

**ANALYSIS OF RESEARCH GROUPS ON FUNCTIONAL DISABILITY IN BRAZIL****ANÁLISE DOS GRUPOS DE PESQUISA SOBRE INCAPACIDADE FUNCIONAL  
NO BRASIL****ANÁLISIS DE GRUPOS DE INVESTIGACIÓN DE DISCAPACIDAD FUNCIONAL  
EN BRASIL**

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**ABSTRACT**

**Objective:** To analyze the characteristics of research groups (RGs) on functional disability in Brazil. **Method:** The database of the Directory of Research Groups in Brazil of the National Council for Scientific and Technological Development was used based on the terms: functional capacity, functional performance, functionality and international classification of functionality, disability and health. The groups were analyzed according to the year of formation, leaders, area of knowledge, geographic distribution, number of lines of research and human resources. **Results:** 91 GPs were identified, starting in 1999, inserted in the large area of Health Sciences knowledge. All regions of Brazil have GPs on functional disability, with more presence in the Southeast (48.4%) and Northeast (24.2%). The main scientific production of the leaders was scientific articles (84.5%). **Conclusion:** There is an increase in the creation of GPs on functional disability, but there are regional disparities.

**Descriptors:** Research groups; Knowledge management for health research; International Classification of Functionality, Disability and Health.

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## RESUMO

**Objetivo:** Analisar as características dos grupos de pesquisa (GPs) sobre incapacidade funcional no Brasil. **Método:** Utilizou-se a base de dados do Diretório de Grupos de Pesquisa no Brasil do Conselho Nacional de Desenvolvimento Científico e Tecnológico a partir dos termos: capacidade funcional, desempenho funcional, funcionalidade e classificação internacional de funcionalidade, incapacidade e saúde. Analisou-se os grupos quanto ao ano de formação, líderes, área de conhecimento, distribuição geográfica, quantidade de linhas de pesquisa e de recursos humanos. **Resultados:** Identificou-se 91 GPs, a partir de 1999, inseridos na grande área do conhecimento Ciências da Saúde. Todas as regiões do Brasil possuem GPs sobre incapacidade funcional, sendo mais presentes no Sudeste (48,4%) e Nordeste (24,2%). A principal produção científica dos líderes foi de artigos científicos (84,5%). **Conclusão:** Há um aumento na criação dos GPs sobre incapacidade funcional, porém há disparidades regionais.

**Descritores:** Grupos de pesquisa; Gestão do conhecimento para a pesquisa em saúde; Classificação Internacional de Funcionalidade, Incapacidade e Saúde.

## RESUMEN

**Objetivo:** Analizar las características de los grupos de investigación (GR) sobre discapacidad funcional en Brasil. **Método:** Se utilizó la base de datos del Directorio de Grupos de Investigación de Brasil del Consejo Nacional de Desarrollo Científico y Tecnológico con base en los términos: capacidad funcional, desempeño funcional, funcionalidad y clasificación internacional de funcionalidad, discapacidad y salud. Los grupos fueron analizados según año de formación, líderes, área de conocimiento, distribución geográfica, número de líneas de investigación y recursos humanos. **Resultados:** Fueron identificados 91 médicos generales, a partir de 1999, insertos en la gran área de conocimiento de las Ciencias de la Salud. Todas las regiones de Brasil tienen médicos de discapacidad funcional, con mayor presencia en el Sudeste (48,4%) y Nordeste (24,2%). La principal producción científica de los líderes fue artículos científicos (84,5%). **Conclusión:** Hay un aumento en la creación de médicos de discapacidad funcional, pero hay disparidades regionales.

**Descriptorios:** Grupos de investigación; Gestión del conocimiento para la investigación en salud; Clasificación Internacional del Funcionamiento, de la Discapacidad y de la Salud.

## INTRODUCTION

Conducting research constitutes an essential component for academic-professional training and is considered fundamental for socio-political and technological development, which helps in the formation and expansion of research groups.<sup>1</sup>

In terms of scientific production, in the accumulated period from 2015 to 2020, Brazilian scientific production maintained

the 13th position in the global production of scientific articles indexed in the WoS database. In 2020, Brazil surpassed Russia (14th), Iran (15th), the Netherlands (16th) and Turkey (17th), in a ranking led by the USA, China and Germany, in that order.<sup>2</sup>

This appreciation of Brazilian scientific production and the recognition of national researchers by the international scientific community are mainly due to the National Council for Scientific and Technological Development (CNPq),

considered the center of strategic science planning in Brazil, which aims to promote scientific research and technology, act in the formulation of policies, promote training of human resources, support studies, and encourage the training of Brazilian researchers. The main source of this knowledge production are the Research Groups (RG).<sup>3</sup>

GPs are like a group of individuals hierarchically organized around academic leaders for collective or shared activities, with a view to producing knowledge, which brings together professors, students and technical-level personnel, around a single objective, following a line of research for the resolution of a given question.<sup>4</sup>

Active Brazilian GPs are allocated within the Directory of Research Groups in Brazil, CNPq's database on human resources, lines of research, scientific and technological production, established partnerships and the institutions referring to the groups. According to the Census of the Directory of Research Groups in Brazil carried out in 2016, there were 37,640 GPs in the country.<sup>5</sup>

The Directories have the purpose of favoring, in an inexhaustible way, the exchange of information and knowledge produced by the scientific community, in an agile and precise way. In addition to acting as a communication mechanism, it is an excellent tool used in the planning and

management of activities in the field of science and technology, as well as being responsible for preserving the memory of research in Brazil.<sup>6</sup>

Several topics have been studied by GPs, such as sport and exercise psychology<sup>7</sup> and nursing.<sup>4</sup> However, there are no studies related to functional disability. Functional disability can be characterized as a limitation in the performance of socially defined roles and tasks in a social environment<sup>8</sup> in accordance with the execution of activities of daily living.<sup>9</sup> Over the last few years, several models have been proposed to guide discussions and research on the subject of functional disability.<sup>10</sup> In 2001, WHO approved the classification system for understanding human functioning and disability: the International Classification of Functioning, Disability and Health (ICF).<sup>11</sup>

The ICF is considered the main method for measuring and formulating policies in the area of health and disability.<sup>12</sup> In addition, the ICF offers a framework for understanding and classifying functionality and disability related to health states, enabling a clearer explanation and more suggestive about the health of citizens.<sup>11</sup> It ensures the application of a universal language, which simplifies communication between professionals regarding health matters.<sup>13</sup>

It is understood that the increase in research is an important tactic for strengthening the areas of health as a science and profession, as it is necessary to exercise a professional practice supported by a continuous search for new knowledge. In addition, for a theme to develop and improve the quality of the research, it is necessary to gather and analyze data on its production, for example, when considering the geographic distribution that produces the most. In this sense, analyzing GPs on functional disability can help in the development of practices and development of new care technologies, in addition to exploring new topics of interest in this area.

The objective of the study was to analyze research groups on functional disability in Brazil, regarding the year of formation, number of leaders, geographic distribution, number of lines of research and amount of human resources.

## **METHODS**

This was a descriptive study, carried out through document analysis of the CNPq Directory of Research Groups in Brazil database.

Two stages were carried out, the first corresponding to the selection of research groups and the second the analysis of the scientific production of the leaders of the selected groups.

The selection of research groups related to functional disability was carried out by consulting the current database of the Directory of Research Groups belonging to CNPq. The terms functional capacity, functional performance, functionality and international classification of functionality, disability and health were used, based on the exact search. The query was by group, being applied to the group name, search line name and search line keyword. The status option “certificates” was selected and no filters were applied.

The search for groups was carried out in June and July 2018 by consulting the Directory of Research Groups in Brazil website, available at: [http://dgp.cnpq.br/dgp/faces/consulta/consulta\\_parametrizada.jsf](http://dgp.cnpq.br/dgp/faces/consulta/consulta_parametrizada.jsf). The groups selected in the search were analyzed individually. The groups that presented at least one line of research with the functional disability theme were included for analysis. Those groups that were in the status of not updated were excluded.

In the analysis of the research groups, information regarding the year of formation, leaders, area of knowledge, geographic distribution, number of lines of research and amount of human resources (students, researchers, technicians and foreign collaborators) were extracted.

From the identification of the leaders, the titles and scientific productions

were verified. The search for information was carried out based on access to the Lattes Curriculum of the leading researchers of each group, through the CNPq Lattes Platform, available at: <http://buscatextual.cnpq.br/buscatextual/busca.do?metodo=apresentar>.

The scientific production of the leading researchers of the selected groups was identified based on information from published articles, articles accepted for publication, books, book chapters and complete papers published in conference proceedings. The scientific production of the last five years (2013 until the moment of the search of the research groups) related to the theme functional disability was considered. To identify the relationship between scientific production and the theme addressed, the titles and abstracts of publications were analyzed. The selected scientific production was organized and systematized using the Zotero reference manager software, thus enabling the identification of duplicated works.

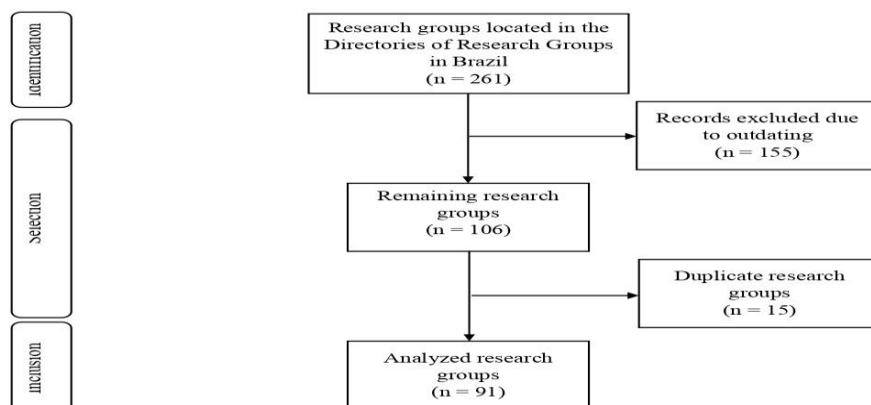
The information collected from the research groups and from the researchers' Lattes curriculum were tabulated in the Excel program, version 2010. Descriptive statistics procedures were used to present the results, through absolute and relative frequency. Analyzes were performed using the Statistical Package for Social Sciences (SPSS) software, version 24.0.

Because it is a documental research, whose available content is of public nature, this study did not require submission to the Ethics Committee on Research with Human Beings. However, it should be noted that the researchers followed all ethical precepts necessary for the analysis and dissemination of research data of this nature.

## RESULTS

According to the search in the Directory of Research Groups in Brazil, 261 research groups were found based on the terms functional capacity, functional performance, functionality and international classification of functionality, disability and health.

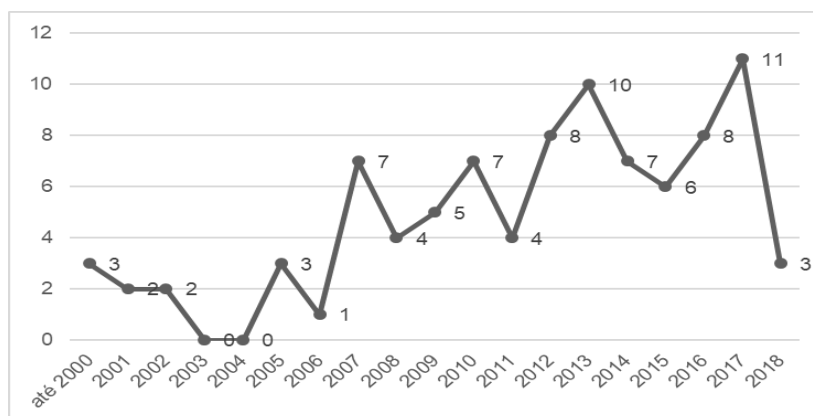
Of these, 155 were excluded because they were out of date for more than 12 months or because they received the certificate of being excluded from the platform. Subsequently, 15 groups were excluded because they were duplicated. Thus, 91 research groups were analyzed in this study (Figure 1).



**Figure 1.** Flowchart of research groups.

Research groups on functional disability in Brazil that are certified were formed from the year 1990. According to

figure 2, it is possible to observe that the year with the highest formation of research groups on this topic was in 2017.



**Figure 2.** Year of formation of research groups on functional disability in Brazil.

Research groups on functional disability were found in all regions of Brazil, with the Southeast and Northeast regions presenting the most research groups, with 44 (48.4%) and 22 (24.2%), respectively.

Research groups were distributed across 19 states and the Federal District (Figure 3). The state of São Paulo had the

highest number of research groups (n=17; 18.7%), followed by Minas Gerais (n=15; 16.5%) and Rio de Janeiro (n=11; 12.1%). In the states of Amapá, Acre, Maranhão, Rondônia, Roraima and Tocantins, no research groups were found on the subject of functional disability.



**Figure 3.** Distribution of research groups on functional disability in Brazil.

Table 1 presents the characteristics of the analyzed research groups. When considering the amount of human resources, the groups were predominantly formed by students (56.5%) and researchers (39.4%). Of the total groups, 12 had foreign collaborators, totaling 16 members.

As for the Great Area of Knowledge, all groups belonged to Health Sciences.

When analyzing the subarea, the groups were divided into seven different ones, with most groups (56.0%) belonging to Physical Therapy and Occupational Therapy, followed by Collective Health (17.6%).

Regarding the number of lines of research, it was found that 42.9% of the groups had from one to three lines of

research, 36.2% from four to six and 20.9% from seven to nine.

**Table 1.** Characteristics of research groups on functional disability in Brazil.

Search group	n	%
<b>Human Resources</b>		
Researchers	869	39.4
Students	1248	56.5
Technical	74	3.4
Foreign employees	16	0.7
<b>Knowledge subarea</b>		
Physical education	13	14.3
Nursing	3	3.3
Pharmacy	1	1.1
Physiotherapy and Occupational Therapy	51	56.0
Speech therapy	1	1.1
Medicine	6	6.6
Collective Health	16	17.6
<b>Research lines</b>		
1 to 3	39	42.9
4 to 6	33	36.2
7 to 9	19	20.9

Regarding the leadership of the research groups, it was verified that 67.4% of the groups were led by two researchers, thus adding up to 148 leaders. Of the titles of these leaders, 90.5% had a doctorate, Table 2.

Regarding the scientific production of the leaders in the last five years, the main publication was scientific articles, 275 of which were published and four were accepted for publication, corresponding to 83.3% of all scientific production, Table 2.



**Table 2.** Leadership of research groups on functional disability in Brazil.

<b>Leaders</b>	<b>n</b>	<b>%</b>
<b>Amount</b>		
One	34	37.4
Two	57	62.6
<b>Titling</b>		
Specialist	1	0.7
Master	13	8.8
Doctor	134	90.5
<b>Scientific production</b>		
Complete articles published in journals	275	83.3
Articles accepted for publication	4	1.2
Books	0	0.0
Book chapter	39	11.9
Papers published in conference proceedings	12	3.6

## DISCUSSION

The results presented in this study show that the functional disability theme is present in the large area of Health Sciences, with greater predominance in the subarea of knowledge of Physical Therapy and Occupational Therapy. This fact can be explained in part, as most studies on the ICF discuss motor disabilities.<sup>14</sup>

The increase in the creation of research groups may have been influenced since 2000, by the fact that from 2002, it became mandatory for all research fellows, masters, doctorates, scientific initiation, in addition to accredited advisors and others. subjects who use the CNPq, register the curriculum on the Lattes Platform. Thus, the

data suggest that the growth in the number of groups from 2000 may have occurred as a result of the demand from educational institutions for researchers to increase the number of research groups registered on the Lattes Platform.<sup>15</sup>

In addition, the approval of the ICF model in 2001 by the WHO<sup>11</sup> may have contributed to the creation of new groups related to the theme. It is noteworthy that in 2017 there was a greater number of registrations. It is believed that the increased use and greater knowledge about the ICF have contributed to this fact. Ruaro et al.<sup>14</sup> investigated the panorama of the use of the ICF in Brazil since its conception in 2001 until the year 2011. They verified that there was a greater volume of publications in the

years 2010 and 2011, proving the rise of the use of the ICF by the community Brazilian science, as well as in the present study.

The work carried out by research groups is of great value, since they allow specialists from different areas to dialogue on the same theme in educational institutions, in private laboratories, companies or technological institutes.<sup>16</sup>

Considering the regions with the highest concentration of research groups, it was found that the southeast region represented most of the groups. It is believed that disparities between regions may occur due to infrastructure issues, qualified faculty and funding for research development.<sup>17</sup> In addition, this fact may be related to the fact that the Southeast region is the one with the highest number of Graduate Programs in Brazil, including the Greater Health Sciences area.<sup>18</sup>

In Brazil, knowledge is organized into areas of concentration and lines of research. In the present study, it was verified that 42.9% of the groups presented 1 to 3 lines of research linked to the theme of functional disability. However, it is known that the indication of the connection of productions in lines of research still shows little clarity of its determination, leading to the perception of overlapping lines, overlapping or interfaces, concentration or convergence, spraying or diversity of themes, among others.<sup>4</sup>

Regarding the leading researchers, they are the ones who coordinate and plan the work of the research group. It was found in the present study that most of the leaders of the research groups on the theme of functional disability were doctors, with isolated cases of specialists and masters. The Directory of Research Groups in Brazil does not require a maximum degree for leaders, however, a group whose leader does not hold a doctor's degree is not common.<sup>6</sup> The growing number of researchers reflects, at the same time, in greater development of scientific production and greater competition among researchers.<sup>19</sup> Kokubun<sup>20</sup> states that the training of human resources cannot be limited to the title of doctor. It is important that researchers seek to improve themselves through exchanges with other research groups, not only in Brazil, but also abroad.

Currently, students have a greater opportunity to join research groups, even in initial training. In this way, they are able to improve initial training, which can stimulate continued training. In addition, they manage to associate theory and practice that contribute to their training as professionals and researchers.<sup>17</sup>

Regarding scientific production, the production of complete articles published on the theme of functional disability was the most prevalent. It is known that the publication is the most recognized means by the scientific community by institutions that

evaluate the production in a certain area of knowledge.<sup>17</sup>

## CONCLUSION

The present study presents as a limitation the fact that the information was consulted in databases that depend on researchers' updates. The considerable increase in the number of research groups over the years, in the ratio of researchers and students per group and, consequently, in intellectual production, largely results from the publication of scientific articles.

The CNPq database is fundamental for the knowledge network to be built and visualized in the scientific context. Furthermore, research groups that include the participation of different researchers, students and technicians can expand the possibilities of discussions for all health professionals.

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