

Nurses' Adherence to Vital Signs Monitoring and Its Association with Early Warning Score Accuracy

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ABSTRACT

Background: Accurate vital signs monitoring is essential for patient safety, as it informs the Early Warning Score (EWS), which predicts patient deterioration. Nurses' adherence to monitoring guidelines may influence the accuracy of EWS. **Aim:** To examine nurses' adherence to vital signs monitoring and its association with early warning score accuracy. **Methods:** A study, a descriptive and correlational one, was done, involving a hundred registered nurses in the medical and surgical sections of some hospitals which were chosen. The nurses filled in the V-Scale form to show how much nurses followed the guidelines in five areas: how much work nurses had, what they knew, how nurses talked with others, the tech they used, and what the important signs were. How right the EWS was, was checked by going back over the scores in the hospitals' computer systems and seeing how nurses matched the scores nurses had written down. **Results:** The majority of nurses had a fair amount of compliance in every area checked – the average results being from 2.94 to 3.14. Nurses were most compliant when it came to communication, at 3.14, and important measures, at 3.08, but least compliant in the areas of technology, 2.94, and understanding, 2.96. Just 31% of nurses put down a correct EWS. Compliance with workload was clearly linked to a correct EWS ($\chi^2 = 7.468$, $p = 0.024$; $r = -0.269$, $p = 0.007$), however understanding, communication, technology, and important measures had no notable connection to how right the EWS was. **Conclusion:** The accuracy of the early warning system depends on how nurses manage their workloads. **Recommendations:** The study recommends reducing workloads and providing support to nurses, which in turn will contribute to optimizing patient vital signs monitoring and thus enhancing patient safety.

Keywords: Adherence, Early Warning Score, Monitoring, Nurses, Vital Signs.

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1. INTRODUCTION

Checking a patient's vital signs things like breathing rate, blood pressure, pulse, temperature, and the amount of oxygen in their blood is a really important part of what nurses do. These signs are key to spotting when a hospital patient's physical condition begins to worsen and they give nurses the information needed to make decisions about care and to look after patients. Being able to watch these measurements carefully and do so on time allows nurses to find small shifts in how a patient is doing, prior to any really bad health problems showing up. In hospitals, nurses do the bulk of the work in getting and writing down vital signs, so it's very important nurses follow the ways monitoring should be done, to keep patients safe and to give good treatment (Ullah et al. 2022).

To help find patients becoming unwell, hospitals have begun to use Early Warning Scoring (EWS) quite a lot. The scores these systems give are based on normal health measurements, and show how likely a patient is to get worse and what doctors should do. Making how bodily functions are understood the same across the board, EWS allows medical staff to spot people who may be in danger and start treatment quickly; this could stop things like heart attack, an unexpected stay in intensive care, or dying (Fang et al. 2024).

Even though early warning systems are good for patients and do help, how well nurses work is mostly down to how well nurses check and record patients' vital signs. Should vital signs be taken wrongly, not fully put down, or checked less often than nurses ought to be, the early warning scores which are worked out won't show what a patient's body is really doing. Studies have demonstrated that healthcare providers frequently don't get all the necessary vital signs, and don't always

follow the ways they should be monitoring patients; this may stop medical groups from quickly finding when a patient's condition is worsening (Eddahchouri et al. 2021).

How nurses follow the rules for checking vital signs depends on a number of things: how busy they are, how many nurses are working, what the nurse thinks is right in the situation, and what the hospital generally expects. It's been shown that vital signs aren't checked, or aren't checked quickly enough, quite often on hospital floors mainly when there aren't enough nurses, or patients are very ill. Not doing these checks, or not doing them promptly, can put patients at risk, and make the systems meant to find a worsening condition less useful (Griffiths et al., 2020).

Differences in how nurses follow the National Early Warning Score guidelines have been shown in various hospital units and with different kinds of patients. It was discovered in a study not long ago that following EWS surveillance so, getting the score right, checking on patients often enough, and acting on what the score showed isn't as good as it ought to be in a lot of places where people get medical care. This unevenness could cause wrong early warning scores and hold up spotting people whose health is worsening; therefore, it is vital to have better ways of keeping an eye on patients and make sure personnel stick to the rules (Leenen & Mondria, 2024).

Because of how very important monitoring vital signs is to working out an EWS an Early Warning Score it's really necessary to know how well nurses are sticking to the rules for checking them, and what impact this has on getting the scores right. Looking into this connection could give us useful information about problems in what doctors and nurses do and help with plans to make patient care safer, spot when patients are getting worse quicker, and make certain early warning systems are used properly in hospitals and other places where people get medical help.

2. LITERATURE REVIEW

Vital signs monitoring in nursing practice:

Monitoring vital signs is essential not just as a part of patient assessment but also as part of determining whether a patient is going to get worse in a hospital. Important signs that influence the decision of healthcare professionals include the patient's temperature, heart rate, respiratory rate, blood pressure, and oxygen saturation. With these signs, the healthcare professional can determine whether the patient's condition is to the extent that it may cause a severe complication. Because of the essential nature of each and every one of the signs, it is important for nurses to measure, document, and interpret them to provide the proper care. For an example, if a patient's blood pressure and heart rate are not recorded it can put the patient at risk (Ullah et al. 2022).

Nurses' compliance to vital signs monitoring:

How well nurses follow the rules for checking vital signs is very important to how well patients are watched in hospital units. A number of studies have shown that sticking to the suggested times to check and the standards for writing things down is quite different in different places where people get medical care. A study, done at several places and looking at what actually happened, showed that nurses often don't follow the usual rules for keeping track of patients especially when they're really busy and have a lot of other things nurses need to do with patients who are ill. Not sticking to these routines could cause problems with figuring out what's going on and slow down discovering when a patient is getting worse (Eddahchouri et al. 2021).

Because of their importance, scientific studies have shown that the monitoring practices of clinicians is greatly influenced by the organization, staffing, and institutional policies. Griffiths et al. (2020) noted how critical clinical support environments are for encouraging nurses to follow monitoring processes and maintain reliable monitoring of patients. Also, a low patient-nurse ratio increases the risk of certain nursing care omissions.

Early Warning Score calculation accuracy:

The reliability of Early Warning Score (EWS) systems depends on the precision of the physiological metrics used for score computations. A number of different studies have analyzed the impact of errors posed by either the measurement or the documentation of vital signs on the performance of an EWS. One of the systematic reviews of the early warning score systems noted that the absence of some vital signs or the presence of vital signs that are inaccurate or are documented in an incomplete manner directly leads to the systems' inability to predict in a timely manner which patients are likely to experience an adverse clinical event (Gerry et al., 2020)

Documented score and calculated score discrepancies have been noted to happen in a clinical environment. Score discrepancies are noted to happen from a calculation mistake, an omission of a parameter, the omission of some vital signs, or the entry of inaccurate vital signs. Omitted vital signs can impair the activation of the early response systems when patients are actually at risk. Therefore, to maintain clinical reliability of EWS systems, it is vital to have accurate documentation and calculation processes (McGaughey et al. 2021).

Factors influencing nurses' compliance to vital signs monitoring:

Numerous elements have been recognized to impact nurses' adherence to monitoring and EWS protocols. Training and familiarity regarding EWS is crucial in ensuring the correct clinical response and score calculation. It has been demonstrated that nurses who undergo systematic training on EWS systems are more compliant and score calculations more accurately than those who rely on their clinical experience (Burke & Conway, 2023). Furthermore, the incorporation of electronic monitoring systems in hospital workflows has been beneficial to compliance on monitoring protocols. EWS calculation and monitoring are more accurate and consistent using digital documentation systems, as nurses capture and calculate the vital signs that require EWS score calculations. It is suggested that these technological solutions support nurses' adherence and ease cognitive burden related to monitoring and documentation work (Wong et al. 2024).

Impact on patients' safety outcomes:

More healthcare researchers are looking into how monitoring adherence affects safety outcomes. Research shows that monitoring intervals that are too long or not monitoring intervals at all increase the chance of missing critical changes to a patient's condition, which can lead to negative outcomes such as, unanticipated deaths, cardiac arrests, unanticipated admissions to the ICU, and deaths during their hospital stay. In Leenen & Mondria's (2024) study, hospitals that were more compliant with monitoring and early warning system (EWS) protocols were able to provide more timely interventions for deteriorating patients. Although EWS have become commonplace in hospitals, varied compliance with them continues to be a problematic area in clinical practice. Fewer monitoring intervals and less patient surveillance in certain hospital wards create inconsistencies across wards in the ability to detect early deterioration of patients. This shows the critical need to examine how the nursing gaps in monitoring protocol adherence impacts the precision of early warning scores and in turn influences patients' safety outcomes.

Research gap:

Even though checking patients' essential signs and using Early Warning Scores has been looked at in a lot of research, what's already been published has a few problems. A great deal of the work has been about putting EWS into use, or what nurses routinely do when they monitor, but doesn't, in particular, join sticking to the rules with how correct the EWS numbers are (Considine et al. 2023). A good number of investigations depend on data people remember from the past, or on setups that have been created to look like the real thing not on watching what actually happens with nurses on hospital units; this probably doesn't show all the actual difficulties nurses have when they try to follow guidelines. And we don't know a lot about how things to do with the way the hospital is run such as the number of staff, how much work there is, and what sort of preparation people get affect both sticking to the guidelines and how good the EWS scores are at telling when a patient is getting worse.

Because of this, the research intends to address what isn't known by looking at straight-forwardly how well nurses follow the rules for checking vital signs, and how correct the Early Warning Score is when it's worked out on hospital wards: the work was offer proof to help with rules, teaching and changes to the way things are done at an organization level.

Research problem:

Systems for Early Warning Score are really important in finding when patients are starting to get worse but how well they work relies a lot on nurses getting correct, and quick, readings of vital signs. Not getting a complete set of readings, or a hold-up in getting them, has turned up in loads of hospitals and clinics, and could make EWS less dependable and mean important treatments are put off (Considine et al. 2023). Although people understand how important it is to follow the rules for checking on patients, not many studies have actually looked at what happens to the correctness of EWS or Early Warning Scores when vital signs aren't checked as they should be, in actual hospitals. Because of this, we have to look into this link if we want to make patients safer and get the most from early warning systems on hospital floors (Alshehry, 2024).

Significance of the study:

The importance of this research lies in dealing with a really important part of keeping patients safe how well nurses follow the rules for checking vital signs, and how that affects how good Early Warning Scores are. Because EWS completely rely on vital signs which are normally taken, not checking often enough, not getting all the signs, or not writing them down properly could give the wrong scores and cause doctors and nurses to react to illness too late. Looking at how well nurses follow monitoring routines, the research will be able to find problems which could make early warning systems less useful (Gerry et al. 2020; Leenen & Mondria, 2024).

Also, what's discovered might help make nursing work, hospital rules, and courses for clinical staff better, by showing how vital it is to be certain that monitoring instructions are always followed? Knowing what makes EWS precision correct, impacts healthcare facilities in making specific plans – like courses, changing staff levels, or digital check-up systems in order to make checking more precise and better the results for patients' safety (Eddahchouri et al. 2021).

Aim of the study:

- To examine nurses' adherence to vital signs monitoring and its association with early warning score accuracy.

Objectives:

- To assess the level of adherence to vital signs monitoring among nurses.
- To evaluate the accuracy of Early warning score calculation based on the documented signs.
- To explore the relationship between the levels of nurses' adherence to vital signs monitoring early warning score accuracy.

Study questions:

- What are the level of nurses' adherence to vital signs monitoring?
- Is there is a relationship between the levels of nurses' adherence to vital signs monitoring and early warning score accuracy?

Materials and methods:

Study design: The research used a descriptive, correlational study to investigate how well nurses followed the rules for checking vital signs, and how it related to accuracy of the Early Warning Score (Polit & Beck, 2021).

Settings: The research took place on the medical and surgical floors of King Khalid Hospital and Hafr Al-Batin Central Hospital, these hospitals provide care to adults who suffering from various diseases. The reason for selecting these particular floors was that the nurses who work there usually do the routine checking of patients' vital signs, and they are the ones who fill out the EWS records; so they were just right for looking at how well people stick to the rules and how correct their work is.

Study Population: The target population consisted of registered nurses working on the previous selected hospital wards.

Inclusion criteria:

- Registered nurses
- Employed in the medical or surgical wards
- At least **6 months of clinical experience** in the current ward
- Directly responsible for measuring and documenting vital signs

Exclusion criteria:

- Nurses on administrative duties
- Nurses not involved in direct patient care

Sampling and Sample Size:

Participants were selected via convenience sampling technique. The number in the sample was worked out using what is recommended for correlation studies of this type. With a medium effect size of 0.3, a 0.05 alpha, and 80% power, at least 84 people were needed (Cohen, 1992). To compensate the drop out 10 to 15 per cent more nurses were asked to participate in the study. The sample size was about 100 in total.

Data Collection: Data were collected using the following tool:

Tools of the study:

Tool (I): V-Scale Questionnaire: It was including two parts: Part one: it was including nurse information form such as, age, sex, qualification, marital status, years of experience, work place setting, and employment status. Part two: Mok et al. 2015 created this tool to assess nurse's adherence the rules for checking vital signs such as blood pressure, pulse, temperature and breathing rate. Ertuğ (2018) did the Turkish version of the tool, and after that it began to be employed as a brief form in investigations across different countries. The questionnaire has sixteen questions, each one answered using a five-point scale, and where one means 'completely disagree' and five is 'completely agree (Appendix I).

Scoring system: the total score ranging from 16 to 80 where 16–32 indicate to low adherence, 33–56 indicate to moderate adherence, and 57–80 indicate to high adherence.

National Early Warning Score 2 (NEWS2) It is a chart used to check how well the early warning scores worked, going on the vital signs nurses had written down (Royal College of Physicians, 2017). The researcher worked out the NEWS2 for each patient again, using the official chart, and then check how these matched the scores the nurses had already recorded. NEWS2 has six measurements: how fast they breathe, their oxygen levels, temperature, blood pressure, pulse, and how aware they are and the bigger the score, the more likely a patient is to get worse (Appendix II).

Reliability: The authors who made the V-Scale Mok and colleagues, in 2015 had already shown what the scale was like

in terms of its measurement qualities, in a study. It was found in the first check of whether it was good to use, that the scale had acceptable consistency from within, at 0.71 on Cronbach's alpha; and it was also good at giving the same results when done again, at 0.85 on the ICC. This means the V-Scale can be trusted as a way to measure what nurses think about keeping an eye on vital signs, and things of that type (Mok et al. 2015).

Pilot study: To assess tools clarity for this research a test run was done on 10% of nurses before data collection. Results from the test weren't put in the last look at everything, and how well the questions went together was checked again; a Cronbach's alpha of 0.70 or better was what we wanted, which would show the questions on the scale were suitably consistent for use in study work.

Field work: The study's practical part involved sending the V-Scale questionnaire out by email through the hospital's official addresses to the nurses who were taking part. Every person who joined the study had first given their agreement in writing, having been fully informed of what it meant to do so. Taking part was something people could choose to do, or not to, and nurses were told that their answers would be kept secret and that no one would know who had said what. To test how well the Early Warning Score (NEWS) worked, hospital electronic health records, or EMRs, gave the figures for patients' vital signs. Then used these numbers to work out the NEWS and set it against the scores the nurses had given in a survey. Doing this meant that it could see how much what nurses said they did match the NEWS they actually computed.

Ethical consideration: Data was stored securely and accessed only by the research team. Ethical approval was granted from ethical committee.

Statistical analysis: SPSS, version 27, was the program used for data analysis. Means, standard deviations, frequencies and percentages all for the people in the study were calculated, how well nurses followed the plan, and the NEWS scores. To answer what we wanted to find out in the study, we used a paired t-test, Wilcoxon signed-rank test, Pearson's correlation, Spearman's rank correlation and linear regression analysis. Results were thought of as important if the p-value was less than 0.05.

3. RESULTS

Table 1: Demographic characteristics of the participants.

Variable	Category	N	%
Sex	Male	61	61%
	Female	39	39%
Age (years)	Mean ± SD	42.16 ± 11.48	
Marital Status	Single	27	27%
	Married	35	35%
	Divorced	14	14%
	Widowed	24	24%
Qualification	Bachelor's	46	46%
	Master's	38	38%
	PhD	16	16%
Workplace	Public sector	82	82%
	Private sector	18	18%
Years of Experience	<5 years	29	29%
	5–10 years	35	35%
	>10 years	36	36%
Employment Status	Full-time	81	81%
	Part-time	19	19%

The table (1) shows personal details of the studied nurses. 61% of those taking part were men, with age average, 42.16 years old, with a standard deviation of 11.48 years. 35% were married, and most had either a bachelor's degree 46% or a master's 38%. 82% of nurses in the study worked for the government, and 81% were in full-time jobs. Years of experience in their field were almost the same for three groups of people: those with under five years, those with five to ten years, and those with over ten years.

Table 2. Mean Scores and Standard Deviations of Sub-Dimensions of Nurses' Adherence (V-Scale)

Item	Minimum	Maximum	Mean	Std. Deviation
1. It is time-consuming to perform vital signs monitoring	1	5	3.09	1.484
2. Vital signs monitoring is a boring task.	1	5	3.07	1.444
3. Complete and accurate vital signs monitoring is neglected due to time constraints.	1	5	2.93	1.416
4. I feel overwhelmed trying to complete the different frequency of vital signs collection.	1	5	3.10	1.367
5. I can relate vital signs readings to physiology and pathophysiology of presenting diseases.	1	5	2.79	1.438
6. My knowledge in interpreting vital signs to identify clinical deterioration is limited.	1	5	2.98	1.341
7. Changes in vital signs were not interpreted accurately by nurses.	1	5	3.02	1.378
8. I am confident to report deteriorating vital signs in a way that will get team doctor /RN in-charge to review the patient.	1	5	3.07	1.423
9. I will repeatedly inform the team doctor/RN in-charge on vital sign changes if no prompt actions are acted on.	1	5	3.34	1.372
10. SpO2 is a more reliable indicator in reflecting early signs of respiratory dysfunction than respiratory rate.	1	5	2.85	1.459
11. Blood pressure is often the first parameter that reflects abnormality when a patient deteriorates.	1	5	2.80	1.385
12. Respiratory rate value is the least important sign of deterioration.	1	5	3.17	1.400
13. Respiratory rate value is usually estimated for stable patients during routine vital signs monitoring.	1	5	3.07	1.365
14. Electronic vitals monitoring results in casual monitoring (i.e. counting) of respiratory rate.	1	5	2.97	1.446
15. The use of pulse oximetry to monitor SpO2 will reduce the need to count respiratory rates.	1	5	3.20	1.421
16. I usually record respiratory rate as standard rate between 12-20/min if SpO2 is within normal range.	1	5	3.07	1.458

Table 2 shows what nurses think and do about watching patients' vital signs – using 16 questions to get at this – and gives some figures to describe this. The average results for the questions went from 2.79 up to 3.34; most of the time, nurses tended to concur. The question getting the biggest average (3.34) concerned constantly letting the team doctor or the nurse manager know if quick steps aren't done, which means nurses feel it is most important to get the word to people when care needs to be stepped up. Responses about understanding vital signs and being sure of what nurses reported were at a middle level – about 2.79 to 3.07 – which shows people weren't entirely confident, or knew they didn't know everything. The figures for how much answers varied, between 1.341 and 1.484, mean that participants had quite different experiences and ideas about how vital signs are taken.

Table 3: Total V-Scale Adherence Scores and Levels among Nurses

	N	Minimum	Maximum	Mean	Std. Deviation
Work load Score	100	1.33	5.00	3.0300	.90403
Knowledge Score	100	1.00	4.67	2.9567	.77800
Communication Score	100	1.33	5.00	3.1433	.83182
Technology Score	100	1.33	5.00	2.9400	.86636
Key Indicators Score	100	1.25	4.75	3.0775	.71306

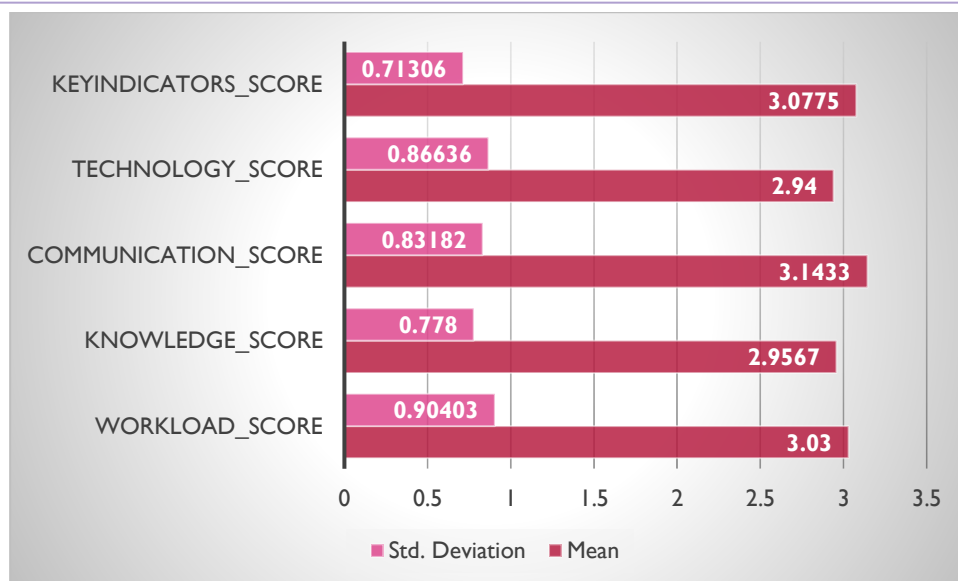


Figure 1: Total V-Scale Adherence Scores and Levels among Nurses

Table (3) and figure (1) give details of what people thought, on average, about five parts of the V-Scale how much work there was, how much nurses knew, how well people spoke to each other, how things were with technology, and the main things the V-Scale measured. Average results went from 2.94 (for Technology) to 3.14 (for Communication), and so, in general, people had a fairly average feeling about all of these. People felt there was a little more work, a little more communication and a little more of the important things that the V-Scale looked at (3.03 to 3).

Scores for knowledge and technology were a little bit less – 2.94 to 2.96 – and this could be because nurses didn't feel they knew enough, or weren't sure of themselves at using technology when it came to checking vital signs. The standard deviations, between 0.713 and 0.904, mean there was a good deal of difference in what people answered. Generally, the findings show nurses had fairly equal, though differing, ideas about how much work nurses had, their knowledge, how well people spoke to each other, technology and the most important things to notice in patients.

Table 4. Distribution of Nurses' Adherence Levels by Sub-Dimensions (N = 100)

Sub-Dimension	Adherence Level	Frequency (n)	Percent (%)	Cumulative Percent (%)
Workload	Low	26	26.0	26.0
	Moderate	53	53.0	79.0
	High	21	21.0	100.0
Knowledge	Low	27	27.0	27.0
	Moderate	60	60.0	87.0
	High	13	13.0	100.0
Communication	Low	24	24.0	24.0
	Moderate	54	54.0	78.0
	High	22	22.0	100.0
Technology	Low	36	36.0	36.0
	Moderate	48	48.0	84.0
	High	16	16.0	100.0
Key Indicators	Low	14	14.0	14.0
	Moderate	62	62.0	76.0
	High	24	24.0	100.0

Table 4 shows how well nurses followed guidelines in five areas – how much work nurses had, what they knew, how nurses communicated, use of technology, and important signs to watch for. The majority of those who took part said they generally followed the guidelines fairly well in all of these, with the numbers between 48% (for Technology) and 62% (for Key Indicators). Not following the guidelines so much was most obvious with Technology (36%) and Knowledge (27%), which shows where things could be done better.

The greatest level of compliance twenty-four per cent was in key indicators, and twenty-two per cent in

communication; this means nurses are generally more careful to observe the procedures connected with those two areas. In all, the way things turned out indicates that, though average compliance is the most common thing, differences do occur, and that both understanding and technical skills relating to the work need to be made better, so that compliance generally gets better..

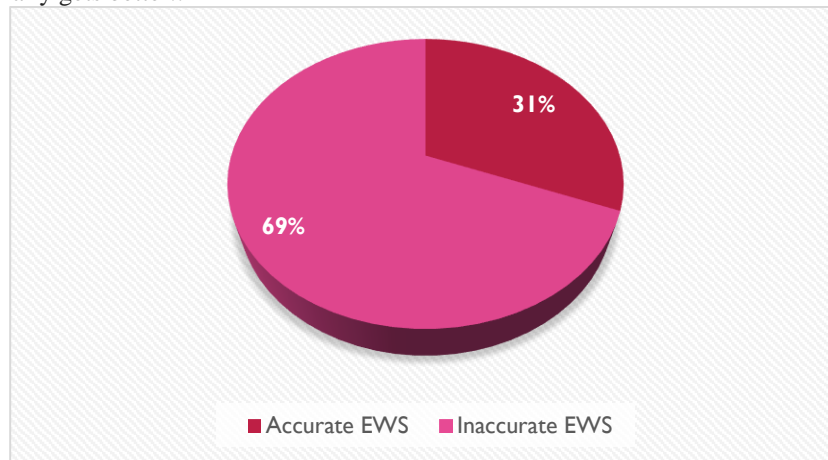


Figure 2: Accuracy levels of Early Warning Signs (EWS) among nurses

Figure 2 shows 31% of the studied nurses achieved accurate level of EWS, while 69% of them achieved inaccurate level of EWS.

Table 5. Relationship between nurses' adherence levels and EWS accuracy.

Variable	Adherence Level	Accurate EWS	Inaccurate EWS	Total	Chi-Square (df)	p-value
Workload	Low	4	22	26	7.468 (2)	0.024
	Moderate	16	37	53		
	High	11	10	21		
Knowledge	Low	6	21	27	2.381 (2)	0.304
	Moderate	19	41	60		
	High	6	7	13		
Communication	Low	9	15	24	1.420 (2)	0.492
	Moderate	14	40	54		
	High	8	14	22		
Technology	Low	12	24	36	5.622 (2)	0.060
	Moderate	18	30	48		
	High	1	15	16		
Key Indicator	Low	1	13	14	4.369	0.113
	Moderate	22	40	62		
	High	8	16	24		

Table 5 gives the link between how well nurses followed five parts of the system, and how correct their Early Warning Score records were. How much nurses kept up with their workload was strongly connected to EWS record correctness ($\chi^2 = 7.468$, $df = 2$, $p = 0.024$); which is to say, nurses who did a better job sticking to procedures about workload were more likely to write down a right EWS.

However, how well people followed the rules for Knowledge, Communication, Technology, and Key Indicators none of these had a significant effect on the EWS (p was over 0.05 each time); so, doing these things to the letter didn't actually make a difference to the correctness of the EWS. Put together, the findings show that handling workload is probably more important to getting right patient checks than doing well in the other areas where rules were followed.

Table 5. Relationship between nurses' adherence levels and EWS accuracy.

		Work Load level	Knowledge level	Communication level	Technology level	Key indicator level	EWS_Accuracy
Work Load level	Correlation Coefficient	1.000	-.064	.105	-.023	.069	-.269**
	Sig. (2-tailed)	.	.526	.300	.818	.497	.007
Knowledge level	Correlation Coefficient	-.064	1.000	-.090	-.020	.129	-.150
	Sig. (2-tailed)	.526	.	.375	.846	.202	.136
Communication level	Correlation Coefficient	.105	-.090	1.000	-.117	-.080	.013
	Sig. (2-tailed)	.300	.375	.	.245	.431	.896
Technology level	Correlation Coefficient	-.023	-.020	-.117	1.000	-.037	.132
	Sig. (2-tailed)	.818	.846	.245	.	.716	.189
Key indicator level	Correlation Coefficient	.069	.129	-.080	-.037	1.000	-.131
	Sig. (2-tailed)	.497	.202	.431	.716	.	.194
EWS_Accuracy	Correlation Coefficient	-.269**	-.150	.013	.132	-.131	1.000
	Sig. (2-tailed)	.007	.136	.896	.189	.194	.

Table 7 shows Spearman's rho values that is, correlations between how well nurses followed procedures on five separate parts, and how correct their Early Warning Score records were. Nurses' sense of their workload had a marked negative correlation with EWS accuracy ($r = -0.269$, $p = 0.007$); this means that when nurses felt they had more to do, their EWS records were less likely to be right. No notable significant relationship was found between EWS correctness and all other parts – Knowledge, Communication, Technology, and levels of Key Indicators – ($p > 0.05$); this means doing well in those things didn't really affect how right the EWS was. As a result, these results again show how vital it is to deal with work amounts well so patients can be watched accurately.

4. DISCUSSION

Keeping a close watch on vital signs and getting the Early Warning Score (EWS) reported correctly are both really important in giving patients safe nursing care. When vital signs are measured and understood well, worsening in a patient's condition can be found quickly; this lets doctors act fast, and patients do better. Still, what nurses think about how much work they have, what they know, how people talk to one another, what tech they use and which particular things a patient shows which could mean trouble, can all affect whether they follow the usual checking procedures and get the EWS written down exactly (McGaughey et al. 2021; Ullah et al. 2022).

In our research with one hundred nurses showed that, on the whole, people got fairly good marks in all the areas of the Vital Signs Adherence Scale: that is, workload, knowledge, how they communicated, technology, and key indicators. The majority of the nurses showed a reasonable amount of compliance, although only thirty-one per cent were right when they reported EWS. It was particularly important that compliance with workload was notably and negatively linked to how correct the EWS was, and Spearman's correlation showed that nurses who felt they had more to do were less likely to get the EWS recording right. On the other hand, what the nurses knew, how they communicated, the technology they used, and compliance with key indicators didn't seem to be very closely related to how correct the EWS reporting was; meaning that, by themselves, these things don't seem to be a good guide to whether EWS reporting will be correct.

The nurses in the study were mostly men, sixty-one percent of them; they averaged forty-two years old and came from all sorts of marriages and had different degrees. A great many worked full-time for the government and had a number of years on the job. This mix of people is much like the nurses actually in hospitals, so what we discovered is likely to be true more generally; as nursing papers make plain, how long someone's been a nurse, and what they've been taught, can affect how they work and how sure of themselves they are when they look at a patient. Even though it wasn't what this study was about, other research indicates that nurses who've been working longer could follow guidelines differently from those with less experience; this, in turn, might affect how well patients are evaluated. Similar details regarding who the nurses were – their backgrounds – were found in new research (Özsaban et al. 2025), concerning nurses' views on checking vital signs. A study of 218 nurses at a teaching hospital – done at one point in time – showed the nurses averaged 26 years old and had worked in the profession for about 5.67 years on average, and most were women working in different parts of the hospital. Looking at the sixteen questions, the average results were from 2.79 to 3.34 – the best average being 3.34, which concerned letting doctors or the nurse in charge know if nothing had been done. The results for questions about understanding and being certain showed nurses were okay, but knew they didn't fully understand, or weren't quite sure about, some parts of reading vital signs. The results which are in the middle range, fit with other studies that say nurses commonly find keeping track of vital signs takes a lot of time – and is affected by how busy they are, therefore, their dedication to doing this varies. Workload, and what vital signs work asks of a nurse's focus, can be really big, and might change how reliably they keep up with checking vital signs. This points to the idea that, even if nurses know accurate checking is important, difficulties in actually doing it can lessen how sure of themselves they are, and how well they do.

The results we found match what Oliveira and colleagues showed in 2022 – they looked at what happened when the National Early Warning Score, or NEWS, was put in place to check on patients' vital signs in a hospital emergency room. In their roughly-experimental work, they proved NEWS really did make doctors and nurses follow the times they should be checking vital signs more often, with people following the advice 20.1% of the time beforehand, and 92.6% after. The writers of that study felt organised early warning setups can help give a regular look to how a patient is physically, and help people spot when a patient's health is getting worse, and quickly.

The results for the separate parts – workload (3.03), knowledge (2.96), communication (3.14), technology (2.94) and key indicators (3.08) – show, in general, a fairly good level of following procedure. Communication and key indicators had just a little better score, but technology and knowledge were a little below. Galiano and colleagues' 2024 integrative review of how new technologies affect the work nurses do and how they manage patient care backs this up; they found that the tech systems hospitals and clinics use can make nursing work more efficient, help share the load of work, and make patient care safer. The review also showed that systems for managing work using technology could help nurses with their jobs, and make them more likely to follow the correct ways of doing things in a hospital, by making better use of their time and lessening the trouble from regularly checking on patients.

Our findings discovered that, for the most part, people did okay in all of the areas we looked at between forty-eight and sixty-two per cent though there was most trouble with Technology (thirty-six per cent) and Knowledge (twenty-seven per cent). The most people who did really well were in Key Indicators (twenty-four per cent) and Communication (twenty-two per cent). The results we got tie in with what other studies have shown: getting correct and regular readings of vital signs is key to spotting when a patient's condition starts to worsen. Breteler et al. (2020) said that in normal hospital work, vital signs aren't usually checked all the time, but instead at intervals, and this could mean initial warnings of a patient getting sicker are overlooked.

Only thirty-one per cent of nurses correctly completed EWS assessments, but sixty-nine per cent had EWS records that weren't right. This isn't very good, because EWS systems should give a dependable record and understanding of vital signs so that worsening health can be found quickly. Earlier studies of groups of people have shown differences in following and getting the correct EWS scores; they usually find that a large number of EWS readings aren't full, or aren't written down correctly. These trends show the wider difficulties in being certain of correct EWS results in normal, everyday work. Looking at these results alongside the research of (Jobbe and Mondria, 2024), it was observed that not enough correctness in EWS is a problem that comes up again and again in different places. Your figures show that merely 31% of nurses wrote down the EWS properly; (Jobbe and Mondria, 2024) discovered 70.6% of the times measurements were done fully, so almost 29.4% weren't done fully or weren't correct. Both pieces of work demonstrate that nurses follow procedure better when patients are sick, which shows that how dangerous a patient seems to be changes how correctly things are noted. Jobbe and Mondria, (2024) also showed differences between hospital units – some wards were more concerned with certain key signs because of the sort of patients they had; this is like what happens generally with the National Early Warning Score, and it stresses how much the situation affects getting the EWS recorded properly.

When the results from the Chi-square analysis of EWS accuracy are put next to the results of Yen et al.'s (2024) work on nurses' stress and workload, the same thing shows up time and again: how nurses feel about their workload is very important to how well they do their jobs. In the EWS study, again, only workload adherence was notably linked to correct scoring ($\chi^2 = 7.468$, $p = 0.024$) meaning nurses who were good at dealing with their work were more likely to finish EWS assessments properly. Yen and colleagues showed that how much physical effort nurses thought their jobs took and the annoyance it caused really added to their stress, most notably when they were using electronic health records; and what nurses felt about their workload affected how they divided their time amongst patients. The two pieces of research suggest that things which can be measured like the number of nurses to patients, or how ill patients were might not be as good at forecasting results as what nurses themselves believe about how busy they are.

The result really shows just how much the amount of work staff has to do affects important medical jobs. Workload's already been pointed to as something stopping nurses from checking and recording vital signs properly - when people are busier, checks get missed, and help comes later. Therefore, dealing with workload well could be really important when it comes to making the early warning score a system for spotting unwell patients work as well as it should.

Spearman's correlation indicated a marked inverse link between how much work people felt they had, and how correct the EWS was ($r = -0.269$, $p = 0.007$); this proved the more work nurses thought they had, the less correct the EWS tended to be. None of the other parts of the measurement connected in a notable way to EWS correctness. This is the same as what is found when it is shown that the limits of nurses' time and what they have available, caused by work load, can reduce how well records and examinations are done. As time and movement investigations have recorded, looking at important signs and reacting to them takes a large amount of time, most noticeably with patients getting worse, and puts a strain on nurses' ability to be precise. This gives more backing to the idea that dealing with work load is most important for making the quality of keeping an eye on patients better.

The results from Lina Wang and colleagues fit with what other research has shown – that the amount of work can harm how well nurses do their jobs – but they do show how important mental factors are. Instead of a straight connection from how busy nurses feel to either leaving out patient care, or coming to work sick, the study makes plain that job stress and emotional intelligence are the key ways in which workload affects what nurses do. So this means that workload's bad effects aren't just about the physical work, or what needs to be done, but go through how nurses react to stress, and how well they control their feelings. Unlike other work which looks at how right care is, the study by Wang and colleagues concentrates on what happens in people's minds, to turn a lot of work into worse results for patients - and so shows managers must deal with what the job asks of people, and what help nurses have to deal with it.

5. CONCLUSION

The results from the study show nurses mostly had a middle-level commitment to the ways vital signs should be checked, considering things like how busy they were, what they knew, how well people talked to each other, the tech they used, and what important signs to look for. But, only being on-time with checking when nurses were busy related to getting the Early Warning Score which doctors use written down correctly, and so shows how much being busy affects how well patients are kept an eye on. The nurses concerned in this research showed a fair amount of following the guidelines for checking vital signs – in several areas – though how well the Early Warning Score was worked out varied a lot. How much work nurses had turned out to be the main thing affecting whether the EWS was reported correctly, being more important than what they knew, how they spoke to each other, or what tech they were using. Therefore, it seems that doing something about nurse workload, giving staff more help, and changing how work is done, would be better at getting the EWS right, than just giving people training or new tech on its own. More research ought to look at ways to reduce the work nurses have, and to bring in help to make checking vital signs and keeping patients safe better.

Recommendations

- Make certain workloads for nurses are balanced to stop them becoming overwhelmed and to make sure patients are checked on when they should be.
- Give nurses help: bring in health care assistants or things to assist with taking and recording patients' vital signs, and to work out their EWS scores.
- Get monitoring right: put firm processes in place, look at records often, and give instant advice on how to fill in EWS forms.

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