

Enhancing Occupational Safety Through Structured Education: An Evaluation of Body Mechanics Training Among Ward Attendants

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Abstract: **Background:** A safe working environment is vital for preventing occupational hazards among healthcare workers. Ward attendants are regularly involved in patient handling activities that require proper body mechanics and adherence to safety measures to prevent injuries and ensure quality patient care. Inadequate knowledge in these areas may increase the risk of musculoskeletal disorders and workplace accidents. Therefore, assessing the knowledge of ward attendants regarding body mechanics and safety measures is essential for identifying educational needs and promoting safe healthcare practices. **Method:** The study was conducted from 17.11.2025 to 29.11.2025 among 55 ward attendants at PESIMSR Hospital, Kuppam, Chittoor District, Andhra Pradesh. Participants were selected using a non-probability purposive sampling technique. A pre-experimental one-group pre-test and post-test design was used. Baseline knowledge regarding body mechanics and safety measures was assessed using a structured questionnaire. Following the pre-test, an informational lesson plan was administered through a Google Form. A post-test was conducted one week later using the same questionnaire to evaluate the effectiveness of the intervention. Data were analyzed using descriptive and inferential statistics. **Results:** The study revealed that most ward attendants were aged 26–35 years (34.55%), male (54.55%), and had 1–3 years of experience (40%). In the pre-test, 74.55% of participants had inadequate knowledge, 18.18% had moderate knowledge, and 7.27% had good knowledge. After the structured teaching program, knowledge levels improved, with 41.82% showing inadequate knowledge, 30.91% moderate knowledge, and 27.27% good knowledge. The mean knowledge score increased from 8.50 (SD = 0.458) in the pre-test to 12.01 (SD = 0.159) in the post-test. The paired t-test revealed a highly significant difference ($t = -7.27$, $p < 0.001$), demonstrating the effectiveness of the structured teaching program. Thus, the research hypothesis (H_1) was accepted, confirming a significant improvement in knowledge regarding body mechanics and safety measures among ward attendants following the intervention.

Keywords: knowledge regarding, body mechanics, and safety measures, among ward attendants.

1. Introduction

Body mechanics and safety measures are fundamental components of occupational health in healthcare settings. Ward attendants are routinely involved in physically demanding tasks such as lifting, transferring, and positioning patients, making

them particularly vulnerable to musculoskeletal injuries and other workplace hazards. Proper application of body mechanics principles helps maintain correct posture, balance, and alignment, thereby minimizing physical strain and enhancing work efficiency. However, inadequate knowledge, insufficient training, and inconsistent adherence to safety practices continue to contribute to occupational risks among healthcare personnel.

Despite ongoing efforts to promote safe patient handling, several challenges persist, including limited access to assistive devices, variations in workplace ergonomics, psychosocial stressors, and inconsistent institutional support. These factors can reduce the effectiveness of injury-prevention strategies and increase the likelihood of work-related health problems. Therefore, there is a critical need for comprehensive and sustained educational interventions that strengthen knowledge and promote the consistent application of safe practices. Enhancing awareness and competency in body mechanics and safety measures among ward attendants can contribute significantly to injury prevention, employee well-being, and the overall quality of healthcare delivery.

2. Materials and Methods

A Quantitative pre-experimental study was conducted on 17.11.2025 among 55 ward Attendants working in PES hospital at Kuppam the samples were selected by using convenient sampling technique, informed consent were taken before the study, security guards knowledge were assessed by using structured self-administered questionnaire. Which includes demographic variables and Questionnaire on knowledge regarding body mechanics and safety measures among ward attendants. Objectives of the present study includes

1. To assess the pre-test and post-test knowledge regarding body mechanics and safety measures among ward attendants.
2. To evaluate the effectiveness of the structured teaching program by comparing pre- and post-test knowledge scores.
3. To find the association between pre-test knowledge scores and selected demographic variables

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3. Results

Section-I: frequency and percentage of the demographic variables of body mechanics and safety measures among ward attendants

Table 1

Frequency and percentage of the demographic variables of body mechanics and safety measures among ward attendants. N=55

Demographic Variables	Frequency (F)	Percentage (%)
Age		
a) 18-25 years	18	32.73
b) 26-35 years	19	34.55
c) 36-45 years	9	16.36
d) above 45 years	9	16.36
Gender		
a) Male	30	54.55
b) Female	25	45.45
Year of experience		
a) 1-3 years	22	40.00
b) 4-6 years	9	16.36
c) less than 1 year	11	11
d) more than 6 years	13	13
Area of posting		
a) Emergency	17	30.91
b) General ward	5	9.09
c) ICU	16	69.09
d) Orthopaedic unit	5	9.09
e) Surgical ward	7	12.73
f) Other	5	87.27
Educational qualification		
a) 10 th pass	11	20.00
b) 12 th pass	28	50.91
c) Degree	11	20.00
d) Other	5	9.09
Have you received prior training on body mechanics?		
a) Yes	45	81.82
b) No	10	18.18
If yes, mode of training received		
a) Formal workshop	28	50.91
b) In-service education	14	24.45
c) Clinical demonstration	11	20.00
d) Online module	1	1.82
e) Other	1	1.82

Table 1 shows the demographic characteristics of 55 ward attendants. Most participants were aged 26–35 years (34.55%), followed by 18–25 years (32.73%), with a slight predominance of males (54.55%). The majority had 1–3 years of work experience (40%) and were educated up to the 12th standard (50.91%). Most participants had previously received training on body mechanics and safety measures (81.82%).

Regarding training methods, formal workshops were the most common source of training (50.91%), followed by in-service education (24.45%) and clinical demonstrations (20%). Overall, the findings indicate that the participants were predominantly young to middle-aged ward attendants with moderate work experience, basic educational qualifications, and prior exposure to body mechanics and safety training.

Section-II: comparison of pre-test and post-test mean, SD

“t” and p-values knowledge regarding body mechanics and safety measures among ward attendants

The table 2 presents the pre-test and post-test levels of knowledge regarding body mechanics and safety measures among 55 ward attendants. In the pre-test, the majority of participants had inadequate knowledge (74.55%), while 18.18% had moderate knowledge and only 7.27% had good knowledge, with a mean score of 8.50 (SD = 0.458).

After the intervention, a marked improvement was observed in the post-test results. The proportion of participants with good knowledge increased to 27.27%, moderate knowledge to 30.91%, and inadequate knowledge decreased to 41.82%. The mean post-test score improved to 12.01 (SD = 0.159). The paired t-test showed a statistically significant difference ($t = -7.27$, $p < 0.001$), indicating that the intervention was effective in improving the knowledge of ward attendants.

Section-III: Association of pre-test knowledge scores of body mechanics and safety measures among ward attendants with their selected socio-demographic variables

The association between pre-test knowledge scores and selected socio-demographic variables among ward attendants. The findings revealed no statistically significant association between knowledge scores and age, gender, work experience, area of posting, educational qualification, prior training, or mode of training ($p > 0.05$ for all variables). This indicates that pre-test knowledge regarding body mechanics and safety measures was not influenced by any of the selected socio-demographic factors in the study population.

4. Discussion

The study concluded that the structured teaching programme was effective in improving the knowledge of ward attendants regarding body mechanics and safety measures. A significant increase in post-test knowledge scores was observed compared to pre-test scores, confirming the impact of the intervention. However, no significant association was found between pre-test knowledge and selected socio-demographic variables, indicating that baseline knowledge was not influenced by demographic factors. Overall, the findings emphasize the importance of structured educational interventions in enhancing safe practices among ward attendants and reducing occupational risks in the healthcare setting.

5. Conclusion

The study revealed that ward attendants had inadequate baseline knowledge regarding body mechanics and safety measures. The structured teaching programme significantly improved their knowledge, as evidenced by increased post-test scores, confirming its effectiveness. No significant association was observed between knowledge and selected demographic variables, indicating uniform effectiveness across all groups.

Table 2

Comparison of pre-test and post-test mean, SD, t and p-values of knowledge regarding body mechanics and safety measures among ward attendants (N=55)

Level of Knowledge	Good Knowledge F & %	Moderate Knowledge F & %	Inadequate Knowledge F & %	Mean & Standard Deviation	P Value T Value	Results
Pre-Test	4 (7.27)	10 (18.18)	41 (74.55)	8.50 (.4582743)	0.0000 (-7.27)	The Intervention Was Effective
Post-Test	15 (27.27)	17 (30.91)	23 (41.82)	12.01 (.1588912)		

The findings underscore the importance of regular educational interventions to promote safe practices, reduce occupational risks, and enhance the quality of care in healthcare settings.

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