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Research article

Interprofessional education at a Brazilian public university: A document analysis

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ABSTRACT

Background: Interprofessional Education is considered a necessary approach to develop skills for collaborative work in the training of professionals in order to improve the quality of health care. The curricula are the guiding documents for training and should explain how Interprofessional Education is adopted in undergraduate health courses.
Objective: To analyze curricula of undergraduate health courses, from the perspective of Interprofessional Education, in a Brazilian public university.
Design: Qualitative study of document analysis.
Settings: Undergraduate health courses at a Brazilian public university.
Methods: 13 undergraduate health courses were analyzed. Data collection was conducted based on an adapted quality assessment script for Interprofessional Education. From the thematic content analysis, three analytical categories emerged.
Results: In the category "Curriculum organization and interprofessionality", the courses do not make free periods available in the curriculum, and each of the courses provide space for elective subjects at different times. In the category "Training guided by social reality and health needs" the courses propose training based on the health needs of patients from the Brazilian public health system. In the category "Learning for interprofessional action", the term "multiprofessional" characterizes learning for teamwork, with a discrete number of interprofessional disciplines.
Conclusions: The theoretical bases of IPE and organizational goals are necessary to establish training objectives, specific shared times, and mutual interests that are directed to interprofessionality. Interprofessional Education can be expanded from activities that already exist in the curricula of undergraduate courses.

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1. Introduction

Interprofessional Education (IPE) takes place on "occasions when members or students of two or more professions learn with, from, and about each other to improve collaboration and the quality of care and services" [1]. For more than thirty years, IPE has been identified as a powerful approach to improve health systems, due to its possibility for collaborative work and overcoming fragmented work processes [2,3].

The Unified Health System (SUS), the Brazilian public health system, has as one of its principles the integral care, which requires interprofessional work between professionals, teams, and health services. However, health education in Brazil reinforces professional silos, as in other countries such as Canada, the United Kingdom, and the United States, with IPE experiences being generally short-lived and limited to elective [4–6] and extracurricular activities [7].

One of the major challenges to implement and strengthen IPE in health training is to (re)organize curricula for IPE, include it, and make it explicit in the curricula. Since the reorganization of existing curricula is necessary to sustain IPE [5,8], identifying how IPE has been developed is a necessary step to support its effective implementation in the curricula of the students' courses.

Considering the gap in the literature on IPE implementation scenarios and the detailing of curricular processes [9,10], the analysis of curricula can raise discussions and strategy planning for IPE. The objective of this study is therefore to analyze curricula of undergraduate health courses, from the perspective of IPE, in a Brazilian public university. The curricula are documents, periodically updated, that formally guide the education and training of undergraduate courses and present the subjects and activities that can be taken by students. The curricula thus help to determine how IPE is incorporated and how it could be incorporated into health undergraduate courses.

2. Background

Changes in the training of Brazilian health professionals have been driven by inducing policies arising from the articulation between the Ministries of Education and Health, especially since the early 2000s [4,11]. In this context, since 2008 the Education through Work Programme (PET-SAÚDE) [12,13] has been a good example of an attempt to introduce changes to overcome uniprofessional training [14], training professionals and students in the health area based on the needs of patients, and the interaction between teaching and health services. In 2018, after eight annual editions, the theme of PET-SAÚDE was "Interprofessionality", aiming at the development of IPE and its implementation in course curricula [14,15].

Among the changes motivated by the experiences of PET-SAÚDE was the establishment in 2015 of the Brazilian Network of Education and Interprofessional Work in Health (ReBETIS), which brings together educational institutions, researchers, professors, and health professionals involved in education and interprofessional work. In 2017, based on the discussions held by ReBETIS, organized and supported by the Ministry of Health, the national action plan for the implementation of IPE was structured.

One of the plan's lines of action was the strengthening of IPE for the reorientation of undergraduate health courses [13]. The plan also influenced the creation of Resolution No. 569/2017, which established principles and guidelines common to the National Curriculum Guidelines (DCN) of all undergraduate courses in the health area. In order to guide training planning, the DCN emphasized the incorporation of interprofessionality into curricula in the health area [16,17].

Despite the advances and all the efforts made, uniprofessional education is still predominant in undergraduate health courses in Brazil. At the University of Sao Paulo (USP), funded by the state of Sao Paulo, health training converges with the Brazilian scenario. Thus, it is important to analyze how IPE has been included in undergraduate health curricula, discovering paths to train professionals capable of working interprofessionally, with a focus on the needs of patients in the SUS [6,16].

3. Methods

3.1. Design

Study with a qualitative, interpretative approach, conducted from document analysis [18], planned and guided according to the Standards for Reporting Qualitative Research (SRQR) [19].

3.2. Setting

The study was carried out at the USP, in the state of Sao Paulo, Brazil, a free public university that offers a very wide range of undergraduate courses. USP is among the 100 institutions with the best academic reputation in the world, being considered the best university in Latin America [20]. It has 183 courses, with campi in eight cities. Each campus has teaching units, which house one or more undergraduate courses [21].

13 undergraduate health courses across seven teaching units, located on the campi in the city of Sao Paulo, were analyzed. The 13 courses offer approximately 4500 places for undergraduate students. The undergraduate courses include compulsory and elective subjects, and the elective subjects are freely chosen by the student and can be taken in their original course or in other courses.

It is important to highlight that the courses analyzed were included in the PET-SAÚDE/Interprofessionality, between 2018 and 2021, an initiative which aimed at the development of IPE and its implementation in curricula.

3.3. Data collection and instrument

Data collection was carried out in 13 curricula, jointly by the first and second authors, between April and November 2021, based on a quality assessment script for IPE [22], adapted to meet the specifics of the studied site [23].

A pilot study was carried out in the curriculum of the Nursing course to verify the feasibility of the script, improve the guiding questions, and bring the researchers closer to the material to be collected. Some guiding questions were rewritten to facilitate the search for data; however, such changes did not influence the previously collected content.

The curricula were accessed through the USP public academic record system. In order to collect the data, the curricula were initially read in their entirety. Then, using the "locate" feature, the terms "team", "interprofessional", "interdisciplinary", and "multiprofessional" were searched in the titles and texts of the syllabus of the subjects which made up the curricula.

3.4. Data analysis

Thematic content analysis was performed by the first, second and seventh authors, following the steps of pre-analysis, material exploration and treatment of results [24]. Based on a preliminary analysis of each curriculum, records were identified for categorization and critical analysis. Data from each curriculum were collected individually, and their results were organized into categories. The categories that emerged from the individual analyses were grouped, resulting in three final categories [23]. The excerpts extracted from the curricula were identified by the name of the undergraduate course.

Ethics approval

The study was approved by the Ethics Committee of the USP School of Nursing in 2021, under Opinion 4,655,637.

4. Results

4.1. Characterization of courses and curricula

The 13 curricula analyzed belong to the courses listed in Table 1, in teaching units that include one or even four courses.

The initial year of each course varied between 1913 and 2012. The curricula of the older courses were all restructured as from the 2000s, except one course, which gave no information on changes made.

Fig. 1 shows the different geographic locations of Teaching Units at USP included in the study (Fig. 1). There are three groups of units close to each other: EEUSP, FMUSP* and FSP; FCF, FOUSP and IP; and finally, EACH, which is the most distant teaching unit, about 26 km from EEUSP. Although four courses are administratively part of the FMUSP, the students of the Physiotherapy, Speech Therapy, and Occupational Therapy courses are taught in a different location from the Medicine course, and this location is closer to the FCF, IPUSP and FOUSP teaching units.

Table 1
Description of the curricula of the undergraduate courses included in the study. Sao Paulo, 2022.

Teaching unit	Undergraduate course	Initial year of the undergraduate course	Year of the last restructuring of the curriculum of the course
Escola de Artes, Ciências e Humanidades (School of Arts, Sciences and Humanities (EACH))	Physical Education and Health	2005	Not mentioned
	Gerontology*		
	Obstetrics*		
Escola de Enfermagem (School of Nursing (EEUSP))	Nursing	1942	2010
Faculdade de Ciências Farmacêuticas (School of Pharmaceutical Sciences (FCF))	Pharmacy - Biochemistry	1934	2020
Faculdade de Medicine (Faculty of Medicine (FMUSP))	Physiotherapy	1951	2013
	Speech Therapy*	1958	2016
	Medicine	1913	2015
	Occupational Therapy	1958	2013
Faculdade de Odontologia (Faculty of Dentistry (FOUSP))	Dentistry	1934	Not mentioned
Faculdade de Saúde Pública (Faculty of Public Health (FSP))	Nutrition	1939	2012
	Public Health	2012	Not mentioned
Instituto de Psicologia (Institute of Psychology (IP))	Psychology	1957	2003

Source: elaborated by the authors.
*Note: In Gerontology the professional works in the management of health care for the elderly; in Obstetrics they work on women's health during pregnancy, childbirth and postpartum; in Speech Therapy they act in areas related to speech, hearing, swallowing difficulties, orofacial motricity, and voice.

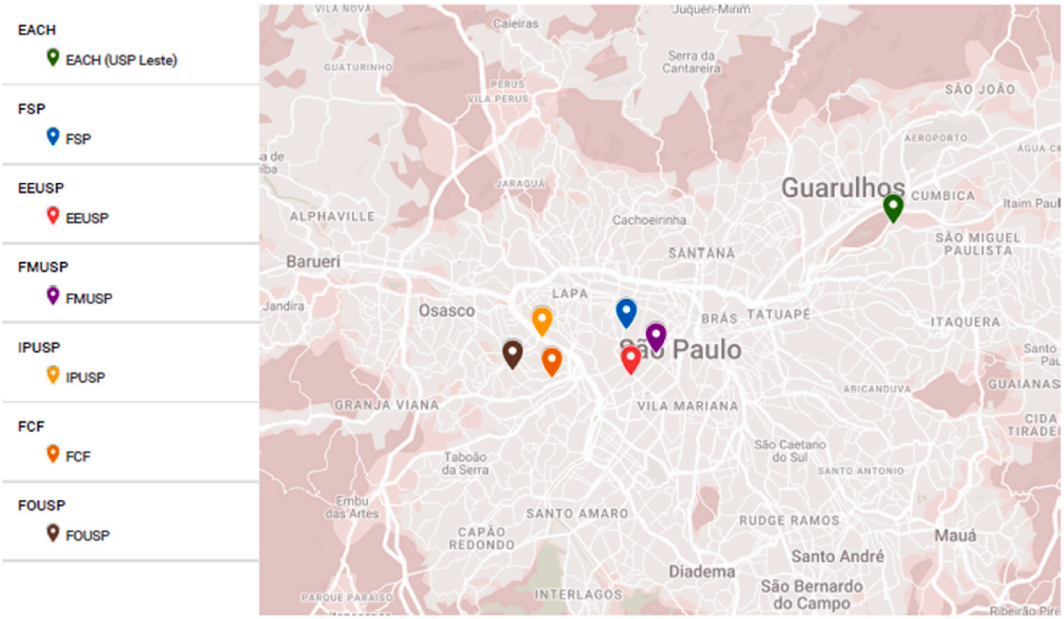

Fig. 1. Geographic location of USP teaching units in the city of Sao Paulo, Brazil. Sao Paulo, 2022.
Source: elaborated by the authors using the Google My Maps application.

4.2. Document analysis of curricula

The final categories that emerged from the document analysis of the 13 curricula were: "Curriculum organization and interprofessionality"; "Training guided by social reality and health needs"; and "Learning for interprofessional action".

4.3. Curriculum organization and interprofessionality

The curricula are organized into cycles, axes, or modules, made up of subjects that may or may not be integrated with each other. In most of the curricula analyzed, the subjects are integrated within each course, but not between courses; that is, the courses promote interdisciplinarity. The Occupational Therapy, Physiotherapy and Psychology courses do not mention the organization of the subjects.

> "It is noteworthy that several disciplines were transformed into thematic modules […], which contain integrated contents […]." (Pharmacy, p. 17)

In terms of free times for activities that are not compulsory, only Speech Therapy mentions two free slots in the student's weekly schedule. The ideal slot to take elective subjects is different according to the course.

> "Completing the course in five years allows for […] the maintenance of at least two "areas of study" (without the existence of formal disciplines) each semester […]." (Speech Therapy, p. 7)

Only the Nursing and Obstetrics courses explain the pedagogical framework that guides the curricula. In the Obstetrics course the critical-reflexive pedagogical framework is mentioned, and in the Nursing course, the dialectical methodology.

> "Among the theoretical references that guide the pedagogical thinking of the project are those which are critical-reflexive, in which the process of knowledge construction is necessarily dialogic […]." (Obstetrics, p. 10)

4.4. Training guided by social reality and health needs

The curricula of the courses contain an appropriate focus on the health needs of the Brazilian population. The Brazil's national Unified Health System (SUS), and their guiding principles steer teaching practices, including joint work between professionals, teams, and health services.

> "*The training of the pharmacist must address social health needs, comprehensive health care in the regionalize*d and hierarchical system of reference and counter-reference, and teamwork, with emphasis on the Unified Health System (SUS)." (*Pharmacy*, p. 8)

The Medicine course attempts to establish partnerships with the community and healthcare system in order to make joint decisions on healthcare priorities for training.

> "[…] the Medicine course seeks to establish a partnership and commitment with the community and the local health system, sharing responsibilities and decisions […]." (Medicine, p. 6)

The alignment of students with the health system and social demands is mainly documented in extension activities and elective subjects. In compulsory subjects training focused on health needs is documented in activities or practical internships related to primary care. In none of these are the IPE goals mentioned.

> "The University Health Project (JUS) is a university extension project […]. It aims, among other objectives, to improve skills and apply the knowledge acquired by students working with the population […]." (Nutrition, p. 33)

> "With regard to places for learning primary health care […] the main objective is to offer FMUSP medical students training in primary health care and an in-depth knowledge of the Unified Health System and the main health problems of the Brazilian population." (Medicine, p. 28)

4.5. Learning for interprofessional action

In general, the curricula do not use the term "interprofessional" to designate teamwork. The term frequently used is "multiprofessional". Less frequently, the terms "interdisciplinary" and "multidisciplinary" are also used, as well as the association of the term "multiprofessional" with the terms "interprofessional" and "interdisciplinary". Twoacademic course descriptions, Speech Therapy and Psychology, do not mention teamwork in their training objectives or professional profile.

> **"**This generalist professional, integrated into the multi/interprofessional team, will be able to act autonomously, taking responsibility for managing care for the elderly and the ageing process in different contexts." (Gerontology, p. 05)

In nine subjects, the purpose of interprofessionality is explicitly mentioned (Table 2), with four subjects compulsory and five elective. The compulsory subjects, although they address the theme of interprofessionality, are uniprofessional, that is, the subject is taught to students of only one course. Four elective subjects are open to students of courses in the health area, and the teaching methodologies used are: group discussions, case studies, seminars, and group presentations. Clinical simulation as a method of interprofessional learning was mentioned in only one of the courses. The assessment for interprofessional learning was mentioned in Pharmacy and Nursing courses, where evaluation included the field diary and group work products, such as a care plan, and peer evaluation.

The interaction between students from two or more courses is also mentioned in seven extension activities, three of them included at FMUSP; one in Nutrition; one in Physical Education; one without course specification; and another between FMUSP and Public Health and Nursing courses. The activities cite an inter-, *trans*-and/or multidisciplinary action in the areas of health promotion, humanization, health education and, health management.

Finally, 19 subjects were also identified that cite teamwork as a learning aim or theme in the teaching programme, four of them in the Nursing course, three in Dentistry, two in Medicine, two in Physical Education, two in Psychology, one in Pharmacy, one in Occupational Therapy, one in Physiotherapy, one in Speech Therapy, one in Obstetrics and one in Gerontology. The 19 subjects are uniprofessional, of which 13 (68%) are compulsory. There is no mention of how learning for teamwork takes place.

Table 2
Subjects with an explicit purpose for interprofessionality. Sao Paulo, 2022.

Course	Type of subject	Courses involved	Themes
Nutrition	Compulsory	Nutrition	Work in Health from the perspective of integrality and interprofessionality
Occupational Therapy	Compulsory	Occupational Therapy	Conceptions of collaborative interprofessional work in care networks
Speech Therapy	Compulsory	Speech Therapy	Integrality, Intersectoriality and Interprofessionality in Health
Medicine	Compulsory	Medicine	SUS principles and guidelines, interprofessional work
Medicine	Elective	Not mentioned	Locomotor system disorders in the elderly and interprofessional approach
Pharmacy	Elective	Courses in the Health area	Perceptions for the exercise of interprofessionality in primary care
Nursing	Elective	Courses in the Health area	Introduction to interprofessionality in health education
Nursing	Elective	Courses in the Health area	Pain control from the perspective of interprofessional collaborative work
Obstetrics	Elective	Gerontology, Obstetrics, Pharmacy, Nursing, Medicine, Physiotherapy, Speech Therapy, and Occupational Therapy	Collaborative interprofessional practice for health promotion

5. Discussion

The organization of the analyzed curricula is aligned with the goal of interdisciplinarity proposed for undergraduate courses at USP [25] and is based on policies that encourage professional reorientation in Brazil [17]. However, there is a gap in the proposal for interprofessionality; that is, the intention of developing goals for IPE are not explicit in the curricula, which contain a predominance of uniprofessional training. Similarly, the educational references identified, when proposing a dialogic perspective in training, are aligned with the communication competence for interprofessional collaboration [26], but they are still restricted to each profession. Most courses do not have a specific educational reference although this definition provides greater clarity in the establishment of objectives and the training path.

Furthermore, with various times for elective subjects and the absence of free periods of study, the courses contain little flexibility for the introduction of interprofessional activities. Furthermore, in view of the different geographic locations and contexts of the courses at USP, the organization of interprofessional activities in a teaching unit or in geographically close teaching units may be an alternative in order to expand IPE [27].

A important common element among the curricula analyzed is the training of students guided by the health needs of the population, a central dimension of IPE [28,29]. In Brazil the SUS is organized by hospital, outpatient, and primary care services, with universal and equal access, and social participation as principles of comprehensive care. The SUS focuses on the health needs of patients, requiring collaborative interprofessional actions [30].

The SUS is responsible for organizing the training of health professionals [31], and thus the DCN for undergraduate health courses guides *"the training of a professional able to act for the integrality of health care, (…) in a collaborative and interprofessional perspective"* [17]. With the exception of the Pharmacy course, which was recently restructured, the health needs in the curricula guide training with a commitment limited to each profession. Training that aims to prepare the student to meet the health needs found in the SUS requires specific skills of the professions, but, above all, collaborative skills in order to carry out complete care [32]. It is thus important to explain the relationship between fulfilling health needs and interprofessionality.

The student experience focused on social reality can be highlighted in the extension activities and disciplines in the area of primary care. Primary care has been predominant in IPE studies in Brazil [33] as teamwork is a fundamental guideline for comprehensive health actions centered on the needs of the community of a region [30]. A similar situation occurs with the extension activities, which develop actions aimed at the social reality and require the articulation of different professional areas. Although they do not have an explicit purpose for IPE, the identified extension activities have potential for development and are one of the strategies for interprofessional training in the SUS.

Community participation in training planning is rarely mentioned in the curricula. Studies highlight the importance of health professionals, students, and, especially, patients being involved in the organization of IPE activities and studies [8,34]. Learning for interprofessional collaboration requires focusing on the patient, so the educational institutions need to bring patients and health professionals together to plan IPE activities. The contact of students with the community in health services may be a way to identify patients and professionals who will construct activities.

Another important step to expand IPE refers to the proper use of the terms "multiprofessional", "interprofessional", "interdisciplinary", and "multidisciplinary" as the terms are used synonymously in the curricula analyzed. When it comes to training for teamwork, the term "interprofessional" is appropriate as it reflects the purposes of articulation and collaboration between different professionals [35].

The four IPE subjects taken by students from different courses have purposes aligned with interprofessionality, using active teaching methodologies for interaction between students [2] and evaluation processes that aim to analyze knowledge, skills, and attitudes [36]. Clinical simulation, or Objective Structured Clinical Observation of Teamwork (T-OSCE), used internationally [5], is mentioned only in an elective subject in one of the curricula, a fact that may be related to the optional nature of the subjects.

Uniprofessional disciplines that address interprofessionality can be important to bring the student closer to the subject, but they cannot be seen as sufficient. Similarly, the subjects that approach the theme of teamwork represent specific learning opportunities. Learning for interprofessional collaboration can only be possible if there is interaction between students from different courses, with a clear intention of IPE [2].

Knowing the historical predominance of uniprofessional education [4], the initial opportunity to insert IPE in the studied curricula is found in optional activities and, in particular, extension activities. The fact that IPE activities are elective during training may lead to the idea that they are less important or non-essential [2,37]. Including IPE as a training objective is a necessary step towards including compulsory interprofessional activities in curricula.

Among the analyzed curricula, Nursing stands out for developing IPE subjects and subjects focused on teamwork. The Medicine and Pharmacy courses also demonstrated new initiatives. These results converge with the world scenario, with Nursing being the profession that most conducts IPE activities, with initiatives also in Medicine and Pharmacy courses [5].

5.1. Enablers to IPE

This study has demonstrated how the IPE is included in the curricula of undergraduate health courses and suggests that educational managers, in partnership with professors, students, professionals, and patients, align documents with IPE references, especially in the adaptation to the terminologies recommended to clarify interprofessionality. This is a first step towards the inclusion of IPE in curricula and may contribute to its expansion and strengthening not only at USP but also in Brazil and in countries where interprofessionality is still incipient, providing insights for other institutions.

5.2. Limitations

The specificities of the training process of health professionals in Brazil, related to the approximation between the education and health systems, may be a limitation for the generalization of the results. As for the curricula, we recognize that they are records of a given historical moment and that there is a limitation in the analysis of their expression and application in teaching practices.

6. Conclusions

From this review of course curricula, two important teaching and learning issues for the development of interprofessional curricula emerged: (1) the understanding of the theoretical bases of IPE and the incorporation of this understanding into the training objectives; and (2) organizational goals, as the implementation of IPE activities requires that the various courses schedule common slots in their timetables in order to bring together students from different courses for IPE training.

Although these two criteria would be necessary for the development of IPE activities, this study identified activities with potential for IPE, showing that it is not necessary to build new curricula for the incorporation and expansion of interprofessionality in courses, even with the predominance of uniprofessional training. Future studies could analyze interprofessional education from the perspective of professors, students, patients, and health professionals, clarifying the issues raised in this study. In addition, future studies might explore the results of this analysis to establish an agenda for interprofessionality.

Author contribution statement

Nathália Romeu de Mazzi; Valéria Marli Leonello: Conceived and designed the experiments; Performed the experiments; Analyzed and interpreted the data; Contributed reagents, materials, analysis tools or data; Wrote the paper.

Stela Beatriz Moreira Barbosa; Raíssa Ottes Vasconcelos: Performed the experiments; Analyzed and interpreted the data; Contributed reagents, materials, analysis tools or data; Wrote the paper.

Camila Mendes da Silva Souza; Vanessa Moreno Blanco; Ana Claudia Camargo Gonçalves Germani: Analyzed and interpreted the data; Contributed reagents, materials, analysis tools or data; Wrote the paper.

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Data availability statement

Data associated with this study has been deposited at Mendeley Data [dataset] Mazzi N, Barbosa S, Vasconcelos R, Silva C, Blanco V, Germani AC, Leonello V. Data from: Interprofessional Education at a Brazilian public university - a document analysis. Mendeley Data, 2022, V1. 10.17632/r9s6bkmmyg.1.

Declaration of interest's statement

The authors declare no competing interests.

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