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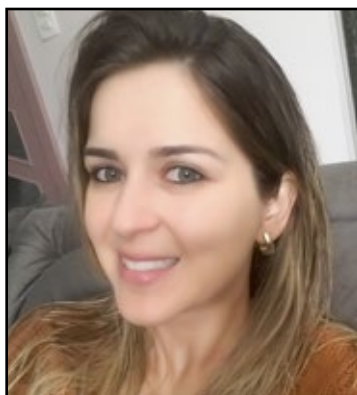
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Original Articles



## Physical restraint in patients in Intensive Care Units: exploratory – a descriptive study

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### ABSTRACT

**Aim:** to analyze the criteria for the use and monitoring of physical restrictions in patients admitted to Intensive Care Units (ICUs). **Method:** the research had an exploratory, descriptive and qualitative character and was performed in two ICUs in Bahia, with 85 nursing professionals. The data were organized based on thematic analysis. **Result:** the members of the nursing team justified the use of physical restraint for patient safety, reporting the checking of the level of consciousness, agitation and/or disorientation as criteria for its use. For monitoring, they observed patients' skin integrity and changes in the level of consciousness. Therefore, neurological evaluation was the technique most commonly used by professionals to verify the need for restriction. The knowledge of the team regarding the legal instruments that govern this procedure was superficial. **Conclusion:** we identified weak spots in the criteria for monitoring and - making use of physical restraint, since the knowledge is still incipient and there are no defined protocols.

**Descriptors:** Restraint, Physical; Patients; Nursing; Intensive Care Units.

## INTRODUCTION

A critical or severely ill patient is the one who is at imminent risk of losing his life or the function of some organ/system of the human body, that is, one who is in a fragile clinical condition and requires immediate care<sup>(1)</sup>. When hospitalized in an Intensive Care Unit (ICU), medical staff use continuous multiparametric monitoring, as well as various therapeutic artifacts to effectively manage the condition of such patients. These patients may, intentionally or not, remove devices such as endotracheal tubes, vascular accesses and probes. In addition, there is a risk of falls occurring when they are confused, disoriented or agitated. In face of this, it is often necessary to use some form of protection to ensure their safety.

One of the most common methods to provide safety to critical patients is the use of physical restraints<sup>(2)</sup>, also identified as mechanical restraints, which are defined as a method to restrict patient's freedom of movement, physical mobility or normal access to their body<sup>(3)</sup>.

The most commonly used restrictions are those installed on the upper limbs, except during intensive care, in which case wrist restrictions are the most commonly used, such as dressings or bands<sup>(2)</sup>.

Such a method should be used when there is the need to protect the patient against injury, trauma, falls, displacement of devices and others. In addition, it serves to prevent the interruption of the treatment to which the patient has been submitted<sup>(4)</sup>. Its use, however, has also been frequent found in situations of agitation, although it is recommended, firstly, to identify the cause, in order to evaluate treatment alternatives before applying any physical restraint<sup>(5)</sup>.

The use of physical restraints is a common but controversial practice in Brazil, given the frequent and unrestrained use of this non-

-evaluated technique as a coercive/punitive nature, as well as its consequences. Such a method involving psychiatric patients in emergency departments has been found to present a prevalence rate ranging from 0.25% to 59% in several countries such as Italy, India, Finland, Germany, Switzerland and the United States. The lowest prevalence of its use is 0.25% in Italy, and the highest prevalence is 59% in the United States<sup>(6)</sup>. Its use is prohibited in countries such as the United Kingdom and the Netherlands<sup>(5)</sup>.

In Brazil, Resolution 427/2012 of the Federal Nursing Council (COFEn) prohibits its use for the purpose of discipline, punishment and coercion or for the convenience of the institution or health team<sup>(7)</sup>. We must also mention that institutions should preferably establish care protocols with the purpose of regulating the use of physical restraint and the monitoring of the contained patient, to ensure that the use of these safety devices is linked to the sole purpose of preventing immediate or imminent harm to the patient or to others<sup>(7)</sup>.

In intensive care practice, we have observed a great amount of physical restrictions being applied without discussion regarding any criteria for its use, withdrawal or monitoring, despite the complications that this technique may cause. In Brazil, discussions on patient safety have been taking place, culminating in the National Patient Safety Program, which was launched on April 1<sup>st</sup>, 2013<sup>(8)</sup>, dealing with the implementation of risk management and Patient Safety Centers in health facilities. This has raised concerns about the criteria for use and the monitoring of these restrictions in ICUs, where patients are already fragile due to their condition and the environment that surrounds them.

Based on a search of publications in national and international scientific databases over the last five years, we have observed that nursing procedures, in general, are beginning to focus

more closely on restriction techniques and the care measures used. In addition, questions regarding the criteria for their use and monitoring have been briefly discussed, with a particular focus on psychiatric cases.

Little has been addressed regarding the situation with regard to critical patients, although this procedure is frequently used in ICUs. Based on this context, we formulated the following question: what are the nursing teams' criteria for the use of physical restrictions in the case of critical patients? How do they monitor the use of such restrictions?

The goal of the study was to analyze the criteria for the use and monitoring of physical restrictions in patients admitted to the ICUs under consideration.

With this analysis, we seek to attract attention to the theme, showing how it is being dealt with by nursing professionals in intensive care, in order to provide discussions that may allow a safer use of physical restrictions, avoiding prolonged and unnecessary restrictions, and the prevention of any adverse events related to these.

## METHOD

A qualitative and exploratory study was carried out at two ICUs in the state of Bahia, one located in the city of Salvador and the other in the municipality of Vitória da Conquista. These are referred to ICU A and ICU B, respectively. The criterion of choice of units was based on the profile of the patients attended, mostly with critical and high-complexity conditions.

ICU A is located in a medium-sized private hospital in the city of Salvador, with 30 beds, six for low-complexity critical patients and 24 for patients with high therapeutic complexity. The profile of the unit is of adult/elderly clinical

patients who are in the postoperative process of low, medium and high complexity surgeries, including cardiac procedures.

ICU B is also located in a private general hospital, of small size, in the municipality of Vitória da Conquista, and serves the whole microregion in which it is located. It has seven beds designed for the care of patients with high therapeutic complexity, and its profile consists of adult/elderly patients, ranging from postoperative patients from elective and/or urgent and emergency surgeries of low, medium and high complexity, to trauma victims, postoperative patients from orthopedic, cardiac, neurological surgeries, patients with autoimmune diseases that require invasive and complex treatment, urgent dialysis treatment, and others.

The participants of the research were nursing professionals who were part of a team that met the following criteria: being staff who directly assisted the ICU patients and were at work during the data collection period. No exclusion criteria were applied.

Complying with Resolution No. 466/2012 of the National Health Council<sup>(9)</sup>, the study was approved by the Ethics Committee of the Nursing School of the Federal University of Bahia, under opinion 684,286 and CAAE: 2613.2113.2.0000.5531, on June 4<sup>th</sup> 2014. All those who agreed to participate signed an Informed Consent Form.

The data collection took place in July and August 2014, through the use of a semi-structured interview with an average duration of 30 minutes. It was recorded and later validated by the participants. The instrument comprised two parts: 1) characterization data of the participants; 2) five semi-structured questions related to the object of study. To preserve the identity of the professionals involved, the statements were numbered, the nurses being identified by the letter N, and the nursing technicians by the

letter T, according to the numerical order of the interviews.

The interviews were conducted by the researchers, on a one-to-one basis, in a reserved room in the unit, after prior authorization from the institution, the Research Ethics Committee and the agreement of the participants. All interviews were conducted following the work shift of these professionals.

The number of participants was not decisive in terms of choosing interviews and/or the significant volume of responses to be used. This decision was related to the meaning of the answers and their relevance regarding the possibilities of meeting the objectives of the study. For determining this, the individual interviews were terminated after identifying the saturation of the significant and emergent thematic content in the statements. The data obtained after full transcription by the authors were treated using the Categorical Content Analysis Technique<sup>(10)</sup>, involving the free reading of the corpus of the statements; the selection of units of meaning guided by the research question; and, finally, the process of categorization and codification of the analysis units. The discussion was based on scientific evidence with regard to the subject.

## RESULTS

85 professionals participated in the study. Of this total, 26 were nurses and 59 were nursing technicians. From ICU A, 21 nurses from a total of 27, and 39 nursing technicians from a total of 46, attended for interview. Two nurses refused to participate, claiming lack of time for the interview after the shift, and four were away from the institution during the period of data collection. Among the nursing technicians, one professional refused to participate in the research and six were away from the institution

during the collection period. At ICU B, all the professionals surveyed during the collection period participated in the study, that being 5 nurses and 20 nursing technicians.

The three following categories of analysis emerged from the reading and treatment of the reports: initial evaluation of the patient in need of restriction, knowledge of the professionals regarding regulations about physical restriction, and monitoring of the patient under physical restraint.

### *Initial evaluation of the patient in need of restriction*

Neurological evaluation was the technique most commonly used by professionals to verify the need for physical restraint. A total of 79 of the interviewees reported checking patients' level of consciousness, and the degree of agitation or disorientation on the part of their patients during the evaluation.

I observe their level of awareness, disorientation, and aggressiveness to see if we need to contain it. (T39)

I analyze the neurological pattern and the possibility of loss of devices. (N16)

There was also a concern regarding patient safety and continuity of therapy without complications. In this sense, 30 professionals reported assessing whether or not the patients were at risk of removing devices, while 11 assessed the risk of falling.

I check the agitation, awareness level, if he can understand the importance of the devices. If sedated, we apply the restraints for patient protection. (N15).

Depending on his lucidity and emotional state, he could remove tubes, drains, etc., injuring himself. (T08).

We must check if the patient is at risk of falling, removing any devices, or if he presents psychomotor agitation. (E14).

Concerns about patient safety with regard to falls, aggressiveness and devices being removed arise not only with respect to the subject's safety, but also with regard to the safety of the staff and other patients. Among the interviewees, 13 professionals cite aggression and agitation as justifications to apply restraints to the patient in the ICU.

We check if the patient is aggressive, agitated, or if he might try to escape the bed or remove any needles. (T09).

If he is aggressive, we have to observe if there is a risk of harm to himself or the team. (N19).

When questioned about the alternatives available before opting for physical restraint, 59 professionals reported conversations with the patients to clarify the need to keep them calm and to collaborate with treatment. The use of drugs/sedatives to control psychomotor agitation and neurological progress was a measure mentioned by 12 interviewees, and 6 mentioned requiring communication with the multiprofessional team to evaluate and establish criteria for the use of the referred procedure.

We observe the reason the patient is agitated. We talk, try to calm him down. We ask the doctors to evaluate, ask the nurses for advice so the restraint is not used as a first option. (T22).

I talk to him, if he does not comply, I tell the doctor to give him the medication. If he does not behave, we have to stop him, we cannot let him fall out of bed. (T30).

I ask the nurse to evaluate the patient. (T23).

Five interviewees stated that they immediately opted for physical restraint, without using any previous alternative method.

In these cases, I prefer to restrain them soon, to avoid problems for us later. (T17).

These reports indicate that the criteria for the use of physical restraint must relate not only to the initial evaluation of each patient, but also to knowledge about the subject and related legal instruments.

### *Professionals' knowledge about the regulations regarding physical restraint*

With regard to legal support for restraint, 71 of the 85 professionals interviewed were unaware of COFEn's resolution 427/2012<sup>(7)</sup> and although two indicated that there were laws on physical restraint, they were not aware of its content. Of the professionals who said they knew the resolution, 10 were nursing technicians and 4 were nurses.

I've heard something about such a law, but I've never read it. (T7).

I know there's a resolution that talks about mechanical restraint, saying it's a medical prescription, but I do not know exactly what it states. (N13).

I've never even heard of it, what does it say? (T2).

Also, during the research, we observed the lack of an institutional protocol for the use of this therapy in both units.

We do not have a protocol for the use of restraints, we do it according to the routine of the unit. (N3).

The reports presented demonstrate the superficiality or lack of knowledge of the nursing team regarding legal instruments and protocols concerning physical restraint.

#### *Patient monitoring during the use of physical restraint*

Patient monitoring during the use of physical restraint, according to the interview transcripts, is carried out by the nursing team in several ways - either through the perception of physical and hemodynamic changes during its use, or in terms of neurological monitoring, alert to the possibility of altering/discontinuing its use. We noticed these aspects in the professionals' statements, as 29 participants stated that they performed monitoring through continuous observation. When questioned about how this surveillance would be carried out, one of the professionals commented:

Through continuous presence by patient's bed, every 30 to 45 minutes, asking how he was. (TE 14).

The assessment of skin integrity was the second most frequently-mentioned monitoring method, and 26 of the participants reported this approach. The appearing of skin lesions was noted by nurses as being a point of concern due

to previous knowledge of possible frictions exerted on the limbs during the use of restrictions. Such lesions were caused mainly in the case of agitated patients.

We have to be careful to remove it if the restraint is pressing on the patient's limb. To be sure, I place my fingers inside the restraint. If my hand fits between the restraint and the limb, it is ok. (N5).

Another way of monitoring patients, as cited by 18 professionals, was neurological monitoring to investigate whether or not agitation had worsened after the use of physical restraint.

The concern about hemodynamic changes due to the use of physical restraint was evident in the statements of 7 interviewees, who emphasized the need to guarantee the comfort of the patient during the use of the restraint methods, citing as criterion evaluators the anxiety level of the patients and the circulatory condition of their limbs.

I observe his state of mind, if he is improving, if the restraint is tight, I try to check the blood flow, if there is any edema, etc. (T39).

In addition, of the 85 professionals interviewed, 4 nursing technicians did not know how to perform the monitoring of the patient using physical restraints.

In some cases, it is difficult to monitor. (T38).

I do not know how to report it. (T4).

I watch the monitor. (T10 and T15).

We could observe, therefore, that monitoring is done individually, based on the experience and knowledge of each professional, and that less than half of the participants follow the monitoring criteria established by COFEn.

## DISCUSSION

Some of the results found, and reinforced by other studies, indicate that, in general, the reasons for using physical restraints are linked to the need to protect the patient and the team, as well as to ensure continuity of treatment, especially to avoid the removal or loss of treatment devices<sup>(11, 12, 13)</sup>.

A study performed in Hong Kong demonstrated that the main criterion for the use of physical restraint in hospitalized patients was to preserve their safety. This was seen as the main factor for the implementation of the restrictive measures. Related to this, one of the justifications mentioned was the shortage of nurses to ensure a safe environment, making professionals use physical restraints as the first therapeutic alternative<sup>(14)</sup>.

The safety of the patient is the responsibility of the entire team, but the nursing staff, because they are in contact with the subject for much of the time, is ultimately responsible for damage suffered during hospitalization. This makes the professionals immediately choose to restrain the patient, using physical restrictions as the first protective measure, making it a solution, thereby removing a potential problem.

Some practices, often used to ensure patient's "safety" and protect them against risks of falls and the removal of medical devices are controversial, as there is no evidence in the literature pointing to physical restraint as a means of fall protection or as beneficial to the patients.

A comprehensive, systematic review of the subject revealed that its use in the case of hospitalized patients may be associated with an increase in hospitalization time; to the occurrence of infections, especially in restrictions that last for more than four days; to changes due to immobility, falls, death<sup>(15)</sup>, cognitive decline, disorientation, double incontinence, increased incidence of pressure ulcers, agitation to the need to attend to personal daily needs<sup>(14)</sup>. It is also a frequent cause of post-traumatic stress associated with hospitalization in the ICU, especially in the case of agitated, stressed, anxious, and fearful patients<sup>(16)</sup> with difficulties expressing themselves. In situations of risk of falling, although the use of physical restraint seems to be a good preventive measure, it should be used as a prevention method only as a last resort. Other important actions include early mobilization and efforts to preserve patients' muscular strength<sup>(13)</sup> and their adaptation to the environment, stimulating autonomy and preventing mental confusion and restlessness.

Furthermore, the use of restraints can lead to mental confusion disorders such as delirium, especially in patients of an advanced age or with mental dysfunctions. It may be applied in such situations, especially in the case of hyperactive patients. One study showed that this dysfunction is strongly associated with the use of physical restraint and its duration<sup>(17)</sup>. Another research study that aimed to analyze the knowledge of ICU nurses about delirium presents, through the Discourse of the Collective Subject, statements related to the use of physical restrictions in these patients as a safety measure, however without the involvement of evaluation and/or monitoring criteria, and with no knowledge on the part of nursing professionals regarding the consequences of their use<sup>(18)</sup>. Thus, the early detection of delirium and its prevention would

be important factors in terms of avoiding the use of restriction methods.

In the ICU environment, aggressiveness and agitation can occur with many patients, because they are confused, disoriented, hypoxic, with neurological impairment, among other factors. In such cases, an assessment of the cause of this behavior is required before applying any restraint, whether chemical or mechanical. This situation could be better addressed through institutional protocols and team training.

The evaluation and management of a potentially aggressive or violent patient are complex tasks that require different professional skills. The practice of applying physical restraint in these patients is controversial, given its massive and continuous coercive/punitive use<sup>(5)</sup>. A study carried out in Egypt<sup>(2)</sup> demonstrated that there was a difficulty in communication between the team, patients and family members about the motivational criterion for the use of physical restraint, noting that when there is no knowledge of the reasons for such therapy, there is an increase in anxiety and aggressive behavior.

And so we observed, the importance of communication between patient, professional and family is observed, in order to clarify the whole situation that the patient is experiencing and the reasons that involve the use of physical restraint. If the patient can/does not cooperate, the family members may be informed of the need for the procedure and asked to contribute to minimize the anxiety and aggression that may occur due to the use of the restrictive measures.

Physical restraint should be used as the last resort, that is, only in cases where less restrictive alternatives were previously tried and proved unsuccessful. In addition, its use must be justified by well-founded structured criteria<sup>(19)</sup>. So, if physical restraint is required, it should be done by a trained staff and involve effective monitoring.

After its application, constant monitoring is an indispensable action due to the great chance of adverse events. Therefore, the concern of the interviewees related to the cutaneous integrity of these patients is valid, since physical restrictions can be the cause of the occurrence of various skin lesions such as irritation, excoriations and local edema. To reduce this risk, many units, including loci units, have used restraints made with less aggressive tissue to the skin than bandages. This is an important concern, since many of these restrained patients are elderly, already fragile, and therefore more prone to skin-related wounds.

The COFEn Resolution<sup>(7)</sup> points out the need to evaluate the restraint on an hourly basis, assessing if there is still reason to maintain the restraint, and monitoring the patients in relation to their state of orientation, hemodynamics, skin condition, peripheral perfusion, and also mobility and hygiene changes, and other possible alterations. Such monitoring should be more accentuated in the case of sedated, drowsy or elderly patients, children, adolescents or patients with clinical problems.

On the other hand, the study in question points out the lack of knowledge on the part of the professionals regarding the legal bases for this procedure. Thus, even if they justify the use of restrictions through parallel decisions, the lack of knowledge may expose the team to the risk of malpractice, imprudence and negligence, and may cause injuries to the patient and possible penalties for the nursing professionals involved, ranging from an oral warning to sacking and license cancellation<sup>(7,11)</sup>.

In addition, the same Resolution indicates that, when deciding on the implementation of restrictive therapy, except in urgent/emergency situations, the direct supervision of the nurse is required. The restraint must be prescribed by the physician and guided by protocols established



by the institutions, a fact we did not observe in the locus units<sup>(20)</sup>. It is advised that restraint should only be applied following rigorous and comprehensive evaluation of the patient, based on clinical judgment, and that it must never occur as punishment or as a means of intimidation<sup>(20)</sup>. Therefore, this evaluation and monitoring of the cases tends to reduce the need for restraint and the time of its use, thus reducing the psychological and physical harm in those who are subject to it.

This information reinforces the need for clarification and training of nursing teams, in order to modify the culture of physical restraint to a restrain-free practice, seeking to review indications and improve the environment and care measures in ICUs, so that the treatment becomes more welcoming and offers more peace of mind to the patients. Studies show that the continuing education of the team can reduce the use of restraints<sup>(14,17)</sup>. An intervention research about this subject, with a program of reduction of the physical restrictions through the education of the professionals and the creation of a committee to reduce the physical restraint measures, demonstrated the importance of these tools in the control of this practice<sup>(14)</sup>.

In addition, it is important to create institutional protocols and improve the work of multidisciplinary teams for the better management of patients in intensive care, as well as to develop stimuli for knowledge and clarification of the legal bases that relate to this theme.

This study, naturally, presents limitations as follows: unavailability of some professionals in the units, which reduced the evaluated sample, the content of the conclusions and the assumptions based on human interview answers that could be reformulated prior to their exposure to the researcher, and the lack of the possibility of evaluating those compared with the practice, since there was no observation in the field.

However, these limitations did not affect the quality of the data obtained, the consistency of the findings with published work on the subject, nor the perception of the way in which nursing professionals handle restraints in the case of critical patients.

Lastly, the study points out the neglected way in which physical restraints have been treated in ICUs, and the important role that the intensive care nurses play in the follow-up of these patients and in deciding whether or not the procedure is required, even though they lack information and training.

## CONCLUSION

The study revealed that the physical restrictions in the ICUs under consideration have been applied without homogeneity regarding the criteria for application and monitoring during use; such reality may be related to the lack of institutional protocols, team training and the knowledge of professionals about legal instruments related to the subject.

With regard to their criteria for use of the referred practice, the fear of removal of medical devices, accompanied by the risk of falling, were preponderant factors in the participants' interviews with regard to its application, after the failure of other interventions, followed by the "psychomotor agitation" factor.

Regarding the monitoring of the patients restrained, the participants reported that "neurological evaluation" is the most commonly used technique for observing changes during use, and for assessing the need for maintenance or suspension of the restriction. In addition, the participants also reported observing the patients' skin health and hemodynamics. However, in both professional categories, there were no defined bases for the evaluation on the part of

each professional, who took isolated decisions based on personal and empirical conceptions.

We therefore recommend the creation of standardized institutional protocols and training of the multiprofessional staff to provide safe and quality-proven approaches to this technique, as well as the constant monitoring of the environment and of human resources in intensive care, in order to offer a more welcoming and humanized practice.

Finally, we believe that this research can contribute, with reflection on the part of health teams, to the need for patients to be restrained within the bed, as well as its consequences.

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