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RESEARCH ARTICLE (ORIGINAL)

Iatrogenic events in nursing care: The medical-surgical nurses' perspectives

Iatrogenias na prestação de cuidados de enfermagem: A perspetiva dos enfermeiros da área médico-cirúrgica

Iatrogenia en los cuidados de enfermería: La perspectiva de los enfermeros del área médico-quirúrgica

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Abstract
Background: Healthcare delivered to users must be based on the premises of quality and safety. Failure to comply leads to adverse events understood as illness or harm.
Objective: To identify nurses' perspectives on iatrogenic events in medical-surgical nursing care.
Methodology: Qualitative study, using semi-structured interviews with a focus group of nurses.
Results: Nurses associate iatrogenic events in nursing with patient harm resulting from nursing activities carried out under their responsibility. The most common nursing iatrogenic events reported were falls and fractures, drug therapy-related adverse effects, and inappropriate use of medical devices. Poor working conditions were pointed out as a potentiating factor. The following strategies were listed to minimize iatrogenic events: continuing education, good communication and leadership, implementation and protocols adherence.
Conclusion: According to the sample's perspective, iatrogenic events are a reality whose potentiating factors are in line with those described in the literature. Continuing education in this area is recognized as essential for prevention.

Keywords: nursing care; nurses; adverse advent; risk factors

Resumo
Enquadramento: A prestação de cuidados de saúde aos utentes, deve contemplar como premissas, a qualidade e segurança. No seu desrespeito enquadra-se o evento adverso, entendido como doença ou dano.
Objetivo: identificar a perceção dos enfermeiros acerca das iatrogenias na prestação de cuidados de enfermagem na área médico-cirúrgica.
Metodologia: Estudo qualitativo, por entrevista semiestruturada a um grupo focal de enfermeiros.
Resultados: Os enfermeiros associam ao conceito de iatrogenia em enfermagem o dano que o doente sofre, decorrente das atividades sob sua responsabilidade. Como ocorrências iatrogénicas em enfermagem mais comuns relataram: as quedas/fraturas, os efeitos adversos à administração de terapêutica medicamentosa, o inadequado manuseamento de dispositivos médicos. Como fatores potenciadores emergiram as condições de trabalho inadequadas. Enumeraram-se como estratégias para a minimização destes eventos: a formação contínua, a boa comunicação e liderança, implementação e cumprimento de protocolos.
Conclusão: Na perceção da amostra as iatrogenias são uma realidade, cujos fatores potenciadores vão ao encontro aos descritos na literatura científica. A formação contínua nesta área é reconhecida como um pilar para a sua prevenção.

Palavras-chave: cuidados de enfermagem; enfermeiras e enfermeiros; evento adverso; fatores de risco

Resumen
Marco contextual: La prestación de cuidados sanitarios a los usuarios debe contemplar la calidad y la seguridad como premisas. El acontecimiento adverso, entendido como enfermedad o daño, se enmarca en su falta de respeto.
Objetivo: Identificar la percepción de los enfermeros sobre la iatrogenia en la prestación de cuidados de enfermería en el área médico-quirúrgica.
Metodología: Estudio cualitativo, mediante entrevista semiestructurada, a un grupo focal de enfermeros.
Resultados: Los enfermeros asocian el concepto de iatrogenia en enfermería con el daño que sufre el paciente como consecuencia de las actividades de las que son responsables. Los casos de iatrogenia más comunes notificados en enfermería fueron las caídas/fracturas, los acontecimientos adversos a la administración terapéutica medicamentosa y la manipulación inadecuada de dispositivos médicos. Las condiciones de trabajo inadecuadas surgieron como factores potenciadores. Entre las estrategias para minimizar estos acontecimientos, se incluyen: formación continua, buena comunicación y liderazgo, implementación y cumplimiento de los protocolos.
Conclusión: En la percepción de la muestra, la iatrogenia es una realidad cuyos factores potenciales coinciden con los descritos en la literatura científica. La formación continua en este ámbito se reconoce como un pilar para su prevención.

Palabras clave: atención de enfermería; enfermeras y enfermeros; evento adverso; factores de riesgo

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Introduction

Nursing care delivery is not free of complications or failures and has been associated with the occurrence of adverse events that can endanger patients' lives. According to Mansoa (2010), "nurses are responsible for more preventable adverse effects than any other health professional, as they represent a significant percentage of the health workforce and spend a large part of their time with patients" (p. 5).

For Moreno et al. (2020, p. 33), the "relationship between a complex environment (Operating Room, Emergency and Intensive Care) and critically ill patients' vulnerability offers great potential for incidents involving patient harm." The authors emphasize the importance of identifying the most common situations and the factors that increase their incidence, as well as the need to develop strategies for their prevention or minimization.

Adverse events have negative consequences for patients and families, with increased length of hospital stay and associated financial costs. As such, and according to Mascarello et al. (2021), healthcare systems are concerned about poorly performed procedures due to the high rates of care-related incidents.

With this in mind, this study surveyed a group of medical-surgical nurses to identify their perspectives on iatrogenic events in nursing care.

Background

Iatrogenesis is a term of Greek origin that refers either to the harmful action of health professionals, including nurses, or the undesirable outcome of activities such as observation, monitoring, or intervention (Padilha, 2001). In 2011, the Portuguese Directorate-General of Health (DGS) published the Portuguese version of the Final Technical Report "Conceptual Framework for the International Classification for Patient Safety," prepared by the World Health Organization (WHO) in 2009. This report defined key concepts using specific terminology, such as "healthcare-associated harm," "patient safety incident," and "error" (DGS, 2011). The same source presents in the glossary of concepts the term iatrogenic, providing three descriptions of the concept (p. 123): "an illness or injury resulting from a diagnostic procedure, therapy, or other element of healthcare," "injury originating from or caused by a physician," and "any undesirable condition in a patient occurring as a result of treatment by physicians (or other health professionals)."

The concept of adverse events includes the iatrogenic harm resulting from acts of commission or omission (DGS, 2011). According to the same source, other relevant concepts regarding patient safety were developed across all healthcare environments. For example, the concept of "healthcare-associated harm" substituted "iatrogenic and nosocomial harm." Bearing in mind that the list of concepts is dynamic (DGS, 2011), this study found the term "iatrogenic harm" in the literature associated with nursing care. According to Santana et al. (2015), iatrogenesis deserves careful analysis, considering that critically ill patients have characteristics that make them more prone to nursing errors.

Ripardo and Brito (2019) conducted a quantitative exploratory descriptive retrospective study to identify the occurrence of nursing care-related iatrogenic events, analyzing the records of 100 randomly selected older adult patients hospitalized in 2015. They identified 11 iatrogenic events, including infiltration, occlusion, or phlebitis in peripheral intravenous catheters before 72 hours, pressure injuries (pressure ulcers), accidental removal of nasogastric tubes, allergic drug reactions, accidental removal of Foley catheters, and hemodialysis catheter occlusion. In their final considerations, the authors emphasize the importance of disseminating the concept of iatrogenesis and the importance of its prevention and reporting.

In Portugal, the DGS issued *Norma nº 008/2013* (Direcção-Geral da Saúde, 2013), making available the Portuguese Reporting and Learning System on Incidents and Adverse Events (SNNIEA) for health professionals and citizens (DGS, 2013). This system was later reconfigured and improved, being renamed the DGS National Incident Reporting System - NOTIFICA (Direcção-Geral da Saúde, 2014). The incidents reported in NOTIFICA require the local manager's internal analysis "to validate the reports; identify corrective actions, to be immediately implemented if applicable; identify contributing factors; [and] determine a plan of action with preventive or corrective measures if and as applicable" (DGS, 2014, p. 1). A study conducted by Martins (2017) on nurses' adherence to event reporting in the inpatient services and intensive care units of a Portuguese central hospital demonstrated that the most commonly reported events were those resulting in severe and tragic injuries. Moreover, some nurses were unaware that the hospital had a reporting system implemented. Therefore, it is necessary to disseminate and explain the potential of reporting systems to the teams. The Portuguese Patient Safety Plan 2021/2026, published in 2021, aims to consolidate and promote safety in healthcare delivery, including as one of the strategic objectives the increase in the culture and transparency of the NOTIFICA (Despacho n.º 9390/21 do Gabinete do Secretário de Estado Adjunto e da Saúde, 2021).

Research question

What are nurses' perspectives on iatrogenesis in medical-surgical nursing care?

Methodology

This qualitative research study uses a focus group (FG). This methodology is considered a relevant tool for data collection (Silva et al., 2014). Vilelas (2020, p. 303) argues that FGs "do not look only for individual information ... [they] try to identify group interactions and amplify the listening, thus favoring not only the apprehension of the representations of the experience, but also the

understanding of the attitudes, preferences, feelings, and difficulties". This study aimed to identify nurses' perspectives on nursing iatrogenesis. A non-probability intentional sample was used. Considering there was only one data collection moment, the semi-structured interview method was used and scheduled for February 2021. The day and time were set according to the participants' availability. The Health Unit's Ethics Committee gave the study a favorable opinion (opinion no. 2/2021), and the participants provided their informed consent and authorization for audio recording. The participants were also ensured of their right to withdraw from the study at any time, without harm or prejudice.

Based on the literature, Silva et al. (2014) gathered "the various decisions and tasks underlying the implementation of the focus group process into five phases - planning, preparation, conducting, data analysis, and dissemination of results" (p.180). The present study followed the same methodology.

Planning phase

The inclusion criteria for participants were to work in a medical-surgical service and to have or attend training in the specialization area of medical-surgical nursing. The following structuring axes were considered for the FG questions: concepts; most common iatrogenic events in nursing; professionals' preparation; potentiating factors; and minimization/prevention strategies. A more structured approach was chosen based on the FG's degree of structure regarding the interview script and the moderator's role. An interview script was previously prepared considering a set of pre-determined questions to obtain answers through a debate anchored to the central theme - iatrogenic events in nursing. This script was structured in two parts. The first aimed to characterize the sample socio-demographically (age, marital status, gender, educational level, and length of professional experience). The second sought to explore the theme under study outlined in five blocks: i) Nurses' concepts of iatrogenesis and iatrogenic events in nursing; ii) The most common iatrogenic events in nursing; iii) Nurses' preparation to deal with the occurrence of iatrogenic events; iv) Potentiating factors for iatrogenic events; v) Strategies to prevent iatrogenic events. There was a set of reinforcement questions in each block, used to facilitate and maintain the fluidity of the discourse. An external element with the same characteristics as the sample was asked to read the interview script to verify the understanding of the questions. The number of participants was also defined in this phase. According to Vilelas (2020), there should be a minimum of four and a maximum of 12 participants.

Preparation phase

In this phase, the attention was focused on sample recruitment, the place to conduct the FG, and the logistics necessary to carry it out. A duly prepared room was used with prior authorization. To recruit the sample, three contacts were made with each participant: 1) face-to-face invitation and telephone contact 15 days before the meeting; 2) telephone contact one week before the FG to confirm participation; 3) telephone contact on the day before to validate participation in the FG. After confirmation, the research's key points were made available to participants, as well as the questions to be discussed, allowing participants to reflect on them in advance. Of the total of 12 invitations, nine were accepted. However, two participants were absent on the scheduled day due to professional reasons, leaving the sample with seven nurses. In addition to the role of moderator, the researcher was responsible for welcoming the participants, explaining the study's objective, and promoting the discussion of ideas. Two research team collaborators who monitored and supported the FG were also present.

Conducting phase

This phase was limited to 60-90 minutes. According to Krueger and Casey (2015), the moderator should i) know the study's objective, ii) have an adequate understanding of the theme, and be aware of the internal language and key issues regarding the content, iii) guide the discussion according to the need to obtain information, and iv) abstain from judgments and make sure that all participants have the opportunity to be heard and participate. Based on these authors' guidelines, this study's moderator tried to manage the discussion and keep it fluid.

The moderator was assisted by the two mentioned above collaborators in managing the recording equipment and taking notes.

Data analysis phase

The audio recording was transcribed accurately, allowing its reading to "imagine/reconstitute" what occurred in the FG, thus establishing a reliable database. The transcription was supplemented with notes taken during the conducting phase. Once the session was transcribed, the data analysis began, examining, categorizing, and combining the data obtained. The analysis included three stages (Bloor et al., 2001): i) coding/indexing, which occurred after the transcription and several readings of the group discussion, with the creation of categories or subcategories (if necessary); ii) storage/retrieval, dedicated to compiling all the text extracts related to the same category to compare them; and iii) interpretation, supported by a systematic inductive analysis of the data.

Result dissemination phase

This is the last phase of the implementation process, and it is aimed at highlighting the results through the preparation of a document, usually a report. A code is assigned to each participant in the interview transcript (P1 to P7) to ensure confidentiality and anonymity.

Results

Seven nurses participated in the FG, four of whom were men. The participants were aged between 35 and 47 years, and the mean age of the sample was 38.14 years (SD = 4.7). Six nurses had a postgraduate specialization degree in medical-surgical nursing and a master's degree in the same area.

One nurse was a graduate, having completed the curricular component of the master's degree in Medical-Surgical Nursing. The participants had a mean of 14.6 years (*SD* = 5.59) of professional experience (minimum: 5 years; maximum: 23 years). All nurses worked in medical-surgical services, namely intensive care unit, emergency, trauma, operating room, medicine, and surgery.

Once the sample was characterized, the results were presented according to the study's objective, based on the structuring axes addressed.

Nurses' concepts of iatrogenesis and iatrogenic events in nursing

Three subcategories emerged from the analysis of the answers to the "Concept of iatrogenesis": "patient harm," "poor clinical practice," and "the unpredictable or unexpected" (Table 1). Iatrogenesis as "patient harm," caused by error or poor nursing performance, was the subcategory with the highest number of record units, including the following example "it is a harm, an action, a behavior caused by the healthcare professional" (P2).

Two subcategories emerged from the "Concept of iatrogenic events in nursing": "poor nursing care delivery" and "missed nursing care" (Table 1). All nurses (from P1 to P7) associated the "Concept of iatrogenic events in nursing" with "poor nursing care delivery": "iatrogenesis caused by nursing error ... by poor nursing performance" (P1). "If you forget the scissors on a patient's bed, and, the next day, the patient has a mark, a hematoma, that is iatrogenesis" (P6).

Table 1

Nurses' concepts of iatrogenesis and iatrogenic events in nursing

Category	Subcategory	Example of Record Unit	n
Concept of Iatrogenesis	Patient Harm	"It is a harm, an action, a behavior caused by the healthcare professional" (P2).	4
	Poor clinical practice	"We understand medical error, it started out being associated with medical error, now we can extend it to nursing error, to the assistant's error. Basically, to the healthcare provider's error" (P6).	2
	The unpredictable or unexpected	"a patient who, when monitoring is less frequent, removes or disconnects an arterial line" (P6).	2
Concept of Iatrogenic events in nursing	Poor nursing care delivery	"iatrogenesis caused by a nursing error ... by poor nursing performance" (P1).	7
	Missed nursing care	"a poor or insufficient performance by the nursing professional" (P4)	1

The most common iatrogenic events in nursing

Thirty-three nursing iatrogenic events were listed, with seven subcategories emerging: drug therapy-related adverse effects, falls and fractures, inappropriate use of medical devices (peripheral intravenous catheters and central catheters), pressure ulcers, catheter removal, poor nursing supervision, and forgetfulness and poor nursing care planning. The following subcategories emerged among the most common nursing iatrogenic events: falls and fractures, medication errors, and inappropriate use of medical devices (peripheral venous catheters and central catheters). "Falls and fractures" were mentioned by four nurses, as in "the falls, the fractures resulting from falls" (P4). The subcategory "medication error" followed, with three record units - "medication-related iatrogenesis is at the top" (P4); "the iatrogenic events that occur most often are errors regarding the therapy" (P6).

Nurses' preparation to deal with the occurrence of iatrogenic events

Regarding the nurses' preparation to deal with iatrogenic events, the participants mentioned situations experienced or witnessed. When asked how they felt when facing these situations, the participants reported different attitudes, such as: "I have no problem admitting it, because I panic about failure and error" [P1]; "regarding the error, when it exists, when I make an error, I have to talk to someone, if I don't talk to someone, I'm not okay" (P3); "Mine is terrible! Mine is hiding, I isolate myself!" (P6).

The next question was about the SNNIEA platform and whether they had ever used it to make any report. This question highlighted underreporting and the lack of knowledge about how reporting is performed:

I underreport, I don't report even a third of what we should report. This year, I think I made three reports on the platform. That is very little, considering what we witness ... we end up being accomplices in a lot of situations, and even though I know that I underreport, I will probably be one of the few people who report on the platform (P1);

I have also made some reports during my shifts, more reports regarding falls and pressure ulcers, not as much as P1 says, as much as perhaps I should have, there is a lot of ignorance on the team's part, there are many colleagues who are unaware of the existence or even do not know how to get there, the protocol to get there (P2);

"regarding the platform, well look, I admit, I have never made any reports there" (P3).

Only one participant mentioned the professional's preparation for the occurrence of iatrogenic events acquired during their academic education: "During my continuing education ... I had a specific teacher, in the specialty, ... who made me more aware of the issue" (P4).

Potentiating factors for iatrogenic events and preventive strategies

Eleven subcategories emerged regarding the factors that potentiating iatrogenic events: poor working conditions, difficulty in separating professional and personal areas, burnout, distraction/ imprudence/ carelessness, knowledge deficit, the severity of the patient's clinical condition and the number of the patient's medical devices, poor time management and care planning, lack of professional recognition, ineffective communication, lack of leadership, and excessive bureaucracy. The subcategory "poor working conditions" was the most highlighted and expressed as follows: "the ratio is not always appropriate for the number of patients on the wards" (P5); "inadequate physical space, certainly. ... the workload is beyond our capabilities" (P6).

In the category of strategies to prevent iatrogenic events, nine subcategories emerged: continuing education, good communication and leadership, implementation and protocols adherence, teamwork, professional recognition, bureaucracy reduction, promotion of formal reporting, investment in physical and human resources, and awareness of the possibility of their occurrence. Five professionals mentioned the subcategory "continuing education," including the following extract: "A fundamental pillar to prevent ... has to do with education" (P4). The subcategory "good communication and leadership" followed, reflected in four record units, which the following exemplify: "I also think it is very important to have a leader who is clearly seen as a leader, but also as someone you can talk to without fear of reprisal" (P5); "communication is essential. When we talk about communication, from the shift change to everyone being informed of what happened" (P7).

Four participants also mentioned "the implementation and protocols adherence," as exemplified in the following record unit:

> We use the institution's protocols a lot. We follow them to the letter ... . We have several specific forms to minimize error, for example, a specific form called the *contabilização dos itens quantificáveis* (quantifiable item count). It accounts for everything that goes into the operating table to make sure that everything is confirmed and reconfirmed before the surgery is over to minimize error. (P5)

Discussion

All study participants worked in medical-surgical services. Six nurses had postgraduate specialization degrees in Medical-Surgical Nursing, and one was attending the degree, having completed the curricular component. Most of the participants held the professional title of specialist. Nurses working in Medical-Surgical services often face the diversity and complexity of acute or chronically ill patients' medical or surgical processes, which demand a quick, concerted, and effective response. The *Regulamento n.º 429/2018* (Regulation no. 429/2018) of the Portuguese Nursing Regulator addresses the specific competencies of the Nurse Specialist in Medical-Surgical Nursing. It defines complex medical and surgical processes as "the set of actions that imply decision-making, based on relevant information and the potential consequences of each alternative and resource, that determines the nurse's specialized intervention in out-of-hospital, hospital, home, and community settings" (p. 19360). Moreover, it mentions that the need for specialized nursing care arising from problems requires structured, educational and guided responses. To respond effectively, the nurse must "mobilize knowledge and skills to identify the specialized intervention, and to design, implement and evaluate the intervention plan, in a care partnership that promotes care safety and quality" (p. 19360).

All the nurses in this study associated the concept of iatrogenesis with patient harm, which is comparable with what is found in the literature exploring this theme (DGS, 2011). Focusing on iatrogenic events in nursing, these were associated with the harm inflicted on patients under nurses' responsibility, resulting from poor or missed nursing care. This result is in line with Madalosso's definition (2000) of the iatrogenic nature of nursing care. In this study, falls and fractures, medication errors, and inappropriate use of medical devices stood out as the most common nursing iatrogenic events, in line with the main iatrogenic events identified in the study of Figueiredo et al. (2021), based on a literature review involving documents published between 2015 and 2021. The study of Ripardo and Brito (2019), which analyzed the records of 100 randomly selected older adults hospitalized in 2015, found that the most frequent iatrogenic events were associated with peripheral intravenous catheters and medication administration. Forty-two iatrogenic risk factors were identified in 31 older adults, with the risk for falls corresponding to the main perceived factor. However, there were no reports of falls identified in this study. Mascarello et al. (2021) conducted a retrospective study to determine the adverse incidents and events reported in a large hospital based on data extracted from handwritten reporting forms between 1 January 2017 and 31 December 2018. The main reasons for the incidents reported in 2017 were hyperemia/phlebitis (54.5%) and falls (27.2%). In 2018, the main reasons for the incidents reported were identification errors (30.1%), hyperemia/ phlebitis (26%), and falls (14.8%).

Concerning nurses' preparation to deal with iatrogenic events, the participants attributed the underreporting of iatrogenic events to ignorance or the attempt to self-protect as professionals. When questioned about their feelings when facing an iatrogenic event, the participants used terms such as the "desire to escape," "panic about failure and error," "terrible," "hiding," the "judgment by our peers, our superiors," and the "draining of responsibilities." Siman et al. (2017) found that, concerning reporting practices, 58% of their study participants were unaware of the formal reporting form, and 67.7% had never filled a report. They also stated that the practice of formal reporting was marked by fear of being punished and knowledge gaps. The WHO and the European Commission advised the development of patient safety incident reporting systems

to promote learning from mistakes and, consequently, the "implementation of improvement actions, within a culture of non-punitive, continuous improvement, and protection of the person who reports" (Despacho n.º 9390/21 do Gabinete do Secretário de Estado Adjunto e da Saúde, 2021, p. 101). The importance of reporting is evident in the conclusions of the study conducted by Mascarello et al. (2021), in which the authors stated that "reporting allowed identifying a high number of incidents with the potential to cause harm, denoting failures that could be minimized with the implementation of institutional protocols and professional training" (p. 1).

Nurses are the health professionals who spend more time with patients, which increases the likelihood of iatrogenic events associated with other types of care. In this study, poor working conditions stood out as the main factor potentiating iatrogenic events, corroborating studies such as Santana et al. (2015).

Aware that the increased risk of nursing iatrogenic events relates to different potentiating factors, the nurses in the FG were challenged to present strategies for its reduction/prevention. In this sense, continuing education, good communication and leadership, and the implementation and protocols adherence in accordance with the most current best practices stood out as central axes. Lobão and Menezes (2017), based on an exploratory and analytical study aimed at assessing nurses' attitudes toward conditions that could predispose to the occurrence of events, with a sample of 128 nurses, found that 48% of them had a low perception of the risk factors that could trigger the occurrence of adverse events. Given the results, the authors pointed out the need to include topics regarding adverse events, safety culture, and quality of nursing care in nursing curricula (undergraduate and postgraduate programs).

Conclusion

The present study highlights the perception of the persistence of iatrogenic events, such as falls and fractures, drug therapy-related adverse effects, and inappropriate use of medical devices. It is also worth noting the reference to underreporting. Poor working conditions were pointed out as the main potentiating factor. Considering its results, this study recommends that nurses should be aware that the risk of adverse events is inherent to care delivery. Since several factors can potentiating iatrogenic events in nursing, it is also relevant that organizational leaders implement the National Plan for Patient Safety, consolidating the articulation of patient safety governance at local, regional, and national levels. Moreover, it is necessary to update/strengthen knowledge through postgraduate and continuing education to improve the quality of nursing care and patient safety.

This study has limitations resulting primarily from the disadvantages of the methodology used. The expression of thoughts in a small group, intentionally selected in a non-probabilistic way, may suffer interferences, either by the other group members or the way the interview is conducted. In this group, considering the theme addressed, the bias of some answers can result from normative influence, and opposite stances may be avoided for fear of being perceived as a deviation.

Author contributions

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