

# Factors Influencing the Adoption of Ergonomic Guidelines by Nurses in Daily Practice: A Comprehensive Analysis

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## Abstract:

**Background:** Musculoskeletal disorders (MSDs) are prevalent among nurses and can impact job performance and quality of care. This study explores the factors influencing the adoption of ergonomic guidelines by nurses in their daily practice.

**Methods:** A mixed-methods approach was used, including a quantitative survey of 127 nurses and qualitative interviews with 20 participants. The survey assessed adherence to ergonomic guidelines, perceived effectiveness, and barriers and facilitators to adoption. Interviews provided in-depth insights into personal experiences and challenges.

**Findings:** Quantitative data showed moderate adherence to ergonomic guidelines, with barriers including lack of training (50%), insufficient resources (45%), and time constraints (60%). Facilitators included strong organizational support (40%) and ongoing education (35%). Qualitative findings revealed that while ergonomic guidelines positively impacted comfort and reduced physical strain, inconsistent application and resource limitations hindered effective implementation.

**Conclusion:** Effective adoption of ergonomic guidelines requires enhanced training, increased resource allocation, and strong organizational support. Addressing these factors can improve nurse well-being and patient care outcomes.

**Keywords:** Musculoskeletal Disorders, Ergonomic Guidelines, Nursing Practice, Job Performance, Healthcare Ergonomics, Barriers and Facilitators.

## Introduction

Musculoskeletal disorders (MSDs) are a significant concern in the nursing profession due to the physically demanding nature of the job, which often involves repetitive lifting, transferring patients, and long periods of standing (Ellapen and Narsigan, 2014; Richardson et al., 2018). These disorders not only affect nurses' health but also have broader implications for patient safety and quality of care (Ratzon et al., 2016). To mitigate the risk of MSDs, ergonomic guidelines have been developed to improve workplace practices and reduce physical strain (Rothmore et al., 2014).

Despite the availability of these guidelines, their adoption in daily nursing practice remains inconsistent. Studies have identified several barriers to the effective implementation of ergonomic practices, including inadequate training, lack of organizational support, and personal resistance (Abdollahi et al., 2020; Ratzon et al., 2016). For instance, research by Driessen et al. (2010) highlights that even when ergonomic interventions are introduced, the practical application of these guidelines can be limited by factors such as insufficient time and resources, and resistance to change among nursing staff.

Understanding the factors that influence the adoption of ergonomic guidelines is crucial for improving their implementation and ultimately enhancing nurses' well-being and patient care outcomes. This study aims to explore these factors in depth, examining how various elements such as training, organizational support, and personal attitudes impact the adoption of ergonomic guidelines by nurses. By identifying and analyzing these factors, the study seeks to provide insights into how to better support nurses in integrating ergonomic practices into their daily routines.

## Literature Review

### 1. Overview of Ergonomic Guidelines in Nursing

Ergonomic guidelines aim to reduce physical strain and prevent musculoskeletal disorders (MSDs) among nurses by promoting safe lifting techniques, proper body mechanics, and the use of assistive devices (Rothmore et al., 2014). The implementation of these guidelines is intended to mitigate the high incidence of MSDs in nursing, a profession known for its physically demanding tasks (Ellapen and Narsigan, 2014). Studies have shown that effective ergonomics practices can significantly reduce the incidence of MSDs and improve overall job satisfaction and performance among healthcare workers (Ratzon et al., 2016).

### 2. Factors Influencing the Adoption of Ergonomic Guidelines

#### 2.1 Training and Education\*\*

Training is a critical factor in the adoption of ergonomic guidelines. Research indicates that comprehensive and ongoing training helps ensure that nurses understand and apply ergonomic principles effectively (Abdollahi et al., 2020). For instance, Abdollahi et al. (2020) found that training programs that include practical demonstrations and hands-on practice are more successful in changing behaviors and improving adherence to ergonomic practices. However, inconsistent training and lack of follow-up support can limit the effectiveness of these programs (Driessen et al., 2010).

#### 2.2 Organizational Support

Organizational support plays a crucial role in the successful adoption of ergonomic guidelines. Factors such as leadership commitment, availability of resources, and workplace policies are essential for creating an environment conducive to ergonomic practices (Ratzon et al., 2016). Studies have shown that when healthcare organizations prioritize ergonomics and provide necessary resources, nurses are more likely to adopt and maintain ergonomic practices (Richardson et al., 2018). Conversely, lack of organizational support and inadequate resources can act as significant barriers to the effective implementation of ergonomic guidelines (Abdollahi et al., 2020).

#### 2.3 Personal Beliefs and Attitudes

Nurses' personal beliefs and attitudes towards ergonomic guidelines also influence their adoption. Resistance to change, skepticism about the efficacy of ergonomic practices, and perceived inconvenience can hinder the integration of ergonomic guidelines into daily practice (Driessen et al., 2010). Personal attitudes towards ergonomics are shaped by previous experiences, perceived benefits, and the perceived ease of implementing guidelines. Studies have highlighted that addressing these personal barriers through education and engagement can enhance the adoption of ergonomic practices (Ratzon et al., 2016).

#### 2.4 Barriers to Adoption

Several barriers affect the adoption of ergonomic guidelines, including time constraints, heavy workloads, and lack of familiarity with ergonomic practices (Ellapen and Narsigan, 2014).

Nurses often face challenges in integrating ergonomic guidelines into their busy routines due to competing priorities and insufficient time (Richardson et al., 2018). Additionally, the complexity of some ergonomic interventions and the need for ongoing training can create obstacles to their effective implementation (Ratzon et al., 2016).

### 3. Impact of Ergonomic Guidelines on Nursing Practice

Effective adoption of ergonomic guidelines has been shown to have a positive impact on nursing practice. Research indicates that implementing ergonomic interventions can reduce the incidence of MSDs, improve job satisfaction, and enhance patient care quality (Rothmore et al., 2014). For example, ergonomic modifications such as adjustable workstations and lifting aids have been associated with lower rates of musculoskeletal injuries among nurses (Ratzon et al., 2016). Furthermore, ergonomic practices can contribute to a safer work environment and better overall health outcomes for both nurses and patients.

### 4. Gaps in the Literature

Despite the evidence supporting the benefits of ergonomic guidelines, there are gaps in the literature regarding the specific factors that influence their adoption in diverse healthcare settings. Limited research exists on the effectiveness of different training methods, the role of organizational culture in promoting ergonomics, and the impact of personal attitudes on guideline adherence. Further research is needed to address these gaps and provide a more comprehensive understanding of how to facilitate the effective adoption of ergonomic practices in nursing.

## Methodology

### Study Design

This study employed a mixed-methods design to explore the factors influencing the adoption of ergonomic guidelines by nurses in their daily practice. The research combined quantitative surveys to gather broad statistical data and qualitative interviews to gain in-depth insights into personal experiences and perceptions.

### Participants

The study sample consisted of 150 registered nurses working in a tertiary hospital. Participants were selected using a stratified random sampling technique to ensure representation from different departments (e.g., ICU, surgical units, general wards). Inclusion criteria included being a registered nurse with at least one year of clinical experience and having exposure to ergonomic guidelines in their workplace.

### Data Collection

#### 1. Quantitative Data:

A structured survey was used to collect quantitative data on the adoption of ergonomic guidelines. The survey consisted of three main sections:

- Demographic Information: Age, gender, years of experience, and department.
- Adoption of Ergonomic Guidelines: Questions on the extent of adherence to ergonomic practices, perceived effectiveness of these guidelines, and frequency of guideline application.
- Barriers and Facilitators: Items assessing perceived barriers to adoption (e.g., lack of training, insufficient resources) and facilitators (e.g., organizational support, availability of ergonomic equipment).

The survey was distributed electronically and completed by 127 participants, yielding an 84% response rate.

## 2. Qualitative Data:

Semi-structured interviews were conducted with 20 nurses selected from the survey respondents. The interviews explored themes related to:

- Personal Experiences: Individual experiences with implementing ergonomic guidelines.
- Perceived Barriers: Specific challenges faced in applying ergonomic practices.
- Organizational Factors: Influence of workplace policies, support, and resources on the adoption of ergonomic guidelines.

Interviews were audio-recorded, transcribed verbatim, and analyzed thematically.

## Data Analysis

### 1. Quantitative Analysis:

Quantitative data were analyzed using descriptive and inferential statistics. Descriptive statistics provided an overview of demographic characteristics, adoption rates, and perceived barriers and facilitators. Inferential statistics, including chi-square tests and t-tests, were used to examine relationships between demographic variables and adoption levels.

### 2. Qualitative Analysis:

Qualitative data were analyzed using thematic analysis. The process involved:

- Coding: Identifying and labeling key concepts and themes from the interview transcripts.
- Theme Development: Grouping related codes into broader themes reflecting participants' experiences and perceptions.
- Interpretation: Analyzing themes to understand the factors influencing the adoption of ergonomic guidelines and their implications.

## Ethical Considerations

Ethical approval for the study was obtained from the ethics committee. Informed consent was obtained from all participants, who were assured of confidentiality and the right to withdraw from the study at any time without penalty. Data were anonymized and securely stored to protect participant privacy.

## Findings

### 1. Quantitative Findings

#### Quantitative Findings

Variable	Category	Percentage
Age Distribution	20-30 years	35%
	31-40 years	40%
	41-50 years	20%
	51-60 years	5%
Gender	Female	85%
	Male	15%
Years of Experience	1-5 years	30%
	6-10 years	25%
	11-15 years	20%
	Over 15 years	25%
Departments	ICU	30%

	Surgical Units	25%
	General Wards	20%
	Other	25%
Extent of Adherence	Always	25%
	Often	40%
	Sometimes	25%
	Rarely	10%
Perceived Effectiveness	Highly Effective	30%
	Moderately Effective	45%
	Slightly Effective	20%
	Not Effective	5%
Frequency of Guideline Application	Daily	30%
	Weekly	35%
	Monthly	20%
	Occasionally	15%

Barriers to Adoption	Significant Barrier
Lack of Training	50% Moderate Barrier: 30% Minor Barrier: 15% No Barrier: 5%
Insufficient Resources	45% Moderate Barrier: 35% Minor Barrier: 15% No Barrier: 5%
Time Constraints	60% Moderate Barrier: 25% Minor Barrier: 10% No Barrier: 5%

Facilitators of Adoption	Level of support	Significance
Organizational Support	Strong Support	40% Moderate Support: 35% Weak Support: 20% No Support: 5%
Availability of Ergonomic Equipment	Adequate	35% Moderate: 40% Inadequate: 20% Not Available: 5%

## 2. Qualitative Findings

### 2.1 Themes and Sub-themes

#### Theme 1: Personal Experiences with Ergonomic Guidelines

##### - Sub-theme 1.1: Positive Impact

- Participants reported that ergonomic guidelines significantly reduced physical strain and improved comfort during patient handling.

-“Since we started using the lifting aids, I feel less back pain, and it’s easier to manage patients.

##### - Sub-theme 1.2: Challenges in Adherence

- Some nurses found it challenging to consistently apply guidelines due to high patient loads and time constraints.

-“Even though we have the guidelines, it’s hard to always follow them when you’re rushed.

#### Theme 2: Barriers to Adoption

##### - Sub-theme 2.1: Lack of Training

- Inadequate training was identified as a major barrier to effective guideline implementation.

-“We had a brief training session, but it wasn’t enough to fully understand and apply all the guidelines.

##### - Sub-theme 2.2: Insufficient Resources

- Limited availability of ergonomic equipment and resources hindered proper adherence.

- We don’t have enough lifting devices on our unit, so we have to improvise a lot.

#### Theme 3: Facilitators of Adoption

##### - Sub-theme 3.1: Strong Organizational Support

- Support from management and availability of resources facilitated the adoption of ergonomic guidelines.

-“The management’s support in providing equipment and regular reminders has made it easier to stick to the guidelines.

##### - Sub-theme 3.2: Ongoing Education

- Continuous training and updates on ergonomic practices were seen as beneficial for adherence.

- Regular workshops and refresher courses help keep ergonomic practices at the forefront of our minds.

### Discussion

The findings of this study provide significant insights into the factors influencing the adoption of ergonomic guidelines by nurses. The combination of quantitative and qualitative data reveals both broad patterns and specific challenges related to ergonomic practices in nursing.

#### 1. Extent of Adherence and Perceived Effectiveness

The survey results indicated that while a substantial proportion of nurses reported adhering to ergonomic guidelines, a notable percentage still applied them only occasionally. This partial adherence may be attributed to the perception that ergonomic guidelines are moderately effective, with only 30% of participants finding them highly effective. This perception aligns with previous research suggesting that while ergonomic practices are beneficial, their perceived effectiveness can vary depending on the context and implementation quality (Mao et al., 2015).

#### 2. Barriers to Adoption

The study identified several key barriers to the adoption of ergonomic guidelines:

- **Lack of Training:** This emerged as a significant barrier, with 50% of participants citing it as a major issue. Inadequate training has been previously linked to suboptimal application of ergonomic principles. Effective training programs are crucial for ensuring that nurses understand and can implement ergonomic practices correctly.

- **Insufficient Resources:** Limited availability of ergonomic equipment was also a major concern. This finding is consistent with studies highlighting the impact of resource constraints on the effectiveness of ergonomic interventions.

- **Time Constraints:** Time pressures in clinical settings were frequently mentioned as a barrier. This finding echoes research indicating that high workloads and time constraints can hinder the adoption of recommended practices.

#### 3. Facilitators of Adoption

On the positive side, organizational support and the availability of ergonomic equipment were identified as facilitators of guideline adoption:

- Organizational Support: Nurses who received strong support from their management were more likely to adhere to ergonomic guidelines. This finding underscores the importance of leadership in promoting and sustaining ergonomic practices.
- Ongoing Education: Continuous education and training were reported as beneficial for maintaining adherence to ergonomic practices. This is supported by research suggesting that regular updates and training help keep ergonomic practices relevant and top of mind for healthcare professionals.

#### 4. Implications for Practice

The findings suggest several implications for improving the adoption of ergonomic guidelines in nursing:

- Enhanced Training Programs: Developing comprehensive and ongoing training programs that address both the theoretical and practical aspects of ergonomics could help overcome the barrier of inadequate training.
- Increased Resource Allocation: Hospitals should consider investing in ergonomic equipment and resources to facilitate the implementation of guidelines.
- Supportive Work Environment: Fostering a supportive work environment where management actively encourages and facilitates ergonomic practices can significantly enhance adherence.

#### Conclusion

While this study provides valuable insights, it is not without limitations. The reliance on self-reported data may introduce response bias, and the cross-sectional design limits the ability to infer causation. Future research should explore longitudinal studies to assess the impact of specific interventions over time and consider broader, multi-center studies to enhance generalizability.

Overall, addressing the barriers identified and leveraging facilitators can improve the adoption of ergonomic guidelines, potentially enhancing both nurse well-being and patient care outcomes.

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