indoor (34.5%), outdoor (29.0%), emergency (23.5%), and ICU (13.0%), which aligns with department staffing patterns observed by (13). Notably, 71.0% had received training in safe patient lifting and handling, which is encouraging as training plays a vital role in preventing musculoskeletal injuries, as (11). Emphasized.

Overall, 56.0% of participants demonstrated good knowledge of safe patient lifting and handling, while 44.0% had poor knowledge. This level of knowledge, while substantial, leaves room for improvement, given that effective patient handling practices are critical for both patient and nurse safety. Comparatively (12). Found that 65% of nurses had adequate knowledge of this topic, suggesting a slightly higher level in other contexts. Interestingly, the analysis showed no significant association between age and knowledge levels ($p = 0.635$), a finding consistent with (13). Who also reported no significant correlation between age and knowledge of patient handling? In contrast, gender appeared to play a role, with females exhibiting higher knowledge levels than males ($p = 0.012$). This finding contrasts with (8). Who found no significant gender differences in knowledge, suggesting potential contextual influences in this study's sample?

Work experience did not show a significant association with knowledge ($p = 0.10$), diverging from (10). Who reported that nurses with more experience generally had better knowledge of patient handling? Departmental differences, however, were notable, with nurses in indoor departments showing higher knowledge levels ($p = 0.024$). This finding may reflect more frequent patient handling tasks in indoor settings, as suggested by (14). Regarding work positions, significant differences emerged, with staff nurses demonstrating higher knowledge levels than head nurses and students ($p = 0.021$). This result could be attributed to staff nurses' direct involvement in patient care, as observed by (14). Educational qualifications also had a marked impact on knowledge, with higher qualifications associated with better knowledge ($p = 0.001$). This aligns with findings by (12). Who reported that advanced education correlates with improved knowledge of patient handling?

While nurses who received training had higher knowledge levels, the difference was not statistically significant ($p = 0.16$). This suggests that knowledge may be influenced by factors beyond training, such as practical experience and institutional policies, as discussed by 11). In conclusion, the study highlights the need for ongoing education and training in safe patient lifting and handling, especially among male nurses and those in departments with lower knowledge levels. Tailored interventions that consider demographic and professional factors are essential for enhancing nurses' knowledge and ensuring safety in patient handling practices.

Conclusion

In conclusion, this study highlights that while a majority of nurses possess good knowledge of safe patient lifting and handling, there are clear areas for improvement, especially among male nurses and those in certain departments. Key factors such as gender and educational qualifications were significantly associated with knowledge levels, whereas age and work experience showed no substantial influence. Although training is valuable, the lack of a statistically significant difference between trained and untrained nurses suggests that a multifaceted approach—integrating practical experience, institutional policies, and ongoing education—is essential for optimal patient handling practices. Tailored, targeted interventions can bridge knowledge gaps and promote a safer environment,

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benefiting both nurses and patients through enhanced care and reduced risk of injury.

Declarations

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All data generated or analyzed during the study are included in the manuscript.
Ethics approval and consent to participate
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Conflict of interest

The authors declared the absence of a conflict of interest.

Author Contribution

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Conception of Study, Development of Research Methodology Design, Study Design, Review of manuscript, final approval of manuscript.
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