PHYSICAL ACTIVITY IN NURSING CURRICULA: A MULTICENTER CROSS-SECTIONAL STUDY

Currículos de enfermagem na área da atividade física: estudo transversal multicêntrico

Actividad física en los planes de estudio de enfermería: un estudio transversal multicéntrico

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ABSTRACT

Background: regular physical activity is essential for health promotion, disease prevention, and individual rehabilitation. As health professionals involved in combating physical inactivity, nurses benefit from academic curricula enriched with content on physical activity and exercise in order to enhance the population's physical literacy. **Objective:** to map course units and programmatic content related to physical activity and exercise in nursing curricula in Portugal. **Methodology:** a multicentre cross-sectional study with a convenience sample of 15 schools (8 public; 7 private), analyzing 2023–2024 study plans and extracting data using peer-validated grids. **Results:** no course units exclusively dedicated to physical activity or exercise were identified, except for elective modules offered in master's programmes in Rehabilitation Nursing (n = 4; 14.8%). A scattered integration of these topics was observed throughout the study cycles, with greater emphasis in the second cycle compared to the first (52.5%). **Conclusion:** these findings highlight the need to update curricula (mandatory modules on physical activity and exercise), strengthen pedagogical development for faculty, and promote research and continuing education to improve the assessment, counselling, and effective prescription of physical activity in healthcare practice.

Keywords: physical activity; health promotion; nursing students; curriculum

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RESUMO

Enquadramento: a prática de atividade física regular é determinante para a promoção da saúde, prevenção de doenças e para a reabilitação da pessoa. Enquanto agentes da saúde no combate à inatividade física, os enfermeiros beneficiam de currículos académicos enriquecidos sobre a atividade física e o exercício físico para promover a literacia física da população. **Objetivo:** mapear unidades curriculares e conteúdos programáticos relacionados com atividade física e exercício físico nos currículos de enfermagem em Portugal. **Metodologia:** estudo transversal multicêntrico, amostra de conveniência de 15 escolas (8 públicas; 7 privadas), analisando planos de estudo de 2023–2024 e extraindo dados com grelhas validadas por pares. **Resultados:** ausência de unidades curriculares exclusivamente dedicadas à atividade física e ao exercício físico, com exceção de opções oferecidas em cursos de mestrado em Enfermagem de Reabilitação (n = 4; 14,8%). Observou-se integração dispersa destes conteúdos ao longo dos ciclos, com predominância no segundo ciclo face ao primeiro (52,5%). **Conclusão:** estes resultados apontam para atualização dos currículos (módulos obrigatórios de atividade física e exercício físico), reforçar o desenvolvimento pedagógico dos docentes e promover investigação e formação contínua para melhorar a avaliação, o aconselhamento e a prescrição eficaz de atividade física na prática dos cuidados de saúde.

Palavras-chave: atividade física; promoção de saúde; estudantes de enfermagem; currículo

RESUMEN

Marco contextual: la práctica regular de actividad física es determinante para la promoción de la salud, la prevención de enfermedades y la rehabilitación de las personas. Como profesionales de la salud en la lucha contra la inactividad física, los enfermeros se benefician de planes de estudio enriquecidos con contenidos sobre actividad física y ejercicio para promover la alfabetización física de la población. **Objetivo:** mapear las asignaturas y los contenidos programáticos relacionados con la actividad física y el ejercicio en los planes de estudio de enfermería en Portugal. **Metodología:** estudio transversal multicéntrico con una muestra por conveniencia de 15 escuelas (8 públicas; 7 privadas), analizando los planes de estudio de 2023–2024 y extrayendo los datos mediante rejillas validadas por pares. **Resultados:** se observó la ausencia de asignaturas dedicadas exclusivamente a la actividad física y al ejercicio, con excepción de las optativas ofrecidas en los másteres en Enfermería de Rehabilitación (n = 4; 14,8%). Se identificó una integración dispersa de estos contenidos a lo largo de los ciclos formativos, con predominio en el segundo ciclo frente al primero (52,5%). **Conclusión:** estos resultados señalan la necesidad de actualizar los planes de estudio (módulos obligatorios sobre actividad física y ejercicio), reforzar el desarrollo pedagógico del profesorado y promover la investigación y la formación continua para mejorar la evaluación, el asesoramiento y la prescripción eficaz de actividad física en la práctica asistencial.

Palabras clave: actividad física; promoción de la salud; estudiantes de enfermería; curriculum

INTRODUCTION

Physical inactivity (PI) and a sedentary lifestyle are considered important risk factors for the development of chronic noncommunicable diseases (NCD), such as cancer, diabetes, and cardiovascular disease, as well as mental health problems (Anderson & Durstine, 2019). In contrast, regular physical activity (PA) and physical exercise (PE) significantly reduce all-cause mortality and promote cognitive and functional benefits (World Health Organization [WHO], 2020).

Despite the evidence, adherence to PA/PE remains low in Portugal (European Commission [EU], 2022), both globally and among nursing students and professionals, where PA levels are also insufficient (Nunes et al., 2022). The literature points to several barriers that may contribute to this situation, such as training deficits, perceived lack of knowledge, low levels of motivation and confidence, and the absence of systematic strategies (Avsar et al., 2025), while physical literacy (PL) emerges as a potential catalyst in the adoption of active lifestyles (Carolo et al., 2023).

International studies highlight curricular gaps in integrating PA/PE content into nursing courses, despite some structured initiatives that have shown a positive impact on professional training (de Lira et al., 2021). However, the national reality remains largely unexplored.

Despite international evidence, it remains unclear to what extent nursing courses in Portugal systematically integrate PA/PE content into their curricula and the strategic position nurses should adopt in this field. Given the relevance of adequate training to address the challenges of sedentary lifestyles and promote active lifestyles, it is imperative to investigate the national reality.

Thus, this study aims to map the programs contents (PC) related to PA/PE included in the curricula units (CU) of nursing courses in Portugal, characterizing their typology, workload, responsible teachers, and differences between public and private institutions. This analysis will identify any training gaps and promote essential skills in nursing practice, with a direct impact on citizens' quality of life and the sustainability of the health system.

BACKGROUND

Sedentary lifestyles and physical inactivity (PI) are among the four major risk factors for global mortality and are important negative determinants of public health. They are estimated to contribute to about 6% of all deaths, 21-25% of breast and colon cancer cases, 27% of diabetes cases, and 30% of ischemic heart disease cases (Anderson & Durstine, 2019). In addition to their impact on physical health, these factors also affect mental health, as they are related to symptoms of depression, anxiety, and cognitive decline (WHO, 2020, 2021).

On the other hand, associated with numerous and consistent health gains such as a reduction of up to 30% in all-cause mortality, improved cognitive function and cardiovascular health in older adults (Chen et al., 2025), and even a protective effect against Alzheimer's Disease (López-Ortiz et al., 2023) are regular PA and PE. A recent review highlights its benefits for mental health, well-being, self-esteem, self-efficacy, resilience, and social support and connection (White et al., 2024).

Despite the strength of the scientific evidence, global adherence to PA/PE remains low. In Portugal, 73% of the population reports never exercising, 5% rarely

participate in physical activities, and only 22% exercises regularly (EU, 2022). This pattern extends to nursing students. These future professionals, who have fundamental responsibilities in promoting health throughout the life Cycle, have PA levels that fall short of national and international recommendations (Couto et al., 2024; Nunes et al., 2022). This risk behavior is associated with a sedentary lifestyle, tobacco and alcohol consumption, and unbalanced diets, often exacerbated by academic and clinical stress (Hwang & Oh, 2020; Nunes et al., 2022; Walsh et al., 2021).

Nursing, due to its proximity to the population in different contexts, namely hospitals, communities, and homes, is recognized as a strategic profession in promoting active lifestyles (Richards & Cai, 2016). The World Health Organization (WHO, 2020, 2021) identifies nurses as priority agents in combating sedentary lifestyles/physical inactivity, granting them specific intervention skills, namely those regulated by the International Classification for Nursing Practice (ICNP) (Ordem dos Enfermeiros [OE], 2016).

To perform this role effectively, nurses need solid training in exercise physiology, physical condition assessment, and personalized PA prescription (de Lira et al., 2021). The development of this skill requires educational opportunities that increase knowledge, motivation, and confidence in this area of intervention (Direção-Geral da Saúde [DGS], 2022; Milton et al., 2020).

However, the literature identifies several barriers that compromise this performance, namely, a lack of specific training, perceived knowledge gaps, sedentary behaviors among professionals, and a lack of systematic strategies in clinical contexts (Calonge-Pascual et al., 2022; Hell-Cromwijk et al., 2021). Physical literacy (PL) emerges as a key concept to reverse this situation. Although there is still little consensus, the concept encompasses the integration of motivation, confidence, competence, knowledge, and understanding necessary to maintain a physically active life (Carolo et al., 2023). In this sense, LF can be an essential catalyst in citizens' response to public health recommendations and in reducing NCD prevalence (Young et al., 2020).

Internationally, the inclusion of PA/PE related curriculum content in nursing courses is scarce and often insufficient. In Spain, Brazil, and the United Kingdom, this gap compromises the comprehensive training of future nurses (Calonge-Pascual et al., 2022; de Lira et al., 2021; Netherway et al., 2021). However, examples of the implementation of innovative models, such as the German PAHCO program (Carl et al., 2024) and practical teaching strategies, are effective in improving nurses' knowledge, competence, and confidence in promoting PA (Freene et al., 2022; Patel et al., 2024).

Thus, physical inactivity and sedentary lifestyles constitute a persistent and significant public health problem that requires evidence-based educational and policy interventions. Nurses, as part of multidisciplinary teams, play a central role in promoting PA/PE and preventing NCD, contributing to a better quality of life throughout the life cycle (DGS, 2022; Milton et al., 2020; WHO, 2021). It is therefore urgent to invest in promoting PL, particularly at the academic curriculum level.

METHODOLOGY

To achieve the defined objectives, as part of a broader project, a multicenter cross-sectional study (Coutinho, 2024) was conducted in two phases. The first phase consisted of selecting schools (public and private) to provide data on PC content related to PA/PE included in the curricula units (CU) of the various study plans for the 1st and 2nd Cycles in the nursing area. The second phase involved the analysis and recording of information on PA/PE contained in the CU programs of the 1st- and 2nd-Cycle nursing training study plans for the year 2023-2024, obtained from schools, as well as the analysis of institutional websites.

The initial convenience sample consisted of 19 nursing schools (12 public and 7 private) that offer 1st- and 2nd-Cycle studies, distributed across different regions of Portugal. The selection criteria used considered: (i) being Portuguese nursing schools offering both Cycles of study; (ii) authorization from the school management to conduct the study; (iii) voluntary participation in the study.

Tables developed by the project researchers and validated by two independent nursing research experts were used as data-collection tools. The tables, specific to the 1st and 2nd Cycles of studies, included the following components: school characteristics (public/private, region, number of students), course identification (1st and/or 2nd Cycle of studies); CU (name of CU with PA/PE content); academic year (e.g., 1st, 2nd...); type of content (e.g., assessment, prescription, monitoring, PA/PE promotion, others...); type of classes and number of hours (e.g., compulsory/optional theoretical, theoretical-practical, other types...); participating teachers, without identification; other relevant and/or complementary information.

Data collection took place between January and May 2024, beginning with a request for authorization from school administrators, accompanied by a presentation of the project, objectives, instruments, and deadlines. A reference teacher was responsible for providing the data in most of the participating schools. In the absence of information from some institutions, the researchers analyzed the course programs available in the online institutional study plans.

In advance, two researchers mapped, coded, and validated the quantitative and qualitative data. Descriptive statistical analysis of measures of central tendency (frequencies and percentages) was performed using SPSS® software (IBM SPSS Statistics for Windows, Version 27.0®).

The Presidents/Directors of participating schools granted prior authorization to conduct the study, and the Ethics Committee of the Health Sciences Research Unit-Nursing issued a positive opinion (Opinion N.º 965_09_2023).

RESULTS

Most of the participating schools are public (n = 8; 53.3%), of which 3 are Autonomous, 3 University-Integrated, and 2 Polytechnic Institute-integrated. Of the 7 private schools (46.6%), 5 are autonomous/non-integrated, and 2 are Universities-integrated.

Most schools are in the northern (n = 7; 46.6%) and southern (n = 5; 33.3%) regions (Table 1).

Table 1

Distribution of participating schools

SCHOOLS / REGION	Region				Totals
	North	Center	South	Islands	
PUBLIC					
Autonomous	1	1	1	---	**3**
University-integrated	1	---	1	1	**3**
Polytechnic Institutes Integrated	2	---	---	---	**2**
Subtotals	4	1	2	1	**8 (53,3%)**
PRIVATE					
Autonomous/non-integrated	3	---	1	1	**5**
University-integrated	---	---	2	---	**2**
Subtotals	3	---	3	1	**7 (46,7%)**
Totals	**7**	**1**	**5**	**2**	**15 (100%)**

Data obtained in phase 1 of the study came from reference teachers at 15 schools (8 public and 7 private). In phase 2, curriculum plans available on the institutions' websites and/or in the *Diário da República* (Official Gazette), *Series 2,* supplemented the collected data from the selected schools. However, the sources consulted did not allow access to any relevant information in 4 public schools.

After analyzing the recorded data (Table 2), no CU with an explicit PA/PE designation in the study plans were found, apart from 2 optional CU at public schools: Master's Rehabilitation Nursing (RN) in different proportions in the two study Cycles, although with a higher proportion in the 2nd Cycle (n = 31; 65.9%).

In the first Cycle of studies, 29 CU from the Nursing Degree Course (NNC) were identified with the inclusion of PC related to PA/PE, 12 CU (41.4%) from 8 public schools, with 16 PC related to PA/PE (34.1%), and 17 CU (58.6%) from 7 private schools, with 31 PC related to PA/PE (65.9%). In the second Cycle of studies, there are 30 CU in 6 different courses, including 52 PC related to PA/PE, 18 CU (60.0%) from 8 public schools, with 32 PC related to PA/PE (61.5%), and 12 CU (40.0%) from 7 private schools, with 20 PC related to PA/PE (38.5%).

We found that the total number of CU and PC is similar in both Cycles. In the 1st Cycle, private schools have more CU and more PC related to PA/PE. In the 2nd Cycle, public schools have more CU and more PC than private schools.

The most frequent types of classes in both Cycles of public and private education were compulsory classes, theoretical-practical classes, laboratory practices, and simulated practices, administered by coordinating teachers and assistants from different scientific areas. The record of hours per CU/PC was scarce and irrelevant.

Table 2

Characterization of CU and PC related to AF/EF

Schools	Cycle	Course	Schools	CU (Nr. / %)	PC (Nr. / %)	Class Type/hours	Teachers
15	1st	1 course [1]	Public (8)	12 (41,4%)	16 (34,1%)	Mandatory theoretical-practical, laboratory practical, and simulated practical	Assistant Prof. and Coordinating Prof. [3] Scientific Area: Nursing
			Private (7)	17 (58,6%)	31 (65,9%)		
			Subtotal	***29 (49,2%)***	***47 (47,5%)***		
15	2nd	6 courses [2]	Public (8)	18 (60,0%)	32 (61,5%)	Mandatory theoretical-practical, laboratory practical, and simulated practical	Assistant Prof. and Coordinating Prof. [3] Scientific Area: Nursing
			Private (7)	12 (40,0%)	20 (38,5%)		
			Subtotal	***30 (50,8%)***	***52 (52,5%)***		
TOTALS				**59 (37,3%)**	**99 (62,7%)**		

[1] Nursing Bachelor's

[2] Master's Degree in Maternal and Obstetric Health Nursing at four schools (public); Master's Degree in Rehabilitation Nursing at 13 schools (seven public and six private); Master's Degree in Child and Pediatric Health Nursing at four schools (three private and one public); Master's Degree in Medical-Surgical Nursing – Critical Care in 1 school (private); Master's Degree in Community and Public Health Nursing in 2 schools (1 private and 1 public); Master's Degree in Mental Health and Psychiatric Nursing in 1 school (private).

[3] In one of the private universities, there is a reference to an Assistant professor (n = 1) and an Associate professor (n = 2).

Table 3 shows that in the 1st Cycle, public education, the CU with the highest frequency of PC related to PA/PE are "Community and Family Nursing" (n = 3; 18.9%), and "Sexual and Reproductive Health Nursing" and "Adult and Elderly Nursing" both with the same frequency (n = 2; 12.6%). In private education, the CU with the highest frequency of PC related to AF/EF are "Nursing Care in a Family and Community Context" (n = 6; 30.6%), "Nursing and Life Processes" (n = 5; 25.5%), and "Nursing and Human Illness "(n = 3 15.3%).

Table 3

Frequency of PA/PE program content by CU in the 1st cycle of studies

School	CU with PA/PE Program Content	Frequency PC – PA/PE		
		n	%	Totals
Public	Community and Family Nursing	3	18,9	**16**
	Sexual and Reproductive Health Nursing	2	12,6	
	Adult and Elderly Nursing	2	12,6	
	Rehabilitation Nursing	1	6,3	
	Health Education	1	6,3	
	Nutrition and Dietetics	1	6,3	
	Sports Nursing	1	6,3	
	Health Promotion in Nursing	1	6,3	
	Complementary Therapies	1	6,3	
	Body Responses to Disease II	1	6,3	
	Human Anatomy and Physiology I	1	6,3	
	Epidemiology and Biostatistics	1	6,3	
Private	Nursing Care in Family and Community Contexts	6	30,6	**31**
	Nursing and Life Processes	5	25,5	
	Nursing and Human Illness	3	15,3	
	Child and Pediatric Health Nursing	2	10,2	
	Fundamentals of Nursing	2	10,2	

	Adult Health Nursing	2	10,2	
	Promotion of Self-Care in the Elderly	1	5,1	
	Nursing Sciences	1	5,1	
	Anatomy and Physiology	1	5,1	
	Complementary Therapies	1	5,1	
	Nursing Care for Women	1	5,1	
	Women and Children Pathology	1	5,1	
	Nursing and Corporeality	1	5,1	
	Epistemology of Nursing	1	5,1	
	Nursing and Health	1	5,1	
	Nursing - Methods and Techniques Nursing	1	5,1	
	Nursing for the Elderly	1	5,1	
	Totals			**47**

Table 4 shows that in the 2nd Cycle, public education, the CU with the highest frequency of PA/PE PC are "Rehabilitation Nursing I and II" (n = 4; 14.8%), and "Rehabilitation Nursing and People with Cardiorespiratory Disorders," "Human Kinesiology," and "Maternal Obstetric Health Nursing I," all three with the same frequency (n = 3; 11.1%). In private education, the CU with the highest frequency of PC related to AF/EF are "Human Kinesiology," "Child and Pediatric Health Nursing," and "Anatomical-Pathophysiological Processes," each with a frequency of 3 (15.0%).

Table 4

Frequency of existence of PC for AF/EF by CU in the 2nd cycle of studies

School	**Curriculum Units (CU)**	**Frequency PC – PA/PE**		
		n	**%**	**Totals**
Public	Rehabilitation Nursing I and II	4	14,8	**32**
	Rehabilitation Nursing and People with Cardiorespiratory Disorders	3	11,1	
	Human Kinesiology	3	11,1	
	Maternal and Obstetric Health Nursing I	3	11,1	
	Rehabilitation of People with Musculoskeletal Disorders	2	7,4	
	Child and Pediatric Health Nursing I	2	7,4	
	Functional Anatomy and Human Activity	2	7,4	
	Gynecological and Menopausal Nursing	2	7,4	
	Sports Rehabilitation Nursing	2	7,4	
	Physical Activity and Health	1	3,7	
	Clinical Practice. Neurological/Neurotraumatological Process	1	3,7	
	Birth and Parenting Education	1	3,7	
	Preparation for Childbirth	1	3,7	
	Women's Nursing	1	3,7	
	Physical Activity and Human Development	1	3,7	
	Family Health Promotion and Surveillance	1	3,7	
	Primary Health Care: Promotion of Literacy and Self-Care	1	3,7	
	Environmental, Social, and Family Responses to People with Disabilities	1	3,7	
	Human Kinesiology	3	15,0	**20**
	Child and Pediatric Health Nursing	3	15,0	
	Anatomical-Pathophysiological Processes (Cardiorespiratory and Musculoskeletal Rehabilitation)	3	15,0	
	Maternal and Obstetric Health Nursing	2	10,0	

Private	Rehabilitation Nursing	2	10,0	
	Functionality and Disability	1	5,0	
	Nursing in Sports Practice	1	5,0	
	Care Processes Rehabilitation Nursing	1	5,0	
	Community Nursing II	1	5,0	
	Medical-Surgical Nursing	1	5,0	
	Optional I – Diabetes in Children and Adolescents	1	5,0	
	Mental Health and Psychiatric Nursing	1	5,0	
	Totals			**52**

In the first Cycle, most PC, including PA/PE, are in the second year. Most PC records concern "Promotion of PA/PE," both in public schools (n = 8; 30.9%) and private schools (n = 17; 41.5%). In public schools, these are followed by PC "Mobility and walking" (n = 2; 7.9%) and "General Concepts on PA/PE" (n = 2; 7.9%), and in private schools, "PE assessment and prescription" (n = 5; 12.2%). The remaining PC recorded in both types of schools are quite diverse.

In the 2nd Cycle, PC with PA/PE contents occurs in the 1st year. In public schools, most also concern the CU "Promotion of PA/PE" (n = 2; 21.4%), followed by "Health lifestyles during pregnancy and postpartum" (n = 8; 14.2%), and "Mobility and Locomotion throughout life" (n = 5; 8.9%). In private schools, the PC with the highest reference are "Prescription and monitoring of PA/PE" (n = 9; 21.9%), followed by "Promotion of PA/PE" (n = 8; 19.5%), "Exercise training in vulnerable populations" (n = 5; 13.2%), and "National Health Plan (National Programs)" (n = 5; 13.9%), with the remaining PC being quite diverse and representing a less significant percentage.

The type of classes and the number of PC hours related to PA/PE mentioned are very diverse. Overall, the most frequently mentioned classes are "compulsory" in both study Cycles, with references to theoretical-practical, laboratory, and simulated practices.

Concerning the teachers involved in these PC, in both Cycles of education, they are clearly internal, Assistant, and Coordinating teachers, the majority from the area of Rehabilitation Nursing (13 schools, 7 public and 6 private), followed by the area of Maternal and Obstetric Health Nursing (4 public schools), Child and Pediatric Health Nursing (4 schools, 3 private and 1 public), Community and Public Health Nursing (2 schools, 1 public and 1 private).

DISCUSSION

NCDs result from complex interactions among behavioral and environmental factors, with physical inactivity (PI) among the main risk determinants (WHO, 2020, 2021). In Portugal, the prevalence of PA remains high, with a significant proportion of the population failing to meet the World Health Organization's minimum recommendations for PA and PE (EU, 2022). This reality has significant repercussions on physical and mental health and translates into high costs for the health system.

Despite recent initiatives, mitigating this situation requires a more systematic approach and the mobilization of health professionals, particularly nurses, given their privileged proximity to citizens (DGS, 2022; Richards & Cai, 2016; WHO, 2020, 2021).

The literature highlights weaknesses in the training of nurses in PA/PE, with limited integration of PC into

curriculum, both in Portugal and internationally (Calonge-Pascual et al., 2022; de Lira et al., 2021; Milton et al., 2020). The lack of previous national studies justified the present study, which aimed to characterize the inclusion of PA/PE PC in nursing courses in the 1st and 2nd Cycles of study.

Fifteen schools (38.46% of the national total) participated, representing public and private institutions from different regions and institutional settings, according to information obtained from the website of the Directorate-General for Higher Education (at https://www.dges.gov.pt/guias/indcurso.asp?letra=E), seeking to access sources that would allow to gather information on a set of variables, there by achieving the initially proposed objectives, and forming a relevant convenience sample.

The results showed a general absence of CU with explicit designation of PA/EF, with only two optional CU for a Master's in Rehabilitation Nursing (RN). This data is particularly significant, considering that the concepts of AF and EF are referred to in theoretical nursing models (Orem, 1995; Roper et al., 2001) and in the International Classification for Nursing Practice (ICNP) (OE, 2016), in addition to various regulations and professional codes that grant nurses legal powers to intervene in this field (Regulamento N.º 140/2019; Regulamento N.º 392/2019; Sousa, 2019).

The results obtained are in line with international evidence, which points to similar curriculum gaps in Spain, Brazil, and the United Kingdom, limiting the ability of future professionals to prescribe and promote PA/PE effectively (Calonge-Pascual et al., 2022; de Lira et al., 2021; Netherway et al., 2021). PA/PE PC integration was found in similar proportions between the two study Cycles, with a slight predominance in the 2nd Cycle, justified by the specific skills acquired in advanced training (Regulamento N.º 140/2019).

In the 1st Cycle, the PC identified were mainly concentrated in Community and Family Nursing CU, consistent with the skills described in Regulamento N.º 428/2018, which emphasizes health promotion and the implementation of programs aligned with the National Plan for the Promotion of Physical Activity (DGS, 2022). In the second Cycle, the most significant presence of PC occurred in the CU in the scientific area of Rehabilitation Nursing, such as Rehabilitation Nursing I and II, Human Kinesiology, and Nursing for People with Cardiorespiratory/Musculoskeletal Disorders, in accordance with competencies J2.1.2 and J3. 1.3 of Regulamento N.º 392/2019 and can be considered the scientific area that brings together the most competencies for the assessment, prescription, and monitoring of PA/PE (Novo et al., 2025).

Other CU, such as Maternal and Obstetric Health Nursing I and Child and Pediatric Health Nursing, implicitly include components of PA/PE promotion, supported by regulated competencies (Regulamento N.º 391/2019; Regulamento N.º 422/2018). Among the most frequent PC are "PA/PE Promotion," "PA/PE Prescription and Monitoring," and "Exercise Training in Vulnerable Populations," reflecting the relevance of this training to clinical practice.

Most of the teachers involved in teaching these PC belong to the field of Rehabilitation Nursing (Regulamento N.º 392/2019), reinforcing the centrality of this specialty in technical and scientific training in PA/PE (Novo et al., 2025). Specialist nurses and RN master's graduates have essential skills for this field, but the DGS (2022) requires nurses to train in

integrating PA/PE promotion into care via assessment, brief counseling, and systematic clinical documentation.

The integration of PA/PE PC into nursing education at different academic levels, particularly in terms of assessment, brief counseling, prescription, and monitoring of PA/PE, but also in physical literacy training (Carolo et al., 2023), is an effective strategy for strengthening the confidence and competence of students and nurses in promoting PA (DGS, 2022; Freene et al., 2022; Patel et al., 2024), contributing to the adoption of healthy lifestyles, and acting as a facilitator of patient adherence to recommendations related to PA practice, promoting greater effectiveness in its recommendation and monitoring (Richards & Cai, 2016).

CONCLUSION

This study enabled the characterization of the integration of CU and PC related to PA/PE in nursing curriculum across 15 higher education institutions in Portugal. The results show a general shortage of CU specifically dedicated to PA/PE, with occasional exceptions in PA and RE promotion.

These gaps in training may compromise the preparation of future nurses, limiting the development of robust skills for the assessment, prescription, and monitoring of PA/PE, as well as for the implementation of effective clinical interventions. To address these weaknesses, a suggestion is to strengthen academic curriculum, specifically by adding a mandatory PA/PE module with a set number of hours and training components, investing in teachers' pedagogical training, promoting continuing education programs for practicing professionals, and encouraging research focused on this topic.

The limitations of the study, including the sampling method, difficulties in collecting data for some variables, and terminological heterogeneity across curriculum units, limit the generalizability of the results. However, the evidence indicates that nurses pay attention to and have strategic relevance in promoting PA/PE. Further research, using complementary methodologies, particularly experimental ones, will confirm and deepen the evidence now presented.

Given their proximity to the population and their integration into multidisciplinary teams, nurses are in a privileged position to contribute decisively to preventing physical inactivity, mitigating the risk of NCDs, and improving the population's quality of life.

CONFLICT OF INTEREST

No personal, commercial, academic, political, or financial conflict of interest could interfere with the impartiality of the article.

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