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A Study to Assess the Compliance of the Nurses to Modified Early Warning Score Protocol and Its Feedback on Patient Outcome

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Abstract

Background: Early identification of clinical deterioration in hospitalized patients is essential to reduce morbidity and mortality. The Modified Early Warning Score (MEWS) is a standardized assessment tool used to recognize patients at risk of deterioration and facilitate timely intervention.

Objectives

1. To assess the socio-demographic profile of staff nurses.
2. To evaluate nurses' knowledge regarding MEWS.
3. To assess monthly MEWS monitoring outcomes and MET activations.

Methods: A descriptive observational study was conducted among 25 staff nurses in a hospital setting. Socio-demographic variables including age, gender, designation, and marital status were collected. Monthly MEWS assessment data from November to April were analyzed. Descriptive statistics such as frequency and percentage were used.

Results: Among the 25 participants, 96% were aged 21–25 years, and all participants were female. Senior staff nurses constituted 72% of the sample. Most participants were unmarried (92%). A total of 903 patient assessments were conducted during the study period. The highest number of MEWS scores above 4 was observed in March (71 cases). No code blue events were reported. The majority of patients had a MEWS score of 0 (73.3%).

Conclusion: Implementation of MEWS monitoring facilitated early identification of patient deterioration and may have contributed to the absence of code blue events during the study period. Adequate nurse awareness and regular monitoring are essential for effective utilization of MEWS.

Keywords: Modified Early Warning Score, MEWS, nurses' knowledge, patient deterioration, MET activation, early warning system.

Introduction

Early recognition of clinical deterioration among hospitalized patients is one of the major responsibilities

of nursing professionals. Delayed identification of deterioration can lead to serious adverse outcomes such as cardiac arrest, unplanned intensive care unit admissions, prolonged hospital stay, and increased mortality. Nurses, being the frontline healthcare providers, play a vital role in continuously monitoring patients and identifying early warning signs of deterioration.

Clinical deterioration is often preceded by subtle physiological changes, including alterations in respiratory rate, heart rate, blood pressure, temperature, and level of consciousness. Failure to recognize these changes in a timely manner may result in severe complications such as respiratory failure, cardiac arrest, and death. Therefore, healthcare systems worldwide emphasize the importance of early detection and timely intervention to improve patient safety and quality of care.

To support clinical assessment and decision-making, Early Warning Scoring Systems were developed. Among these, the Modified Early Warning Score (MEWS) is one of the most widely used bedside assessment tools. MEWS assigns scores to vital physiological parameters, and the total score helps identify patients at risk of clinical deterioration. Higher MEWS scores indicate a greater need for urgent medical review and intervention.

MEWS contributes significantly to patient care by facilitating:

- Early identification of critically ill patients
- Prompt clinical intervention
- Timely activation of Medical Emergency Teams (MET)
- Reduction in unexpected cardiac arrests
- Improved communication among healthcare professionals

Nurses are primarily responsible for recording vital signs, calculating MEWS scores, monitoring trends, and initiating appropriate responses based on established protocols. Therefore, adequate knowledge and competency regarding MEWS application are essential for ensuring effective patient monitoring and improving patient outcomes.

Evaluating nurses' knowledge about MEWS and assessing the outcomes of MEWS monitoring are important steps toward enhancing patient safety, strengthening clinical practice, and improving the quality of healthcare services. In this context, the present study was undertaken to assess nurses' knowledge regarding MEWS and evaluate the effectiveness of MEWS monitoring in the early detection of patient deterioration.

Methods

Research Design

Descriptive observational study design.

Setting

The study was conducted in a hospital setting.

Population

Staff nurses working in the hospital.

Sample Size

A total of 25 staff nurses participated in the study.

Sampling Technique

Convenient sampling technique was used.

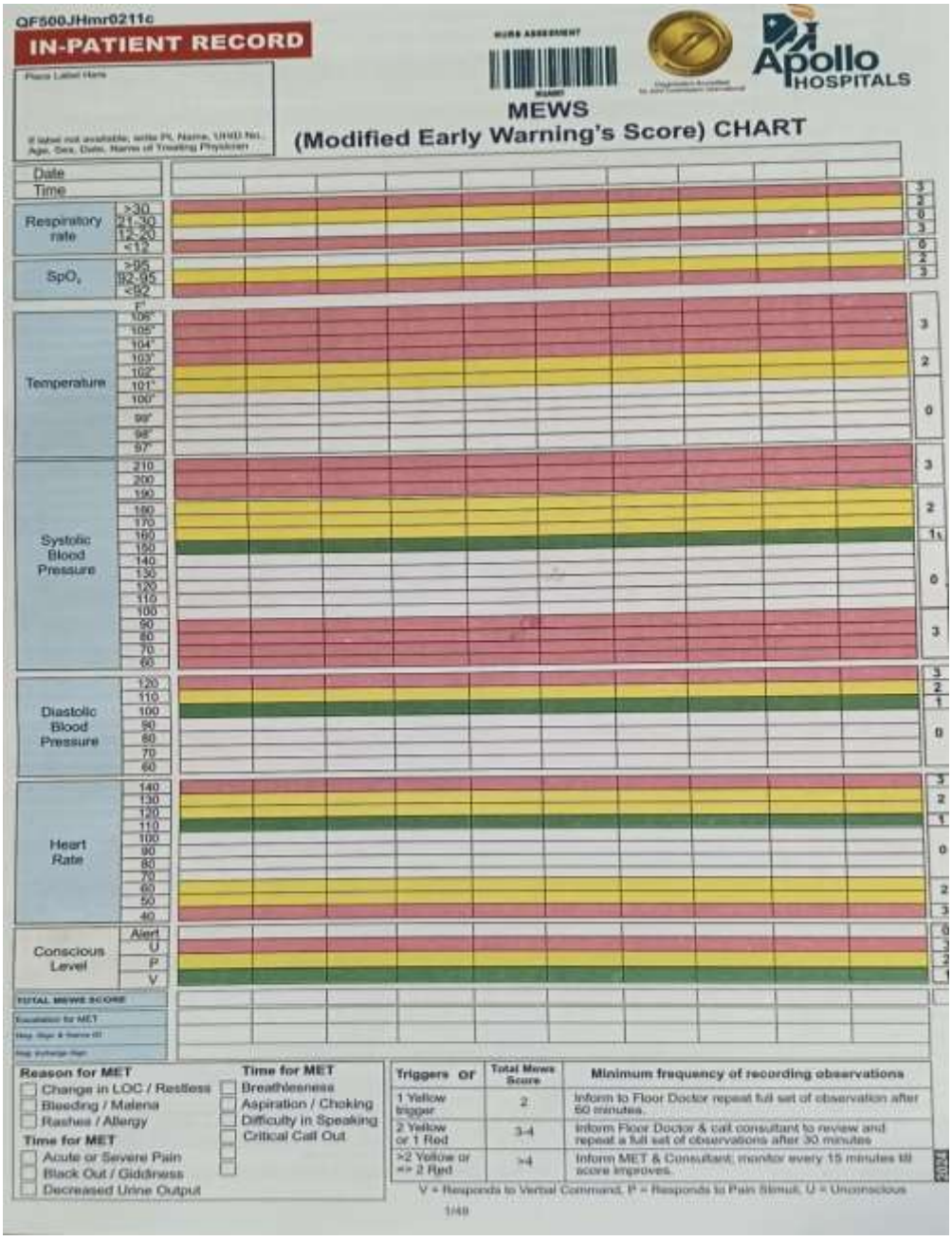
Data Collection Tools

1. Socio-demographic profile questionnaire.

2. Nurses' knowledge assessment tool.
3. MEWS monitoring assessment records.

Data Analysis

Data were analyzed using descriptive statistics such as frequency and percentage.



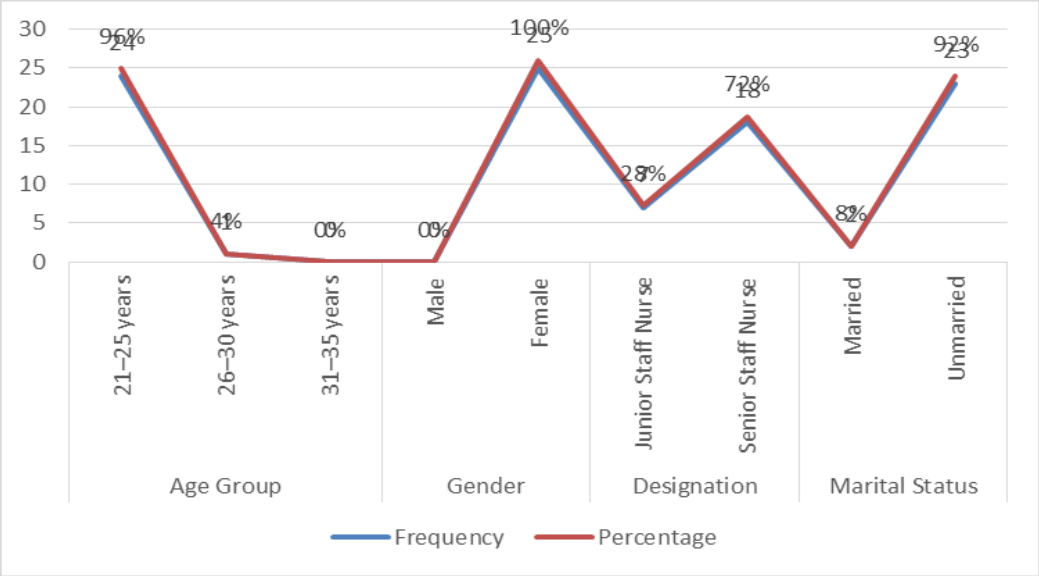
Statistics

The collected data were coded and entered into Microsoft Excel and analyzed using descriptive statistics. Frequencies, percentages, tables, and charts were used to summarize the socio-demographic variables of staff nurses, monthly MEWS assessment findings, and nurses' knowledge assessment results.

Socio-demographic variables such as age, gender, designation, and marital status were analyzed using frequency and percentage distribution. Monthly patient assessment data including MEWS above 4, MET

calls, and code blue events were summarized month-wise using counts and percentages.
The distribution of MEWS scores was analyzed using descriptive statistical measures including frequency and percentage. The findings were presented in the form of tables and graphical representations for better interpretation and understanding of the data.

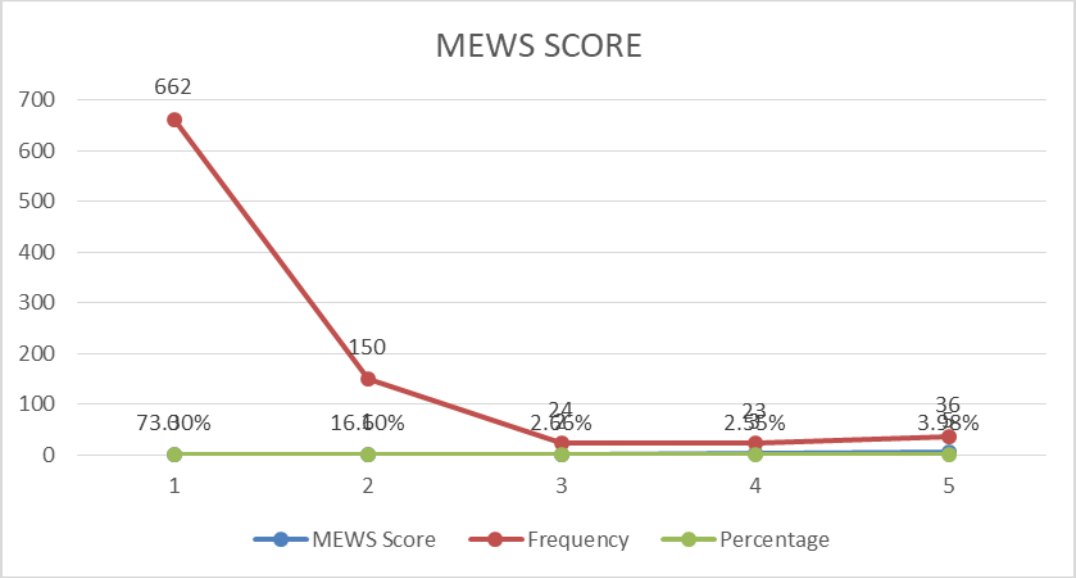
Descriptive Statistics of Socio-demographic Variables (n = 25)



Variable	Category	Frequency	Percentage
Age Group	21–25 years	24	96%
	26–30 years	1	4%
	31–35 years	0	0%
Gender	Male	0	0%
	Female	25	100%
Designation	Junior Staff Nurse	7	28%
	Senior Staff Nurse	18	72%
Marital Status	Married	2	8%
	Unmarried	23	92%

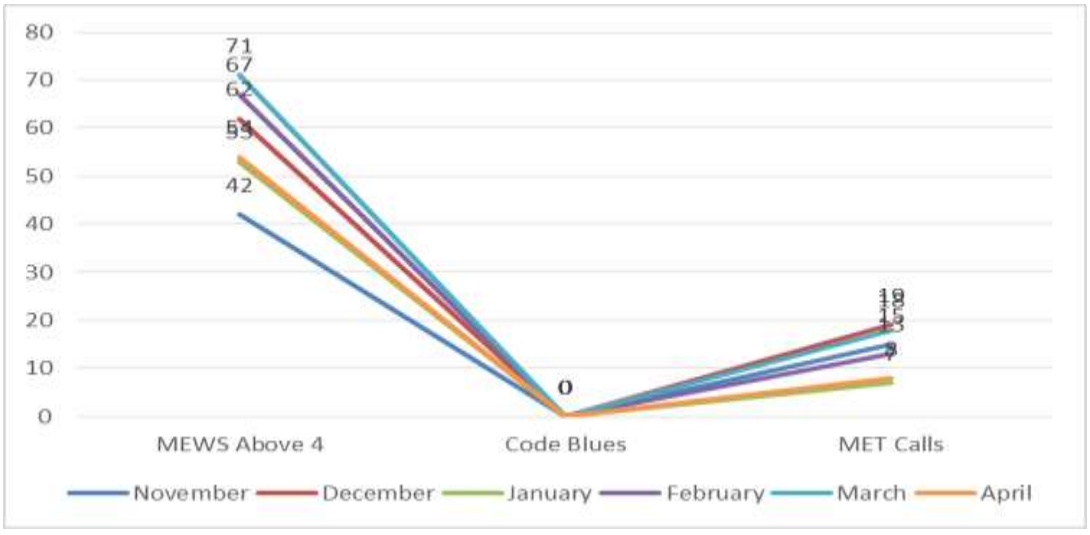
Descriptive Statistics of MEWS Scores (n = 903)

MEWS Score	Frequency	Percentage
0	662	73.30%
1	150	16.60%
2	24	2.66%
3	23	2.55%
5	36	3.98%



Monthly Assessment Statistics

Month	MEWS Above 4	Code Blues	MET Calls
November	42	0	15
December	62	0	19
January	53	0	7
February	67	0	13
March	71	0	18
April	54	0	8

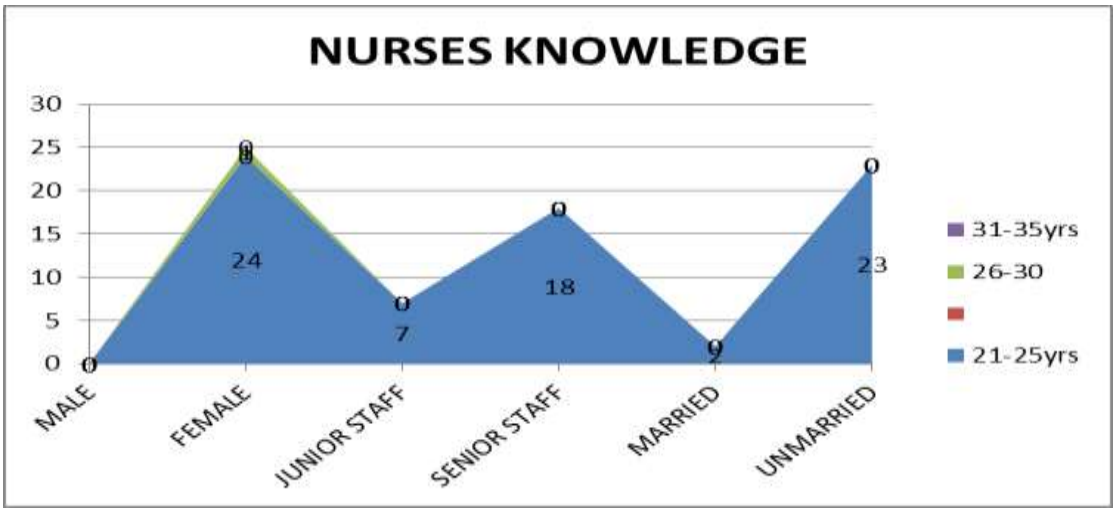


Interpretation of Statistical Findings

The statistical findings revealed that the majority of staff nurses were young female nurses aged between 21–25 years. Most participants were senior staff nurses and unmarried.

The MEWS score distribution showed that most patients had low scores, indicating stable clinical conditions. Very few patients had higher MEWS scores, suggesting the need for closer monitoring and intervention in a smaller proportion of cases.

The monthly assessment findings demonstrated fluctuations in the number of patients with MEWS above 4, with the highest occurrence observed during March. No code blue incidents were reported during the study period, indicating effective monitoring and timely intervention through the MEWS system and MET activation.



Results

The socio-demographic analysis revealed that the majority of participants belonged to the age group of 21–25 years, accounting for 24 participants (96%), while only 1 participant (4%) was in the 26–30 years age group. No participants were found in the 31–35 years category. All participants were female (100%), and there were no male participants in the study. Regarding professional designation, 18 participants (72%) were Senior Staff Nurses, whereas 7 participants (28%) were Junior Staff Nurses.

In terms of marital status, most participants were unmarried, comprising 23 individuals (92%), while only 2 participants (8%) were married. The analysis of Modified Early Warning Scores (MEWS) demonstrated that the majority of observations had a score of 0, accounting for 662 cases (73.3%). A score of 1 was observed in 150 cases (16.6%).Lower proportions were observed for higher scores, with 24 cases (2.66%) recording a score of 2 and 23 cases (2.55%) recording a score of 3. A total of 36 cases (3.98%) had a MEWS score of 5, indicating patients requiring closer monitoring and potential clinical intervention. Overall, the findings indicate that most patients remained clinically stable during the study period, while a smaller proportion exhibited signs of physiological deterioration.

The monthly assessment revealed fluctuations in the number of patients with MEWS scores above 4, MET (Medical Emergency Team) calls, and code blue events over the six-month study period. In November, 42 patients had MEWS scores above 4, accompanied by 15 MET calls, with no code blue events recorded. In December, the number of high MEWS cases increased to 62, with 19 MET calls, while code blue events remained absent. January recorded 53 patients with MEWS scores above 4 and the lowest number of MET calls (7). In February, the number increased to 67 high MEWS cases with 13 MET calls. The highest number of MEWS scores above 4 was observed in March, with 71 cases and 18 MET calls. In April, the number decreased to 54 cases with 8 MET calls. Importantly, no code blue incidents were reported throughout the study period.

The study findings indicate that the nursing staff involved were predominantly young, female, unmarried, and mainly senior staff nurses. The MEWS assessment revealed that most patients maintained stable

physiological conditions, with only a small proportion exhibiting high-risk scores. Despite fluctuations in high MEWS scores and MET activations across months, the absence of code blue events suggests that the use of MEWS facilitated early identification of patient deterioration and supported timely clinical interventions, thereby potentially preventing progression to critical events.

Discussion

The findings of the present study demonstrated that the Modified Early Warning Score (MEWS) is an effective tool for identifying early signs of clinical deterioration among hospitalized patients. Early detection through MEWS monitoring enabled timely intervention and appropriate escalation of care, thereby contributing to improved patient safety outcomes.

The majority of nurses participating in the study were experienced senior staff nurses, which may have positively influenced patient monitoring practices and adherence to MEWS protocols. Most of the nurses were young female professionals aged between 21 and 25 years. Their active involvement in regular patient assessment and monitoring likely contributed to effective implementation of the MEWS system.

One of the significant findings of the study was the absence of code blue incidents during the study period. This suggests that early recognition of patient deterioration and prompt clinical intervention may have successfully prevented severe complications and unexpected emergencies. In addition, patients with higher MEWS scores received timely clinical assessment and Medical Emergency Team (MET) activation, demonstrating appropriate utilization of the scoring system.

The majority of patients had lower MEWS scores, indicating stable clinical conditions in most cases. However, MEWS proved useful in identifying patients at risk of deterioration, allowing healthcare professionals to initiate early management before the condition became critical.

The findings of the present study are consistent with previous research that highlighted the effectiveness of early warning scoring systems in reducing adverse clinical events, improving communication among healthcare professionals, and enhancing patient safety outcomes. Overall, the study supports the importance of MEWS implementation and emphasizes the need for adequate nursing knowledge and continuous monitoring practices for early detection of patient deterioration.

Conclusion

The study concluded that the Modified Early Warning Score (MEWS) is an effective bedside assessment tool for the early identification of patient deterioration. Regular monitoring of patients using MEWS and timely activation of the Medical Emergency Team (MET) contributed to improved patient surveillance and prevention of critical clinical events. The findings also highlighted the active role of nurses in patient assessment, monitoring, and timely intervention.

The study further emphasized the importance of continuous education and training programs to enhance nurses' knowledge and competency regarding MEWS implementation and early detection of clinical deterioration.

The study concluded that:

- MEWS is an effective bedside assessment tool.
- Early identification of deterioration helps reduce adverse clinical events.
- Nurses play a critical role in patient monitoring and timely intervention.
- Regular education and training improve the effective implementation of MEWS.

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