Research in nursing and modification of the knowledge tree in CNPq: contribution to science

Pesquisa em enfermagem e a modificação da árvore do conhecimento no CNPq: contribuição à ciência

Investigación en enfermería y modificación del árbol del conocimiento en CNPq: contribución a la ciencia

ABSTRACT

Objective: to identify funding demands in the light of CNPq’s knowledge subareas, as well as data on researchers and research groups, their distribution in the regions and their approximation with health research priorities of the Ministry of Health and the new knowledge tree framework of the area. Method: a descriptive study developed with data from 2009 to 2014 about researchers, funding and research areas provided by the Diretoria de Ciências Agrárias Biológicas e Saúde (Department of Agriculture, Biology and Health Sciences). Result: there is a concentration of researchers and research groups in the Southeast region. The research priorities in the health field most frequently addressed were: Noncommunicable Diseases, Child and Adolescent Health, Women’s Health and Communicable diseases. The grants could be classified in the current framework of knowledge areas. Final considerations: this analysis enabled visualizing subarea demands and relevance of changing the nomenclature of the classification of knowledge framework in order to represent the scientific production generated in the nursing area.

Descriptors: Knowledge; Nursing; Science; Graduate Nursing Program; Research.
INTRODUCTION

The National Council for Scientific and Technological Development (CNPq - Conselho Nacional de Desenvolvimento Científico e Tecnológico) is an Agency of the Ministry of Science, Technology and Innovation (MCTI - Ministério da Ciência, Tecnologia e Inovação), aimed at fostering scientific and technological research. It was founded in 1951, and the first nursing support measures date back to the 1970s. The nursing subarea code and its specialties were created in 1980. In 1986, the Ad hoc consultants group was formed. In 1995, nursing joined the Multidisciplinary Health Committee (CA-MSc - Comitê Multidisciplinar da Saúde), culminating in 2006 with the creation of the Nursing Area Committee (CA-EF - Comitê da Área de Enfermagem)(9). This evolution evidences scientific development, leadership of the area in the CNPq, as well as commitment of Brazilian researchers in the solution of relevant problems that could provide impact to the Brazilian population's health.

The funding agency grants scholarships and aids that meet the demand that contributes to the human, scientific and technological development of the country. The impact of what is produced by a discipline must be reflected by the responses to improvements in quality of life, technological innovations and expressive economic return(11). Thus, the Brazilian National Policy on Science, Technology and Innovation in Health (PNICT/S - Política Nacional de Ciência, Tecnologia e Inovação em Saúde) was established by the Ministry of Health (MoH), with the purpose of improving the population's health. The target area of investment follows an agenda of priorities that focuses on problems of difficult resolution, aiming at the scientific and technological development(2).

CA-EF members are committed to the policy of CNPq and aware of the need to produce specific knowledge of nursing and socially relevant. They take into account the right to life, defense of the universal right to health and provision of safe and quality care(9). They also understand the importance of training researchers who envision the economic, social, political and technological development of the country, managing financial resources that should, as a matter of priority, support research aimed at solving relevant health topics(4).

In this context, the participation of Associação Brasileira de Enfermagem (ABEn - Brazilian Nursing Association) in 2003 is highlighted. During the 55th Brazilian Congress of Nursing (CBEn - Congresso Brasileiro de Enfermagem), there was concern about the collective construction of the Agenda Nacional de Prioridades de Pesquisa em Enfermagem (freely translated as Brazilian National Agenda for Nursing Research Priorities), with the selection of themes and research problems based on the relationship between university initiatives and social demands(9).

CA-EF members recognize the importance of grants dissemination of financing offered to the area of nursing. These grants can support the leaderships, ABEn, CAPES (Coordenação de Aperfeiçoamento de Pessoal de Nível Superior - Coordination for Improvement of Higher Education Personnel) and CNPq, in making decisions related to the development of new researches or even in the achievement of new spaces for nurses, subsidizing members of CA-EF in important negotiation spaces for the area. This space has been requested by nursing researchers, coordinators of Graduate Programs and the representations of the area in CAPES, CNPq and ABEn, in discussions and reflections of what nursing research and what should research about(3).

It is worth mentioning the meeting in 2014 at the invitation of the ABEEn president, Angela Maria Alvarez, to the members of CA-EF-CNPq with leaders and researchers in the nursing area: Regina Aparecida Garcia de Lima, Isabel Amélia Costa Mendes, Silvana Martins Mishima and Carmen Gracinda Silvan Scochi, in which the identity of nursing as a scientific discipline and profession was discussed. After exposing the current situation of Brazilian nursing, CNPq and CAPES leaders were asked to present, during the 66th CBEn, the topics researched by the nursing researchers at CNPq and the Graduate Programs. Results would support future negotiations and achievements with the MoH, since such leaders observed a significant loss of spaces in this ministry’s programs. It was also proposed greater integration among the leaderships so that partnerships could be effectively established, contributing to the advancement of Brazilian nursing.

The CA-EF’s proposal was to present, at this event, CNPq grants received by the nursing area in the light of the Agenda Nacional de Prioridades de Pesquisa em Enfermagem of the MoH (9); subareas proposed by researchers and Graduate Program coordinators(6) and the research lines in nursing(9). In this way, it was judged that it would be possible to give greater visibility to the production of the area, allowing future political achievements with the CNPq, such as increased funding, increased number of fellows by modalities and modification of the Nursing Knowledge Tree, representing the desire of Brazilian researchers(3,8).

Science and technology classification is a key tool for its organization(9). These authors who supported the recommendations of the European Science Foundation(10) argue that science classifications allow the development and monitoring of strategies by organizing the peer reviewer processes. They produce statistical portfolios and strengthen mechanisms for the analysis of research projects and programs that are excellent tools of control; allow the scientific production within each area and analyze the relationships between investments and results, giving visibility to them.

In order for emerging sciences, such as nursing, to fulfill their social role, it is necessary that Brazilian and international organizational structures support and foster their development(9).

The aim of this study is to present the analysis of nursing activities supported by the CNPq, seeking an approximation with the current nursing knowledge force in Brazil.

OBJECTIVE

To identify funding demands in the light of CNPq’s knowledge subareas, as well as data on researchers and research groups, their distribution in the regions and their approximation with health research priorities of the Ministry of Health and the new knowledge tree framework of the area.

METHOD

The data were provided by the advisory services of the Diretoria de Ciências Agrárias, Biológicas e da Saúde (DABS – Department of Agriculture, Biology and Health Sciences) of CNPq. They were classified according to the current Nursing Knowledge Tree and the Agenda de Prioridades de Pesquisa em Saúde of the MoH. The
information contained was related to the researchers, according to the number of institutions and region of the country, level of researchers by region of the country and distribution of researchers by knowledge subarea. The distribution of this information occurred between 2009 and 2014. It was analyzed by two doctoral students supervised by one of the authors of the study. These data were tabulated in Microsoft Office Excel spreadsheets and presented during the 66th CBEn, being synthesized here. The information collected and used, from the CNPq database, followed the confidentiality and anonymity.

**RESULTS**

**Compilation of CNPq data analysis**

Table 2 shows that among the 24 research priority areas, nursing has developed studies related to 11 of them, the most contemplated being: Noncommunicable Diseases (19), Child and Adolescent Health (18), Women’s Health and Communicable Diseases (15 each). The sub-areas of the new configuration of the most demanded area of knowledge were: Adult and Elderly Health Nursing, Women’s Health Nursing (14 each) and Fundamental Nursing (11).

CNPq makes concessions for the accomplishment of national and international events, being that they obeyed the Call 2, schedules 1 and 2 in 2013, and the Call 6 in 2014. More than half of the 13 concessions (57%) were allocated to non-CNPq researchers; and ten (43%) to CNPq researchers. These events can be general of the category or even of specialties.

Table 3 shows that most of the concessions could be classified in the proposal. The subareas of the new configuration of the area of knowledge most in demand were: Collective Health Nursing 43, Fundamental Nursing 27, Women’s Health Nursing 25, and Adult and Elderly Health Nursing 23.


**Table 3 - CNPq financing grants, according to the new proposal of the nursing knowledge area, São Paulo, São Paulo, Brazil, 2013-2014**

| New classification of the Knowledge Area/ Benefits Granted by CNPq | Fundamental Nursing | Mental Health Nursing | Adult and Elderly Health Nursing | Women’s Health Nursing | Child and Adolescent Health Nursing | Collective Health Nursing | Management and Administration Nursing | NSA |
|---------------------------------------------------------------|---------------------|----------------------|-----------------------------|-----------------------|----------------------------------|------------------------|---------------------------------|-----|
| Special Scholarships in the Country                           | 5 (13%)             | 3 (8%)               | 8 (22%)                     | 8 (3%)                | 6 (16%)                         | 11 (30%)               | 3 (8%)                         | 1 (3%) |
| Special Scholarships Abroad                                    | 6 (17%)             | 2 (5%)               | 6 (17%)                     | 6 (17%)               | 6 (16%)                         | 6 (16%)                | 6 (16%)                         | 1 (3%) |
| Range A**                                                     | 13 (24%)            | 4 (8%)               | 3 (6%)                      | 8 (15%)               | 9 (17%)                         | 15 (28%)               | 15 (28%)                        | 1 (2%) |
| Range B**                                                     | 2 (12%)             | 2 (12%)              | 1 (6%)                      | 2 (12%)               | 4 (23%)                         | 6 (35%)                | 6 (35%)                         | 1 (2%) |
| Range C**                                                     | 1 (8%)              | 1 (8%)               | 5 (42%)                     | 1 (8%)                | 5 (42%)                         | 5 (42%)                | 5 (42%)                         | ---- |

**Note:** *For special scholarships in the country and abroad, schedule 1, 2 and 3 - Reference year: 2013 and 2014; * For special scholarships in the country and abroad, schedule 1 and 2 - Reference year: 2014; **Recommended value (Range A: 30 thousand; Range B: 60 thousand; Range C: 120 thousand) – Chamada MCTI (freely translated as Brazilian MCTI Call – This Call aims to select proposals for financial support for projects that aim to contribute significantly to the scientific, technological and innovation development of the country in any area of knowledge)/CNPq/Universal14/2014-nursing.

**DISCUSSION**

The data presented evidences that the largest contingent of researchers is allocated in the Southeast and South region of the countries, areas recognized with greater national development. However, it is worth noting the participation of the Northeast region in the training of researchers, as well as the progression of the level of these researchers. The impact of researchers training in the country can be observed in Figure 1, which can be observed that the rise of the subareas of the researchers is relevant when compared to 2009 and 2014.

Possibly, the new classification covers the needs researched by different researchers and regions of the country.

Classification systems allow, among other things, highlight the scientific productivity of each area and to analyze the relationship between the investment made and its results. Thus, its change impacts on different segments within CNPq itself and CAPES, since changes in computational language generate administrative implications of great magnitude. Knowledge tree modification is an old request from several advisory committees, including nursing, as previously highlighted.

Nursing, in force at CNPq, is constituted by seven subareas, three of which are circumscribed by population group and care specialties (Adult and Elderly Health Nursing, Women’s Health Nursing, Child and Adolescent Health Nursing) and four others defined by field of specialty (Mental Health Nursing, Collective Health Nursing, Fundamental Nursing, Management Nursing and Emerging, Re-emerging and Neglected Diseases Nursing).

It should be noted that the tree change was not only a nomenclature, but a paradigm, showing the overcoming of the biomedical model, called “Flexern Report”[13], adopting a classification focused on the person (human groups), broader specialties related to health policies (Collective Health, Mental Health)[12-13] for global interests (Emerging, Re-emerging and Neglected Diseases)[14-16], adopting, for the traditional areas of nursing, an updated language (Management and Administration)[17] and finally, to the area that underlies the knowledge of the Fundamental Nursing discipline, providing identity to the contemporary production of the area.[18]

Nonetheless, previous studies have evidenced a number of sub-areas of knowledge proposed by different advisory committees, which, by their magnitude, made it impossible to make any changes.

From the compilation of the data, it is observed that the researchers have received support from the CNPq and have attended to the *Agenda de Prioridades de Pesquisa em Saúde*, most of the time.[12]. The recommendation of CNPq, CAPES, and MoH, of the new Nursing Knowledge Tree suggested by researchers and coordinators of the Graduate Program, is due to the fact that the former does not reflect the knowledge generated by the discipline. Nevertheless, it is the responsibility of nursing leaders to undertake political management with the boards of these bodies to change this language. With this, it will favor visibility and reinforce the social relevance of nursing in the areas of human resource training at its different levels, impacting on the increase of funds for the research, as well as the number of researchers.

Moreover, the negotiations conducted by CA-EF, management 2014, were promoted, and in meetings with the DABS, the results of the discussions that took place in CBNEn and the National Researchers Forum, expressing the need to modify the Nursing Knowledge Tree at CNPq. At the time, the study presented at CEPEn (Centro de Estudos e Pesquisas em Enfermagem - Center of Nursing Studies and Research) of 2014 was requested to be resent from the article resulting from the proposal of the new knowledge tree[19] and support from ABEn and the Coordination of the nursing area of CAPES.

Negotiations between 2014 and 2015, culminated in the technical note of the board meeting that took place in October 2015, the theme of which was: “Proposta de revisão das subáreas do comitê de Assessoramento de Enfermagem (CA-EF), na árvore do conhecimento da Enfermagem disponível na plataforma Carlos Chagas”.

**Chart 1 - Comparison between Nursing Knowledge Trees - old and current, São Paulo, São Paulo, Brazil, 2017**

| Old Nursing Knowledge Tree | Current Nursing Knowledge Tree |
|---------------------------|--------------------------------|
| Medical-Surgical Nursing  | Adult and Elderly Health Nursing |
| Obstetric Nursing         | Women’s Health Nursing         |
| Pediatric Nursing         | Child and Adolescent Health Nursing |
| Psychiatric Nursing       | Mental Health Nursing          |
| Contagious Disease Nursing| Emerging, Re-emerging and Neglected Diseases Nursing |
| Public Health Nursing     | Collective Health Nursing      |
| Fundamental Nursing (new area) | Management and Administration Nursing (new area) |
The first subareas were widely discussed by the nursing community and presented at a congress and forum of the area. Thus, for these, there was only update of the nomenclature. As for the Contagious Diseases Nursing subarea existing in the old tree, it was agreed to maintain it with CA-EF, on the occasion of the judgment of the Pq 2015 grants, aiming at the permanence of the six subareas and the addition of two. Thus, the updating occurred only in the name given by the MoH, the World Health Organization (WHO) and the Pan American Health Organization (PAHO), in Emerging, Re-emerging and Neglected Diseases Nursing. Two other new subareas were proposed: Fundamental Nursing and Management and Administration Nursing, due to the existence of lines of research; projects and scientific production in these subareas, which did not find correspondence in the Proposal Form.

The Opinion favoring the areas review took place in 2015. Its dissemination by CA-EF took place in the Forum of Researchers and Coordinators of Graduate Programs, during the 67th CBEn in the city of São Paulo. As an argument for approval, the technical Opinion considered: 1. The demand deals with the old claim of the scientific community dating back to the early 2000s, agreed after extensive debate among the main representations of the area (ABEn and Coordination of the Nursing Area at CAPES); 2. The proposal allows a better visualization of the production of knowledge in the field of health research at MoH.

This old claim was made through the union between researchers and leaders of CNPq, CAPES and ABEn, committed to the solution of relevant Brazilian health problems. This achievement and the classification of the nursing area are highlighted by researchers and leaders of CNPq, CAPES and ABEn, committed to the solution of relevant Brazilian health problems. This achievement and the classification of the nursing area are highlighted by researchers and leaders of CNPq, CAPES and ABEn, committed to the solution of relevant Brazilian health problems. This achievement and the classification of the nursing area are highlighted by researchers and leaders of CNPq, CAPES and ABEn, committed to the solution of relevant Brazilian health problems. This achievement and the classification of the nursing area are highlighted by researchers and leaders of CNPq, CAPES and ABEn, committed to the solution of relevant Brazilian health problems.

Changes in science occurred in the last three decades and had an impact on the development of knowledge in the area of nursing. In turn, it followed the world trends, reflecting the necessary advances related to caring for, teaching and, consequently, research demands in the nursing area.

There was a greater concentration of researchers in the Southeast region, according to their characteristics: number of institutions, region of the country, level of researchers and research groups followed by the South, Northeast, Center-West and North regions. The most contemplated areas of the Agenda de Prioridades de Pesquisa em Saúde, in this analysis, according to the Universal Call and Special Scholarships were: Noncommunicable Diseases, Children's Health, Women's Health and Communicable Diseases.

In these calls, the concessions made could be classified in the current proposal of the knowledge tree, making visible the generated production of the nursing area.

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