ORIGINAL ARTICLE

DOI: https://doi.org/10.20453/renh.v17i.2024.5829

Safe practices for the prevention of adverse events in emergencies: intervention for adherence

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ABSTRACT

Objective: To determine the effectiveness of a plan to improve adherence to safe practices for the prevention of adverse events in nursing professionals in the emergency department of a hospital. **Materials and methods:** Quantitative and pre-experimental study with 29 nursing graduates from a hospital in Lima. Safe practice observation guides were applied, and the quality indicator reports of the service were evaluated before and after the implementation of the improvement plan by rotation groups over a period of 6 months. **Results:** After the implementation of the improvement plan, the level of adherence to safe practices by the nursing staff went from critical (70%) to acceptable (90%). Likewise, the quality indicators showed significant variations in the areas of patient identification (from 82% to 99%), fall prevention (from 77% to 95%) and medication administration (from 80% to 99%). **Conclusion:** Improvements in adherence to safe practices were achieved through the implementation of the improvement plan, so it is necessary to give continuity to the strategies proposed and involve the multidisciplinary team in order to ensure quality care in the emergency department.

Keywords: patient safety; nursing care; health plan implementation; health care quality.

Received: June 26, 2024
Accepted: July 12, 2024
Online: August 5, 2024

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INTRODUCTION

Patient safety is considered a dimension of quality (1). The nursing professional, as a member of the multidisciplinary team, has the most direct contact with the patient and plays a crucial role in delivering quality care through strategies and interventions focused on patient safety (2).

Emergency services require special considerations due to the high workload and the critical condition of patients, where staff are expected to address urgent and emergency situations quickly, effectively and efficiently (3).

Patient safety is related to the prevention of adverse events by nursing professionals, which can be avoided by adhering to care standards (4). In this

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context, the implementation of improvement plans to ensure compliance with safety policies against these undesired effects is essential (5).

Patient safety is also related to hospitalization time and human error, directly affecting the physical and emotional integrity of patients. Additionally, it causes stress among professionals and has financial consequences for the institution (6). In this way, safe practices encompass all actions aimed at preventing and minimizing any harm related to future incidents (7).

There are precedents for interventions, such as improvement plans to enhance patient safety. This is the case of a hospital in Colombia, where an improvement plan was proposed after finding that compliance with good patient safety practices was 41% null and 34% partial (8).

Another study conducted in a hospital in Chile implemented a risk management program to prevent incidents during patient transfers. In this study, 217 transfers were evaluated, and it was found that correct identification increased from 13.8% to 80.6%, improving protocol compliance by 39% after the intervention (9).

These results reinforce the importance of care management considering the implementation of a risk prevention system for adverse events through intervention event surveillance programs (10).

In Peru, health quality policies aim to reduce the frequency of adverse events and ensure patient safety (11). In this regard, it has been reported that 39% of these events are related to nosocomial infections, 28% to procedures, and 6% to patient care, with 58% being preventable. As a consequence of these events, there would be longer hospital stays, sequelae at discharge, permanent or partial disability, physical injury, psychological harm or even death (12).

In the emergency department of a hospital in Lima, multiple procedures were observed in critically ill or emergency patients, where high demand exceeds the number of professionals providing care, thereby increasing the risk of adverse events. For that reason, this research study aimed to implement an improvement plan to reinforce nursing care safety in the emergency department by ensuring compliance with safe practices for preventing adverse events. Having an action plan enabled adherence to quality standards through monitoring and control.

MATERIALS AND METHODS

This study was quantitative, pre-experimental and cross-sectional. The population consisted of 29 licensed nurses working in the emergency department of a hospital in Lima. Data collection was gathered using the observation technique, and the instrument employed was a checklist assessing compliance with safe practices for preventing adverse events.

The checklists focused on three aspects: i) proper administration of medications, with five criteria; ii) correct identification of the patient, with five criteria; and iii) prevention of falls, with twelve criteria to be assessed. All these criteria had two response options ("complies" and "does not comply"). On the other hand, statistical information was collected from the quality indicator report, which is prepared monthly in the emergency department, both before and after the implementation of the improvement plan. At the same time, the medical records of patients hospitalized in the emergency observation area during a four-month period were used.

Checklists for safe practices were validated based on the institution's regulatory documents, and underwent a reliability process through a technical team and expert judgment.

The checklist for compliance with safety guidelines for the administration of medications is part of the Directive of Safe Practices and Risk Management for Correct Medication Administration, validated by the social security technical team through Directoral Resolution No. 05-DA-PE-ESSALUD-2012.

The checklist "Compliance with the User Identification Process" is included in Directive No. 12-OGCyH-ESSALUD-2021, "Safe Practices for the Correct Identification of the User in Social Security", according to Management Resolution No. 1111-GG-ESSALUD-2021, through Technical Report No. 002-GSPHA-OGCyH-ESSALUD-2021, which was validated by a team of experts from the Office of Quality and Humanization Management and the Central Institutional Management.

The supervision checklist for risk assessment and fall prevention in hospitalization services is part of the Central Management Directive No. 19-OGCyH-ESSALUD-2020, "Safe Practices for Patient Fall Prevention", issued by Management Resolution No. 1278-GG-ESSALUD-2020, and validated by Technical Report No. 02-GSPHA-OGCYH-ESSALUD-2020 by the Office of Quality and Humanization Management.

Before implementing the improvement plan, emergency service nurses were invited to a meeting on Zoom and their participation in the study was requested with the signature of an informed consent form.

At first, prior to the implementation of the improvement plan, observation guidelines were applied to assess compliance with safe practices concerning correct patient identification, fall prevention, and proper medication administration. These assessments were conducted in rotation groups within the adult observation area, randomly and on different dates, between May and June 2021. Additionally, the emergency service quality indicators' report, prior to the implementation of the improvement plan, was considered.

In a second stage, during the months of July and August of the same year, the improvement plan was implemented, consisting of six strategies (Figure 1).

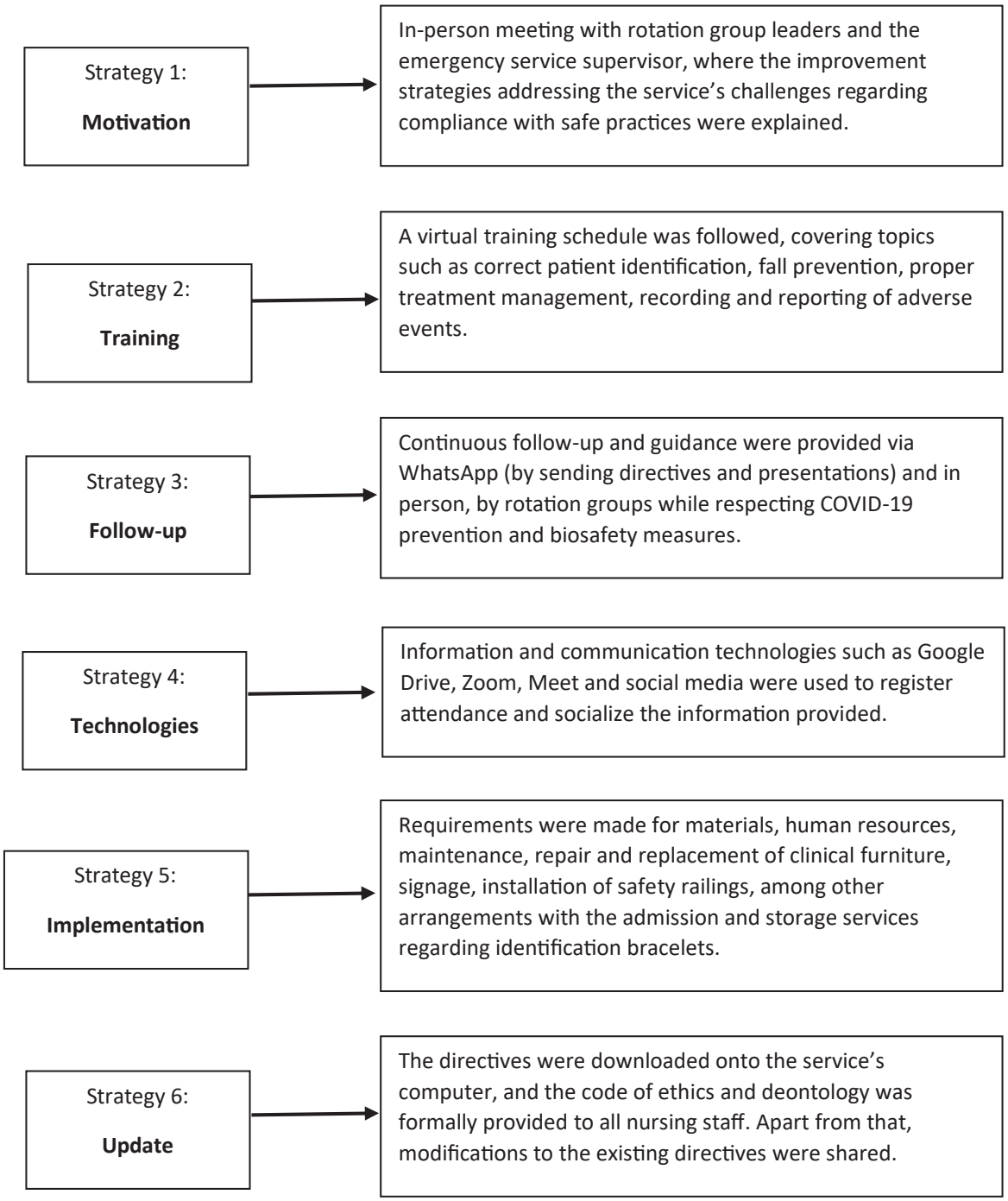

Figure 1. Improvement plan for adherence to safe practices in the prevention of adverse events.

In a third stage, during September and October, the safe practice observation guidelines were reapplied following the implementation of the improvement plan. These observations were conducted during the afternoon shift in the adult patient observation area, covering an average of 4 to 6 beds per nurse. A higher number of patients hospitalized in the emergency area was observed, leading to an extension of the observation period beyond the initially planned time frame.

Finally, the level of adherence to safe practices was observed, and the impact was assessed according to the quality indicators established in the service, which were reported monthly.

All the data collected was entered into the STATA system, IBM SPSS Statistics version 26, and Microsoft Excel 2019, for processing.

To determine the effectiveness of the improvement plan, the percentage of quality indicators before and after its implementation was compared, along with the indicators related to correct medication administration, proper patient identification, and fall prevention. The values proposed by the directives were considered according to the percentage of compliance with the criteria: optimal (100%), acceptable (90%) and critical (below 90%). Finally, hypothesis testing was conducted using Student's t for related samples.

The study protocol was approved by the University's Ethics Committee, and authorization was requested from the institution for the study's execution.

RESULTS

Figure 2 shows the level of adherence to safe practices for the prevention of adverse events. Before the implementation of the improvement plan, a critical level of (70%) was found. After the intervention, an acceptable level of (90%) was obtained. When applying Student's t test, significant differences were observed ($p < 0.05$).

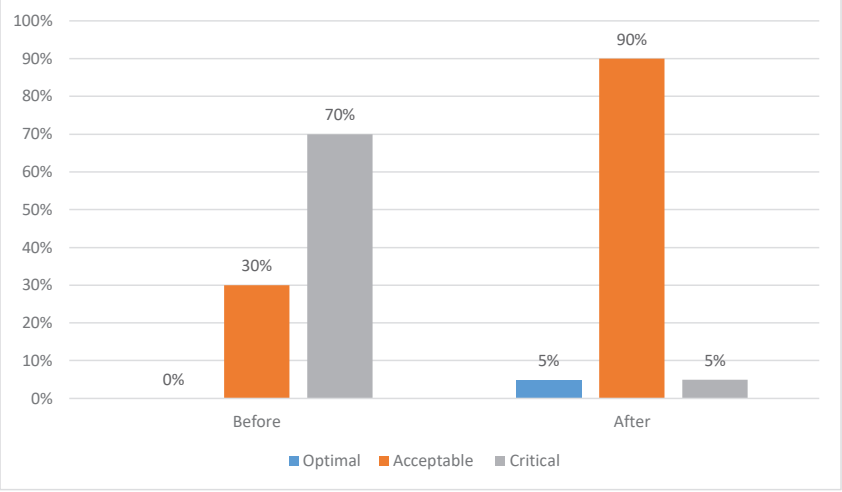

Figure 2. Level of adherence to safe practices for the prevention of adverse events before and after the implementation of the improvement plan.

Figure 3 shows the level of adherence of nurses to safe medication administration. Before the implementation of the improvement plan, a critical level of (74%) was found, whereas after the intervention, an acceptable level of (90%) was obtained. Non-compliance with the criteria "Parenteral solutions with recorded prescribed data" (reduction from 39% to 20%) and "Patient informed about their treatment" (reduction from 28% to 20%) stood out. When applying Student's t test, significant differences were observed ($p < 0.05$).

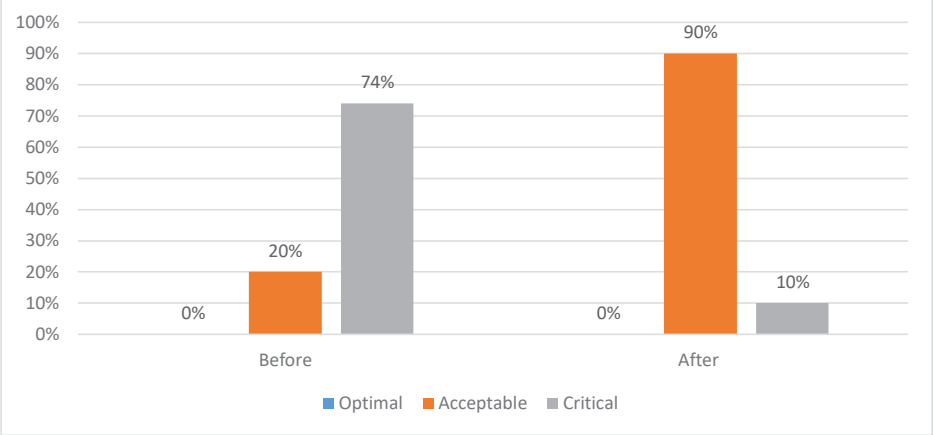

Figure 3. Level of adherence to safe practices for preventing medication administration errors before and after the implementation of the improvement plan.

Figure 4 shows the level of adherence to the correct identification of the patient. Before the implementation of the improvement plan, a critical level of (86%) was found. After the intervention, an acceptable level of (93%) was obtained. Non-compliance was noteworthy in the criteria "Verification of procedure registration in the medical record (admission note)" (reduction from 53% to 28%) and "Legible data entry (printed letters)" (reduction from 22% to 6%). When applying Student's t test, significant differences were observed ($p < 0.05$).

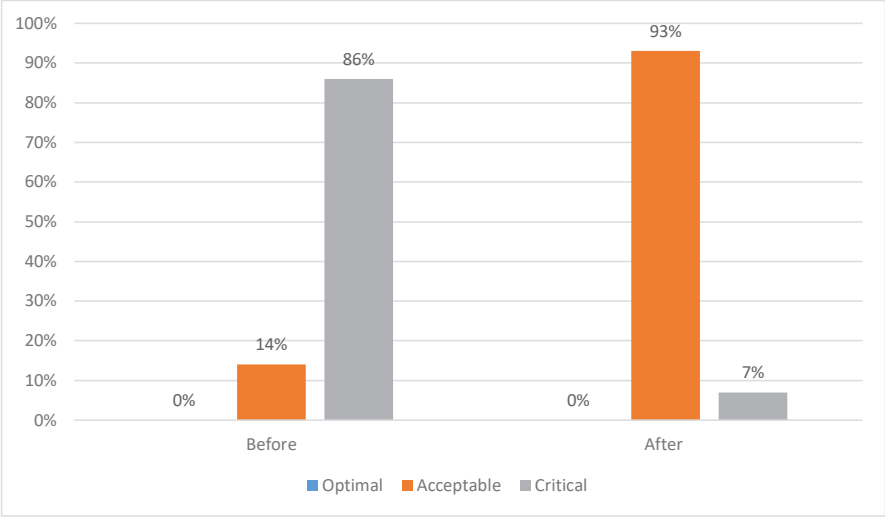

Figure 4. Level of adherence to safe practices for preventing medication administration errors before and after the implementation of the improvement plan.

Figure 5 shows the level of adherence of nurses to fall prevention. Before the implementation of the improvement plan, a critical level of (52%) was found. After the proposed strategies, an acceptable level of (60%) was obtained. Non-compliance was noteworthy in the following criteria: "The room has a functional call system within the patient's reach" (reduction from 100% to 84%), "The patient's unit bathroom and shower have safety handrails" (reduction from 100% to 88%), "The patient's unit bathroom has a doorbell" (reduction from 100% to 88%), "The patient at high or moderate risk of falls has family accompaniment or a primary caregiver" (reduction from 54% to 28%) and "Signage is used at the headboard to identify risk" (reduction from 50% to 22%). When applying Student's t test, significant differences were observed ($p < 0.05$).

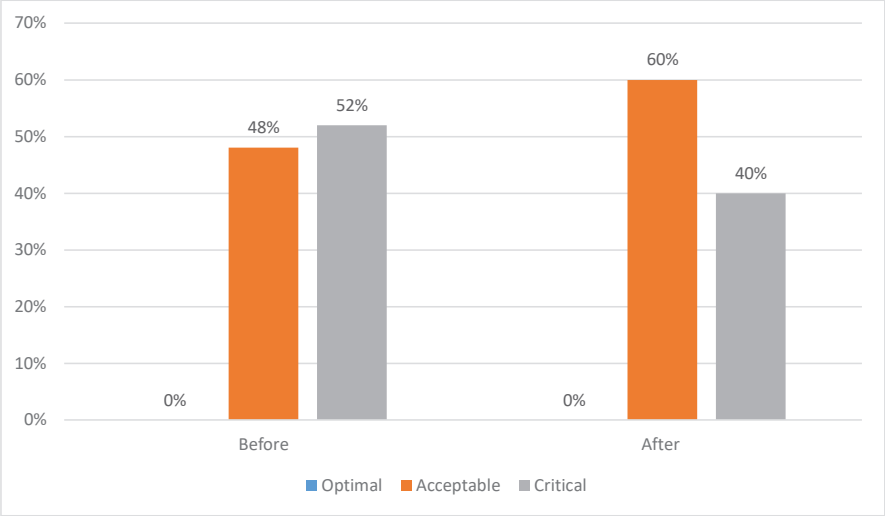

Figure 5. Level of adherence to safe practices for fall prevention before and after the implementation of the improvement plan.

Figure 6 shows that, regarding compliance with quality indicators in the emergency area, the percentages of patient misidentification, falls and medication administration errors were reduced from 2% to 0%. On the other hand, there was an increase in the percentage of patients with an identification bracelet containing correct data according to protocol (from 82% to 99%), in preventive measures applied to patients at risk of falls (from 77% to 95%), and in compliance with self-medication administration conditions (from 80% to 96%). When applying Student's t test, significant differences were observed ($p < 0.05$).

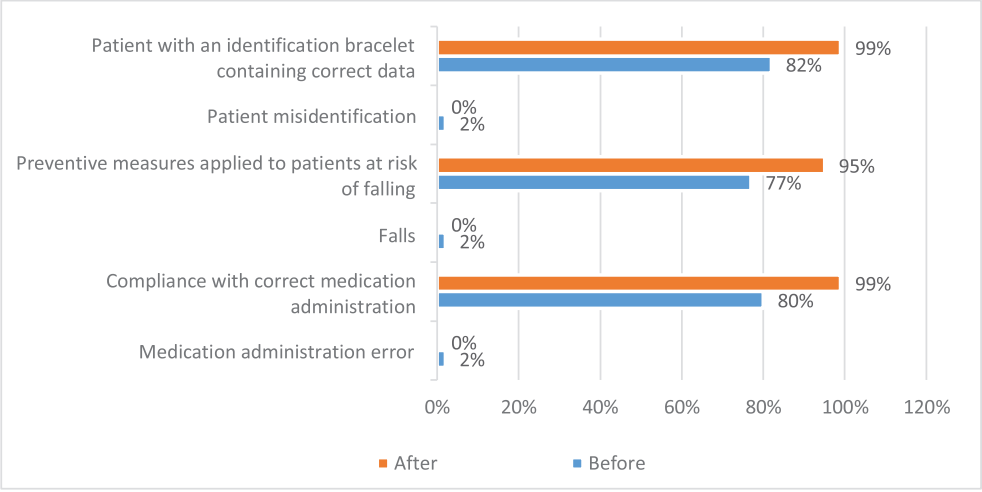

Figure 6. Quality indicators of the emergency area before and after the implementation of the improvement plan.

DISCUSSION

Level of adherence to safe practices

The improvement plan was shown to increase the level of adherence to safe practices among nursing staff. Similar results were obtained by Bedoya et al. (8) in Colombia, where a reduction of falls, correct patient identification, and improvement in proper treatment administration were observed at 40%, 30%, and 70%, respectively. At the same time, the study by Alsabri et al. (13) demonstrated that training interventions in communication skills, the use of strategies, and teamwork tools to improve performance and patient safety can have a positive impact on the safety culture in emergency services, thereby reducing the incidence of adverse events. Another study conducted by Berry et al. (14), on the implementation of a comprehensive patient safety program demonstrated a significantly higher teamwork attitude score, along with a significant reduction in adverse events and sentinels.

Therefore, through the implementation of the improvement plan in the emergency area, greater openness was achieved from the management and administrative team in providing improvements to patient safety. At the same time, interest from the nursing staff was evident through contributions of ideas and adherence to safe practices, despite all the challenges posed by the COVID-19 context.

Level of adherence to correct medication administration

Regarding improvements in the level of adherence to correct medication administration, similar results were obtained by Escandell-Rico et al. (15) in Spain. They implemented improvement tools and standardization of care through intervention protocols for medication preparation and administration, such as continuous training, which progressively increases treatment administration safety and reduces errors. For Otero et al. (16), understanding the degree of adherence to safe practices through measurement in critical areas enables the identification of improvement opportunities. Similarly, it is necessary to address the identified issues to reduce adverse medication events. Browne et al. (17) conducted a realistic evaluation of an educational program aimed at nursing professionals in practice and found that factors such as leadership facilitate a culture of patient safety and the adoption of a quality improvement approach. Additionally, they highlighted the importance of a committed team with reasoning skills and willingness to embrace change to improve patient care. On the other hand, Gomes et al. (18) found in the review of fourteen research articles that the implementation of technologies, professionalism, organizational changes, and a pleasant work environment, combined with patient and family empowerment, ensure adequate quality in the processes of correct treatment administration.

Therefore, nursing staff require the necessary tools to facilitate compliance with the correct administration of medication, as evidenced after the improvement plan. Despite this, a lack of effective communication with patients during the COVID-19 pandemic was notably observed, but this gradually was overcome.

Level of adherence to proper patient identification

Regarding the level of adherence to proper patient identification, a critical level of 0.8 was found before the improvement plan, which increased to 0.9 after the intervention, contributing to a reduction in adverse events. On the other hand, Voltan et al. (19) found that an educational intervention using digital strategies to improve adherence to patient identification among nursing professionals led to a significant increase (greater than 80%). This positive impact highlights the need for management and motivation strategies for future training sessions. Similarly, De Rezende et al. (20), in a systematic review study, determined that educational and technological interventions, whether alone or combined, significantly reduced patient identification errors. However, nursing commitment is essential to enhance patient safety. Talebpour et al. (21) implemented the audits and multiple improvement strategies, such as the use of two identifiers to verify identity, provision of protocols, among others, which led to improvements in the quality of patient services. Finally, Popescu et al. (22) determined that the use of technology provides an opportunity to reduce errors and improve performance and results, optimize human resources, and ensure high-quality care.

In this regard, nurses, as part of their training, have the responsibility to provide safe and compassionate care, which requires time dedication and assertive communication with the patient and the family.

Level of adherence to fall prevention

When analyzing the level of adherence to fall prevention, a critical level of 0.5 was found, which increased to 0.6 after the intervention. Therefore,

an acceptable level was not achieved due to various internal and external factors, since there are different external and internal factors that limit compliance with safe practices. Implementing the improvement plan would reduce the fall incidence indicator and optimize the adverse event reporting system (23). In this regard, Dykes et al. (24) demonstrated that implementing an enhanced fall prevention toolkit strategy was associated with a significant 15% reduction in falls among hospitalized patients. Morris et al. (25), in turn, determined the effects of fall prevention interventions using both a single and multifactorial approach, incorporating system-wide environmental improvements, cognitive impairment care strategies, and policy enhancements. Their findings showed that patient and family education had the greatest impact on reducing the fall risk, along with the single-factor approach and improvements in furniture and infrastructure. Similarly, Turner et al. (26) evaluated the applicability of the strategies recommended by international organizations for improving fall prevention. Their findings showed a 98% probability of using leadership strategies, a 27% probability of adopting technological strategies, and having education as the most widely implemented strategy in hospitals (100%).

It is important to highlight that during the first and second waves of COVID-19, nursing staff cared for hospitalized patients in critical conditions, most of whom had multiple comorbidities and required dependent care. Additionally, they attended to hospitalized patients without a family companion. Apart from that, the use of protective equipment, which restricted movement, along with the fear of contagion, were factors that increased the risk of patient falls.

After the improvement plan

Regarding quality indicators after the improvement plan, there was a significant improvement in adherence to safe practices, indicating greater willingness from the nursing staff in providing care to all patients admitted to the emergency area. An acceptable level was achieved, reducing the risk of adverse events and improving the service quality. At the same time, Patricia et al. (27) identified eight practical recommendations for implementing and providing high-quality care: i) communication, ii) adverse events, iii) leadership, iv) patient experiences, v) quality improvement, vi) safety culture and committees, vii) staffing, and viii) technology. Similarly, Buchberger et al. (28) implemented a risk management system that contributed to improving the quality of patient care. In the same way, Jawad et al. (29) emphasized the importance of managing optimal quality indicators, as the systematic measurement of quality through indicators guides care improvement by identifying good practices as well as inadequate ones, enabling the implementation of timely improvements. Finally, Niv & Tal (30) recognize the importance of quality and safety improvement activities alongside a detailed annual plan for process improvements, such as leadership, systemic learning, training, accreditation, monitoring, among others, which significantly impact the quality of patient care.

The study's limitation was that the results obtained were exclusively from the observation area of the emergency area at Hospital Aurelio Díaz Ufano y Peral.

CONCLUSIONS

The improvement plan led to a significant increase in adherence to safe practices among the nursing staff of the emergency service area after the intervention, specifically in the correct administration of medications, correct identification of the patient and fall prevention.

This research serves as a starting point for further studies on patient safety. It is recommended to encourage the participation and inclusion of all healthcare professionals in new improvement strategies to ensure high-quality care for our insured patients.

Conflict of interest: The author declares no conflict of interest.

Funding: Self-funded.

Ethics approval: Study approved by the University Directorate of Research, Science and Technology of the Universidad Peruana Cayetano Heredia (DUICT-UPCH) under Certificate No. 042-02-20 and Registration Code No. 103655.

Authorship contribution:

DCRA: conceptualization, formal analysis, investigation, validation, writing – original draft, writing – review & editing.

ROZ: investigation, data curation, formal analysis, writing – review & editing.

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