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EDITORIAL

Physiotherapists in intensive care units: Where are we?

The ever-increasing complexity of critically ill patients requires multidisciplinary teams in the intensive care units (ICU) with a wide range of skills and expertise.[1] Physiotherapy is an integral part of this multidisciplinary approach and has shown to be safe, feasible and effective, contributing to improved outcomes,[2–6] such as reduced respiratory infections, duration of mechanical ventilation, and risk of death by 30%.[7]

For these reasons, current national and international guidelines recommend the presence of a specialised physiotherapist for every five beds, seven days/week, ensuring 24-hour physiotherapy coverage.[8,9] Despite these recommendations, information about the actual role, functions and time allocation of physiotherapists in ICU is limited, particularly in Portuguese ICU. The existing data originates from a single study conducted over two decades ago.[10] This knowledge gap poses challenges in ICU decision-making, professional and guideline development, and may impact patient outcomes.

To grasp the current state of physiotherapy in Portuguese ICU, we conducted a cross-sectional online survey from November 2022 to January 2023, targeting all physiotherapists in adult ICUs across Portugal, covering the mainland, Azores and Madeira. Inclusion criteria involved physiotherapists actively working in an ICU on weekdays or weekends during the prior year, excluding those offering occasional support. Sixty-eight hospitals were contacted (52 public and 16 private), of which 16 (24%) reported not having physiotherapy in the ICU (Fig. 1). Considering the 52 hospitals with physiotherapy in the ICU, the response rate was 85%.

The survey showed that 25% of Portuguese hospitals lack an ICU physiotherapist. Among those with physiotherapists, only 11% work exclusively in the ICU, with the majority (85%) operating on a rotational basis with other services or solely at weekends (Table 1). This scenario not only goes against the recommendations from both national and international guidelines,[1,8,9] but also contrasts with the broader European situation, where 75% of ICUs report having at least one physiotherapist working exclusively.[10]

Contributing to the absence of ICU-exclusive physiotherapists is the fact that, in Portugal and other Mediterranean countries like Greece,[11] physiotherapists working in hospitals often need to attend to patients from various settings, including in and outpatients, explaining the reported heterogeneous training of Portuguese ICU physiotherapists, such as training in women's health (12%) or musculoskeletal (31%).

Exclusive dedication to physiotherapy in Portuguese ICU is, therefore, scarce, but there is also limited physiotherapist presence during weekends and night shifts. Of the participating hospitals, only 23 (52%) consistently had physiotherapy services available on weekends. Despite the clear benefits for patients,[7] families[12] and health systems[13,14] of having continuous physiotherapy ICU coverage 24/7, such as reducing the length of stay, mechanical ventilation support, pulmonary infection and mortality,[7] European rates vary widely. Greece,[11] Germany or Sweden[10] lack overnight coverage, while others, like the United Kingdom, frequently have an overnight presence.[10] The reason behind this range of national practices and the non-adherence to the same European guidelines remains unclear and undoubtedly requires further exploration to create conditions for healthcare institutions to adhere to the guidelines and improve the quality of their care.

In addition to the well-established benefits of ICU physiotherapy, increased awareness about physiotherapists' roles and competencies is also needed to promote their continuous presence in ICU teams. In Portugal, our survey showed that physiotherapy assessments frequently include direct observation, discussion of clinical processes and the application of scales. Interventions include patient re-positioning, mobilisation, exercise, muscle strengthening and airway clearance techniques. These roles align with those reported in national surveys from other European countries.[10,11,15] Moreover, physiotherapists in Portuguese ICU demonstrate a higher level of autonomy for technical aspects, such as tracheal aspiration or discussions with the medical team about extubation, compared to their counterparts in other European countries,[10] making them a valuable asset in providing quality care and contributing to positive patients' outcomes in ICU.[1,14]

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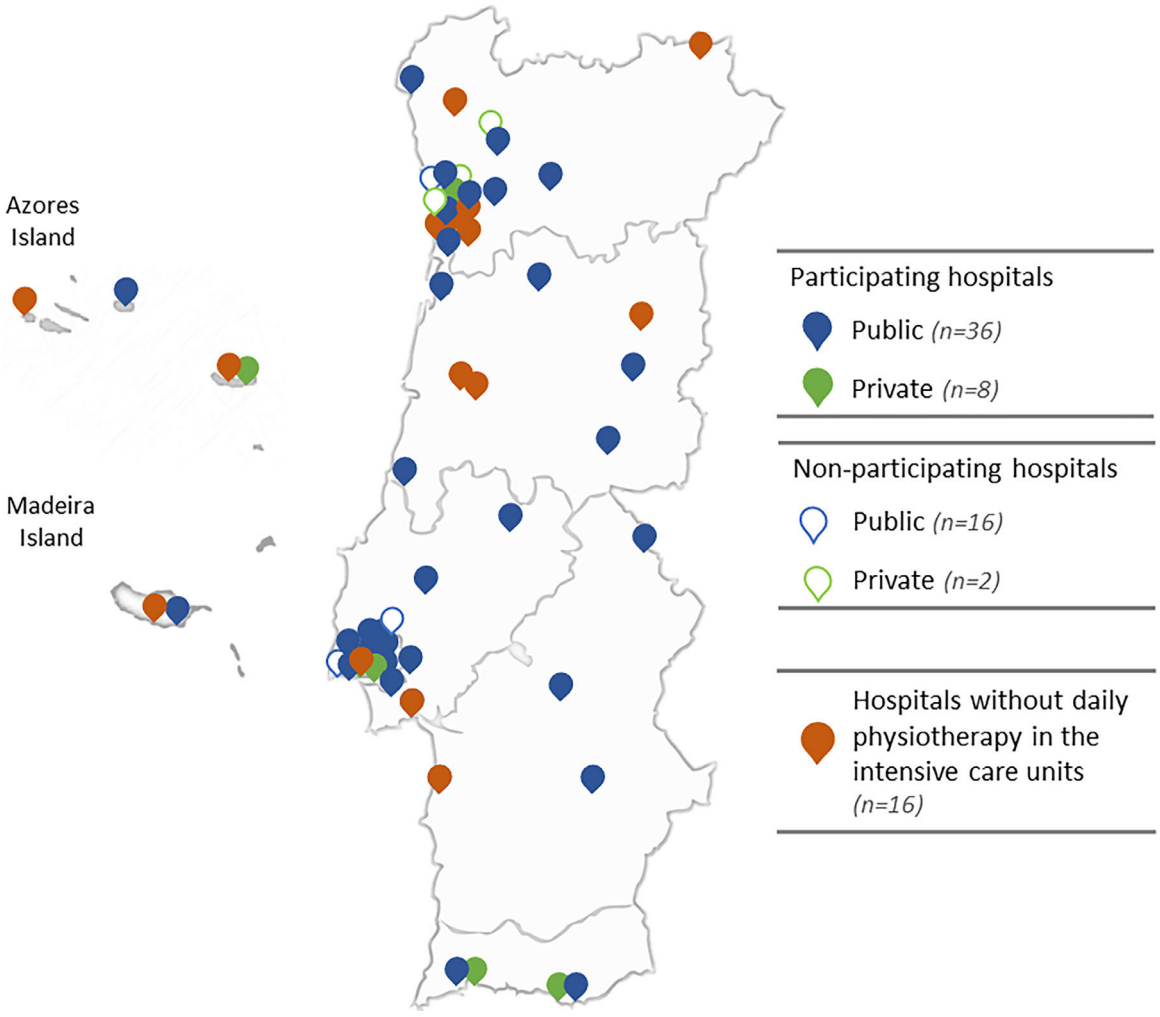

Fig. 1 Distribution of Portuguese hospitals with intensive care units and physiotherapists.

Early mobilisation is a critical role of physiotherapists in ICU teams, providing important benefits for hospitals and patients,[5,16–18] such as decreased length of stay and morbidity.[7,19] Physiotherapists should, therefore, be integrated into interdisciplinary mobility teams, also including physicians, nurses and occupational therapists.[16,20] In Portugal, 50% of these physiotherapists are not integrated into interdisciplinary teams and often lack established multidisciplinary protocols, hindering the implementation of this crucial intervention for patients' rehabilitation. Lack of equipment and training are among the most reported reasons not to implement early mobilisation, as well as other evidence-based assessments/interventions, such as lung and muscle ultrasonography, peak cough expiratory flow measure, maximal inspiratory pressure, electronic cycle ergometer and inspiratory muscle training, both in Portugal (data from our survey) and in various countries around the world, including Zimbabwe,[21] Sri Lanka[22] and Canada.[23]

Despite facing numerous challenges, physiotherapists in Portugal are a motivated yet scarce workforce. Efforts to enhance physiotherapy practice in Portuguese ICU should focus on ensuring the presence of physiotherapists in ICU 7-days/week, creating and implementing early mobilisation teams, increasing the availability of recommended equipment, and increasing collaborations with universities to expand physiotherapists' training and specialisation. International action to update the status of physiotherapy in ICU worldwide is much-needed to inform and foster physiotherapy professional development and enhance the overall quality of ICU care.

Less-explored areas that would also be interesting to investigate include unpaid/family carers support and involvement, delirium prevention and control approaches, interdisciplinary meetings, virtual reality, post-discharge follow-up, or ICU protocols.

Before we wrap up this editorial, we would like to share with the readers two emerging areas in critical patient rehabilitation: family involvement and virtual reality. Studies have indicated that involving families in physiotherapy-related tasks for critically ill patients can enhance the recovery experience.[24] Is it time to start reconnecting patients with families early, and adapt our physiotherapy approach accordingly? Simultaneously, innovative studies using virtual reality have demonstrated that a combined rehabilitation strategy can offer advantages in maximising functional recovery and mitigating disability.[25] How will intensive care physiotherapists respond to these advancements? We invite all of those dedicated to advancing

Table 1 Characteristics of physiotherapists working in Portuguese intensive care units (n=181) and of those working in intensive care units of public (n=129) and private (n=16) hospitals.

	Total (n=181)	Public hospitals (n=129)	Private hospitals(n=16)	p-value
Age, years	39.3±8.8	39.5±8.1	37.5±12.1	0.213Ψ
Sex				0.927£
Female	138[(a)] (76.2%)	96 (74.4%)	11 (73.3%)	
Male	42[(a)] (23.2%)	33 (25.6%)	4 (26.7%)	
Academic and professional training				
Undergraduate only	75[(a)] (41%)	47 (36.4%)	8 (50%)	0.409£
Post graduate specialisation	59[(a)] (33%)	44 (34.1%)	4 (25%)	0.409£
Master's degree	42[(a)] (23%)	34(26.4%)	4 (25%)	0.409£
Other specific training	114[(a)] (63%)	83 (64.3%)	10 (62.5%)	0.885£
Years of experience *nTS=146; nPH=129; nPrH=15*				
Physiotherapist without working in ICU	15 [9-24]	16 [10-23]	11 [4-27]	0.253Ψ
Physiotherapist in ICU	6 [2-14]	7 [2-14]	4 [2-15]	0.491Ψ
ICU exclusivity *nTS=144; nPH=124; nPrH=16*				0.109£
Rotating with another service	67[(a)] (46.5%)	53 (42.7%)	12 (75%)	
Only at weekends	56[(a)] (38.9%)	52 (41.9%)	3 (18.8%)	
Exclusive work in ICU	16 (11.1%)	15 (12.1%)	1 (6.3%)	
Dedicated time to the ICU, hours/per month *nTS=119; nPH=104; nPrH=15*	36.8±36.9	35.7±38	36±27.8	0.377 Ψ
Head of service *nTS=149; nPH=129; nPrH=16*				**<0.001£**
Physiotherapist	52 (34.9%)	41 (31.8%)	11 (68.8%)	
Physician	94[(a)] (51.9%)	88 (68.2%)	4 (25%)	
Physiotherapy at weekends *nTS=145; nPH=125; nPrH=16*				0.450£
Always	90[(a)] (62.1%)	77 (61.6%)	10 (62.5%)	
Exceptionally	33[(a)] (22.8%)	27 (21.6%)	5 (31.3%)	
Never	22 (15.2%)	21 (16.8%)	1 (6.3%)	
No physiotherapy at night *nTS=145; nPH=125; nPrH=16*	143[(a)] (98.6%)	123 (98.4%)	16 (100%)	0.610£
Orientation program for new physiotherapists *nTS=145; nPH=125; nPrH=16*	73[(a)] (49.7%)	68 (54.4%)	4 (25%)	**0.027£**
Early mobilisation team *nTS=144; nPH=124; nPrH=16*	71[(a)] (49.3%)	62 (50%)	7 (43.8%)	0.638£

Legend: Continuous variables are presented as mean ± standard deviation or median [first quartile - third quartile] according to their distribution. Categorical variables were expressed as absolute frequency (%). Number of responses used in the analysis was indicated in front of the corresponding variable when complete cases were not available.
PH: Public Hospital; **PrH:** Private Hospital; $\mathbf{n_{TS}}$= number of responses used from the total sample; $\mathbf{n_{PH}}$= number of responses used from public hospitals; $\mathbf{n_{PrH}}$= number of responses used from private hospitals; for comparisons between groups, a Chi-squared test (£) or U-Mann-Whitney test (Ψ) were used where appropriate.
[(a)] not all answers reported the type of hospital. Statistically significant differences are in bold.

physiotherapy in ICU to embrace this exciting new era ahead of us, full of clinical and research opportunities, aimed at ultimately enhancing the well-being and quality of life of patients and families.

Ethics approval and consent to participate

The study was approved by two Ethics Committees (UA 41-CED/2022 06/07/2022; HFF 63/2022 19/08/2022). Informed consents were obtained from all participants before any data collection.

Consent for publication

Not applicable.

Availability of data and material

Detailed description of the methodology and results of the study may be provided upon request.

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Authors contribution

FR, AM, AO and AFM conceived and designed the work. AM, AO and AFM contributed to and verified the analytical

methods. GN contributed to the survey conception. FR, VA and MG contributed to the survey's dissemination. FR performed data collection, data analysis and drafted the manuscript. AM and AO supervised the findings of this work. All authors critically revised the manuscript, ensured the accuracy and integrity of the work, approved the final version to be published, and agreed to be accountable for all aspects of the work.

Conflicts of interest

The authors declare that they have no competing interests.

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