



# Entry-level physical therapist curricula in geriatric care: an Italian national survey study

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#### ABSTRACT

Introduction: To address the health needs of the aging population, it is necessary to map entry-level curricula for health professionals. This survey investigated geriatric-related content in entry-level physical therapist (PT) curricula offered by Italian universities.

Methods: A cross-sectional observational study was conducted using the CROSS checklist. A 66 questions survey was developed and sent via e-mail to all entry-level PT program directors of the Italian universities.

Results: A total of 34 physical therapist undergraduate course directors out of 62 completed the survey, yielding a 54.8% response rate. These results highlight the need for greater emphasis on health promotion and prevention. Although essential competencies such as the promotion of an active lifestyle and fall prevention appear to be well covered, other aspects remain underrepresented. Relevant gaps were also noted in the care and rehabilitation of some common chronic conditions (e.g., constipation, depression, and diabetes), as well as in therapeutic education. Greater attention to these topics could help align training with the emerging needs of the healthcare system. However, 11.76% of Italian PT programs do not include specific modules or courses dedicated to geriatric rehabilitation. Overall, there is considerable variability in teaching hours, topic coverage, and depth.

**Conclusions:** This study provides meaningful insights for updating the current PT curricula in geriatric care. This survey could represent a tool for future longitudinal research on mapping curricula over time in response to the aging population.

Keywords: Geriatrics, Competence, Curricula, Entry-level education, Physical therapist

What is already known about this topic:	What does the study add:
• There is a paucity of studies mapping the content of health profession entry-level curricula in geriatric care, with none at European or Italian levels.	• This survey maps entry-level physical therapy curricula in the geriatric field at all Italian universities, in-depth exploration of core geriatric competencies, teaching and assessment strate-gies, and course directors' perceptions.
	Introduction
Received: December 4, 2024 Accepted: March 3, 2025 Published online: April 25, 2025	Globally, all regions are experiencing an aging popula- tion. Developed countries are expected to move to a more advanced stage of population aging, with the proportion of
This article includes supplementary materials.	older individuals rising from 20% in 2023 to 28% by 2050 [1]. Given the growing population of frail and older individ-

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Marco Da Roit email: marco.daroit@aulss1.veneto.it uals, there is a need to educate students and professionals in health and social care, giving them specific competencies necessary to assess, treat, and work with older people [2-4].

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The International Association of Physiotherapists Working with Older People (IPTOP) published the "Standards of Clinical Practice" in 2021 [5]. This document provides guidance for physical therapists and represents an educational resource for students to learn about geriatric care. However, the document is not intended to establish educational standards or provide a framework for acceptable professional behavior or knowledge.

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Previous studies have reported that integrating geriatric content into didactic coursework and clinical placement can enhance physical therapy students' competencies in geriatrics [6]. However, known barriers to improving geriatric training include limited time within packed curricula and the number of educators with geriatric expertise [7]. Moreover, ageism and the complexity of managing multiple comorbidities have been identified as factors that decrease the willingness and positive attitudes of physical therapy students toward working with older adults [6, 7]. These challenges can be mitigated by enhancing students' knowledge of aging and promoting contact with older adults during entry-level education [8]. To address this challenge, changes in physical therapists' practice and educational pathways are required [9].

Recognizing the need, the Academy of Geriatric Physical Therapy (American Physical Therapy Association, APTA) published the document "Essential Competencies in the Care of Older Adults at the Completion of the Entry-level Physical Therapist Professional Program of Study" in 2017 [10]. This work describes the competencies in the geriatrics field that students of physical therapy entry-level degree programs should acquire in the United States. Specifically, the document states the core skills required to provide competent care to older people across the following domains: (i) health promotion and safety; (ii) evaluation and assessment; (iii) care planning and coordination across the care spectrum (including end-of-life care); (iv) interdisciplinary and teambased care; (v) caregiver support; and (vi) healthcare systems and benefits. To our knowledge, there are few similar documents elsewhere, but none describe physical therapist competence in depth [2,11]. Nevertheless, such a document could serve as a reference point for similar projects to be contextualized in other nations.

At the national level, a document defining the core curriculum and competencies for entry-level physical therapists was published in 2012 [12]. However, the national framework lacks the field-specific focus required to address the evolving needs of the patient population.

To our knowledge, there is a paucity of studies mapping the content of health profession entry-level curricula in geriatric care. Few studies with different methodological approaches are available for medical doctors, nurses, occupational therapists, physical therapist assistants, and other education programs [13-17]. In particular, three surveys were conducted in the United States over a 14-year period and recently, a survey conducted in the Philippines assessed entry-level physical therapist curricula [18-21]. We are not aware of any studies that have examined the content of physical therapy degree courses in geriatric physical therapy in Europe or Italy.

This survey investigated geriatric-related content in entrylevel physical therapy degree programs offered by Italian universities. The aim was to identify weaknesses or gaps in the current curriculum.

# Methods

# Study design

We conducted a cross-sectional observational study following the CROSS checklist for survey-based research design [22].

#### Survey development

Two investigators (AC and MDR) independently reviewed the literature in February 2023. No validated survey was found in the literature. Potential questions were derived from the relevant studies and then refined several times. Each interaction combined deductive reasoning and inductive insights. This process involved two investigators (FB and SDB) and led to a survey draft consisting of 63 questions. The preliminary survey was pre-tested by five geriatric physical therapists with teaching experience in entry-level courses and at least ten years of clinical expertise with older people in different settings (e.g., nursing homes, hospitals, and home-care physical therapy). During the pre-test, the relevance and clarity of the questions were assessed in two rounds. Face and content validity were tested during this phase. Specifically, seven questions were added, and four questions were deleted based on expert feedback, as they were deemed essential or irrelevant to the research. The final survey consisted of 66 guestions (Supplementary Material 1). The structure of the survey was based on geriatric physical therapists' competencies as defined by the American Physical Therapy Association Section on Geriatrics [10]. The survey was divided into sections with a variable number of questions, as follows: (i) health promotion (seven questions); (ii) prevention (eight questions); (iii) geriatric rehabilitation-specific teaching (four questions) (iv) care and rehabilitation (30 questions); (v) therapeutic education (six questions); (vi) communication and interpersonal relation (six questions); (vii) perception on importance and adequacy of geriatric-related physical therapist (PT) curricula (two questions); and (viii) methodology of teaching and students' judging (three questions). For each section, the questions used a four-point scale to assess both the content covered in each PT program and the directors' perceptions of the importance and suitability of the content (strongly yes/ more yes than no/more no than yes/strongly no). Yes/no and multiple-choice questions were used to explore the geriatric rehabilitation teaching methodology and students' knowledge and competence assessment.

#### Sample characteristics

We aimed to recruit entry-level PT program directors from all Italian universities. The eligible population was identified through <u>https://www.universitaly.it</u>, the official portal of the Italian Ministry of University and Research. The contact information (names, e-mails, and phone numbers) of entry-level PT program directors was collected from publicly accessible university websites. Forty-two universities were identified, and 62 participants were invited to participate in this study.

#### Survey administration

An investigator (SDB) sent an e-mail invitation with a link to the participant information sheet and a consent form to all entry-level PT program directors identified as suitable to participate in the study. After providing consent, the participants were asked to complete the online survey (administered via Microsoft Form) within three months. A follow-up e-mail was sent after a three-week period to encourage participation. After three e-mail reminders, three investigators (SDB, FB, and SL) phoned entry-level PT program directors to further promote participation in the study. Appropriate Microsoft Form settings were used by each participant to prevent multiple entries.

# **Ethical considerations**

The University of Bologna Bioethics Committee approved this protocol (approval number: 0335961), and informed consent was obtained from all participants. Participants' anonymity was ensured because Microsoft Forms did not collect e-mail addresses. The study protocol was registered in the Open Science Framework on January 7, 2024, prior to data collection (accessible at https://doi.org/10.17605/OSF.IO/MVEJX).

#### Statistical analysis

Data collected using Microsoft Forms were exported to a Microsoft Excel spreadsheet. Descriptive data analysis was performed, and the Shapiro–Wilk test was used to assess the normality of continuous variable distributions. In the case of distribution symmetry, the variables were represented as means and standard deviations, whereas the median value and interquartile range were used in the case of distributional non-normality. Categorical variables are reported as absolute and percentage values. Comparisons between groups were performed using the  $\chi^2$  or Fisher's exact test for categorical variables. Statistical significance was set at p-value < 0.05. All analyses were conducted using the STATA 11 software (StataCorp, USA).

## Results

As described in the methods section, the survey was sent to all the identified course directors. Over the planned

timeframe, a total of 34 physical therapy undergraduate course directors out of 62 completed the survey, yielding an overall 54.8% response rate. Demographic data were not collected from respondents. Given the anonymous nature of the survey, it was not possible to investigate the reasons for non-responses. Nevertheless, a range of strategies was implemented to promote and enhance participation in subsequent surveys. The results are presented following the same scheme to maintain consistency with the survey structure. Statistical tests were initially planned for comparison between the groups. However, the data distribution prevented the application of these tests because the groups were too small or unbalanced to yield valid comparisons. Therefore, we opted to present only the descriptive statistics.

#### Health promotion

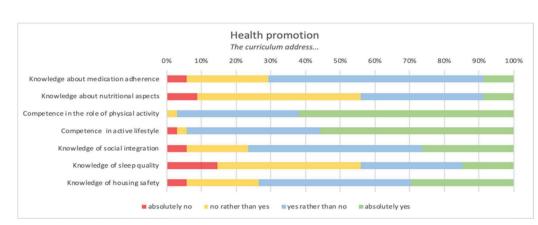
The responses to questions on whether the curriculum addresses knowledge and skills in health promotion are shown in Fig. 1. In this section, a large proportion of responses were registered as "no rather than yes" or "yes rather than no." The question about competence in the role of physical activity was the only one with no "strongly disagree" response and, at the same time, with the highest proportion of "strongly agree" responses (67%). All the questions have some "strongly disagree" responses, ranging from active lifestyle promotion (3%) to the quality of sleep (15%).

#### Prevention

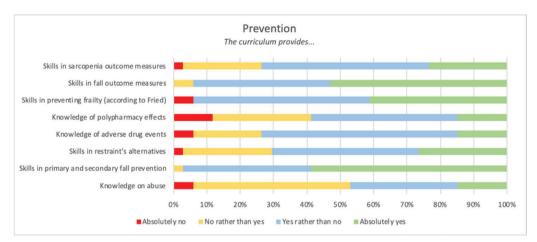
Responses to the questions about whether the curriculum addresses prevention knowledge and skills are shown in Fig. 2. In this section, the questions about fall risk prevention and assessment tools were the only two with no "absolutely no" and had the highest rate of "absolutely yes" responses, 20 (58%) and 18 (52%), respectively. For all other questions, most responses fell into the two central categories, with a slight predominance of "more yes than no" responses.

# Care and rehabilitation

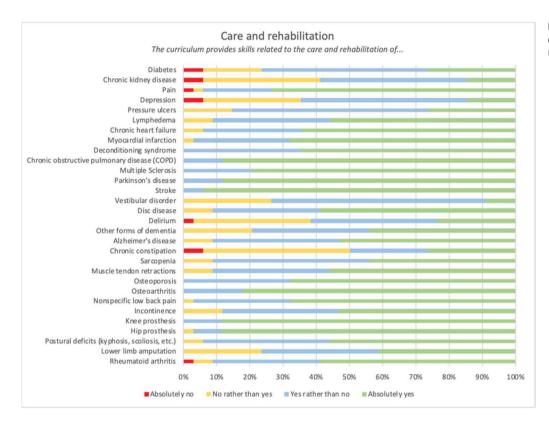
Responses to questions on whether the curriculum addresses knowledge and skills in the care and rehabilitation areas are shown in Fig. 3. Analysis of the responses in this

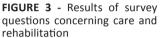


**FIGURE 1** - Results of survey questions concerning health promotion.



**FIGURE 2 -** Results of survey questions concerning prevention





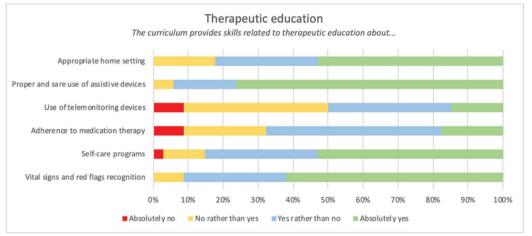
section revealed that the vast majority of questions did not yield any "absolutely no" answers. Only seven of the 30 questions elicited a small number of negative responses, namely, those pertaining to rheumatoid arthritis, chronic constipation, delirium, diabetes, depression, pain, and chronic kidney disease. In this area, the majority of registered responses were "yes rather than no" or "absolutely yes."

# Therapeutic education

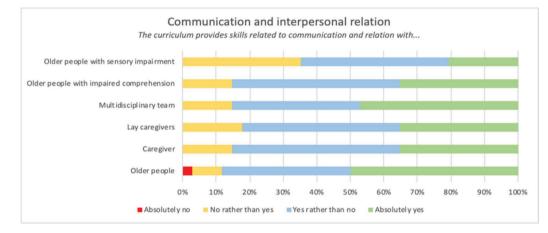
The responses to questions on whether the curriculum addresses skills in the area of therapeutic education are shown in Fig. 4. Here, we observed that three questions about home setting, red flags assessment, and aids appropriate use registered no "absolutely no" and, at the same time, all had more than 50% "absolutely yes" responses. The questions about the use of telemonitoring devices, adherence to medication therapy, and self-care programs registered some "absolutely no" responses (8%, 8%, and 2%, respectively), while the majority of responses fell into the two central categories, with a slight predominance of "more yes than no" responses.

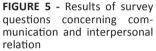
# Communication and interpersonal relation

Responses to questions on whether the curriculum addresses communication skills are shown in Fig. 5. In this area, we observe that "absolutely yes" and "rather yes than



**FIGURE 4** - Results of survey questions concerning therapeutic education





no" responses were the most frequent of all the questions. Only the question about skill in communication with older people registered some "absolutely no" responses (2%), and those about communication with older people with sensory deficits registered 35% of "rather no than yes" responses.

# Course directors' perceptions

Our survey also assessed course directors' perceptions of the degree to which their course curriculum provides adequate competencies for managing older people and whether these competencies are developed during basic training. We observed that positive responses constituted the vast majority, with "rather yes than no" (61.76%) and "completely yes" (20.59%). Slightly negative responses, "rather no than yes," were observed in 17.75% of directors' responses, while no completely negative responses were recorded. The importance of providing these competencies in the basic training is indicated by almost all the academic program directors, with "absolutely yes" and "rather yes than no" responses respectively representing 70.59% and 26.47%, respectively.

#### Specific course description

With reference to the sample size that responded to the survey, 30 (88.24%) curricula included a specific module/

course on geriatric rehabilitation, while in the remaining four (11.76%), such a course was not present. Regarding the 30 curricula with a specific course on geriatric rehabilitation, data were gathered about the extent of the teaching included in the curriculum, the professional profile of the teacher in charge of this course, and the teaching and evaluation methodologies used. The geriatric rehabilitation teaching module has, on average, 3.43 [(standard deviation (SD) 2.14] ECTS credits, with a range recorded between 1 and 8 ECTS. This corresponds to an average of 31.87 (SD 22.58) hours of teaching activity. The teacher was a physical therapist in all cases; in 40% of cases, they were the only professionals, while in the remaining 60%, they were joined by medical figures of different specialties (geriatrician, internist, physiatrist, neurologist, or orthopedist) and with different combinations. The most frequent combination was a physical therapist plus a geriatrician, which was recorded in 33% of the responses. The teaching and evaluation methodologies used in the courses are represented in Fig. 6. This is indicated by how many courses a specific methodology has been used, both individually and in combination with others.

In order to develop practical skills, we investigated the number of internship hours required to build competencies in this population. The aggregated median of 150 [interquartile range (IQR) 102.5] reflected responses from 28 curricula,

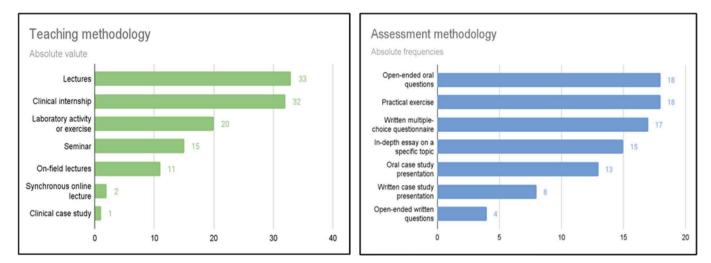


FIGURE 6 - Teaching and assessment methodology absolute frequencies

reported as the median and IQR due to the non-normal distribution of the data. For the remaining six curricula, one indicated 30% of the total, but the total number of hours was not specified, while for the other five, the internship hour data were missing.

# Discussion

The findings of this study offer compelling insights into the integration of geriatric-related content into the curricula of physical therapy degree programs offered by Italian universities. Our survey achieved an overall response rate of 54.8%, which was comparable to or slightly higher than those reported in previous studies [17, 20].

Although 88.24% of the curricula included a specific course on geriatric rehabilitation, there was considerable variability in teaching hours, topic coverage, and depth. This variability may reflect insufficient standardization of geriatric training, an issue previously highlighted by Granick [18] and Wong [20].

Regarding the competencies defined by the Academy of Geriatric Physical Therapy [American Physical Therapy Association (APTA)] [10], our survey indicates that fall prevention is a particularly strong area within the curricula, with questions on this topic yielding highly positive responses. This result aligns with prior studies [20] and reflects the growing global recognition of the importance of fall prevention in older adults, especially considering that falls are one of the leading causes of morbidity and mortality in this age group, as emphasized by Bardach and Rowles [7].

Increasing awareness was also noted in the areas of care and rehabilitation, and our study demonstrated that the most relevant content was entry-level training, with some exceptions, such as rheumatoid arthritis, constipation, delirium, and diabetes. These gaps suggest potential deficiencies in the integration of training related to the management of common chronic conditions among older adults. Perez identified similar gaps in a study conducted in the Philippines, where geriatric-specific training was found to be insufficient, particularly in chronic disease management [21]. Other studies have also highlighted a lack of focus on multimorbidity and the complexity of conditions commonly observed in older adults [18, 20]. Similar deficiencies have been reported in medical education [17], indicating inadequate preparation for managing complex comorbidities and a lack of multidisciplinary skills required of older people. A revision or update of the current curricula should consider these elements to better address the health needs of the aging population [4, 7].

Another interesting aspect was the presence of dementia. Our study seems to indicate that dementia education, while present in physical therapist curricula, is not yet sufficiently integrated despite the growing global prevalence of dementia and its impact on motor and cognitive functions. Our findings align with previous reports from Ireland, the United Kingdom, and New Zealand, which revealed that while fundamental dementia management concepts are included, training remains partial and insufficient [23]. The same issues were raised by Quick in a study conducted in Australia and Canada, in which training primarily focused on the management of physical symptoms, neglecting an integrated approach that addressed the cognitive and behavioral challenges associated with dementia [24]. Both studies highlighted difficulties such as the lack of adequate educational resources, the need for greater involvement of dementia experts in training programs, and the need for a cultural shift in physical therapist schools to recognize dementia as a crucial competence for physical therapists [23, 24].

Greater emphasis should also be placed on health promotion, as our study showed that the inclusion of competencies related to health promotion within the core training of physical therapists still has significant room for improvement. These findings are consistent with those of other studies [18, 20, 21], which underscore the importance of this area but acknowledge that it remains underrepresented in educational programs. In particular, the promotion of an active lifestyle and the key role of physical activity in managing older adults can be reinforced, whereas other important aspects, such as sleep management and nutritional considerations, remain underrepresented. The results of our study also show that therapeutic education seems to be satisfactorily covered in physical therapy curricula, with a majority of positive responses from the course directors. Nevertheless, it is interesting to note that some areas, such as pharmacological therapy and the use of telemonitoring devices, still present challenges. This latter aspect may indicate that, despite the growing importance of these technologies and approaches in modern healthcare, they have not yet been thoroughly addressed in all degree programs. Paying greater attention to new technologies and innovative health management approaches could help align the training more closely with the emerging needs of the healthcare system and better prepare future physical therapists to address clinical challenges.

Finally, our study suggests that communication and interpersonal relation skills seem to be adequately addressed in physical therapy curricula, with most course directors responding with either "absolutely yes" or "more yes than no." However, communication with older adults with sensory deficits elicited a higher percentage of negative responses. This finding suggests a potential gap in addressing the specific communication challenges that arise when working with frail older adults.

Despite this, there has been significant improvement over time in this area. In 2001, Wong noted that communication and interpersonal skills were not always well integrated or emphasized in the curricula [20].

The majority of course directors perceive their programs as well-equipped to provide the necessary competencies for managing older adults. This is an encouraging finding, as it reflects a growing awareness of the importance of training physical therapists with specific skills in the care of older people, in line with the increasing demand for healthcare services in this population. However, the fact that 60% of responses fall under the "more yes than no" category suggests there is room for improvement in fully meeting the health needs of this population.

A particularly concerning aspect revealed by our study is that, despite the growing importance of geriatrics in physical therapy, 11.76% of Italian physical therapy degree programs do not include any specific module or course dedicated to geriatric rehabilitation. This finding is consistent with previous international studies [18, 20, 21] that have shown that many physical therapy programs lack geriatric-specific content.

Another important issue is the time dedicated to training. In our study, an average of 31.87 (SD 22.58) hours were dedicated to teaching activities. Even if there is still room for improvement, this is an encouraging improvement compared with studies from the 1980s, which reported an average of 10-16 hours [13, 17, 18].

We also investigated the development of practical skills. The allocation of internship hours specific to working with the older population varied across the programs, with an average of 150 hours. However, in six programs, data on internship hours were either partial or missing, raising concerns about whether students were given sufficient opportunities to acquire practical experience in a geriatric setting. As noted in previous studies, direct interactions with older patients during training can reduce ageism and improve students' attitudes toward geriatric care [7, 8].

These findings highlight the need to expand teaching strategies, as previously suggested by Wong [20], by incorporating more clinical aspects and a deeper understanding of the multifactorial conditions associated with aging. Interprofessional collaboration should be encouraged, and instructors who practice in geriatric-specific settings should be identified. In our study, only 33% of the teaching teams for the module comprised both a geriatrician and a physical therapist.

#### Limitations

Our findings should be considered while acknowledging several limitations. Despite the various strategies implemented during the construction process, the instrument remains unvalidated. Furthermore, although our survey achieved a response rate of 54.8%, we could not assess whether the data were influenced by the responses offered by course directors who were more interested in this topic. Therefore, caution should be exercised when generalizing these results.

# Conclusion

Future studies should consider conducting a Europe-wide survey to compare the geriatric physical therapy curricula across different countries. In addition, longitudinal research could help track the evolution of curricula over time, particularly in response to the aging population and increasing need for geriatric-specific competencies. It would also be valuable to explore the barriers perceived by instructors and course directors in creating and integrating specific geriatric modules, as well as to investigate students' perceptions of geriatrics and how these influence their motivation to work with older patients. Moreover, examining students' practical experiences during internships with older adults could help determine whether the acquired skills align with the actual needs of the clinical setting.

This survey could provide crucial insights for developing more targeted and effective educational strategies that address not only educational needs but also the perceptions and motivations of those training and working with the older population.

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Conflict of interest: The authors declare no conflict of interest.

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**Data Availability Statement:** The data presented in this study are available on request from the corresponding author.

**The Clinical Trial Protocol number** is not applicable, but the study protocol was registered on Open Science Framework on January 7, 2024, prior to the beginning of data collection <u>CrossRef</u>

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