

## ORIGINAL ARTICLE

## PATIENT SAFETY CULTURE FROM THE NURSING TEAM'S PERSPECTIVE

### HIGHLIGHTS

1. The highest score was about hand hygiene.
2. Patient identification had the worst score.
3. Pressure injury was indicated as the most frequent adverse event.
4. Event notification reports are not filled out by the participants.

Brenda de Araújo Lopes<sup>1</sup>   
Mayara Carolina Cañedo<sup>2</sup>   
Nívea Lorena Torres<sup>1</sup>   
Thiago Inácio Barros Lopes<sup>3</sup>   
Maria Aparecida Munhoz Gaíva<sup>4</sup> 

### ABSTRACT

**Objective:** to identify the nursing staff knowledge about patient safety and the occurrence of adverse events in Emergency Medical Care. **Method:** cross-sectional, quantitative study, developed in a teaching hospital in the Midwest region of Brazil. It was conducted with nursing professionals through an online questionnaire containing questions related to patient safety, applied in September 2021. The data analysis was descriptive. **Results:** Ninety professionals participated in the study, 28(31.1%) being nurses and 62(68.9%) nursing technicians. In the evaluation of the questionnaire items, the best score was about hand hygiene 84(93.3%), the worst evaluated item was patient identification protocol 45(50%). Pressure ulcers were indicated as the most frequent adverse event 28(33%). **Conclusion:** the results indicate that continuing education is essential for professionals to apply the international patient safety goals in practice.

**DESCRIPTORS:** Organizational Culture; Patient Safety; Nursing; Adverse Events; Hospitals.

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<sup>1</sup>Hospital Regional de Mato Grosso do Sul, Campo Grande, MS, Brasil.

<sup>2</sup>Secretaria de Estado de Saúde, Vigilância Epidemiológica, Dourados, MS, Brasil.

<sup>3</sup>Universidade Federal de Mato Grosso do Sul, Laboratório Multiusuário de Ressonância Magnética Nuclear, Campo Grande, MS, Brasil.

<sup>4</sup>Universidade Federal de Mato Grosso, Faculdade de Enfermagem, Cuiabá, MT, Brasil.

## INTRODUCTION

Patient safety consists in reducing, to an acceptable minimum, the risk of unnecessary damage resulting from health care. In turn, the adverse event (AE) is the incident that results in harm to the patient and is categorized as infectious, which includes health care - associated infections (HAI) and non-infectious, referring to errors made during the care, such as medication errors and falls<sup>1</sup>.

According to the World Health Organization (WHO), the most frequent care failures are related to surgical procedures, followed by medication errors and HAI<sup>2</sup>. In Brazil between the years 2014 and 2018, the most frequent AEs were incorrect use of medications (50.8%), patient falls (7.5%), and HAI (7.2%)<sup>3</sup>. It is known that AEs can be harmful to patients and increase hospital expenses with treatment<sup>4</sup>.

A study carried out in 12 public, private, and philanthropic hospitals, located in the city of Natal/RN, showed that the patient identification protocol was the most implemented in the institutions studied, followed manually hygiene and prevention of patient falls.<sup>5</sup> A global cross-sectional investigation that evaluated the implementation of infection prevention and control programs found that most were related to monitoring hand hygiene in the prevention of HAI<sup>6</sup>.

Other risks were also related to patient (in)safety, such as institutional ones, including work overload and communication failures by team members. In addition, the fear of punishment by the professionals may generate the underreporting of AEs<sup>7</sup>. Organizational factors such as administrative failures and knowledge deficiencies among professionals are known to impact patient safety<sup>8</sup>.

Research shows that health professionals usually have knowledge about patient safety protocols, especially the nursing team<sup>9</sup>. However, the change in care practice does not occur. In this sense, this research is justified, to show that the nursing professionals' knowledge is necessary in their daily work, to guide and organize the care provided by the team, as well as to effectively implement the patient safety culture in hospitals. Thus, this research aims to identify the knowledge of the nursing staff about patient safety and the occurrence of AE in Emergency Medical Care (PAM- in Portuguese).

## METHOD

This is a descriptive cross-sectional study with a quantitative approach, carried out through the online application of a semi-structured form prepared by the authors. The research was developed in a teaching hospital located in the state of Mato Grosso do Sul (MS) - Brazil, in the EMC, which operates twenty-four hours as a gateway for adult and pediatric patients.

At the time of the study, the sector had a total of 194 nursing professionals, being included in the research nursing professionals who worked in assistance in the three shifts with at least six months of work. However, some professionals were on medical leave or vacation at the time of data collection, as well as readjusting to work in administrative areas, and were excluded from the study. Thus, there were 178 professionals who could be included as research participants.

The adapted Portuguese version of the Hospital Survey on Patient Safety Culture (HSOPSC) questionnaire - an instrument to assess the characteristics of patient safety culture in hospitals - was used as a reference in developing the data collection instrument<sup>10</sup>.

The questionnaire was composed of 34 questions, divided into four parts: the first with multiple choice questions about the identification of professionals: gender, age, color, marital status, and education; the second part about professional data: number of employment ties, time of training in the area, time of work in the institution, working hours per week, position and participation in permanent training on patient safety; The third part contained six questions about knowledge and practice of the team about the international patient safety goals made available by the National Health Surveillance Agency (ANVISA-in Portuguese)<sup>1</sup>, with multiple choice answers with four alternatives (a-b-c-d), with only one possible correct answer, all questions had the same value of one point, which totaled the maximum score of six points; The fourth part contained 16 multiple choice questions and one open question about AEs (the main events that occur in the sector, the main causes of these events, and the actions of nursing professionals against AEs).

The adapted questionnaire was submitted to a pilot test, in September 2021, before starting data collection, to test the suitability of the instrument to the objectives of this research. The pre-test was applied with two nurses who were managers in the EMC of the same hospital and who participated in the research. After this evaluation, the instrument was considered adequate and without the need for changes.

After the pilot test of the questionnaire, it was made available to the participants through Google forms<sup>®</sup>, via email and instant messaging application, during the month of September 2021. Participants had 48 hours to answer the questionnaire.

The data were presented descriptively with means, percentages, and standard deviation. Comparisons were made using the t-Student test for unpaired samples, with a significance level of 95%. All calculations were made in Microsoft Office Excel<sup>®</sup>. For objectivity in the evaluation, a value of 75% was established as the cutoff point for positive evaluation of the professionals' knowledge, based on the HSOPSC<sup>10</sup> instrument.

The research was approved by the Ethics Committee on Human Research of the University for the Development of the State and the Pantanal Region (CEP/Anhanguera - Uniderp), opinion number 4,895,027.

## RESULTS

Of the 178 professionals able to participate in the research, 90 answered the questionnaire, among them, 26 care nurses, two nurse managers and 62 nursing technicians. The sample was composed predominantly of women, 78(87.7%), white 45(50.6%), aged 32 to 40 years 37(41.1%), married 40(45%) and with one to five years of work in the hospital (Table 1).

Regarding the time of training in nursing, 26(28.8%) had six to ten years. As for education, 31(34.4%) reported having a *latu sensu* postgraduate degree. Regarding employment status, 52(57.8%) had only one job, and 38(42.2%) had two jobs. Regarding the participation in training, 72(80%) participated in permanent training on patient safety (Table 1).

**Table 1** - Distribution of sociodemographic characteristics of nursing professionals of adult and pediatric PAM. Campo Grande/MS, Brazil, 2021 (n=90)

Variable	Description	n	%
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Position/Function	Nurse	28	31.1
	Nursing Technician	62	68.9
Work area at PAM	Adult	77	85.6
	Pediatric	13	14.4
Time of work at the hospital	Pediatric	69	76.6
	1 to 5 years	15	16.6
	6 to 15 years	4	4.4
	≥ 16 years	2	2.2
	No answer		
Weekly working hours (on average) including overtime	40 to 59 hours weekly	59	65.6
	60 to 80 hours weekly	19	21.1
	> 80 hours weekly	11	12.2
	No answer	1	1.1
Time of training in the area	1 to 5 years	22	24.4
	6 to 10 years	26	28.8
	11 to 15 years	24	26.6
	≥ 16 years	18	19.9
Number of employment relationships	1	52	57.8
	2	38	42.2
Participation in training on patient safety	Yes	72	80
	No	18	20

Source: The authors, 2021.

Regarding the participants' knowledge about patient safety strategies, verified through the third part of the questionnaire, it was possible to observe that the item with the highest percentage of correct answers was related to the moments for hand hygiene 84(93.3%), followed by the item about pressure ulcer (PU) 70(77.8%), and the main patient safety strategies 67(74.4%).

The worst item rated by the professionals was the patient identification protocol 45(50%), followed by the items about the moments for safe surgery checklist and fall prevention, both with 35(38.9%) error rate (Table 2).

**Table 2** - Nursing staff knowledge about patient safety strategies. Campo Grande - MS, Brazil, 2021 (n=90)

Question	Right n(%)	Errors n(%)	Total n(%)
Key Patient Safety Strategies	67(74.4)	23(25.6)	90(100)
Moments for hand hygiene	84(93.3)	6(6.7)	90(100)
Moments for the safe surgery checklist	55(61.1)	35(38.9)	90(100)
Patient identification protocol	45(50)	45(50)	90(100)
Definition of PI	70(77.8)	20(22.2)	90(100)
Strategies for the prevention of falls	55(61.1)	35(38.9)	90(100)

Source: The authors, 2021.

Regarding patient safety strategies, which had a maximum score of six, 23(25.6%) professionals got five questions right, followed by six right 22(24.4%) and four right 20(22.2%), and one (1.1%) professional got all questions wrong. Thus, 65(72.2%) of the professionals got more than 50% of the questions right.

Considering the position, area of work in the EMC, education, professional training, time of work in the researched institution and number of employment bonds, the professionals who got more right answers in the questionnaire were: nurses ( $4.89 \pm 1.22$ ), those with time working in the institution between one and five years ( $4.73 \pm 1.39$ ), those who worked in the pediatric EMC ( $4.46 \pm 1.13$ ), workers with postgraduate degrees ( $5.07 \pm 0.89$ ), those who had professional training on patient safety ( $4.44 \pm 1.42$ ) and those who had only one employment relationship ( $4.50 \pm 1.50$ ) (Table 3).

**Table 3** - Distribution of the mean score in the questionnaire on patient safety according to position, area of work in the EMC, education, professional training, time working at the institution and number of employment bonds. Campo Grande/MS, Brazil, 2021 (n=90)

Characteristics	Description	Average score of the Professionals	Standard Deviation
Position/Function	Nurse	4.89	1.22
	Nursing Technician	3.95	1.58
Work area at PAM	Adult	4.19	1.60
	Pediatrics	4.46	1.13
Level of education	Technical Education	3.61	1.63
	Undergraduate	4.38	1.50
	Post-graduation*	5.07	0.89
Professional training in patient safety	Yes	4.44	1.42
	No	3.39	1.72
Time of work in this hospital	1 to 5 years	4.73	1.39
	6 to 10 years	3.81	1.70
	11 to 15 years	4.30	1.57
	≥ 16 years	4.33	1.05
Number of employment relationship	1	4.50	1.50
	2	3.87	1.53

Source: The authors, 2021.

\* Since the hospital has civil servants, many remain as nursing technicians, even after graduating in nursing or in other areas and with post-graduate degrees but cannot access the higher education position.

Thus, it can be stated that there is a statistical difference ( $p < 0.05$ ) when comparing the answers of nurses and nursing technicians, considering the following variables: technical education and post-graduation; professionals with and without training in patient safety, and time of work in the hospital between one and five years and six to ten years (Table 4).

For the other items, there may even be a nominal difference, but it is not statistically relevant.

**Table 4** - p-value of the Student's t-test on the knowledge of patient safety according to position, area of work in the PAM, education, professional training, time of work in the researched institution and number of employment bonds. Campo Grande/MS, Brazil, 2021 (n=90)

Characteristics	Description	p-value
Position/Function	Nurse X Nursing Technician	0.007
Work area at PAM	Adult X Pediatrics	0.566
Level of education	Technical Education X Undergraduate	0.108
	Technical Education x Post Graduation	< 0.05
	Undergraduate x Postgraduate	0.057
Qualification in patient safety	Yes X No	0.008
Time of work in this hospital	1 to 5 years x 6 to 10 years	0.048
	1 to 5 years x 11 to 15 years	0.231
	1 to 5 years x >16 years	0.332
	6 to 10 years x 11 to 15 years	0.460
	6 to 10 years x > 16 years	0.332
	11 to 15 years x > 16 years	0.719
Bond	1 x 2	0.054

Source: The authors, 2021.

Next, we present the data from the fourth part of the questionnaire that addressed the AEs. Regarding the AE that occur more frequently in the PAM according to nursing professionals, most of them pointed out the PU 28(33%), HAI 25(29.4%), failure in patient transfer 22(25.9%), lack of patient identification 6(7%), falls 3(3.6%) and medication administration error 1 (1.1%).

Regarding possible justifications for the occurrence of AE in the sector, 68(75.6%) of professionals said that "there is lack of teamwork and communication", and for 42(46.7%), "the number of professionals is not enough to handle the workload". As a potentiality of the sector, 67(74.4%) of the interviewees pointed out that "the supervisor, when the pressure increases, does not want you to work faster" and for 70(77.8%), "the supervisor pays enough attention to patient safety problems that happen repeatedly".

In turn, for 45(50%) of nursing professionals, the circumstances that may contribute to the occurrence of AE is that "sometimes they work more hours than would be ideal for patient care", while for 44(48.9%), "sometimes, the team is informed about the errors that happen in the sector" and according to 43(47.7%), "sometimes, ways to prevent errors are discussed, preventing them from happening again" and for 37(41.1%) of the participants, "professionals are sometimes afraid to ask when something seems not right".

Regarding the actions of nursing professionals in the face of AE occurrence,

68(75.6%) of the participants stated that “the team is actively doing things to improve patient safety”; according to 48(53.3%) of those surveyed, “the procedures performed in the sector sometimes are adequate to prevent errors from occurring”; and 63(70%) professionals stated that “in the last 12 months they have not filed any AE reports”.

About the notification of AE, almost 100% of those surveyed said they had never filled out the AE notification reports, and 20(24.7%), due to unawareness of its importance or not knowing how to notify; already for 20(24.7%), due to work overload; for 16(19.8%), due to centralization of the notification in the professional nurse; for 15(18.5%), due to lack of access to the necessary documents to perform it; other 10(12.3%) participants, due to fear of reprimands and fear in notifying; and finally, 66(73.3%) of the professionals gave regular overall grade for patient safety in their work unit in the hospital.

## DISCUSSION

The participating professionals work predominantly in the adult EMC, with six to ten years of training in nursing, in addition to a technical course, and a significant number of them have a *lato sensu* post-graduation. In addition, most of the interviewees said they had participated in training courses on patient safety promoted by the continuing education sector. A study points out as risk factors for unsafe attitudes of health professionals the lack of knowledge, lack of communication, stress, and poor working conditions<sup>11</sup>.

It is noteworthy that most servers have been working in the institution for a short time, which can cause concern about the practice of patient safety. This situation requires attention from the leadership, to help the development of actions that promote patient care, from the perspective of accident prevention and risk management.

A survey carried out with nursing professionals in the state of São Paulo identified that they worked more than 31 hours per week, and that most of them had only one job in nursing, but 8,962(8.5%) nurses and 38,653(11.1%) nursing technicians and assistants had another paid activity outside the health area. It is known that the low remuneration in the nursing field requires many workers to work double shifts, as observed in the present research. An international study indicates that the higher the work demand, the less adequate patient care is provided and, consequently, the higher the risk of AE<sup>14</sup>.

Regarding the nursing staff knowledge about patient safety strategies, hand hygiene obtained the highest percentage of correct answers. However, an investigation showed that the failures pointed out in the processes of bloodstream infection still occur due to deficiency of correct hand hygiene of professionals<sup>15</sup>. It is noteworthy that the results of this research are limited to the “theoretical” knowledge of professionals, not being possible to say whether in daily practice they adhere to the moments of hand hygiene, as well as other safety actions.

The second item with the highest number of correct answers by professionals was about PU, showing that the nursing team is aware of its stages. As for the most frequent AEs in the sector, most professionals pointed to PU, HAI, and failure in patient transfer, respectively, in order of occurrence.

And, in fact, PU was the most reported AE to the Patient Safety Center (NSP- in Portuguese) of this same institution, between the years 2017 and 2018, being (57.6%) in 2017 and (66.6%) in 2018<sup>16</sup>. Thus, it can be said that the occurrence of these AE in the hospital does not stem from the professionals’ knowledge deficit, but may be related to other factors, such as the lack of awareness of the team; patient severity; institutional infrastructure; and work overload<sup>17</sup>.

The item about the main strategies to promote patient safety deserves to be highlighted, with a good hit rate. Qualitative research conducted in three neonatal intensive care units in Florianópolis/SC showed that the 181 participating professionals realize the importance of providing safe care and the need to identify risk factors that predispose to errors<sup>18</sup>.

The patient identification protocol obtained the lowest hit rates. This was also a worrisome data, since the correct identification of the patient is the first activity that ensures safe care and minimizes the occurrence of AE<sup>1</sup>. Research developed in a psychiatric unit with the nursing team showed that the professionals always identify patients by full name in the bed, in the medical chart, and on the wallboard of the nursing station. However, there is not a systematized practice, nor the use of an identification bracelet in the unit<sup>19</sup>.

Another study also indicated that the wristband was not the wristband most often used by the team to identify the patient. The patients reported that they were identified on the medications, and the professionals interviewed stated that the identification occurred on the bed headboards. These results contradict the Patient Identification Protocol and demonstrate a lack of knowledge and compliance of professionals and patients with Protocol<sup>20</sup>.

Regarding the item safe surgery checklist, considering that the professionals surveyed do not work in the surgical center, this item showed a good rate of correct answers, since 45 (50%) of the workers have knowledge about this international goal of patient safety, even without working in the area. It is noteworthy that besides the surgical team, all nursing workers need to be aware of the moments of safe surgery, since nursing is a dynamic profession that needs professionals to be prepared to act in all care areas<sup>21</sup>.

As for fall prevention, a considerable percentage of error was found in this item, 35(38.9%), which is relevant, since studies indicate that falls are one of the main causes of AE in nursing care, which can cause sequela to patients, prolong hospitalization time and costs, and, consequently, cause legal liability for the team and the institution<sup>22,23</sup>.

When comparing the average score of correct answers to the questions between technicians and nurses, the latter scored higher compared to nursing technicians. A similar investigation carried out in Recife/PE, Brazil, observed that the professionals most affected by the lack of knowledge about patient safety were nursing technicians and assistants, reinforcing the findings of this research and indicating a greater need for continuing education actions for these professionals<sup>24</sup>. Moreover, professionals with a degree and who had completed training on patient safety had a higher percentage of correct answers, showing that education and time of schooling can contribute to safe patient care.

Research conducted in two hospitals in Canada revealed that physicians and nurses who worked in the front line had better answers to questions related to patient safety than the managers. According to the authors, this may be linked to the fact that the care professionals were younger than the managers, in other words, possibly, during their graduation, they were better prepared on the subject<sup>25</sup>.

Regarding the number of correct answers and the time working in the hospital where the study was developed, the professionals who obtained the highest scores have been working in the institution between one and five years. These workers certainly have little time of professional experience, so it is believed that they have more interest in participating in trainings. This data, however, cannot be considered a factor that ensures the best health practices, but it can contribute to the appropriate direction of the actions<sup>12</sup>.

In the opinion of nursing professionals participating in this study, the possible causes of AEs are related to the lack of teamwork and communication, suggesting that safe care depends on effective communication. A study that analyzed the root causes of AEs showed that verbal and written communication failures were predominant<sup>26</sup>.

When the professionals were asked about the errors that occur in the sector, they affirmed that sometimes they are informed about the subject, when ways to prevent them are discussed with them. They also replied that, eventually, they are afraid to ask when something seems to be wrong. Research shows that complete adherence to the protocols recommended by the WHO is not yet a reality in health institutions due to weaknesses related to safety culture, lack of effective communication, little involvement of leaders, and lack of knowledge of the local reality, making it difficult to solve problems about patient safety<sup>27</sup>.

Another relevant statement from the participants refers to work overload, since half of them said that "sometimes, they work more hours than what is appropriate for patient care and the number of professionals is not enough to handle the workload". Research that related stress and *Burnout Syndrome* in nursing professionals and its interface with patient safety showed that precarious working conditions and excessive workload contribute to these problems and, consequently, these workers are more vulnerable to develop an unsafe care<sup>28</sup>.

The work process in emergency units is intense, requires agility and objectivity, especially if developed in services that work with spontaneous demand care, such as in PAM, and can cause high rates of infections and AE<sup>29</sup>. Moreover, the nursing team workers are a group of professionals exposed to stress and factors such as high charges, work overload and fewer professionals than recommended, favoring the occurrence of negligence in meeting international patient safety goals<sup>14</sup>.

Regarding AE notification, almost 100% of the professionals said they had never filled out the notification reports for several reasons, including not knowing how to notify, work overload, and lack of access to the necessary documents to do it. This result diverges from other studies that show that AE are not notified for fear of reprisals from the institution's managers<sup>30,12</sup>.

Based on the results of this study, it can be highlighted that knowledge about AEs was a positive point, since it showed that professionals have notions about what AEs are, recognize that they are present in their daily work, besides identifying those that occur more frequently. However, it is evident that this knowledge is not enough to reduce underreporting. It is necessary that professionals understand the importance of notifying them and have access to standardized documents to make this notification, in addition to having the support of the entire team and managers<sup>12</sup>.

It should be noted that the present study is limited to a local investigation, in only one Brazilian hospital, developed through an online questionnaire considered long and complex by some participants. However, the results obtained may also have been influenced by the context of the pandemic of COVID-19, which caused several workers to be relocated from other sectors to the EMC, in addition to the hiring of new professionals, which may have reinforced the lack of communication and rapport among the team; moreover, during the peak of the pandemic there was attendance of patients demanding intensive care in the blue and green areas of the unit.

## CONCLUSION

The research identified the nursing team's knowledge about AEs and strategies to promote patient safety. However, a knowledge deficit was found, and it was verified that the first patient safety goal, identification, had the worst hit rate. In addition, most of the research participants did not fill out AE notification reports because they were unaware of their importance or did not know how to do it.

The nurses, professionals with postgraduate degrees and with time working in the hospital between one and five years, showed to have more knowledge related to patient safety. According to the professionals surveyed, the nursing team is actively seeking to improve the care provided and prevent the occurrence of errors. The results obtained in this research represent alert conditions for the monitoring of AEs by the studied service. Moreover, they reaffirm that investments related to continuing education are essential for professionals to apply the international goals of patient safety to care practice.

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**Corresponding author:**

Mayara Carolina Cañedo

Secretaria de Estado de Saúde de Mato Grosso do Sul

R. Hilda Bergo Duarte, 940 - Jardim Caramuru, Dourados - MS, 79826-090

E-mail: maycarolina@hotmail.com

**Role of Authors:**

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- **Lopes B de A, Cañedo MC, Torres NL, Lopes TIB.** Drafting the work or revising it critically for important intellectual content

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