Original Article

Autonomy in ventilatory procedures by physiotherapists working in the intensive care in the state of Bahia: a cross-sectional study

Autonomia em procedimentos ventilatórios por fisioterapeutas que atuam em fisioterapia intensiva no estado da Bahia: um estudo transversal

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ABSTRACT | INTRODUCTION: The Intensive Care Unit (ICU) is a ward intended to the specialized support to critically ill patients or after undergoing a highly complex procedure, who need constant monitoring and care. In this environment, the physiotherapist works to maintain vital functions and helps reduce clinical complications and mortality rates. Furthermore, within their domains, the physiotherapist shares the responsibility for managing methods that replace spontaneous breaths. **OBJECTIVE:** To describe the autonomy in ventilatory procedures by physiotherapists working in ICUs in the state of Bahia. **METHODOLOGY:** This is a cross-sectional study with physiotherapists working in ICUs in the state of Bahia, registered at the Regional Council of Physiotherapy and Occupational Therapy of the 7th Region (CREFITO-7). In data, collect was used an electronic questionnaire was developed by the researchers. The data collected was analyzed through descriptive and multivariate statistics. A p-value < 0.05 was set as statistically significant. Statistical analysis was performed with Statistical Package for the Social Sciences, 21.0 version (SPSS Inc., Chicago, IL, EUA). **RESULTS:** Were evaluated a total of two hundred and sixty-five (265) physiotherapists who work at an Intensive Care Unit in the state of Bahia, with a mean age of 32.4 ±5.4 years, being 61.9% female. Regarding professional autonomy, 94.3% declared that decision-making about physical therapy procedures in the ICU where they work is the responsibility of the physiotherapists. The highest level of autonomy over ventilatory procedures was observed for the application of non-invasive ventilation (97.7%), followed by weaning from mechanical ventilation (97.4%), indication (97%), and maintenance (96.2%). **CONCLUSION:** Through this study, it was possible to conclude that physiotherapists working in ICUs in the State of Bahia claim to have professional autonomy in relation to ventilatory procedures, especially for the non-invasive ones.

KEYWORDS: Professional autonomy. Physiotherapy. Intensive care unit. Physiotherapy hospital service. Invasive ventilatory support. No invasive ventilation.

RESUMO | INTRODUÇÃO: A Unidade de Terapia Intensiva (UTI) é um local destinado ao suporte adequado para pacientes que requerem monitorização e cuidado constante. Neste ambiente o fisioterapeuta auxilia na manutenção de funções vitais e colabora para a redução de complicações clínicas e do índice de mortalidade. Além disso, dentro das suas áreas de domínio, o fisioterapeuta compartilha a responsabilidade do manejo de procedimentos ventilatórios que substituem a ventilação espontânea. **OBJETIVO:** Descrever a autonomia em procedimentos ventilatórios pelos fisioterapeutas que atuam em UTI no estado da Bahia. **METODOLOGIA:** Trata-se de um estudo transversal com fisioterapeutas que atuam em UTI no estado da Bahia, inscritos no Conselho Regional de Fisioterapia e Terapia Ocupacional da 7ª Região (CREFITO-7), utilizando um questionário eletrônico desenvolvido pelos pesquisadores. Os dados foram submetidos à análise estatística descritiva e multivariada. O nível de significância adotado foi de p < 0,05. O tratamento estatístico foi realizado utilizando-se o *Statistical Package for the Social Sciences*, versão 21.0 (SPSS Inc., Chicago, IL, EUA). **RESULTADOS:** Foram avaliados 265 fisioterapeutas que atuam em terapia intensiva no estado da Bahia, com média de idade de 32,4 ±5,4 anos, sendo 61,9% do sexo feminino. Em relação a autonomia profissional, 94,3% declararam que a tomada de decisão (sobre os procedimentos fisioterapêuticos na UTI em que atuam) é de responsabilidade do fisioterapeuta. O maior nível de autonomia sobre os procedimentos ventilatórios foi observado para a aplicação de Ventilação Mecânica Não Invasiva VNI (97,7%), seguido do desmame (97,4%), indicação (97%) e manutenção (96,2%). **CONCLUSÃO:** Através do presente estudo foi possível concluir que os fisioterapeutas que atuam em UTI no Estado da Bahia declaram possuir autonomia profissional em relação a procedimentos ventilatórios, sobretudo para os não invasivos.

PALAVRAS-CHAVE: Autonomia profissional. Fisioterapia. Unidade de Terapia Intensiva. Serviço hospitalar de fisioterapia. Suporte ventilatório invasivo. Ventilação não invasiva.

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Introduction

The Intensive Care Unit (ICU) is a ward intended to support critically ill patients or who need constant monitoring and care after undergoing a highly complex procedure. This way, ICUs can be for general intended or specific care, medical or surgical, and are organized by systems, pathologies, specific needs, or age group. Thus, it can be divided into an adult, pediatrics, or neonatal units and accommodates patients with neurological and burn injuries or traumas.[1]

In 2010 the Resolution - RDC No. 07/2010 of the National Health Surveillance Agency (ANVISA) established the necessary conditions for the functioning of the ICUs and regulated the presence of the physiotherapist in this unit, reinforcing the need for a person responsible for these units, those must be specialists in intensive care, respiratory or cardiac physiotherapy.[2]

In the following year, the Plenary of the Federal Council of Physiotherapy and Occupational Therapy (COFFITO) approved Resolution No. 402/2011, which, considering the professional ethics of the physiotherapist, recognizes the activity of the physiotherapist in the exercise of the specialty of physiotherapy in Intensive Care and regulates the role of the intensive care physiotherapist at all levels of health care.[3] In this environment, the physiotherapist plays an important role in the benefit of patients, as it helps to maintain vital functions and helps to reduce clinical complications and the mortality rate. In addition, within their domains, physiotherapists share the responsibility for managing methods that replace spontaneous breathing.[4]

Invasive Mechanical Ventilation (IMV) and Non-Invasive mechanical Ventilation (NIV) are available about the techniques that replace spontaneous breathing in the intensive care unit. The physiotherapists working in this area need to be specialized and qualified to apply physical therapy techniques to work with IMV and NIV. It is observed that the physiotherapist has greater autonomy in handling NIV.[5] Several factors influence the efficiency of the NIV technique, such as the pathology presented by the patient and the chosen treatment, but, notably, the physiotherapist's role improves the prognosis of patients who use the technique.[4,6]

Regarding professional autonomy, the data shows that it is related to the individual expectations of the professionals, and the lack of autonomy usually increases emotional distress and influences the negative consequences suffered in the work environment. On the other hand, having autonomy allows the satisfaction increase, improvement, and commitment to patient care.[7]

Therefore, health professionals need to have professional autonomy to define positive aspects of behavior at work, make decisions to carry out procedures efficiently and ensure the safety of the care provided, thus offering the necessary attention to the health of the population.[8]

Although the importance of professional autonomy is recognized and there are many studies concerning the degree of autonomy of other health professionals, there are few studies and data on the autonomy of the physiotherapist who is also a professional in this area. For this reason, it is necessary to carry out studies that address the professional autonomy of physiotherapists in physiotherapy procedures, to understand the current level and develop strategies for its optimization, leading to standardization in physiotherapeutic techniques that result in the quality of patient care. Thus, the objective of this study was to verify the level of autonomy in ventilatory procedures and to verify the factors associated with autonomy in the indication and weaning of non-invasive ventilatory procedures by physiotherapists working in ICUs in the State of Bahia.

Methodology

This cross-sectional study investigated professional autonomy in non-invasive ventilatory procedures by physiotherapists working in ICUs of public and private hospitals in the State of Bahia between July and November of 2018.

A link developed on the Google Forms platform was sent to access the data, containing a questionnaire, via direct mailing by the Regional Council of Physiotherapy of the 7th Region (CREFITO-7) to all physiotherapists registered with the council. The first question was related to the professional's specialty area; those who did not work in the ICU were sent to thank you page and excluded from the research. This procedure was necessary for viewing the impossibility of sending the link by the council exclusively to physiotherapists working in the ICU. In order to guarantee the confidentiality of personal data, the professional answered the questionnaire, which was sent to the researchers only with the answers. Despite being sent via CREFITO-7, the survey has no relationship with the council, and participation was voluntary.

The questionnaire elaborated by the researchers was about sociodemographic data, academic education and professional training, professional autonomy and contained multiple choice and descriptive questions. For the analysis of autonomy in ventilatory procedures, a dichotomization of this variable was performed. The physiotherapist who declared having autonomy or autonomy according to the protocol in the indication, application, maintenance, and weaning of the procedure was considered as having autonomy for the procedure.

The Research Ethics Committee approved the research of the Health Sciences Institute of the Federal University of Bahia under protocol number: 2.642.961 on May 8, 2018. All clarifications and risks were explained in the Informed Consent Form that was sent with the questionnaire.

Absolute and relative frequencies represented categorical variables. Quantitative variables were described by the mean and standard deviation or median and interquartile range, when appropriate. The chi-squared test was used to compare categorical variables and, when inadequate, Fisher's exact test was used. The student's t-test was used to determine the significant difference between the means of the groups.

After the univariate analysis, the independent variables were included in the logistic model if they presented $p \leq 0.10$, remaining in the model if they remained significant ($p < 0.05$). The manual procedure for insertion and removal of variables was adopted. The significance level adopted was $p < 0.05$. Statistical analyses were performed using Statistical Package for Social Sciences, version 21.0 (SPSS Inc., Chicago, IL, USA).

Results

Among the questionnaires sent, 294 physiotherapists answered it, of which twenty-nine declared not to work in intensive care, resulting in 265 (90.1%) physiotherapists who work in intensive care in the State of Bahia between July and November in 2018. The average age among the participants was 32.4±5.4 years, predominantly female (164/61.9%), working in the state capital (174/65.7%), in a public hospital (181/68.3%), and with an average length of time working in the ICU of 6.6±4.9 years.

Regarding professional autonomy, 94.3% of respondents (250) stated that decision-making about physical therapy procedures in the ICU where they work is the physiotherapist's responsibility. The highest level of autonomy over ventilatory procedures was observed for the application of NIV (259/97.7%), followed by weaning (258/97.4%), indication (257/97%), and maintenance (255/96 .2%) of NIV. The data regarding the comparison between physiotherapists working in ICUs in the State of Bahia with and without autonomy to indicate and wean from non-invasive ventilatory procedures are shown in Table 1. After univariate analysis, the variables' participation in events and number of patients per shift were entered into a logistic regression model and did not remain associated with autonomy for NIV indication. After multivariate analysis, the variables age and time since graduation did not remain associated with autonomy in weaning from NIV.

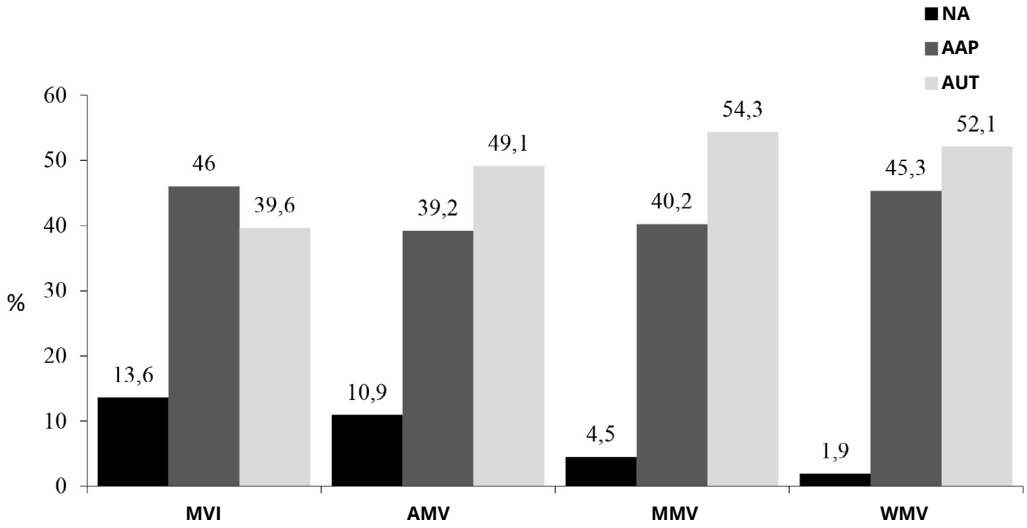
Table 1. Comparison between physiotherapists working in an intensive care unit in the State of Bahia with and without autonomy for the indication and weaning of non-invasive ventilatory procedures between July and November 2018

AUTONOMY IN NIV RECOMMENDATION			
	YES (257/97%)	**NO (8/3%)**	**p**
Female	158 (96,3%)	6 (76%)	0,71*
Age (X±DP)	38,4±5,4	33±4,3	0,70†
Time in the ICU	6,62±5	5,63±3,1	0,40†
Residency	46 (17,9%)	1 (12,5%)	1,0*
Event participation	195 (76,2%)	4 (50%)	0,10**
Reading articles	209 (81,3%)	6 (75%)	0,65**
Article publication	71 (27,8%)	3 (37,5%)	0,11**
Associates (AMIB/ASSOBRAFIR)	60 (23,3%)	0	NA
Undergraduate time (X±DP)	8,75±5,2	8,13±3,0	0,73†
Graduate Strictu Sensu	24 (9,3%)	1 (12,5%)	0,55**
Public Institution	48 (18,7%)	1 (12,5%)	1,0*
Private Institution	209 (81,3%)	7 (87,5%)	
Postgraduate in hospital care	191 (74,3%)	8 (100%)	NA
Patients per shift of 6h (X±DP)	9,27±2,2	11,4±4	0,01†
Weekly working hours (X±DP)	44±16,1	37,8±11,6	0,28†
AUTONOMY IN NIV WEANING			
	YES 258 (97,4%)	**NO 7 (2,6%)**	**p**
Female	6 (85,7%)	158 (61,3%)	0,25*
Age (X±DP)	32,3±5,4	36,3±4,8	0,05†
Time in the ICU (X±DP)	6,52±4,9	9,29±5,2	0,14†
Residency	47 (18,2%)	0	NA
Event participation	195 (75,9%)	4 (37,1%)	0,38**
Reading articles	210 (81,4%)	5 (71,4%)	0,62**
Article publication	73 (28,3%)	1 (14,3%)	0,69**
Associates (AMIB/ASSOBRAFIR)	59 (22,9%)	1 (14,3%)	1,00**
Undergraduate time (X±DP)	8,62±5,2	13±4,12	0,03†
Graduate Strictu Sensu	24 (9,3%)	1 (14,3%)	0,50**
Public Institution	48 (18,6%)	1 (14,3%)	1,0*
Private Institution	210 (81,4%)	6 (85,7%)	
Postgraduate in hospital care	193 (74,8%)	6 (85,7%)	0,68**
Patients per shift of 6h (X±DP)	9,29±2,2	11±5,0	0,40†
Weekly working hours (X±DP)	43,7±16	46,4±15,9	0,66†

ICU – Intensive Care Unit; AMIB - Brazilian Critical Care Association; ASSOBRAFIR - Brazilian Association of Cardiorespiratory Physiotherapy and Physiotherapy in Intensive Care. Results expressed by number (%), mean ± standard deviation. * Fisher's exact test. **Chi-squared test. † Student's t-test.

Regarding invasive ventilatory procedures, the highest autonomy index was related to weaning (258/97.4%), followed by maintenance (241/94.5%), and the lowest autonomy was related to indication (227/85 .6%). Data regarding the autonomy of the physical therapist in relation to the invasive ventilatory procedures performed are described in Figure 1.

Figure 1. Levels of autonomy of physiotherapists working in the ICU in the State of Bahia in relation to invasive ventilatory procedures



NA: No autonomy, AAP: Autonomy according to the protocol, AUT: Autonomy, MVI: Mechanical ventilation indication, AMV: Application of mechanical ventilation, MMV: Maintenance of mechanical ventilation, WMV: Weaning from mechanical ventilation, ICU: intensive care unit.

Discussion

This study analyzed the autonomy in ventilatory procedures, and the factors associated with autonomy related to non-invasive ventilatory procedures of physiotherapists working in ICUs in the State of Bahia. In terms of professional technical autonomy, physiotherapists have been seeking scientific improvement for years.[9,14] Furthermore, according to studies, professional autonomy is strongly linked to the professional's knowledge[7], as more and more professionals are participating in master's and doctoral programs in the country and abroad, creating a new science.[10,15]

Regarding professional autonomy in noninvasive ventilatory procedures by physiotherapists, it reflects the efficient insertion of the professional in this environment[2,11], as well as the effectiveness and benefit of this therapy described in previous studies in the treatment of respiratory diseases that affect hospitalized patients in the intensive care[4,16], in addition to professional autonomy being a preponderant factor in relation to professional performance and satisfaction in the work environment.[7,12]

About the subdivision of the steps of NIV into indication, application, maintenance, and weaning, there was the same level of autonomy among the participants, reflecting that despite being different steps, they are part of the same procedure, conferring the ability of the physiotherapist at all stages of the therapy, despite being a technique that encompasses the medical and nursing fields.[16]

On the other hand, when it comes to invasive ventilatory procedures, regarding their indication, application, maintenance, and weaning, there was a greater number of responses declaring the lack of autonomy, or autonomy according to the protocol, a fact that occurs as it is an invasive procedure, which the physiotherapist is often part of the decision-making process.[17] About autonomy according to the protocol, it believes in procedures established following relevant evidence on the subject, bringing greater security to its execution without interfering with professional autonomy and ensuring the quality of care.

Surveys conducted online have some limitations, the first of which is the difficulty of reaching individuals who do not have access to the internet. However, it is believed that this does not apply to the reality of graduated professionals, with e-mails registered with the professional council. The second one is the possibility of low adherence to the questionnaire. Support was sought from the regional professional council and the awareness of physiotherapists via social networks[13,17] to minimize this effect. Finally, another limitation concerns the lack of data when applying the questionnaires related to the number of physiotherapists working in intensive care in the State of Bahia.

This study was able to show the reality of professional autonomy in ventilatory procedures for physiotherapists working in ICUs in the State of Bahia, providing data to improve the practice, and working conditions of these professionals, aiming to outline strategies and plans for organizing the category and improving the physical therapy assistance to critically ill patients. Furthermore, it points to the importance of the Physiotherapist in this environment, which is also reported outside the Brazilian reality.[18]

Conclusion

The survey data show that most physiotherapists working in the ICU in the State of Bahia claim to have professional autonomy in physiotherapeutic conduct. About the ventilatory procedures, there is an overlap in decision-making related to NIV in relation to invasive ventilation, especially regarding the indication and application and weaning of NIV. Sociodemographic, academic education, and work demand variables were not associated with professional autonomy in relation to noninvasive ventilatory procedures.

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Authors' contributions

Santiago LA and Correia HF conception, design, collection, analysis, and interpretation of data, and manuscript writing. Martinez BP conception, design, data collection, analysis, and interpretation of data. Ferreira MB conception, design, data collection, and interpretation. Silva FMV and Pixitelli, QF interpretation of data and manuscript writing.

Conflicts of interest

No financial, legal, or political conflicts involving third parties (government, corporations, and private foundations, etc.) have been declared for any aspect of the submitted work (including, but not limited to grants and funding, advisory board participation, study design, preparation of the manuscript, statistical analysis, etc.).

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