

Integration of Geriatric Content in Entry-Level Physical Therapy Education in the Philippines: A Pilot Study

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Abstract

Introduction: Physical therapy (PT) practice is expected to dynamically respond to the growing needs of older adults. Currently, there is paucity in meeting the demands of the aging Filipino population that may be linked to the status of undergraduate PT education. To date, there are no known systematically analyzed data that explores the breadth of geriatric content in the local BSPT programs. This study aimed to describe the integration of geriatric-related content in the pre-clinical and clinical entry-level PT curricula.

Methods: Descriptive cross-sectional research design using survey instrumentation was conducted among heads and PT educators in higher educational institutions and healthcare institutions located in the National Capital Region, Philippines from December 2015 to March 2016.

Results: Fifty-two responses from a total of 87 physical therapists were included in data analysis after screening. Many of the participants (>50%) determined that pre-clinical and clinical geriatric-related PT competencies were always (81-100% of the time) and often (61-80% of the time) taught. Among pre-clinical and clinical competencies, clinical attitudinal skills were the most taught. Clinical practical skills, pre-clinical practical skills, and pre-clinical knowledge competencies were never taught (0-20% of the time). Majority of the participants (93.3%) perceive the importance of integrating geriatric PT-related content in the curriculum but, only 65.8% perceive that the integration is sufficient.

Discussion: The integration of geriatric-focused content on psychosocial changes with aging, multifactorial conditions, airway clearance techniques, use of best available evidence, interprofessional collaboration, and on clinical training is insufficient despite its importance. The incongruity may be influenced by lack of intentional exposure and role-modeling to students. The study findings should be interpreted with caution because of low sample size. Further research is recommended to understand the depth of integration of geriatric-related content in entry-level PT programs in the Philippines.

Keywords: education, physical therapy, geriatric

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Introduction

The practice of physical therapy (PT) is expected to dynamically evolve and continuously respond to the changing needs of patients, clients, and the society (World Confederation for Physical Therapy [WCPT], 2019). However, the number of PT professionals in practice locally has been reported as insufficient in meeting the demands of the Philippine health care system (Davila, 2011; Jaymalin, 2013). Many Filipino physical therapists also remain either unemployed or have sought livelihood overseas because of uncompetitive employment in local public and private healthcare institutions despite the identified shortage (Davila, 2011). Consequently, there is a lack of physical therapists in the area of health and wellness for the general population and for those with chronic disabilities. The Philippines recognized the need to expand health care services for wellness as an emerging concern (Badana & Andel, 2018) and an employment development priority (Department of Labor and Employment [DOLE], 2011; DOLE, 2012) to balance the need for and supply of physical therapists.

Over the past twenty years, the Philippines had an increase in its total population from 60.70 million in the year 1990 to 109 million in the year 2020 (National Statistics Office [NSO], 2005; NSO, 2014; Philippine Statistics Authority [PSA], 2021). There has been a steady increase in the number of persons aged 65 years and above from 2.06 million in the year 1990 to 5.12 million in the year 2020 (NSO, 2005; NSO, 2014; PSA, 2021). A positive change in the longevity of Filipinos is also observed as the overall mortality rate remained stable in the last two decades at 5.0/1000 in 1990 and at 5.6/1000 in 2020 (NSO, 2005; NSO, 2014; PSA, 2021). Because of the stable increase in population and lifespan of Filipinos, it is projected that the number of persons aged 65 years and above will grow to 14 million by year 2040 and reach 16 million by year 2045 (PSA, 2021). At present, the country is facing a heightening need for expanded health care services for the aging population. Recognizing the aging Filipino society, the Philippine government and the healthcare community pursued measures to expand services for older Filipinos to aid in improving their longevity (Department of Health, 2012). In the academe, research-oriented programs are conducted to provide training to medical professionals and build evidence related to the field of geriatrics and gerontology (National Institutes of Health, n.d.). These developments in geriatric healthcare and research are a step in the right direction but remain to be in their early stages. More needs to be done in understanding and catering to the needs of the aging Filipino population particularly in promoting active engagement, quality of life, social participation, frailty prevention, (Rockwood et al., 2012; Ottenbacher et al., 2009) and injury/fall prevention (Gitlin et al., 2006; Panel on Prevention of Falls in Older Persons, American Geriatrics Society and British Geriatrics Society, 2011).

As the Philippine demographics transition towards increasing longevity (NSO, 2005; NSO, 2014; PSA, 2021) similar to other developing countries such as Chile (Gitlin & Fuentes, 2012) and

Mexico (Cano et al., 2012), an effective and comprehensive PT geriatric care in the Philippines becomes increasingly relevant now. A PT geriatric care that involves collaboration with the family and members of an interdisciplinary health care team contributes to effective, appropriate, culturally competent, and comprehensive PT services. The value of physical therapists in interdisciplinary geriatric health care teams has been recognized to significantly impact rehabilitation, prevention of injury, and promotion of health in older adults (Arai et al., 2012; Gustavson et al., 2017; Kadivar et al., 2016; McNeely et al., 2016; Morandi et al., 2019; Singh et al., 2018). Internationally, the essential role of physical therapists as member of an interprofessional team in the care of older adults is supported by the availability of high-quality specialized programs in various areas of PT practice (American Board of Physical Therapy Specialties [ABPTS], 2021) and the presence of physical therapists with specialization in geriatrics (ABPTS, n.d.). Locally, the role of physical therapists in primary health care for Filipinos, including older adults, is known and supported to enhance accessibility of health services (Expanded Senior Citizens Act, 2010; Universal Health Care Act, 2019) and to facilitate continuous and coordinated care (Implementing Rules and Regulations of the Republic Act No. 11223, 2019) towards active aging and social longevity.

However, there is a lack of Filipino physical therapists, who specialize and practice in the field of geriatrics, despite the evolving Filipino aging population and increasing evidence on the role of PT in geriatrics. Correspondingly, there are few institutions that offer specialized training in geriatric PT as post-graduate education. There is no formal accreditation body for recognizing expertise in geriatric PT locally. There are also a few healthcare facilities and homes for older adults that has geriatric physical therapists. The lack of geriatric physical therapists and specialized facilities are related to insufficient integration of geriatric-related competencies in the Philippine Bachelor of Science in Physical Therapy (BSPT) curricula. The integration of geriatric content in pre-clinical and clinical curricula is facilitated when educators have expertise in geriatric practice (Bardach & Rowles, 2012). The lack of specialized geriatric facilities for exposure of students in geriatric care during clinical training contributes to decreased student interest in geriatric practice (Bardach & Rowles, 2012). Lastly, the absence of a formal accreditation body for recognizing expertise in geriatric PT (World Health Organization, 2011) even in the Philippines contributes to unclear goals and diverse levels of inclusion and instruction of content related to geriatric PT.

The evidence-base for local educational standards on geriatric PT education is still unknown. The current standards are often broadly stated and do not specifically identify the breadth and depth of training needed, and the competencies that aspiring physical therapists must attain with regards to specific patient populations and practice settings, especially for older adults. Consequently, there is a wide variation in the delivery of PT education and attainment of program outcomes. Evidence of the lack of quality standardization across programs may be gleaned

from the wide range of pass rates in the licensure examination held by the Occupational Therapy-Physical Therapy Board of the Philippine Professional Regulation Commission. Furthermore, it is unclear how standards for PT education match and conform with contemporary practice. To date, there are no known systematically analyzed data that describes the integration of geriatric content in entry-level PT education in the Philippines. For the profession to continue its development, there needs to be an examination of its relevance and responsiveness to the health needs of the society. As practice and education are inextricably linked, research in education within the profession has the potential to inform practice, and vice versa.

This study aims to explore the breadth of geriatric content in entry-level PT education in the Philippines. In particular, the study will describe the integration of geriatric PT-related content in the pre-clinical and clinical undergraduate curricula. The results of this study will aid in the design of a more comprehensive survey that would describe the status of geriatric PT education in the Philippines. This study also will guide the formulation of recommendations for effective integration of geriatric-related content in programs and for proper alignment of the BSPT curricula with the current needs of the society

Methods

Study Design

The study employed a descriptive cross-sectional research design using survey instrumentation to explore the breadth of pre-clinical and clinical geriatric-related PT curricula in the Philippines. In addition, a descriptive cross-sectional design characterizes the extent and nature of geriatric-related content included in the local BSPT curricula.

Participants

The target participants were PT program directors or chairpersons, and PT academic and clinical educators in all colleges and universities in the National Capital Region (NCR) registered under the jurisdiction of the Commission on Higher Education (CHED) and offering a BSPT program (CHED, 2013; Gorgon et al., 2013), and in all private and government institutions where interns from higher educational institutions (HEIs) are fielded for clinical training on practice of geriatric PT. They were determined as target participants of the study because they have significant understanding of the current PT curriculum content of their respective educational and healthcare institutions. Data from the participants were excluded from data analysis if they were (a) teaching for less than one semester (<5 months) since entry to their academic or healthcare institution; (b) staying in their institution as a visiting professor.

Materials

A questionnaire (see Appendix A) was administered to PT educators and clinical supervisors to describe their perceptions on the frequency and importance of identified geriatric competencies in entry-level PT practice in the Philippines. The questions in the survey instrument were developed based on determined competencies by the American Physical Therapy Association (APTA) Section on Geriatrics (APTA, 2011) to obtain the following data: (a) perceptions on importance of each identified competency related to geriatric PT practice; (b) attitudes on teaching PT related to geriatrics in the academic setting; (c) attitudes on working with older people in the clinical setting.

Procedures

Upon approval of technical and ethical review, a list of accredited colleges and universities offering a BSPT program in NCR were acquired from CHED and from the database of PT schools of a published research on teaching evidence-based practice in the Philippines by Gorgon et al. (2013). A list of healthcare institutions that provided clinical training to PT interns from HEIs were acquired from each accredited college or university in NCR.

The questionnaire (see Appendix A) was disseminated to PT educators and clinical supervisors from various educational and healthcare institutions. Responses were collected from December 2015 to March 2016 and determined the number of survey participants. The questionnaires were manually and electronically distributed together with an informed consent document PT educators and clinical supervisors from various institutions given that they met the criteria for inclusion in the study.

In addition to the responses of survey participants, demographic information that includes age, sex, address, highest academic achievement, number of years as a PT educator, area of specialization, current practice setting, name of affiliated academic and clinical institution, and status of accreditation of affiliated institution were collected. Data from the survey was collected over a period of four months.

Data Analysis

The data were encoded using a spreadsheet application. The data was analyzed through descriptive content analysis using the Statistical Package for Social Sciences version 20 (SPSS v20) to determine the following: 1. percentage of competencies taught in the pre-clinical entry-level PT curriculum, 2. percentage of competencies taught in the clinical / internship program of entry-level PT curriculum, 3. percentage of competencies taught in the pre-clinical and clinical PT curriculum as classified into the three domains of competencies (knowledge, practical skills, and attitudes), and 4. percentage of participants' perceptions towards PT education related to geriatrics.

Results

There was a total of 87 licensed physical therapists who responded to the survey. The responses of 52 participants were included in data analysis. The responses of 35 participants were excluded because of the following reasons: 1. incompleteness and demographic information, 2. PT practice area was not geriatric-related, and 3. determined less than 6 months of teaching experience. The responses were included in data analysis when either section 1 (pre-clinical/clinical curriculum) or section 2 (perceptions towards PT education) were accomplished by the participant in addition to section 3 (demographic information).

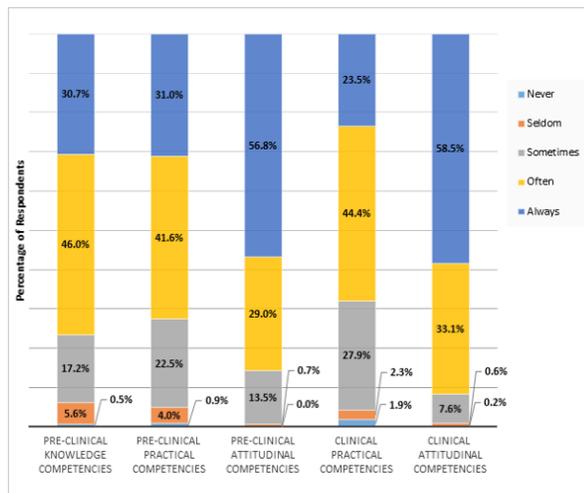


Figure 2. Extent of Taught Pre-clinical and Clinical Geriatric PT-related Competencies

Participant Characteristics

All of the 52 participants were practicing their profession in NCR, Philippines. Five out of the 52 participants practice in the area of geriatric PT. Only 2 of the 5 geriatric physical therapists work in the academic setting. Forty-seven of the 52 participants practice in other areas of PT.

Majority of the participants teach PT in an HEI ($n = 24$) and the remaining participants practice PT in health care institutions such as hospitals, clinics, and health facilities ($n = 18$) (see Figure 1). Only 1 participant practices PT in the community setting (see Figure 1).

Most of the participants ($>50\%$) determined that pre-clinical and clinical geriatric-related PT competencies were always (81-100% of the time) and often (61-80% of the time) taught in their respective practice settings. Among pre-clinical and clinical competencies, the participants identified clinical attitudinal skills as the most taught (61-100% of the time) set of competencies. The participants recognized clinical practical skills, pre-clinical

practical skills, and pre-clinical knowledge competencies as never taught (0-20% of the time) (see Figure 2).

Pre-clinical Competencies Related to Geriatric PT Practice

Majority of the participants (94.1%) identified knowledge on musculoskeletal conditions as the most taught pre-clinical knowledge competency (61-100% of the time). In addition, most of the participants identified knowledge on cardiovascular conditions (90.2%), and knowledge on designing an evidence-based PT plan of care in terms of formulating therapy goals (88.2%), selecting interventions (86.3%) and determining optimal level of function (86.3%) as frequently taught (61-100% of the time) pre-clinical knowledge competencies. Conversely, many participants identified reproductive disorders (54.9%), multifactorial conditions (32%), psychological changes (32%), and knowledge on roles and responsibilities of members of interdisciplinary care team for older persons (31.4%) as the least taught (0-60% of the time) knowledge competencies in their respective curricula.

On pre-clinical practical competencies in PT assessment, most of the participants determined physical assessment (86.2%) and history taking (82.4%) as the most taught (61-100% of the time) while environmental assessment (64.7%) was the least taught (0-60% of the time) competency. On pre-clinical practical competencies in PT intervention, the participants recognized that techniques related to use of physical agents and mechanical modalities (88.3%), electrotherapeutic modalities (88.3%), therapeutic exercises (88.2%), and client/caregiver education (84.3%) were the most taught (61-100% of the time). Some participants identified interventions related to integumentary, repair, and protection techniques (66.7%), and airway clearance techniques (56.9%) as the least taught (0-60% of the time).

On pre-clinical attitudinal competencies, 92.1% of the participants recognized respect, and professional and ethical behavior towards older persons as the most taught (61-100% of the time) in their respective PT curricula. Many participants identified reflective thinking on assessment and management of older persons (21.6%), cultural competency and cultural sensitivity towards older persons in different societies (20%), and sense of social responsibility towards elderly patients and the PT profession (19.6%) as the least taught (0-60% of the time). None of the participants pointed out attitudinal competencies that are never taught (0-20% of the time).

Clinical competencies Related to Geriatric PT Practice

Majority of the participants determined the use of direct observation and patient demonstration (78.9%), safe and ethical implementation of plan for intervention (78.8%), and conduct of

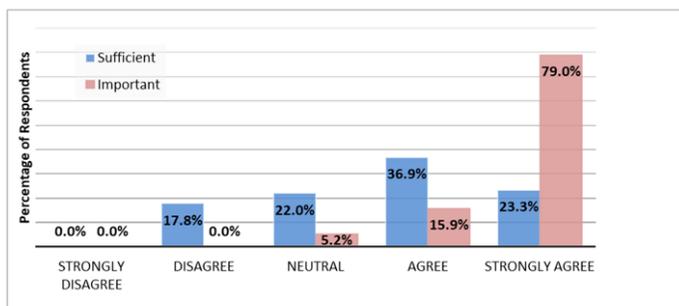


Figure 3. Perception of Clinicians on Sufficiency and Importance of Integrated Geriatric PT Curricular Content

conventional objective tests and measures (73.1%) as the most taught (61-100% of the time) clinical practical competencies. The use of self-report/ personal narratives (59.7%) is the least taught (0-60% of the time) in PT assessment.

The participants also identified that the most taught (61-100% of the time) practical competency on PT intervention is related to program development for disease prevention and health and wellness promotion specific to the geriatric population (73%). The participants, however, identified that clinical practical competencies on program development related to providing consultancy that incorporate best available evidence (38.4%), program development for habilitation and rehabilitation (38.4%), and program development for interventions related to existing and emerging problems (38.4%) as the least taught (0-60% of the time)

Similar to the findings on pre-clinical attitudinal competencies, a large number of the participants (>96%) identified respect and ethical behavior towards older persons as the most taught (61-100% of the time) in their respective clinical curriculum. The participants determined that clinical attitudinal competencies related to communication of the importance of roles of physical therapists in improving quality of life of older persons (13.5%), sense of social responsibility towards older adults and the PT profession (11.8%), reflective thinking on assessment and management (9.8%), and communication of the role of physical therapists in disease prevention (9.8%) as the least taught (0-60% of the time). Only the attitudinal competency on communicating the importance of the role of physical therapists as movement specialists in a geriatric care team was identified as never taught (0-20% of the time) in the clinical PT curriculum.

Perceptions Toward PT Education Related to Geriatrics

Many of the participants (93.3%) perceive the importance of integrating geriatric content in the curriculum of their respective institutions. However, only 65.8% of the participants perceive that the integrated geriatric-related content is sufficient. Specifically, 15.7% of the participants disagreed that the geriatric curricular content is sufficient in preparing students for entry-level geriatric

PT practice. The participants disagreed that there is sufficient geriatric PT-related content on treatment implementation (14%), assessment (12%), interdisciplinary care for older persons (11.8%), and on treatment planning (9.8%) in the BSPT curriculum. The profound incongruity between perceived importance and perceived sufficiency of taught geriatric-related curricular content is also reflected on the responses of participants practicing in HEI and healthcare institutions. In particular, the majority of the participants affiliated with healthcare institutions (94.9%) (see Figure 3) and an HEI (93.1%) (See Figure 4) perceive inclusion of geriatric content in the curriculum as important. However, 73.3% of participants from HEI (see Figure 4) and 60.2% of participants (see Figure 3) from healthcare institutions perceive its curricular integration as insufficient.

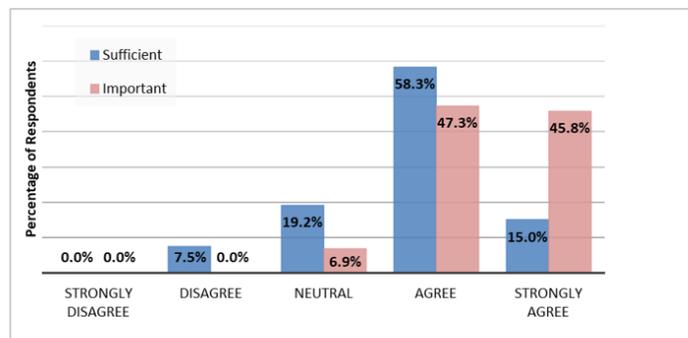


Figure 4. Perception of Academicians on Sufficiency and Importance of Integrated Geriatric PT Curricular Content

Discussion

Several studies have explored geriatric content of PT education programs in developed countries (Bardach & Rowles, 2012; Granick et al., 1987). This study, however, is the first to describe the extent of integration of geriatric-related pre-clinical and clinical curricular content in entry-level PT programs in a developing country. This study found that geriatric PT-related content is essential in the BSPT curricula of HEIs and clinical institutions in the Philippines. Despite its importance, the integration of geriatric PT-related content in the pre-clinical and clinical curricula of undergraduate programs is insufficient to prepare students for entry-level geriatric PT practice. Similar to this study finding, Granick et al. (1987) presented that the majority (96%) of their participants, who were PT program directors, identified a need for focused geriatric curricular content on assessment, treatment implementation, and professional roles in entry-level PT programs. Wong et al. (2014) also emphasized that the examination of the extent of geriatric PT education programs remains inadequate despite its recognized importance. Similar to the findings of this study, Wong et al. (2014) found the need for sufficiently integrating tailored assessment and management, and interprofessional collaboration when training students for geriatric PT care.

The perceived inadequate inclusion of geriatric PT-related content may be contributed by the low number of practicing physical therapists with expertise in geriatric care and consequent limited number of PT academician and clinical educators with geriatric specialization engaged in teaching students (Bardach & Rowles, 2012). The insufficient exposure of students to PT educators, who advocate for and act as role models for geriatric PT professionals, contributes to low interest and decreased motivation of students to practice in the field of geriatrics after acquiring a professional license (Bardach & Rowles, 2012). Nurturing a positive attitude towards caring for older adults and perpetuating it throughout a student's learning experience pre-clinically and clinically remains a challenge to educators (Blackwood & Sweet, 2017). Lack of intentional exposure of students to caring for older adults, who are healthy and with disabling conditions, in communities and in specialized facilities also contribute to decreased student interest in practicing as a geriatric PT professional (Bardach & Rowles, 2012). Experiential learning through deliberate clinical practice with older adults allows students to develop their ability in building therapeutic relationships and influences their positive attitudes towards geriatric practice (Blackwood & Sweet, 2017; Wong et al., 2014). The minimal opportunities to think and work with individuals from a different profession contribute to limited exposure of students to interprofessional collaboration in the classroom and in clinical settings (Wong et al., 2014). Higher educational institutions and practice placement health facilities should expand and heighten their efforts in intentionally integrating geriatric-related PT content through modeling, advocacy, and interprofessional collaboration with faculty, clinicians, and peers from different disciplines.

The most taught knowledge competencies in pre-clinical geriatric PT curricula are those related to musculoskeletal and cardiovascular conditions among older adults. The emphasized broadening of knowledge-base of students about the common musculoskeletal conditions in older adults may be influenced by existing evidence on the long-standing disabling impact of musculoskeletal conditions such as low back pain, degenerative joint diseases, decreasing bone density, and chronic pain among others that have been steadily increasing and negatively affecting the functional level and quality of life in older adults globally for the past 2 decades (Cieza et al., 2021; Global Burden of Disease [GBD] Diseases and Injuries Collaborators, 2020). A similar high trend of chronic musculoskeletal conditions was reported in developing countries such as Brazil (Alonso et al., 2018) and Mexico (Clark et al., 2018). In the Philippines, Guevarra & Evangelista (2010) found that musculoskeletal conditions are evident in adults seen at the country's National Health Sciences Center and was reported to contribute to limited mobility, increased risk for falls, and increased risk for frailty. Comparable to musculoskeletal conditions, the integration of knowledge on cardiovascular conditions among older adults may be contributed by the steady prevalence of cardiovascular diseases in the past 20 years locally and globally (Cieza et al., 2021; GBD Diseases and Injuries Collaborators, 2020). Higher educational institutions should continue educating students about the impact of

musculoskeletal and cardiovascular conditions, especially in older adults, to adequately prepare students in responding to the needs of this vulnerable population in practice.

In addition, designing an evidence-based PT plan of care for older persons, especially in determining maximum level of function, setting therapy goals, and selecting interventions, are the most taught knowledge competencies in pre-clinical BSPT curricula. The importance of using best available evidence in PT plan of care is consistent with the findings of Gorgon et al. (2013) where majority of the physical therapist study participants in the Philippines (98%), including those providing care to adult and geriatric patients, are equipped with the foundational knowledge on evidence-based practice despite not engaging in post-graduate PT education. Higher educational institutions should begin teaching students about evidence-based practice early in the pre-clinical curriculum and gradually integrate it to clinical exposure in geriatric PT practice.

This study found, however, that pre-clinical knowledge competencies related to psychological changes and social changes associated with aging, multifactorial conditions, and roles and responsibilities of members of geriatric health care teams are the least integrated competencies in entry-level PT programs. This is similar to the observations of Wong et al. (2014) on the lack of integrating considerations on multimorbidity and complexity of conditions commonly found in older adults in courses. Despite recognition of curricular focus on integrating knowledge on the psychosocial aspects of aging such as frailty, poor memory and confusion, the need for enhancing clinical reasoning and clinical decision-making of students remains (Wong et al., 2014). In addition, Wong et al. (2014) likewise found that there is lack of opportunities to understand the roles of different members of an interprofessional health care team, including the contribution of physical therapists in comprehensive geriatric management (Wong et al., 2014). Higher educational institutions and clinical training sites should amplify strategies that purposefully teach the PT foundations to address the multifactorial and complex nature of geriatric care within the health system.

On pre-clinical practical competencies, this study found that skills in using physical agents and therapeutic exercises are the most taught. The inclusion of conservative geriatric-related interventions in the BSPT curriculum is aligned with the findings of current clinical practice guidelines on management of chronic diseases and musculoskeletal conditions despite limitations on effectiveness and applicability in older adults with varying health status (El-Tallawy et al., 2021; Schofield et al., 2022). Alternatively, airway clearance techniques for older adults are the least taught skill in the pre-clinical curriculum consistent with the findings of Wong et al. (2001) despite the long-standing prevalence of chronic respiratory diseases (Cieza et al., 2021). Educating PT students on the positive effects of therapeutic exercises and physical agents on older adults is relevant to keep in the BSPT curricula. A shift in focus towards emphasized

cardiopulmonary care for older adults should be considered by HEIs with entry-level PT programs.

This study found that clinical practical skills specific to geriatric population is one of the least taught competencies in the undergraduate curricula. This is consistent with the findings of Granick et al. (1987) that reported only 4% of BSPT programs engaging students in clinical training specific to geriatric PT and is mostly offered as an elective. Among the clinical practical skills, direct observation was found to be the most taught competency. The emphasized training of students in direct observation and patient demonstration may be contributed by inclusion of safety and proper monitoring of patient response to therapy activities in the international guidelines on entry-level PT education (WCPT, 2011). Program development for health and wellness promotion in the geriatric population is also integrated well in the clinical curricula. Conversely, the use of best available evidence in program development for interventions, rehabilitation, consultancy, patient education, and emerging problems is relatively low when compared to other clinical practical competencies. This finding is consistent with those of Gorgon et al. (2013) where less than 50% of PT educator participants in the Philippines, including those engaged in geriatric PT care, is reported to routinely uptake best available in clinical practice. 53% of the participants reported integrating best available evidence in selecting interventions, even if many have evidence-based practice foundations in pre-clinical education. Clinical practice placement facilities should intentionally maximize experiential learning in honing geriatric-related practical skills and uptake of best available evidence relevant to geriatric care management by PT students-in-training.

The importance of teaching attitudinal competencies on developing respect and professional behavior towards older adults is reflected well in pre-clinical and clinical geriatric PT curricula. The sufficient integration of these attitudes towards older adults in the curricula may be influenced by the Asian and Filipino cultures where high value on respect is placed for older persons (Giles et al., 2003). However, there is minimal integration of clinical attitudinal competencies related to communication of the importance of physical therapist roles in improving quality of life of older persons; sense of social responsibility towards older adults and the PT profession; reflective thinking on assessment and management; communication of the physical therapist roles in disease prevention. In addition, this study found that the communication of the value of physical therapists as movement specialists in a geriatric care team is never taught as a clinical competency in the entry-level BSPT curricula. Similar to the findings of Wong et al. (2014), the low value placed on communicating the importance of physical therapists as movement experts in an interdisciplinary geriatric health care team is influenced by lack of student exposure to PT role models who advocate for geriatric PT professionals and comprehensive geriatric care. Higher educational institutions and clinical practice placement sites should intensify efforts in integrating social responsibility, service orientation, advocacy, interprofessional

collaboration, cultural competence, and inclusivity when training students on geriatric PT care.

The findings of this study presented an overview of geriatric PT education. However, the results of this study should be interpreted with caution due to its limitations. This study has a low number of participants that can potentially bring sampling bias and decrease the external validity of findings and interpretations. The low number of participants may be caused by exclusion of participant data due to incomplete accomplishment of questionnaire sections, limited years of experience as a practitioner, and practice setting being outside of NCR. An investigation on the depth of integration of geriatric-related pre-clinical and clinical curricular content in entry-level PT programs in the Philippines through conduct of a study with qualitative research design is recommended.

The geriatric PT-related content is recognized as an important component of the BSPT curricula in HEIs and clinical institutions in the Philippines. However, the integration of geriatric-related content in the pre-clinical and clinical curricula of entry-level PT programs is insufficient. Attitudinal competencies are the most taught content in comparison with knowledge and practice competencies in the BSPT curriculum. Further exploration on the depth of integration of geriatric PT-related curriculum is recommended for a complete overview of the status of geriatric PT education in the Philippines.

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Conflict of interest statement

The author declares no competing interests.

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Appendix A. Copy of assessment tool

Physical Therapy Education related to Geriatric Practice Questionnaire

Thank you for taking part in this survey. The Physical Therapy Education related to Geriatric Practice Questionnaire gathers information on the content of physical therapy curricula in terms of three (3) major domains of educational competencies. These major areas are:

- a. Knowledge
- b. Practical skills, and
- c. Attitudes

In addition, this survey gathers information on perceptions of physical therapy educators and clinical supervisors toward physical therapy education related to geriatrics.

This questionnaire consists of three (3) sections namely: 1.) content of the (pre-clinical and clinical) curriculum, 2.) perceptions towards physical therapy related to geriatrics, and 3.) demographic information. It will take 10-15 minutes to complete this survey.

Legend:

N	- Rarely to Never (0 to 20% of the time)
SE	- Seldom (21 to 40% of the time)
SO	- Sometimes (41 to 60% of the time)
O	- Often (61 to 80% of the time)
A	- Almost always (81 to 100% of the time)

SECTION 1-A. Content of the (pre-clinical) Didactic Curriculum

- I. Here are knowledge competencies related to physical therapy assessment and design of plan of care. Using the scale above, please rate the extent to which these competencies are taught in the pre-clinical / pre-internship entry-level physical therapy curriculum of your academic institution by checking (✓) the box corresponding to your response.

Knowledge Competencies	N	SE	SO	O	A
1.1. Knowledge of theories associated with aging	<input type="checkbox"/>				
1.2. Knowledge of the changes commonly associated with aging					
a. Biological changes	<input type="checkbox"/>				
b. Physical changes	<input type="checkbox"/>				
c. Cognitive changes	<input type="checkbox"/>				
d. Psychological changes	<input type="checkbox"/>				
e. Social changes	<input type="checkbox"/>				
1.3. Knowledge of conditions affecting the health of older persons					
a. Cardiovascular conditions (e.g. heart disease, cerebrovascular diseases, inflammatory heart diseases, etc.)	<input type="checkbox"/>				
b. Musculoskeletal conditions (e.g. osteoporosis, osteoarthritis, rheumatoid arthritis, Paget's disease, fractures, tendinitis, etc.)	<input type="checkbox"/>				
c. Neurological / cognitive conditions (e.g. delirium, senile dementia, Alzheimer's disease, neuropathies, etc.)	<input type="checkbox"/>				
d. Metabolic / endocrine conditions (e.g. diabetes mellitus, central obesity, dyslipidemia, etc.)	<input type="checkbox"/>				
e. Reproductive disorders (e.g. sexual dysfunction, etc.)	<input type="checkbox"/>				
f. Multifactorial conditions (e.g. frailty, falls, cognitive decline, polypharmacy, depression and other psychosocial issues, etc.)	<input type="checkbox"/>				
1.4. Integration of knowledge of age-related changes when interpreting and performing physical therapy assessment findings and interventions	<input type="checkbox"/>				
1.5. Knowledge of roles and responsibilities of members of interdisciplinary care team for older persons	<input type="checkbox"/>				
1.6. Knowledge of theories related to the Physical Therapy process as it relates to the geriatric population	<input type="checkbox"/>				
1.7. Designing of a comprehensive, appropriate, and evidence-based physical therapy plan of care specific to geriatric population.	<input type="checkbox"/>				
a. Determine the optimal level of function (prognosis)	<input type="checkbox"/>				
b. Formulate therapy goals (long term and short term)	<input type="checkbox"/>				

c. Select physical therapy interventions (e.g. therapeutic exercise, functional training, environmental modifications, physical agents and mechanical modalities, patient / caregiver education, etc.)	<input type="checkbox"/>				
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1.8. Are there knowledge competencies not included in this section of the survey but taught in the pre-clinical / pre-internship entry-level physical therapy curriculum of your academic institution? If so, please specify and rate the extent to which the competencies are taught and write then in the space provided below.

II. Here are practical skills related to physical therapy assessment and design of plan of care. Using the scale above, please rate the extent to which these competencies are taught in the pre-clinical / pre-internship entry-level physical therapy curriculum of your academic institution by checking (✓) the box corresponding to your response.

Practical Skills	N	SE	SO	O	A
2.1. Demonstration of comprehensive and evidence-based assessment specific to geriatric population:					
a. History taking (e.g. personal medical history, family medical history, social history, ancillary procedures, medication, etc.)	<input type="checkbox"/>				
b. Physical assessment (e.g. musculoskeletal system, balance systems, cognitive system, etc.)	<input type="checkbox"/>				
c. Environmental assessment (includes facilitators and barriers in home, work and community)	<input type="checkbox"/>				
d. Conventional objective tests and measures	<input type="checkbox"/>				
e. Standardized tests and measures	<input type="checkbox"/>				
2.2. Demonstrate interventions specific to the geriatric population in a safe and ethical manner.					
a. Therapeutic Exercise	<input type="checkbox"/>				
b. Functional Training in Self-care and Home Management (includes ADL and IADL)	<input type="checkbox"/>				
c. Functional Training in Work, Community, and Integration and Reintegration (includes IADL, work hardening and conditioning)	<input type="checkbox"/>				
d. Prescription and application of devices (e.g. orthotic, protective, supportive, and prosthetic)	<input type="checkbox"/>				
e. Prescription and application of equipment (e.g. assistive and adaptive)	<input type="checkbox"/>				
f. Airway Clearance Techniques	<input type="checkbox"/>				
g. Integumentary Repair and Protection Techniques	<input type="checkbox"/>				
h. Electrotherapeutic Modalities	<input type="checkbox"/>				
i. Physical Agents and Mechanical Modalities	<input type="checkbox"/>				
j. Patient / client / family / caregiver education (advocacy / education)	<input type="checkbox"/>				
k. Provision of professional advice applying highly specialized knowledge and skills in identifying problems, recommending solutions, or producing a specified outcome on behalf of a patient (consultancy)	<input type="checkbox"/>				

2.3. Are there practice competencies not included in this section of the survey but taught in the pre-clinical / pre-internship entry-level physical therapy curriculum of your academic institution? If so, please specify and rate the extent to which the competencies are taught and write then in the space provided below.

III. Here are attitudes / values related to physical therapy assessment and design of plan of care. Using the scale above, please rate the extent to which these competencies are taught in the pre-clinical / pre-internship entry-level physical therapy curriculum of your academic institution by checking (✓) the box corresponding to your response.

Attitudinal Competencies	N	SE	SO	O	A
3.1. Demonstration of intrapersonal competencies:					
a. Valuing for older persons	<input type="checkbox"/>				
b. Reflective thinking on assessment and management of older persons	<input type="checkbox"/>				
c. Sense of social responsibility towards elderly patients/clients and the physical therapy profession	<input type="checkbox"/>				

3.2. Demonstration of interpersonal competencies:					
a. Respect towards older persons	<input type="checkbox"/>				
b. Professional and ethical behavior towards older persons	<input type="checkbox"/>				
c. Cultural competency and cultural sensitivity towards older persons in different societies	<input type="checkbox"/>				
d. Communicate the importance of the role of physical therapists as movement specialists in a geriatric care team	<input type="checkbox"/>				
e. Communicate the importance of the role of physical therapists in the prevention of diseases, and promotion of health, wellness, safety, and improvement of quality of life of older persons	<input type="checkbox"/>				

3.3. Are there attitudinal competencies not included in this section of the survey but taught in the pre-clinical / pre-internship entry-level physical therapy curriculum of your academic institution? If so, please specify and rate the extent to which the competencies are taught and write then in the space provided below.

SECTION 1-B. Content of the Clinical Training / Internship Curriculum

I. Here are practical skills related to physical therapy assessment and design of plan of care. Using the scale above, please rate the extent to which these competencies are taught in the entry-level physical therapy clinical training / internship program curriculum of your academic institution by checking (✓) the box corresponding to your response.

Practical Skills	N	SE	SO	O	A
4.1. Performance of clinical assessments through the use of clinical judgment in making sense of examination data specific to the geriatric population.					
a. Direct observation and patient demonstration	<input type="checkbox"/>				
b. Self-report / personal narratives	<input type="checkbox"/>				
c. Conventional objective tests and measures	<input type="checkbox"/>				
d. Standardized / evidence-based tests and measures	<input type="checkbox"/>				
4.2. Development of a comprehensive program / activity related to disease prevention and health and wellness promotion that incorporate best available evidence specific to older persons and their caregivers.	<input type="checkbox"/>				
4.3. Development of a comprehensive program / activity related to habilitation and rehabilitation that incorporate best available evidence specific to older persons and their caregivers.	<input type="checkbox"/>				
4.4. Development of a comprehensive program / activity related to provision of interventions related to existing and emerging problems that incorporate best available evidence specific to older persons and their caregivers.	<input type="checkbox"/>				
4.5. Development of a comprehensive program / activity related to education of patients / clients / families / caregivers (advocacy / education) that incorporate best available evidence specific to older persons and their caregivers.	<input type="checkbox"/>				
4.6. Development of a comprehensive program / activity related to providing professional advice (consultancy) that incorporates best available evidence specific to older persons and their caregivers.	<input type="checkbox"/>				
4.7. Implementation of program / protocol / plan for intervention specific to the geriatric population in safe and ethical manner.	<input type="checkbox"/>				

4.8. What comprehensive and evidence-based assessment procedures specific to geriatric population are taught in the entry-level physical therapy clinical training / internship program of your academic institution? Please specify and rate the extent to which the competencies are taught.

4.9. Are there practical skills not included in this section of the survey but taught in the entry-level physical therapy clinical training / internship program of your academic institution? If so, please specify and rate the extent to which the competencies are taught and write them in the space provided below.

- II. Here are attitudes / values related to physical therapy assessment and design of plan of care. Using the scale above, please rate the extent to which these competencies are taught in the entry-level physical therapy clinical training / internship program curriculum of your academic institution by checking (✓) the box corresponding to your response.

Attitudinal Competencies	N	SE	SO	O	A
5.1. Demonstration of intrapersonal competencies:					
a. Valuing for older persons	<input type="checkbox"/>				
b. Reflective thinking on assessment and management of older persons	<input type="checkbox"/>				
c. Sense of social responsibility towards elderly patients/clients and the physical therapy profession	<input type="checkbox"/>				
5.2. Demonstration of interpersonal competencies:					
a. Respect towards older persons	<input type="checkbox"/>				
b. Professional and ethical behavior towards older persons	<input type="checkbox"/>				
c. Cultural competency and cultural sensitivity towards older persons in different societies	<input type="checkbox"/>				
d. Communicate the importance of the role of physical therapists as movement specialists in a geriatric care team	<input type="checkbox"/>				
e. Communicate the importance of the role of physical therapists in the prevention of diseases	<input type="checkbox"/>				
f. Communicate the importance of the role of physical therapists in the promotion of health, wellness, and safety	<input type="checkbox"/>				
g. Communicate the importance of the role of physical therapists in the enhancement of quality of life of older persons	<input type="checkbox"/>				

- 5.3. Are there attitudinal competencies not included in this section of the survey but taught in the entry-level physical therapy clinical training / internship program of your academic institution? If so, please specify and rate the extent to which the competencies are taught and write then in the space provided below.

SECTION 2. Perceptions Toward Physical Therapy Education Related to Geriatrics

Please check (✓) the box corresponding to your response.

Here are statements related to geriatric physical therapy. Using the scale below, please rate your perceptions on the breadth and depth to which these competencies are taught in the entry-level physical therapy curriculum of your academic institution by checking (✓) the box corresponding to your response.

Legend:

SD	- Strongly Disagree (0 to 20% of the time)
D	- Disagree (21 to 40% of the time)
N	- Neutral (41 to 60% of the time)
A	- Agree (61 to 80% of the time)
SA	- Strongly Agree (81 to 100% of the time)

	SD	D	N	A	SA
1. The geriatric content of our curriculum is sufficient to prepare the student for entry-level practice in geriatrics.	<input type="checkbox"/>				
2. The geriatric content of our curriculum for physical therapy assessment (examination and evaluation) is sufficient.	<input type="checkbox"/>				
3. The geriatric content of our curriculum for physical therapy treatment planning is sufficient.	<input type="checkbox"/>				
4. The geriatric content of our curriculum for physical therapy treatment implementation is sufficient.	<input type="checkbox"/>				
5. The geriatric content of our curriculum on interdisciplinary care for older persons is sufficient.	<input type="checkbox"/>				
6. It is important that students are exposed to geriatrics in their clinical education / internship.	<input type="checkbox"/>				
7. It is important that students have knowledge on the theories of aging.	<input type="checkbox"/>				
8. It is important that students have knowledge on the biological, physical, cognitive, psychological, and social changes commonly associated with aging.	<input type="checkbox"/>				

9. It is important that students have knowledge of conditions affecting the health of older persons (e.g. cardiovascular, musculoskeletal, neurological / cognitive, metabolic, reproductive, and multifactorial)	<input type="checkbox"/>				
10. It is important that students have integration of knowledge of age-related changes (e.g. biological, physical, cognitive, psychological, and social) when interpreting and performing physical therapy assessment findings and interventions.	<input type="checkbox"/>				
11. It is important that students have knowledge of roles and responsibilities of members of interdisciplinary care team for older persons.	<input type="checkbox"/>				
12. It is important that students have knowledge of theories related to the Physical Therapy process as it relates to the geriatric population.	<input type="checkbox"/>				
13. It is important that students demonstrate comprehensive and evidence-based assessment (e.g. history taking, physical assessment, environmental assessment, and objective tests and measures) specific to geriatric population.	<input type="checkbox"/>				
14. It is important that students can design a comprehensive, advanced and evidence-based physical therapy intervention (e.g. therapeutic exercise, functional training in self-care and home management, functional training in work and community, prescription and application of assistive and prosthetic devices, environmental modifications, etc.) specific to geriatric population.	<input type="checkbox"/>				
15. It is important that students demonstrate valuing for older persons.	<input type="checkbox"/>				
16. It is important that students demonstrate reflective thinking on assessment and management of older persons.	<input type="checkbox"/>				
17. It is important that students demonstrate a sense of social responsibility towards older persons and the physical therapy profession.	<input type="checkbox"/>				
18. It is important that students demonstrate respect towards older persons.	<input type="checkbox"/>				
19. It is important that students demonstrate professional and ethical behavior towards older persons.	<input type="checkbox"/>				
20. It is important that students demonstrate cultural competency and cultural sensitivity towards older persons in different societies.	<input type="checkbox"/>				
21. It is important that students communicate the importance of the role of physical therapists as movement specialists in a geriatric care team.	<input type="checkbox"/>				
22. It is important that students communicate the importance of the role of physical therapists in the prevention of diseases and promotion of health, wellness, safety, and quality of life of older persons.	<input type="checkbox"/>				

SECTION 3. Information

Please fill in all the blanks with the necessary information and check (✓) the box corresponding to your response.

1. Current position held:
 - Department head / chairperson
 - Full-time faculty (100% academic teaching)
 - Part-time faculty
 - Adjunct or lecturer (no teaching load)
 - Clinical educator (100% clinical supervisor)
 - Others (please specify): _____
2. Age: _____
3. Sex: _____
4. Highest academic achievement:
 - Tertiary education
 - Masteral degree
 - Doctoral degree
5. Number of years as a physical therapy educator:
 - <6 months
 - 6 months to 2 years
 - 2 years to 5 years
 - 5 to 10 years
 - >10 years
6. Area of specialization: _____
 - Academic/Teaching
 - Advocacy

- Community-based rehabilitation
- Geriatric PT
- Health and wellness promotion
- Musculoskeletal PT
- Neurologic PT
- Pediatric PT
- Sports PT
- Others (please specify): _____

7. Current main practice setting (spent >50% of time as a physical therapist):

- Academe
- Community
- Hospital
- Out-patient clinic
- Others (please specify): _____

8. Name of affiliated academic/clinical institution: _____

9. Status of accreditation of affiliated institution: _____

10. Date: _____

11. In column A, please list all the courses you have taught in the past 3 years. In column B, please check whether there is content related to geriatrics / gerontology.

Column A	Column B
List of courses taught in the past 3 years	The course contains significant geriatric / gerontology content (Yes or No).
1.	
2.	
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To enrich the quantitative data, we invite the participants, who are department chairpersons, department heads, or those holding an administrative position, to participate in a follow-up one-to-one interview that will last for 60 minutes. Please provide us with your contact information if you would like to participate in the interview.

1. Full Name (Surname, First Name, Middle Initial): _____
2. Current address: _____
3. Email address: _____
4. Contact number (mobile or landline): _____