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History, advances, and perspectives of graduate studies at Instituto de Nutrição Josué de Castro, Universidade Federal do Rio de Janeiro

Trajetória, avanços e perspectivas da pós-graduação no Instituto de Nutrição Josué de Castro, Universidade Federal do Rio de Janeiro

Abstract

The Instituto de Nutrição Josué de Castro (Josué de Castro Nutrition Institute - INJC), at the Universidade Federal do Rio de Janeiro (Federal University of Rio de Janeiro - UFRJ) was created in 1946 as an education and research institution in the field of nutrition. This work, presented in the Perspectives modality, describes the history of graduate education (GE) at INJC, in the year of INJC's 75th anniversary. This work is based on articles, books, documents, reports, minutes, and notes from UFRJ and INJC's Graduate Programs. GE at INJC began in the late 1970s, with the offer of specialization courses. In 1985, the Master's Degree Program in Human Nutrition was implemented. Currently, INJC is the only institution in the field of Nutrition in Brazil that hosts academic master's and doctoral programs, the Graduate Program in Nutrition, and a professional master's program, the Graduate Program in Clinical Nutrition. The institution also offers six specialization courses and integrates four multi-professional internship programs within UFRJ. Consistent favorable indicators express the success of the coordinated efforts of faculty and students of GE Programs in initiatives that prioritize attraction of funding, the implementation of intra- and inter-institutional interdisciplinary projects, and qualified academic production. Graduate education at INJC is linked to undergraduate education and to university outreach programs, contributing to high-quality education and training of human resources in the field of food and nutrition. After 75 years, INJC, through graduate education, reaffirms the social and academic role of Brazilian public universities.

Keywords: Health Postgraduate Programs. Nutritional Sciences. Science Technology and Society.

Resumo

O Instituto de Nutrição Josué de Castro (INJC), da Universidade Federal do Rio de Janeiro (UFRJ), foi criado em 1946 como instituição de ensino e pesquisa na área de Nutrição. Este trabalho, submetido na categoria "Perspectivas", descreve a trajetória do ensino de Pós-Graduação (PG) no INJC, no ano do jubileu dos 75 anos do INJC. Para elaborar este relato, foram consultados artigos, livros, documentos, relatórios, atas e anotações do INJC e da UFRJ. O ensino de PG no INJC teve início no final da década de 1970, com a oferta de dois cursos de especialização. Em 1985, foi implantado o mestrado em Nutrição Humana. Atualmente, o INJC é a única instituição da área de Nutrição no Brasil que abriga um programa acadêmico de mestrado e doutorado, o

Programa de Pós-Graduação em Nutrição, e um programa de mestrado profissional, o Programa de Pós-Graduação em Nutrição Clínica. A instituição oferece, ainda, seis cursos de especialização e integra quatro programas de residência multiprofissional da UFRJ. Indicadores favoráveis consistentes expressam o sucesso do esforço coordenado de docentes e discentes dos Programas de PG em iniciativas que privilegiam a obtenção de financiamento, o desenvolvimento de projetos interdisciplinares intra e interinstitucionais e o incentivo à produção acadêmica de qualidade. A pós-graduação no INJC articula-se com o ensino de graduação e com a extensão, contribuindo para a formação qualificada de recursos humanos no campo da Alimentação e Nutrição. Aos 75 anos, o INJC, por meio do ensino de PG, reitera o papel social e acadêmico da universidade pública brasileira.

Palavras-chave: Programas de Pós-Graduação em Saúde. Ciências Nutricionais. Ciência, Tecnologia e Sociedade.

INTRODUCTION

The Instituto de Nutrição (Nutrition Institute) of the Universidade Federal do Rio de Janeiro (Federal University of Rio de Janeiro - UFRJ) was created in 1946, after the Instituto de Tecnologia Alimentar (Food Technology Institute) was incorporated to the Universidade do Brasil (University of Brazil), with the commitment of establishing a teaching and research institution in the field of Nutrition.¹ In 1996, after completing 50 years, the Institute of Nutrition was named after its founder and first director, i.e., it was renamed Instituto de Nutrição Josué de Castro (Josué de Castro Nutrition Institute, INJC). Since its origin, therefore, INJC has been guided by its vocation for research. In this year of 2021, to celebrate its 75th anniversary, and as a way to consolidate and retrieve its history, the history of graduate education at INJC is described in this paper.

This report was prepared on the basis of articles, books, documents, reports from the CAPES system (Coordination for the Improvement of Higher Education Personnel, Ministry of Education)^a, minutes and notes from the documentary collection of the graduate programs (PPG) of INJC and UFRJ's Sistema Integrado de Gestão Acadêmica ("Integrated Academic Management System", SIGA).

Graduate teaching at INJC began in the late 1970s, when graduate programs were offered as Specialization courses (*lato sensu*) in Clinical Nutrition and in Maternal and Child Nutrition.² They formed the core that led to the creation of the Master's Program in Human Nutrition, in the mid-1980s. This master's course included the concentration areas in Public Health Nutrition, Food Sciences and Nutrition and Dietetics and was the second master's degree program in Nutrition in Brazil and the first in the State of Rio de Janeiro.³

Currently, INJC offers the Graduate Program in Nutrition, the Graduate Program in Clinical Nutrition and six specialization courses (*lato sensu*). In addition, it participates in four residency programs linked to different UFRJ's hospitals. Thus, INJC is the only institution in the field of Nutrition in Brazil that hosts an academic master's and an academic doctoral program, and a professional master's program.

At INJC, graduate programs (GPs) comply with the regulations of the Dean of Graduate Studies and Research at UFRJ, regarding its academic-administrative structure. It is directed by a coordinator and a vice-coordinator, both elected by the segment of the internal community affiliated with graduate programs. The programs have decision-making bodies formed by their respective advisory boards, which are composed of representatives of the professors and students of the respective GPs. Every year, to increase the participation of the INJC's faculty, students, and staff, forums are held to debate topics of interest to the programs. On these occasions, in addition to professors, technicians, and students linked to the GPs, the participation is open to other members of the institution's community and external guests.

The main milestones that contextualize the history of graduate studies at INJC are presented below.

GRADUATE PROGRAM IN NUTRITION

The Graduate Program in Nutrition (PPGN) at UFRJ offers academic master's and doctoral degrees, whose mission is to educate masters and doctors and help them develop critical thinking when performing academic, and scientific activities in teaching, research and in technical activities in the field of Food and Nutrition.

^a General information about INJC graduate programs is available at: Coordination for the Improvement of Higher Education Personnel. Sucupira Platform [Internet]. Brasília: CAPES; c2016 [cited 2021 Jul 11]. Available at: <https://sucupira.capes.gov.br/sucupira/public/consultas/coleta/programa/quantitativos/quantitativoBuscaAvancada.jsf;jsessionid=FHj807fSxH3PndNnEASvoUq.sucupira-215>

The PPGN was created in 1985, through the implementation of the Master's course in Human Nutrition, based on an agreement between INJC and the German technical cooperation agency GTZ^b. It was the first master's degree in Nutrition in the state of Rio de Janeiro. In the early 2000s, PPGN underwent a process of reformulation and, since then, it has evolved in a consistent and positive fashion. This way, the indicators that measure its performance have continuously evolved. In 2006, the Doctorate in Nutritional Sciences was implemented. It was also the first doctorate in Nutrition in the state of Rio de Janeiro. Owing to the permanent evolution of the program's performance indicators, as a result of the joint effort of the faculty and the students, PPGN was awarded grade 6 in 2017. It is currently one of the top three graduate programs in the field of Nutrition in Brazil.

At the moment, 17 tenured professors and four collaborators are part of the board of PPGN's accredited advisors, who work in four lines of research: Nutritional Biochemistry, Food Science and Technology, Nutritional Epidemiology and Micronutrients. The academic background of the faculty is diversified and meets the specificities of the lines of research. Most professors have completed post-doctoral internships, missions and/or training courses abroad, which has favored the internationalization of the program.

PPGN's curriculum structure is designed to promote the education of human resources capable of integrating scientific thinking with a broad vision of scientific research applied to social issues. The mandatory courses of the master's and doctoral degree programs favor and encourage interaction and exchange of experiences between students and professors from the different lines of research in the program, thus promoting interdisciplinary education. The mandatory courses amount to a total of 285 hours in the master's program, and 405 hours in the doctorate. These courses address content aimed at: (i) theoretical and methodological foundation, update of ethics and bioethics contents, and data analysis and management in the context of scientific research; (ii) provision of scientific writing tools; (iii) support for didactic-pedagogical qualification; and (iv) scientific debate within the scope of research in the field of Nutrition. To complete the class hours of the courses, students in the Master's and Doctoral programs must complete at least 75 h and 135 h of elective courses, respectively, so that they can complement their education.

Until August 2021, 388 and 100 students at PPGN had respectively earned their Master's and doctoral degrees; currently, there are 86 students enrolled: 31 in the Master's and 55 in the Doctoral Program. Also, there is a remarkable number of recent PhD holders at PPGN, which demonstrates its high capacity for development of other graduate programs; 20 post-doctoral students are currently enrolled at PPGN.

The main outcomes from dissertations and theses defended within the scope of PPGN include publications in Brazilian and international journals, books and book chapters. In the last quadrennium (2017-2020) of evaluation of the GPs by CAPES, PPGN had published 307 articles in journals, of which 48% in CAPES Qualis^c A1 and A2 journals, and 66% in journals in the A1, A2 and B1 strata; 20% of the articles had been co-authored by international researchers. Between 2017 and 2020, there was an increase by about 30% in the number of articles published by PPGN, while publications in the Qualis A1 and A2 strata increased by almost 40%. Students participated in the authorship of 70% of the articles produced in the program over the last four years, while student participation in articles published in Qualis A1 and A2 journals increased from 26% to 38%. Of the 60 books and book chapters produced in the quadrennium, 38% had the participation of students and/or graduates of the program, 10% were co-authored by a foreign researcher, 17% were published by university publishers and 70% were peer-reviewed. These indicators demonstrate that PPGN continues to evolve within the scope of research in the field of Nutrition.

^b GTZ: *Deutsche Gesellschaft für Technische Zusammenarbeit* [German Technical Cooperation Agency], currently GIZ - *Deutsche Gesellschaft für Internationale Zusammenarbeit* [German Agency for International Cooperation] (<https://www.giz.de/en/html/index.html>)

^c the classification of journals by CAPES is available on the Plataforma Sucupira (Sucupira Platform) at <https://sucupira.capes.gov.br/sucupira/public/consultas/coleta/veiculoPublicacaoQualis/listaConsultaGeralPeriodicos.jsf>

GRADUATE PROGRAM IN CLINICAL NUTRITION

In 2012, INJC proposed the creation of a professional master's degree aimed at meeting the demands of the profession, the labor market and society. The Professional Master's Degree Program in Clinical Nutrition (PPGNC) was then created. It was one of the four professional master's programs in the field of Nutrition in operation in Brazil, and it was the first to be implemented in a public higher education institution.

This professional master's degree was designed to meet the repressed demand of professionals in the field of Clinical Nutrition who were interested in improving their professional skills at the master's level and the demands of the labor market for professionals with a critical and innovative vision that can promote the transformation of their workplace. At that time, there were no professional master's courses focused on Clinical Nutrition in Brazil, and the need to consolidate this area of activity within GPs in the country was considered to be imperative. Thus, with PPGNC, a pioneering *stricto sensu* environment was created for technical and scientific qualification of professionals working in Clinical Nutrition, adding scientific innovation to the labor market, with two lines of research: Food and Nutritional Products with Application in Clinical Nutrition and Processes and Protocols in Clinical Nutrition, which comprehensively address clinical-nutritional treatment. Consistent with the profile required by CAPES for this modality, PPGNC offers specific courses, whose syllabus meets the Program's research lines and the demands of the field of Clinical Nutrition.

The Professional Master's Degree in Clinical Nutrition at PPGNC has a total number of 360 class hours - 270 of which correspond to mandatory courses. Until June 2021, 58 students at PPGNC had earned their master's degrees; currently, 19 students are enrolled in the program, which has 15 accredited professors: 11 permanent members and four collaborators.

PPGNC's academic production includes articles in Brazilian and international journals, books and book chapters and technical/technological products, which include, for example, instructional materials, professional education courses, organization of scientific events and technical-scientific reports.

In 2021, PPGNC will be assessed by CAPES for the second time, relative to the 2017-2020 quadrennium, when there was more than a three-fold increase in the number of articles published annually, from 14 in the first year to 47 in the last quadrennium year. Most importantly, the proportion of articles in Qualis A1 and A2 journals increased sixfold - from 7% in 2017 to 47% of the total articles published in 2020. In addition, in this quadrennium, the inclusion of students in the scientific production of PPGNC increased considerably.

LATO SENSU GRADUATE STUDIES

Lato sensu graduate studies offer a more flexible strategy to meet the demands of process-related and technical innovation and new fields of activity, allowing for a closer relationship between academia and society. Thus, INJC maintains the tradition of offering *lato sensu* courses, in line with the norms established by UFRJ for graduate education. Currently, these degree programs are funded by the students themselves. Such funds generate resources to ensure their offer and expansion, in line with the current regulatory standards of the Dean of Education for Graduates at UFRJ.

In addition to the two first *lato sensu* graduate courses mentioned above, the first Specialization Course in Nutritional Interventions in Public Health was offered in 1994, and the Specialization Course in Institutional Food: Emphasis on Planning and Control was offered in 1998, and the Specialization Course in Nutrition for Obstetrics and Pediatrics, in 2000. All these courses were offered for a limited period of time.

In 2003, the Specialization Course in Clinical Nutrition (CENC) was implemented. It is the longest-lasting at INJC and is in force to this day. This course offers classes in other cities in the state of Rio de Janeiro, and has already enabled the education and training of more than 700 nutritionists.

As of 2019, new specialization courses were implemented at INJC, namely: Phytotherapy Applied to Clinical Practice (CEFITO), Functional Nutrition Applied to Clinical Practice (CENUF), Collective Feeding (CEAC), Nutritional Therapy in Pediatrics (TENUTPED) and Nutritional Therapy (CETNUT). Together, these courses offer more than 600 vacancies per year and enable education and training in different professional scenarios in the field of Food and Nutrition. The specialization course in Drinks and Gastronomy is being currently planned. It is the first graduate-level initiative at UFRJ in the field of Gastronomy (which is the second undergraduate course offered by INJC).

The need to offer in-service training gave rise to the creation of multidisciplinary residency programs, in cooperation with UFRJ hospitals and other UFRJ units in the field of health and human sciences. These are the current programs: Integrated Multiprofessional Residency in Health, at the Hospital Universitário Clementino Fraga Filho (*University Hospital Clementino Fraga Filho*); Multiprofessional Residency in Family and Community Health, at *Hospital Escola São Francisco de Assis (School Hospital São Francisco de Assis)*; Multiprofessional Residency in Perinatal Health, at the Maternidade Escola (*Maternity School*); and Residency in Child and Adolescent Health, at the Instituto de Puericultura e Pediatria Martagão Gesteira (*Institute of Child Care and Pediatrics Martagão Gesteira*).

The different *lato sensu* graduate courses are an intersection between different fields of practice and teaching with academic research, often attracting talented academics interested in *stricto sensu* graduate studies. Furthermore, the production of final research papers is a fertile field for pilot studies that often expand (and improve) into a master's thesis. The professors from master's and doctoral programs also participate in *lato sensu* courses, thus consolidating the integration of graduate studies at INJC.

ACADEMIC AND SOCIAL IMPACT OF GRADUATE STUDIES AT INJC

GPs at INJC promote social inclusion to a large extent; this is very clear, for example, in the student admission process, which is in line with UFRJ's proposal to bring the university closer to society in a broad and diverse fashion. Thus, the GPs offer vacancies that favor affirmative actions, in particular, for self-declared black, brown and indigenous people and people with disabilities, under the terms of the legislation.

Both GPs seek to follow the guidelines of UFRJ's Institutional Development Plan, encouraging faculty and students to be closer to society. The GPs have organized events to broaden the knowledge produced and include external participants in the programs. In addition, faculty and students actively participate in academic and scientific events within the scope of INJC and UFRJ, as well as in local, regional, national and international events which reach a wide audience. They participate in different ways, whether as authors, members of scientific and organizing committees, and paper reviewers. Particularly at PPGNC, technical/technological production has been encouraged with a view to practical application in nutrition in different public and private institutions.

In recent years, the visibility of INJC's GPs has increased, owing to investments to improve and update communication channels with the external public. Such strategies are aimed at disseminating information about the programs, their lines of research, admission procedures and other information of interest, which is available on the websites of each program (<http://www.ppgn.ufrj.br>; <http://www.ppgnc.injc.ufrj.br>). Both faculty and students of the GPs have sought to increase their social media presence by disseminating information on scientific activities on Instagram and Facebook^d profiles and INJC's YouTube channel (<https://www.youtube.com/channel/UCICXd3h32wXCQh0DiB-J1fQ>).

^d Instagram: @gisan.ufrj; @crianca_verde_legal; @nutricao materna infantil_gpsmi, @ladige.ufrj
Facebook: <https://www.facebook.com/saudematerna infantil>

Another form of social inclusion and return of scientific knowledge to society takes place through partnerships with UFRJ's agencies, governmental and non-governmental institutions, and participation in research projects, multicenter studies, courses and consultancies, among other activities. Furthermore, the performance of GP graduates is based on actions that aim to the improvement of health and nutrition public and private management and to reduce social inequalities. The graduates of both GPs work as faculty in public and private higher education institutions and in *lato sensu* graduate courses. PPGN graduates hold important positions in the field of research and *stricto sensu* graduate education, as professors, program coordinators and researchers in research institutions and in public sectors and agencies.

Confirming PPGNC's vocation for improving the education of nutritionists who work in clinical practice, most former students work in nutritional health care in public institutions linked to the Sistema Único de Saúde (Unified Health System), in various Brazilian regions, while some of these students continued their academic education by starting their doctorate studies. In a poll carried out by the program coordinator, PPGNC graduates reported that their master's degree provided them with better education and training opportunities to work professionally in health care, teaching, research and outreach activities. The performance of former students from INJC's GPs demonstrates INJC's potential and important role in developing human resources capable of strengthening other GPs and forming new research groups.

At INJC, the GPs are integrated with undergraduate education, both through the participation of faculty as heads or collaborators in undergraduate courses, and through the supervision of graduate students in their teaching internships. The professors of the GPs coordinate and participate in outreach activities that integrate undergraduate and graduate students, whose lines of work are intersected with social demands in different interfaces of Nutrition Science in other areas of knowledge, especially Gastronomy. The activities that fall within this context involve the participation of graduate and undergraduate students in education initiatives on healthy eating in schools, Olympic Villages, public squares and museums; monitoring and nutritional advice for specific population groups, e.g., individuals with obesity, children and pregnant women with *diabetes mellitus*, athletes affiliated with different organizations and other socially vulnerable groups. The integration of INJC's GPs with undergraduate degree programs favors the nexus of graduate and extension courses and promotes novice research activities by undergraduates, strengthening the interdisciplinary education of undergraduate and graduate students. Such integration has motivated many undergraduate students to follow the academic path, pursuing master's degrees, residencies and specialization courses.

The activities of the PPGN and PPGNC go beyond national borders and are materialized in partnerships with internationally renowned universities and research institutes. Currently, the GPs have academic and scientific cooperation agreements with more than 20 institutions in countries such as the United States, France, Spain, Denmark, Netherlands, United Kingdom, Australia, Canada and Colombia. These collaborations increase the possibilities of scientific cooperation at the international level, encourage teacher and student education and training, and contribute to the improvement of research and academic production in the graduate programs.

CHALLENGES AND PERSPECTIVES FOR GRADUATE STUDIES AT INJC

The limitations imposed by the Covid-19 pandemic led to changes and adjustments to ensure the continuity of graduate activities. Courses at PPGN and PPGNC and in graduate certificate programs (*lato sensu* specialization degrees) started to be taught remotely, which enabled the conclusion of the school calendar predicted for 2020 and 2021. Remote work also allowed continued setup of qualification and defense committees for graduate theses and dissertations, and for student admission procedures for the 2020 and 2021 classes.

Despite the negative aspects imposed by the pandemic, graduate remote education provided the opportunity for greater interaction with faculty and students from other GPs in Brazil and abroad. In this context, there was an intense participation of GP professors from all over the country as guests in courses and as members of qualification and defense committees of theses and dissertations of our GPs. What is especially more relevant is the exchange among GPs, with the effective participation of students from different regions of the country in courses offered in the two INJC programs and the participation of INJC's graduate students in courses from other programs.

Also as a result of the Covid-19 pandemic, PPGN and the PPGNC are implementing the Plataforma Josué de Castro de Recursos Educacionais Digitais ("Josué de Castro Platform for Digital Educational Resources"), which aims to enable the dissemination of resources, functionalities, tools and digital content that can enable the interaction between different university players and encompass various educational purposes, especially those related to pedagogical practices. This Platform also proposes to encourage the production of educational videos for practical classes, by means of the creation of a digital educational laboratory, thus meeting demands in courses with practical activities. Such strategies reinforce the integration of graduate and undergraduate degree programs in teaching, research and outreach activities.

The GPs use INJC's laboratory complex, which is made up of basic and applied research laboratories, a computer laboratory, inter-institutional research groups and a research observatory, all of which are multi-user and support the performance of inter- and intra-collaborative studies, institutions, and undergraduate and graduate education, strengthening the integration of INJC's core activities.

In the last evaluations by CAPES in the knowledge area of Nutrition, PPGN has been improving the critical aspects. Maintaining excellence is not only PPGN's perspective but also its main challenge.

PPGNC's strategies for improving the program are focused on attracting funding opportunities, promoting innovative interdisciplinary projects, and strengthening national and international partnerships, including an interface with basic education.

In the current scenario of scientific denialism and underfunding of the Brazilian public university and science,⁴⁵ it is a great challenge to maintain the offer of master's and doctoral degrees, to attract funding for scientific research, to publish in high-impact journals, and to collaborate with national and international research institutions. The perspectives of INJC's GPs, therefore, are to maintain the effort, commitment, and resilience on the part of faculty, students, and technicians for the development of science in the field of Nutrition. After 75 years of existence, INJC, through its graduate programs, reaffirms the social and academic role of Brazilian universities, with innovation and commitment to science.

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Contributors

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