DOI: 10.1590/1807-57622017.0466

Interprofessional education and aging:

analysis of pedagogical health projects*

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This article analyzes the inclusion of the aging and interprofessional education topics in the education of Family Health Strategy (ESF) and Family Health Support Center (NASF) professionals by analyzing their courses' pedagogical projects. The article is based on a qualitative documentary research held in the state of Rio Grande do Norte, Brazil. The pedagogical projects were analyzed based on the content analysis method using the thematic analysis procedure in two predetermined recording units: (i) professional competencies and (ii) curricular structure. As part of the results, none of the courses investigated in this study offer an interprofessional health education addressing deeper aging discussions.

Keywords: Aging. Elderly health. Interprofessional education. Professional health education. Family health.

* This article is based on the main author's Master's thesis presented in the Postgraduate Program in Health Sciences of Universidade Federal do Rio Grande do Norte.

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Introduction

To the detriment of political and social achievements, as well as of science and technology advances, increase in life expectancy and in the proportion of elderly people (≥ 60 years old) has become a global phenomenon[1]. In Brazil, there has been a decrease in birth rate and an accentuated increase in elderly people, which will intensify in the next decades[2].

An increase in morbidities and functional inabilities, and a decrease in independence and autonomy, as well as an increase in the number of hospitalizations in intensive care units, are incorporated into the accelerated aging process of the population[3]. Faced with this demographic transition, it is necessary to invest in Brazilian National Health System (SUS) in order to provide answers to the elderly needs[4,5].

SUS aggregates healthcare management, social participation and education actions, being defined as an intersectoral and interprofessional space[6]. In this sense, the importance in strengthening education and interprofessional work to qualify a comprehensive elderly healthcare is highlighted, being an alternative response to health issues suffered by this part of the population[7,8].

The interprofessional education's and the Brazilian public health's principles are aligned[9], based on a significant interactive education and on the exchange of knowledge among different professionals[10,11]. Besides being better prepared to work in teams and according to SUS' principles based on comprehensive care through interprofessional education, students and future health professionals become more agile to deal with difficulties in the daily work routine[12].

Over the last decades, interprofessional education has gained ground as an important component to education and healthcare transformation under the perspective of a collaborative and effective work development[11,13]. However, in Brazil, the prevailing health education model is still characterized as uniprofessional, focused on isolated disciplines, in the fragmentation of care and of biomedical practice, diverging from SUS' and the National Curricular Guidelines' recommendations for health courses[14].

Additionally, in elderly healthcare, organizing health networks coordinated by primary healthcare teams is necessary, but particularly by Family Health Strategy (ESF) and Family Health Support Center (NASF) professionals[15]. Attempts to organize the primary healthcare in Brazil date back to 1920, with the creation of different proposals in different regions of the country[16]. However, efforts to strengthen primary healthcare only began in the 1990s through SUS' decentralization process, with guaranteed transfer of federal resources to states and cities.

Still in the 1990s, specifically in 1994, the Brazilian Ministry of Health created Family Health Program (PSF), which derives from Community Health Agents Program (PACS), founded in 1991 with the objective of reorienting the care model based on primary healthcare and in compliance with SUS' principles[17]. Based on health promotion and protection, as well as prevention of aggravations, either individually or collectively, PSF became SUS' structuring axis, being called Family Health Strategy (ESF) in 2006[18].

According to National Primary Care Policy (PNAB), instituted on October 21, 2011 through Directive no. 2488 of the Brazilian Ministry of Health, ESF is SUS' main gateway and the main means of communication between users and healthcare networks. Care provided by ESF's team of professionals at home or in primary care units values the subjects' singularity and life stories, building bonds between users and health services[19].

In order to strengthen even more the primary healthcare in Brazil and expand ESF professionals' scope of action, the Brazilian Ministry of Health created NASF in 2008 through Directive no. 154. NASF and ESF professionals coordinate the health system based on primary healthcare, providing a comprehensive care to other levels of the service. Additionally, with the matrix support, these professionals aim at breaking vertical and hierarchized work practices[20].

Regarding elderly health, comprehensive care under the ESF scope requires a group of professionals that goes beyond doctors, such as community health agents, dental surgeons, nurses, nursing technicians, oral health technicians and NASF professionals[6]. These professionals should work based on collaborative practice and promote actions in favor of an active aging[21].

Therefore, in order to identify if the professional health education is as expected in providing care to the elderly population, this article is aimed at analyzing the inclusion of the aging and interprofessional education topics in the education of ESF and NASF professionals.

Methodology

Research characterization

This article results from a qualitative documentation research conducted in the Brazilian northeastern state of Rio Grande do Norte (RN). The Northeast is the second region of the country with the largest number of elderly people, comprising approximately 29% of the entire Brazilian elderly population[22]. Additionally, according to the demographic census conducted in 2010 by Brazilian Institute of Geography and Statistics (IBGE), 10.8% of RN's population is comprised of ≥ 60-year-old people[23].

In order to achieve the research's objective, the pedagogical projects of the courses that comprise the ESF and NASF teams of professionals (Chart 1) were searched and analyzed.

Chart 1. Characterization of ESF and NASF teams of professionals. Brazil, 2012.

ESF professionals	
Mid-level professionals	Community health agent, oral health technician, nursing technician
Higher-level professionals	Dental surgeon, nurse, doctor
NASF professionals	
Higher-level professionals	Social worker, physical educator, pharmacologist, physiotherapist, speech-language pathologist and audiologist, occupational therapist, visual arts educator and public health officer

Source: Brazilian Ministry of Health, 2012.

Data collection

The research data were collected by analyzing the pedagogical projects of the courses related to the professions listed in Chart 1. Initially, seventy courses registered in the Brazilian Ministry of Education's information systems were identified, taught in public and private education institutions of RN (Table 2). In order to identify mid-level courses, National Information System for Professional and Technological Education (SISTEC) was consulted, and in order to identify higher-level courses, Regulatory System of Higher Education (e-MEC) was consulted.

Subsequently, the pedagogical projects were analyzed with the coordination of the identified courses by accessing their institutional web pages, by e-mail or in person. Consequently, an analysis of 57 pedagogical projects was provided (Chart 2). The entire data collection process was held from June to August 2016.

Chart 2. Quantitative distribution of pedagogical processes analyzed by course. Rio Grande do Norte, 2016.

Course	Total number of courses	Number of courses offered by private institutions	Number of pedagogical projects offered and analyzed	Number of courses offered by public institutions	Number of pedagogical projects offered and analyzed
Baccalaureate in Arts and Education	01	00	00	01	00
Baccalaureate in Physical Education	07	05	05	02	02
Baccalaureate in Nursing	11	09	06	02	02
Baccalaureate in Pharmacology	05	04	02	01	01
Baccalaureate in Physiotherapy	06	05	04	01	01
Baccalaureate in Speech-Language Pathology and Audiology	02	01	01	01	01
Baccalaureate in Health Systems and Services Management (Collective Health)	01	00	00	01	01
Baccalaureate in Medicine	03	01	01	02	02
Baccalaureate in Nutrition	06	05	04	01	01
Baccalaureate in Dentistry	03	01	01	02	02
Baccalaureate in Psychology	07	06	04	01	01
Baccalaureate in Social Work	11	09	06	02	02
Baccalaureate in Occupational Therapy	01	01	01	00	00
Community Health Agent Technician	02	00	00	02	02
Nursing Technician	02	00	00	02	02
Oral Health Technician	02	00	00	02	02
Total	**70**	**47**	**35**	**23**	**22**

Source: Brazilian Ministry of Education, 2016.

Data analysis

The pedagogical projects were analyzed based on the content analysis method, in the thematic modality, contemplating the pre-analysis, material exploration and data interpretation phases. According to Minayo[24], in qualitative researches, content analysis is used to support subjective text interpretation. The topic, on the other hand, is a significant element identified by analyzing a given textual content, denotating reference amounts and behavior models present in the discourse, which will contribute to the formulation of thematic units[24].

In this sense, the aging and interprofessional education topics, defined as this study's object, were analyzed in two predetermined recording units: professional competencies and curricular structure. We decided to analyze these topics in both recording units because, according to the National Education Guidelines and Framework Law[25], the competencies consist on the ability to mobilize, articulate and practice the necessary values, skills and knowledge for the efficient development of the required activities for the job.

Additionally, these competencies can be provided through specific topics in the curricular structure of each education. Therefore, the recording units defined herein that must be included in the pedagogical projects significantly influence each health professional's knowledge and practice. Data were analyzed from September to November 2016.

Ethical aspects

Since this is a documentation research of public domain documents, it was not necessary to submit the research project for the Research Ethics Committee's appreciation and opinion, according to the guidelines or Resolutions no. 466/2013 and no. 510/2016 of the National Health Council.

Results

Firstly, some information about the courses and education institutions who took part in this study will be described to facilitate understanding of the results. We identified 70 courses for the 17 professions involved in ESF and NASF. These courses were offered by 16 education institutions, most of them (82%) private. Furthermore, 62% of the total number of education institutions are focused in the metropolitan region of the city of Natal, capital of the state.

It is worth highlighting that 81% of the Nursing courses, 80% of the Pharmacology courses, 83% of the Physiotherapy courses, 86% of the Psychology courses and 81% of the Social Work courses that prepare professionals who comprise the ESF and NASF teams are offered by private institutions. Among all the 70 courses, 57 (81%) of them provided their pedagogical projects for this research.

However, the pedagogical projects of 13 courses (19%) were not analyzed for two reasons: they were not published on the education institution's web page or the education institutions refused to provide them. Therefore, the pedagogical project of the Arts and Education course (visual arts educator) was not analyzed because the only institution that offers this undergraduate course in the state did not provide the institutional document.

Based on the operationalization of the analyses of the professional competencies and curricular structures described in the pedagogical projects in light of the aging and interprofessional education topics, two analytical categories emerged: uniprofessional education and aging secondarization.

Category 1: uniprofessional education

The professional health education described in the analyzed pedagogical projects is in line with the education model described in the National Curricular Guidelines, aiming at a generalist, humanistic, critical and reflective education of future health professionals, according to the following excerpts:

> The course prepares professionals with a generalist, humanistic, critical and reflective profile to work in different healthcare levels based on technical and scientific rigor [...] in articulation with new diagnosis and clinical-surgical treatment technologies [...]. (Excerpt from the pedagogical project of the Dentistry course offered by a private institution of the metropolitan region of Natal)

> Professionals should be provided with a generalist education with theoretical, methodological and political competencies, and the ability to critically and proactively analyze different political and professional work spaces [...]. (Excerpt from the pedagogical project of the Social Work course offered by a public institution of a city in RN)

> [...] The course offers its future nurses a generalist education based on which they will be able to practice their profession with an ethical and humanist behavior, directly assisting health system's users and coordinating the nursing care process [...]. (Excerpt from the pedagogical project of the Nursing course offered by a private institution of a city in RN)

However, none of the pedagogical projects provide for the development of competencies so that professionals are able to work towards the elderly population's health needs, particularly regarding interprofessional practice providing comprehensive care and development of autonomy, protagonism and interdependence of the aging subject.

> [...] Professionals should develop all aspects related to the study of drugs: research, production, trade, release, pharmaceutical care and surveillance. This education also covers the pharmacologist's social education as a health professional, as well as education for clinical and toxicological analyses, and for the drug industry [...]. (Excerpt from the pedagogical project of the Pharmacology course offered by a private institution of the metropolitan region of Natal)

> [...] Conduct patient appointments, assessments and reassessments collecting data and requesting, taking and analyzing propaedeutic and complementary tests that enable to draw a kinetic-functional diagnosis to decide on and quantify the appropriate physiotherapeutic interventions and conducts to treat Physiotherapy disorders [...]. (Excerpt from the pedagogical project of the Physiotherapy course offered by a private institution of the metropolitan region of Natal)

We also noticed none of the courses offer curricular components that deal with aging in an interdisciplinary and interprofessional way, as shown by the following excerpts:

> The curricular component aims at identifying the main theoretical contributions of Developmental Psychology in its physical, cognitive and psychosocial dimensions to understand the health/disease process in adulthood and aging [...]. (Excerpt from the syllabus of the curricular component Adulthood and Aging in Health of the Psychology course offered by a public institution of the metropolitan region of Natal)

> [...] Provide theoretical and practical knowledge on the process of physical assessment and prescription of physical exercises to elderly individuals aimed at health and life quality [...]. (Excerpt from the syllabus of the curricular component Assessment and Prescription of Exercises to the Elderly of the Physical Education course offered by a public institution of the metropolitan region of Natal)

Since the pedagogical projects of the courses mentioned above does not provide for the development of competencies to work in interprofessional elderly healthcare, we believe this justifies the lack of content that enables this development.

In these situations, professional education in elderly healthcare is exclusively based on the assistance of chronic degenerative diseases and on the identification and prevention of health damages. Additionally, this is a uniprofessional education, i.e. isolated among students from the same course.

> [...] Health professionals should be able to develop health prevention, promotion, protection and rehabilitation actions within their professional scope [...]. (Excerpt from the pedagogical project of the Nutrition course offered by a private institution of the metropolitan region of Natal)

> [...] Prepare professionals who are socially responsible and able to work towards preventing, rehabilitating and curing people, improving their quality of life and keeping an investigative and critical-reflective sense when in search for improvement [...]. (Excerpt from the pedagogical project of the Physiotherapy course offered by a private institution of the metropolitan region of Natal)

Category 2: aging secondarization

In some situations, such as in the Community Health Agent Technician and Nursing Technician courses, both from a private institution in the metropolitan region of Natal; Social Work course of a private institution in a city of RN; and Nursing courses of two education institutions (one public and one private) in the metropolitan region of Natal and of one public institution located in a city of RN, the aging and elderly health topics are jointly dealt with other life cycles (children, teenager and adult health).

> [...] Primary care practices: education in health, health, epidemiological and public health surveillance; immunization; family planning, prenatal care; cancer prevention, prevention and control of STDs/AIDS and vaccine-preventable diseases; prevention and control of mental, worker and elderly health risks and aggravations [...]. (Excerpt from the syllabus of the curricular component Primary Family Care and Health of the Nursing course offered by a public institution of the metropolitan region of Natal)

> [...] Develop health promotion and prevention actions and prevent risks and aggravations in life cycles; support and follow the pregnancy cycle development; follow the child's growth and development and their vaccination as planned by the health team; conduct health promotion and prevention actions, prioritizing teenagers' vulnerability situations; develop and follow the National Men's Health Policy's actions; follow the aging process and vulnerability situations of elderly people [...]. (Excerpt from the syllabus of the curricular component Family and the Community Health Agent Work of the Community Health Agent Technician course offered by a public institution of the metropolitan region of Natal)

In other situations, such as in the Medicine course of a public institution in a city of RN; Physiotherapy course of a private institution in the metropolitan region of Natal; and Physiotherapy, Nutrition, Medicine, Psychology and Occupational Therapy courses of another private institution also in the metropolitan region of Natal, the aging and elderly contextualization is reduced to biological and physiological aspects.

> [...] Elderly studies and professional practices aimed with disease promotion and preventive actions, cognitive stimulus and occupational therapeutic treatment of diseases resulting from physiological changes in elderly people [...]. (Excerpt from the curricular component Geriatrics and Gerontology Internship of the Occupational Therapy course offered by a private institution of the metropolitan region of Natal)

Despite this predominance in secondarizing or simplifying the aging discussion, there are curricular components contrary to this mainstream. The pedagogical project of the undergraduate Physiotherapy course of a public institution in the metropolitan region of Natal, for example, has a curricular component called Gerontology. Its main objective is to provide students and future health professionals with a multidimensional understanding of aging. However, this curricular component is not required in the physiotherapist education yet and is uniprofessional.

> [...] Reflection upon the main topics in Gerontology and Geriatrics through a multidimensional study of the aging process, focusing on preventing and rehabilitating problems that affect the elderly's health and quality of life. Analysis of the necessary theoretical and methodological elements to assess the health dimensions, intervention programs and their influences in the elderly wellbeing [...]. (Excerpt from the curricular component Gerontology of the Physiotherapy course offered by a public institution of the metropolitan region of Natal)

It is worth highlighting that the education institution mentioned in the previous paragraph also offers the curricular component Health and Citizenship. In this curricular component, undergraduate health students are inserted into primary healthcare services, with or without ESF, in order to understand, through interprofessional education and questioning the pedagogical method, the social demands of the population that uses SUS. However, there is no discussion of aging-related issues.

> [...] The Health and Citizenship (SACI) discipline aims to integrate teaching based on a basic/professional, theoretical/practical interaction with health services and the community. It aims at offering beginner health students an environment that provides for reflection of the population's health issues and the community's healthcare activities in order to establish

> education, health and citizenship relationship through interdisciplinary and interprofessional work [...]. (Excerpt from the syllabus of the curricular component Health and Citizenship offered by a public institution of the metropolitan region of Natal)

Another example refers to the Medicine course in the city of Caicó, in RN. Its curricular structure is organized by knowledge nuclei made up of different curricular components. Among these knowledge nuclei, there is one specific to elderly healthcare called Geriatrics.

This nucleus covers physiological, epidemiological and social issues of the aging and demographic transition processes experienced in Brazil. It also covers the topic related to the elderly population's health promotion, but uniprofessionally.

> Epidemiological aging concepts and aspects. The aging process and its physiological changes. Geriatric practice principles – health-disease process. Major geriatric syndromes: mental disorders, incontinences and traumas (falls). Degenerative diseases of the central nervous system: Alzheimer, dementia, Parkinson disease. Pharmacological and psychological aspects [...] Geriatric rehabilitation and health promotion. The aging impact and the perspective of death. Doctor-patient-caregiver relationship. Ethical aspects in Geriatrics. (Excerpt from the syllabus of the curricular component Geriatrics of the Medicine course offered by a public institution of a city in RN)

Discussion

In health work, professional education is a permanent discussion. From 1990 to 2010, for example, most of the scientific productions (71.2%) related to work and education in health were related to the qualification of human resources to work in SUS[26]. Besides the scientific production, we can also observe a relative expansion in health professional education courses in the Brazilian educational system[27].

However, the regional concentration of health teaching institutions, particularly in metropolitan regions, as well as the disorderly proliferation of courses, mostly higher education ones, has resulted in the education of professionals with an inadequate profile to provide support to the population's health needs[28]. Health teaching institutions tend to hypervalue specific areas, limiting the education of professionals to specific knowledge, without acknowledging the health needs' scope and complexity[6]. In this sense, a great challenge to the National Policy for Health Work and Education Management emerges: strengthening the dialog between education institutions and health services in order to provide an interprofessional education according to social transformations and SUS' demands[9,29].

The gap in the interaction between health and education is even bigger when the relationship between elderly health and professional education is highlighted. On the one hand, a strong dependence of elderly people on health services, particularly of long-lived elderly (≥ eighty years old), is evidenced. In the current scenario, they represent the age range that grows the most among the elderly population[30].

This dependence tends to increase in the next years[31], resulting from the demographic transition process occurring not only in Brazil but also in other developing countries, such as Russia, India and China, particularly in a context of significant social inequality[32,33]. On the other hand, in the health courses' pedagogical projects, contextualization of the human aging process is still not significant. It is uniprofessional and often incoherent with professional practice.

Professional health education plays an important role in society, considering students of the existing courses will be future workers who will provide healthcare to the population[34]. Consequently, elderly healthcare requires specific competencies to contextualize the aging process and the development of interprofessional work[35].

In this sense, integrating the teaching process into the daily health service routine, particularly in primary care, is necessary to increasingly align professional practice to the population's needs, in this case, the elderly population's health needs. Besides integrating teaching and service into an aging-based health education, ensuring the development of interprofessional work and teaching practices is also necessary. In order to improve elderly care, it is necessary to trust the interprofessional teams' power[8].

However, none of the courses investigated in this study contemplates a deeper discussion related to the aging topic in an interprofessional way. This fact can be connected to the education institutions' disruption with the social dynamics and consequently with the health services' dynamics, as well as to the teachers' lack of interest in changing their teaching practices.

Teachers' awareness to develop competencies incorporated into the elderly population's health in the future health workforce education in the United States, for example, is still a critical node[36]. However, in order to confirm if this situation is similar to the Brazilian reality and that of the place where this study was held, it is necessary to conduct other researches to extrapolate the documentation analysis, assessing the perception of students and teachers on the pedagogical methods used in professional education focused on aging. Investigating the perception of elderly people regarding care provided by health professionals who work in SUS is also necessary.

In order to avoid elderly healthcare from being restricted and endowed with stigmas and prejudices against aging, it is necessary to encourage changes in the educational model[37]. This change should be based on interprofessional education focused on comprehensive care and active aging, so that professionals are multiplier agents and encourage elderly people to live an autonomous, independent and participatory life[38].

Therefore, it is necessary to implement mandatory curricular components in the education of health professionals, which discuss aging interprofessionally. This curricular components should be based on the understanding of a broader dimension on human aging, involving economic and social aspects, not only curing diseases.

Non-compliance with these requirements will result in the continuity of this health work fragmentation, being increasingly divergent from what is recommended by health policies in Brazil. Among these policies, the National Health Policy for the Elderly establishes that elderly healthcare should follow SUS' principles and be organized by ESF and NASF in order to comply with this population's needs[39].

Final remarks

Even being limited to the curricular content, this research evidenced that uniprofessional education is a prevailing reality in the investigated courses, where students are inserted in an education model that does not contribute to the changes required by elderly healthcare. However, the research indicates important elements for a critical reflection and to build a permanent agenda that enables changes in the way aging is approached in the education of professionals inserted in the ESF and NASF teams. This approach must be interprofessional and consider the social aspects underlying the aging process under the perspective of comprehensive care and collaborative work.

Curricular transformations are only one step to achieve the desired professional profile in elderly healthcare, since they influence but do not determine how practices occur. The concluding study shows the need to mobilize agents from education institutions and health services to discuss and collectively build pedagogical projects that promote the education of health professionals in light of an active aging, interprofessional education and SUS' principles.

Finally, due to the growing increase in the Brazilian elderly population that can consequently result in an increase of this age group in SUS' services, if the elderly population's peculiarities are not duly understood and broadly discussed in the education and practice of health professionals, it will not be possible to ensure a comprehensive care to elderly people.

Authors' contributions

Rafael Rodolfo Tomaz de Lima actively participated in all stages of preparation of the manuscript. Rosana Lúcia Alves de Vilar actively participated in the discussion of the work's results and in the approval of its final version. Janete Lima de Castro and Kenio Costa de Lima actively participated in the review, discussion of the work's results and in the approval of the manuscript's final version.

Acknowledgements

We would like to thank the education institutions of the state of Rio Grande do Norte for providing the pedagogical projects for this study.

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Translator: Caroline Luiza Alberoni

Submitted on 08/17/17. Approved on 06/26/18.