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Scenario of research on Food Service in Brazil

Cenário da pesquisa em Alimentação Coletiva no Brasil

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ABSTRACT

Objective

The present study aims to investigate the scenario of research on Food Service in Brazil based on the *Stricto Sensu* Graduate Programs in Nutrition, research groups, and scientific production.

Methods

A search of the research lines including studies related to this topic and the researchers engaged in those studies was conducted. The research groups were identified on the Directory of Research Groups in Brazil website and the profile of the scientific production was based on articles included in the Scientific Electronic Library Online database. Articles published in international journals that were related to research lines focused on food production were also searched and analyzed.

Results

The search identified only two graduate programs with research lines that describe the food production as the object of study although 13 graduate programs carry out research related to Food Service, especially focused on nutritional and sanitary aspects of food. The same trend was observed in the national articles. The internationalization of these two research line results from the academic publication in 22 different journals over the past 5 years. Thirty five professors were identified and most of them hold a PhD in Food Science and Technology. The number of research groups increased from two in 2000 to twenty nine in 2010.

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Conclusion

The inclusion of Food Service in graduate programs is still limited. The main trend observed is towards a closer relationship with Food Science and Technology in terms of the lines of research, professional qualification, and published studies.

Keywords: Collective feeding. Food services. Health postgraduate programs. Science.

RESUMO

Objetivo

Busca-se uma aproximação com o cenário da pesquisa em Alimentação Coletiva no Brasil a partir dos programas de pós-graduação Stricto Sensu pertencentes à área da Nutrição, dos grupos de pesquisa e da produção científica.

Métodos

Foi realizado levantamento das linhas de pesquisa em que são desenvolvidos trabalhos de interesse, bem como de docentes vinculados a estas linhas. Para identificação dos grupos de pesquisa, empregou-se o site *do Diretório de Grupos de Pesquisa no Brasil e o recorte da produção científica foi baseado nos artigos publicados no* Scientific Eletronic Library Online*. Também foi investigada a publicação internacional vinculada às linhas de pesquisa que se voltam à produção de refeições.*

Resultados

Apenas dois programas possuem linhas de pesquisa que descrevem a produção de refeições como objeto de estudo, embora 13 programas de pós-graduação desenvolvam estudos em interface com a Alimentação Coletiva voltados, principalmente, para aspectos nutricionais e sanitários dos alimentos. Essa tendência também foi observada nos artigos nacionais. A internacionalização nas duas linhas de pesquisa destacadas ocorreu por meio da publicação em 22 revistas diferentes nos últimos cinco anos. Entre os 35 docentes identificados, a maioria possui doutoramento na área de Ciência e Tecnologia de Alimentos. O número de grupos de pesquisa cresceu de dois, no ano 2000, para 29, em 2010.

Conclusão

A inserção da Alimentação Coletiva na pós-graduação é limitada. A principal tendência é de aproximação com a Ciência e Tecnologia de Alimentos no que se refere às linhas de pesquisa, qualificação docente e trabalhos publicados.

Palavras-chave: *Alimentação coletiva. Serviços de alimentação. Programas de pós-graduação em saúde. Ciência.*

INTRODUCTION

In Brazil, most scientific research has been attributed to *Programas de Pós-Graduação Stricto Sensu* (PPG, *Stricto Sensu* Graduate Programs) as part of a public policy that began in the 1950s with the creation of *Coordenação de Aperfeiçoamento de Pessoal de Nível Superior* (Capes, Coordination for the Improvement of Higher Education Personnel) and the *Conselho Nacional de Desenvolvimento Científico e Tecnológico* (CNPq, The National Council for Scientific and Technological Development). As a result, graduate programs have greatly expanded over the decades following the creation of these research funding agencies[1,2]. In the 1970s and 1980s, the PPG in Nutrition included only 2 master degree programs, but these programs have also expanded, and between 1990 and 2005 9 new PPG were created. In 2011, Capes created the Nutrition research area, with a total of 18 PPG[3,4].

This considerable increase in the number of graduate programs in Nutrition reflects the advance of research and professional training in the core knowledge and practices in the scientific field that has been known as Food and Nutrition[5,6]. The concept of core knowledge and practices was adopted in this study to characterize the concentration of knowledge and skills that

define the identity of an area of knowledge and professional practice that can be found in undergraduate courses, academic publications, and scientific events[7]. Therefore, different core areas can be identified in the Food and Nutrition field[8,9], the focus of this study is on the core called Food Service. However, although this title has been widely used in the field and also by the Federal Nutrition Council/Regional Nutrition Council[10], there has been disagreement over the designation of this specific core. The terms *Alimentação Coletiva* (Food Service)[10], *Alimentação e Nutrição em Produção de Refeições* (Food and Nutrition in Meal Production)[4], and *Alimentação de Coletividades ou Administração de Serviços de Alimentação* (Collective Feeding or Food Service Administration)[11] are different and each one has its own story behind its creation and justification for its use; a fact that deserves a comprehensive discussion but is beyond the scope of the present study.

It is understood that the core knowledge and practices of Food service refers to the planning, production, and distribution of food away from home, either in institututional *Unidades de Alimentação e Nutrição* (UAN, Food Service and Nutrition Units), such as hospitals and schools, or commercial UAN, such as restaurants and hotels[4,12].

As an area of professional practice, Food Service has played an important role in the development of the Food and Nutrition field in Brazil since the creation of the *Serviço de Alimentação da Previdência Social* (SAPS, Food Service of Social Security) in the 1940s, including the coordination with state welfare programs (for example the *Programa de Alimentação do Trabalhador* [PAT, Workers' Food Program], and as a major area for dietitians to work[10,13-15].

In terms of education and training, some recent studies have sought to identify part of the scientific environment that comprise the Food and Nutrition field based mainly on information about PPG research lines, research groups registered in the CNPq directory, theses, dissertations, and other academic publications[5,9,16-18]. However, the research of the core analyzed here has not yet been investigated, and therefore there is no information available about the issues and agents involved in it.

Therefore, the objective of the present study is to collect data on the scenario of research to contribute to the core knowledge and practices of Food Service in order to discuss its inclusion in graduate programs and discuss the trends in its development.

METHODS

A search was conducted based on: the research lines of the PPG on Nutrition[19], the curriculum of the professors involved in PPG in Nutrition[20], the research groups affiliated to CNPq[21], and publications related to Food Service.

The websites of the *Stricto Sens*u Graduate Programs recognized by Capes and included in the 'Nutrition' area were browsed[19]. In order to select the research lines, only those that included food production in the title and/or in the topic description were searched. However, although not explicitly mentioned, some research lines addressed Food Service. Therefore if the research lines included in the graduated programs addressed topics related to food, food production, food quality, or food safety, the curriculum of the professors involved were searched in the *Lattes* Platform[20] in order to identify all Master and PhD dissertations or theses on topics related to Food Service that they had already supervised.

Thus, the professors who were engaged in research lines that specifically addressed food production (included in the title and/or in the description of the research line topics) or who supervised or co-supervised dissertations and theses related to Food Service, even if it is not clearly described in the research line topics, were selected. The following information about those professors was collected: academic degree, graduate degree (masters and/or doctoral degree), list of undergraduate courses they teach, and their involvement in research groups.

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The research groups were identified on the *Diretório de Grupos de Pesquisa no Brasil* (DGP, Directory of Research Groups in Brazil) website[21]. The search was based on the 2000, 2002, 2004, 2006, 2008, and 2010 surveys (that were conducted by CNPq) and on the current database information (September 2013), using the following search terms in Portuguese: *alimentação coletiva* (collective feeding), *produção de refeições* (meal production), *unidade(s) de alimentação e nutrição* (food service and nutrition unit[s]), *alimentação institucional* (institutional feeding), *serviço(s) de alimentação* (food service), *restaurant* (restaurant), *refeições* (meals). The search was conducted using the following options: research group name, research line, research line keywords, and research group information.

The search of the national scientific production was conducted based on the collections of Brazilian scientific journals indexed in the Scientific Electronic Library Online (SciELO) database. The aim was to estimate the scientific production of the core investigated in a major means of scientific research dissemination in Brazil. The search included articles published between 1995 and 2015 available in electronic form using the same search terms used in the search of the research groups, with the exception of the term meals.

After the search, the titles and abstracts of the articles identified were read to exclude those that did not meet the interest criteria. The articles selected were grouped into eight categories according to the topics addressed: 1) Sanitary quality of meals – microbiological control and compliance with current sanitary standards; 2) Nutritional quality of meals – bioavailability of nutrients, nutritional composition and adequacy of meals served in UAN; 3) Processes and techniques involved in the production of meals – dietary changes, organizational structure, sensory analysis, food waste, and costs of food production in UAN; 4) Studies on commensal eating – nutritional assessment and determinants of food choices in UAN, as well as perception and acceptance of food by people who eat with others (commensal eating); 5) Health and work management – ergonomics, workers' health, and human resource management in UAN; 6) Consumption of food outside home – frequency and characterization of food consumption in UAN; 7) Role of dietitians in food production – characteristics of the dietitian's job in UAN; 8) Other topics – organic food and nutritional information in UAN, gastronomic heritage, sustainability, socio-cultural perspectives in UAN, and studies related to consumption of foods away from home that do not fall within any of these categories.

The studies selected address both specific aspects of Food Service and related topics, such as microbiological contamination, bioavailability of nutrients, or social aspects of food and eating in UAN or in commercial restaurants involving customers and workers. Therefore, the selection criteria established are operational only since a same study can be related to different subject domains.

As for international publications, the articles were selected based on the scientific production (between 2010 and 2015) information available in the *Lattes* Platform[20] about the professors engaged in research lines whose title and/or description are related to food production.

The analysis and discussion of the results obtained were based on Bourdieu's concept of scientific field, who stated that scientific field is a competitive space that is structurally defined by the play of opposing forces in a struggle for scientific monopoly, *i.e.*, the recognition of their ability to legitimately speak on behalf of science[22,23].

RESULTS

A total of 27 PPG were identified: 13 offered academic master's program, 3 offered professional master's program, and 11 offered masters and doctoral degree programs. Of the 27 graduate programs identified, 5 master's degree programs that were created after 2014 were not included in the present study because there were no dissertations under academic

supervision by the time this study was carried out.

Among the 22 PPG studied, 60 research lines were identified and only two of them explicitly described the food production as their focus of interest. They belong in the graduate programs of the *Universidade Federal de Santa Catarina* and *Universidade de Brasília*. The first has a specific research line of the Food Service core knowledge. The second program uses the sentence "studies related to the management of food production" in the description of one of its research lines. Fourteen other research lines included in 13 PPG did not describe the planning, production, and distribution of food as one of the topics addressed, but they included studies related to Food Service. Most of these research lines focus on nutritional and health aspects of food, according to their titles and research line description. Chart 1 shows the PPG selected and the titles of the research lines.

Chart 1. Graduate Programs in Nutrition and research lines that include studies on Food Service. Brazil, 2014.

Program	Educational Institution	Research lines including studies on Food Service
1. Nourishment, Nutrition and Health	UERJ	Policies, knowledge and practices in nourishment, nutrition and health
2. Food, Nutrition and Health	UFBA	Food and health surveillance Nourishment, nutrition and culture
3. Biosciences	UFMT	Non-existent
4. Nutrition Science	UFV	Nutritional and functional value and food and dietary quality control
5. Nutrition Science	UFPB/JP	Analysis and food quality control
6. Nutrition, Sports and Metabolism Science	Unicamp/LI	Non-existent
7. Nutrition	UFAL	Food analysis and food safety
8. Nutrition	UFPE	Analytical and technological research food raw materials and beverage
9. Nutrition	UFRJ	Food science and technology
10. Nutrition	UFSC	Nutrition in food production and eating behavior
11. Nutrition	Unifesp	Food quality and composition
12. Clinical Nutrition	UFRJ	Non-existent
13. Nutrition from Birth Through Adolescence	CUSC	Non-existent
14. Nutrition and Food	UFPEL	Food analysis and quality control
15. Nutrition and Food	Unisinos	Food quality and innovation
16. Nutrition and Health	UECE	Non-existent
17. Nutrition and Health	UFG	Food safety and nutrition food and beverage quality
18. Human Nutrition	UnB	Food, dietetics and biochemistry applied to nutrition
19. Applied Human Nutrition	USP	Food and nutrition economics
20. Nutrition, Physical Activity and Phenotypic Plasticity	UFPE	Non-existent
21. Health and Nutrition	UFOP	Non-existent
22. Food and Nutrition Safety	UFPR	Nutrition and food quality

Note: UERJ: *Universidade do Estado do Rio de Janeiro*; UFBA: *Universidade Federal da Bahia*; UFMT: *Universidade Federal do Mato Grosso*; UFV: *Universidade Federal de Viçosa*; UFPB/JP: *Universidade Federal da Paraíba*, *campus* João Pessoa; Unicamp/LI: *Universidade de Campinas, campus Limeira*; UFAL: *Universidade Federal de Alagoas*; UFPE: *Universidade Federal de Pernambuco*; UFRJ: *Universidade Federal do Rio de Janeiro*; UFSC: *Universidade Federal de Santa Catarina*; Unifesp: *Universidade Federal de São Paulo*; CUSC: *Centro Universitário São Camilo*; UFPEL: *Universidade Federal de Pelotas;* Unisinos: *Universidade do Vale do Rio dos Sinos*; UECE: *Universidade Estadual do Ceará*; UFG: *Universidade Federal de Goiás*; UnB: *Universidade de Brasília*; USP: *Universidade de São Paulo*; UFOP: *Universidade Federal de Ouro Preto*; UFPR: *Universidade Federal do Paraná*. Source: *Coordenação de Aperfeiçoamento de Pessoal de Nível Superior*[19].

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A total of 35 professors involved in PPG, who served as supervisors of dissertations and theses (completed or in progress) related to Food Service. Less than half of them (15) taught undergraduate courses in the Food Service domain. As for the academic background of these professors; most held a bachelor's degree in Nutrition (26) and a doctoral degree in Food Science and Technology or Food Engineering (13). Table 1 shows the professors according to their graduate degree.

The number of research groups has been increasing over the years (Table 2). According to the CNPq survey carried out in 2000, only two research groups were identified using all of the selected search terms, whereas in 2010 twenty nine research groups working on this topic were identified. The research groups are ordered in the DGP (according to the *Tabela das Áreas do Conhecimento*[24] (Knowledge area Table). Table 2 shows that most groups are engaged in the Nutrition area.

Table 1. Doctoral study areas of the professors involved in research in the Food Service core. Brazil, 2014.

Field	n	%
Food Science and Technology	13	37.1
Nutrition Science	6	17.1
Health Science	6	11.4
Public Health/Collective Health	2	5.7
Tropical Medicine	2	5.7
Production Engineering	2	5.7
Agro-industrial Sciences	1	2.9
Biophysics	1	2.9
Social studies	1	2.9
Zootechnics	1	2.9
Economics	1	2.9
Vegetable Science	1	2.9
Total	35	100.0

Source: *Conselho Nacional de Desenvolvimento Científico e Tecnológico*[20].

Table 2. Research groups in the Food Service core and its major area. Brazil, 2000-2013.

Area		2000	2002	2004	2006	2008	2010	2013
Nutrition	n	1	7	9	9	10	17	26
	%	(50)	(64)	(56)	(50)	(50)	(59)	(68)
FS and Technology	n	0	3	6	6	4	4	4
	%	(0)	(27)	(38)	(33)	(20)	(14)	(11)
Collective Health	n	0	0	1	1	2	3	4
	%	(0)	(0)	(6)	(6)	(10)	(10)	(11)
Education	n	0	0	0	0	0	1	2
	%	(0)	(0)	(0)	(0)	(0)	(3)	(5)
P. Engineering	n	0	0	0	1	2	2	1
	%	(0)	(0)	(0)	(6)	(10)	(7)	(3)
Administration	n	0	0	0	1	1	0	1
	%	(0)	(0)	(0)	(6)	(5)	(0)	(3)
Tourism	n	0	0	0	0	0	1	0
	%	(0)	(0)	(0)	(0)	(0)	(3)	(0)
Sociology	n	0	0	0	0	1	1	0
	%	(0)	(0)	(0)	(0)	(5)	(3)	(0)
Physiology	n	1	1	0	0	0	0	0
	%	(50)	(9)	(0)	(0)	(0)	(0)	(0)
Total	n	2	11	16	19	21	29	38
	%	(100)	(100)	(100)	(100)	(100)	(100)	(100)

Notes: According to the 2000-2010 *Conselho Nacional de Desenvolvimento Científico e Tecnológico* surveys and on the current database information (September 2013) of the Directory of Research Groups.

FS: Food Science; P. Engineering: Production Engineering.

Source: *Conselho Nacional de Desenvolvimento Científico e Tecnológico*[21].

According to the 2010 CNPq survey, there were a total of 245 researchers and 354 students involved in 29 research groups, and each group has many research lines. Thus, seeking to narrow down the search results, only the researchers and students involved in research lines related to food production were selected, reducing the number of researchers to 155. As for the number of students, 8 doctoral students, 60 master's degree students, and 131 undergraduates or students of unidentified major were selected. It was found that a single research group had 31 master's degree students, while 20 other groups did not have any graduate students.

The search of articles in the SciELO database showed trends in terms of the topics of interest in the core investigated, as shown in Table 3. Initially a total of 90 articles were selected without applying inclusion criteria, and then 72 were finally selected. Most articles (54) were published after 2006. The *Revista de Nutrição* (Journal of Nutrition) stood out as the main vehicle for disseminating those studies, with 53% of the articles.

The studies in the two research lines related to Food Service have also been published in 43 articles in 22 different international journals in the last 5 years (Table 4). There were no articles published in journals classified as A1 by the *Qualis* criteria established by Capes in the area of Nutrition[25], and only three articles were published in journals classified as A2.

DISCUSSION

Inclusion in Graduate Programs

It can be said that the inclusion of Food Service core in PPG is still limited, given the small number of research lines engaged in this topic. Vasconcelos[9] investigated 962 dissertations and theses in 7 PPG in Nutrition from 2003 to 2012. Although the author did not investigated research lines, his findings corroborate ours in terms of limited inclusion since only 5% of theses and dissertations were related to the core the author called Nutrition in Meal Production. Thus, despite the fact that creation of the Nutrition research area by Capes may reflect the development of the PPG, the presence of Food Service is still limited, and it apparently did not have the same growth rate.

The analytical category of scientific field[22] is appropriate to discuss the results obtained. Thus, it is understood that the scientific field of Food and Nutrition is engaged in the struggle for hegemony of symbolic power and that professors, students, and education institutions are the agents in this game. The relationships are established based on the recognition of an agent hierarchical position from the others they are settling relations. This hierarchy is based on the accumulation of what is legitimized by the agents themselves as something that should be valued in the field at a given time. Thus, it was observed

Table 3. Distribution of the national articles according to the main topic addressed (1995-2015).

Main topic addressed in the articles	n	%
Sanitary quality of meals	15	20.8
Nutritional quality of meals	13	18.1
Processes and techniques involved in the production of meals	13	18.1
Studies on commensal eating	12	16.7
Other topics	7	9.7
Health and work management	5	6.9
Consumption of food outside the home	5	6.9
Role of nutritionists	2	2.8
Total	72	100.0

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Table 4. List of international journals in which the researchers engaged in the two lines of research focused on meal production published articles related to Food Service between 2010 and 2015.

Journal title	Qualis classification 2014	nº of articles published
Appetite	B1	4
British Food Journal	B3	5
Ecology of Food and Nutrition	B2	1
Food Control	A2	3
Health	B4	1
International Journal of Consumer Studies	B2	2
International Journal of Environmental Health Research	Not determined	1
International Journal of Food Science and Technology	B1	1
International Journal of Food Sciences and Nutrition	B2	1
International Journal of Hospitality Management	Not determined	1
Journal of Culinary Science and Technology	B4	7
Journal of Food and Nutrition Research	B3	1
Journal of Nutrition Education and Behavior	Not determined	2
Journal of the American Dietetic Association	Not determined	1
Journal Safety Studies	Not determined	1
Nutrición *Hospitalaria*	B2	3
Nutrition Journal	B1	1
Public Health Nutrition	B1	3
Revista Chilena de Nutrición	B4	1
Revista Colombiana de Psicologia	B4	1
Revista Latinoamericana de Psicologia	Not determined	1
Work	B3	1

that the Food Service agents have been granted the right to be included in the field, but the relative position they occupy in the structure of the field indicates less capital than the others.

In general, the dietitians in the Food Service core have maintained a close relationship with their professional space and the work market[26,27]. It can be said that professional experience is what has allowed them to occupy privileged positions in the field and what has been valued. More than their participation in studies and the possession of which can be considered their product (being involved in a PPG and article publications, for example), professional experience and everything that is associated with it (such as social contacts) are resources that have contributed more efficiently to the professors in the field.

However, the scientific field is dynamic and its structure can be modified as the distribution of resources between the agents changes and different rules of the game are established[22,23]. After the 1990s, education, science, and technology policies have encouraged research in public higher education institutions[28], which has contributed to the construction of a new scenario in which graduate studies and the associated scientific research have gained remarkable intellectual, social, political, and symbolic distinction.

In the local, state, and national studies published in the 1980s, 1990s, and 2000s there were 24-55% dietitians professionally engaged in Food Service[10,13-15]. Therefore, it can be said the meal production has been one of the most frequent activities carried out over the years. Although professional activity and research

cannot be directly associated, it is worth mentioning that in terms of professional work, Food Service has employed a significant number of dietitians. However, in stricto sensu graduate programs, Food Service has limited participation, highlighting disparity in terms of research in this core.

Identification of agents: Number, qualification, and strategies

The work done in a specific core of knowledge and practices is less related to the academic background of the researchers than to the activities carried out and their products; for example the dissertations and theses they supervise, the courses they teach, and their scientific production. It was observed that half of the 15 professors that teach Food Service undergraduate courses were engaged in the research lines that are explicitly focused on food production, confirming their identification as the major promoters of scientific knowledge production in Food Service.

However, it was in the Food Science and Technology domain that the professors identified acquired further knowledge and continuing education (over 40% of the PhD degrees) (Table 1), having food as the main focus or point of interest. According to Proença *et al.*[12], meal production involves: 1) a technical dimension, which refers to cooking methods and food preservation among other things; 2) a scientific dimension that includes knowledge of microbiological and physicochemical characteristics of foods; and 3) a cultural dimension which deals with the symbolic identity of foods. Although important elements such as management have not been taken in to account in this conception and the classification criteria of these dimensions may be a topic for discussion, this interpretation shows the existence of a common interest between Food service and Food Science and Technology. However, it was clearly seen that the latter is the major contributor to knowledge production on food in in the national scenario, having significant importance in research centers and research funding agencies[6].

Nevertheless, the common scientific interests are not the only thing that brings these areas closer together. According to Bourdieu[22], the choices of the research topics methods, places of publication, and partnerships reflect the strategies and investments directed towards symbolic capital formation and accumulation. This capital involves the recognition and prestige in the academic world, which gives the researcher scientific authority[23]. Thus, the closer relationship between the Food Service agents and Food Science and Technology area also reflects their struggle for scientific legitimacy. This strengthened relationship influences the focus given to the research and their relationships with research partners. Moreover, it allows for greater possibility of publishing in journals that are better ranked according to Capes classification, which can increase their chances of getting research funding or grants, increasing the core prestige.

Thus, although staying connected to the Food Service, several agents in this core circulate through the areas of knowledge (conforming to research funding agencies' norms) in order to increase their chances of occupying more privileged positions in the field and having significant part of their scientific production "captured" by these areas.

Although the number of research groups that defined Food Service as one of their focus of interest may be considered small, it is larger than the number of research lines focused on this topic in the PPG. Furthermore, the number of research groups addressing this topic increased by more than 14 times between 2000 and 2010, whereas the total number of research groups in the Nutrition area increased by approximately 2.5 times. This increase, however, was not steady, there was a larger number of groups in the Southern and Southeastern regions of the country according to the 2002 to 2010 surveys

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(approximately 60-80% of the research groups have been concentrated in these two regions over the years).

It was also found that, of the 35 professors who supervised dissertations and theses related to Food Service, only 15 were members of the research groups identified in the present study. This means that a significant number of researchers do not participate in research groups focused on this topic. On the other hand, it demonstrates that there is a great number of professors connected to research groups but who are not involved in *Stricto Sensu* graduate programs in Nutrition. The recent increase in the number of research groups may indicate an investment of the agents in order to, in the future, improve their scientific production which will enable them to teach graduate courses contributing to the professional training of professionals and to research carried out in graduate programs. At the same time, professors engaged in PPG seek to consolidate their research lines by publishing in international journals[20].

Topics investigated

Another issue that should be addressed is the fact that the study of "food" in the field of Food and Nutrition is centered on food chemical composition, sanitary quality, harmlessness, production and distribution technologies, and therapeutic properties[29]. The PPG research lines (Chart 1) and the articles analyzed (Table 4) showed a predominant interest in food quality in terms of its hygienic condition and nutritional content. Proper handling and safety of foods and food products is the primary focus of several of the research lines.

Based on the research lines of the groups identified in the DGP[21], it is possible to infer that in many cases meal production was considered as the study of foods. Analyzing the PPG and the professors' curriculum, it was found that studies on production process techniques, dietary changes in food production, and environmental management, as well as studies on commensal eating have been regularly carried out in only two PPG or occasionally in the others. Studies on the determinants of food choices, frequency of eating out, and the use of organic and genetically modified foods started to be published only recently. Nevertheless, the search conducted in the present study showed that articles addressing these topics are still scarce and have been carried out by a small number of authors.

With reference to Bourdieu's views, as previously mentioned, research topics also have a symbolic power given the value and the importance given to certain objects in the field[22]. Far from being a matter of pure choice based on scientific criteria, the frequency of certain research topics reflects the structure of the scientific field at a given time. If on the one hand the closer interaction with Food Science and Technology gives prestige to agents, on the other hand it leaves aside other aspects of food production. As an example of a neglected aspect is the few studies on UAN workers in the PPG studied.

In addition to professional qualifications and sharpening the focus of research on food, the influence of Food Science and Technology is also manifested politically. According to information provided by Prof. Dr. Shirley Donizete Prado who attended many meetings of the *Fórum Nacional de Coordenadores de Programas de Pós-Graduação em Alimentação e Nutrição* (National Forum of Coordinators of Graduate Programs in Food and Nutrition), during a meeting which discussed the classification of this field of science in "sub-areas" (institutional administrative terminology used daily as a scientific common sense), Food Service was not explicitly mentioned. Moreover, according to some of the participants, it should be included in the core knowledge and practices that correspond to Nutrition and Food. However, it could be argued that despite the importance of food in Food Service, the construction of scientific knowledge in this core cannot be limited (or mistaken) to the study of this element.

The professors engaged in the two previously discussed research lines that focus on Food Service showed determination to publish their research in international journals. Nevertheless, it is worth mentioning that the international impact of scientific research depends on its topic. It was observed that the scientific production of the Food Service core tends to address issues relating to the Brazilian reality, which may make it more difficult to attract the interest of international journals. Moreover, there may be other factors that can hinder publication in international journals classified as A1 and A2 by Capes *Qualis* criteria in the Nutrition area. Topics relevant to Food Service, in general, are not included in the scope of the journals with the highest *Qualis* classification in this area.

CONCLUSION

This search conducted in the present study revealed the modest presence of Food Service in graduate programs in nutrition. It seems plausible to say that there has been a mismatch between professional practice and research associated to graduate programs. This does not mean that investments have not been made, considering the increase in the number of research groups working on this topic. Additionally, the analysis of the PPG showed the tendency of the two research lines whose object of study is Food Service to get the published internationally despite the challenges they face to publish studies of this core in international journals with the highest *Qualis* classification in the Nutrition area, which is probably due to the fact that the topics addressed in the core lie outside the scope of these journals.

Considering that the choice of topics, methods, and partnerships are influenced both scientifically and politically, they also reflect the structure of the Food and Nutrition scientific field. The close relationship of the core investigated with Food Science and Technology and the presence of 'food' as a privileged object of study was observed in the research lines of the PPG, in the qualification of the professors engaged in these research lines, and in the topics of the articles analyzed. The research topics are not equivalent but are prioritized according to a symbolic classification system in the field and to which the researchers are subjected. Although symbolic, the great or little importance given to certain objects of study cannot be disconnected from objective factors such as, scientific and technological development policies and funding opportunities.

CONTRIBUTORS

FM CAMPOS and SD PRADO contributed to all stages of conception and design of this study. FB KRAEMER, FR FERREIRA and MCVS CARVALHO contributed to the analysis of results and manuscript writing.

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