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REFLECTION ON THE SOCIO-HISTORICAL HUMANIZATION OF BRAZILIAN ELDERLY PEOPLE IN VIEW OF THE UNIFIED HEALTH SYSTEM AND NATIONAL POLICIES RELATED TO OLD AGE

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INTRODUCTION

The arrival of the era of knowledge brings with it significant changes in the economic, political, social, cultural and institutional context, causing profound changes in the process of generation, accumulation and dissemination of knowledge (1). The technological revolution observed in this period – the so-called 4th Revolution –, which increasingly requires the intense use of Information and Communication Technologies - ICT, drastically changed the conditions for generating knowledge and processing information through technological convergence between the information science, nanotechnology, biology and neurosciences (2).

In this sense, society increasingly needed to accompany these new knowledge generation processes – both in relation to social constraints and the social transformations caused by these knowledge production processes – to understand and explain science, not only as a way of production of knowledge, but also considering different social dimensions (3).

According to Castells (4), the relationship between technology and society produces important factors, including creativity and entrepreneurial initiative, which play a decisive role in the process of scientific production, technological innovation and social applications, so that the result end depends on a complex pattern of interactivity. Castells (4) also states that the current technological revolution is not characterized by the concentration of knowledge and information, but by the application of this knowledge and information to generate new knowledge and information processing and communication devices, forming a cycle of cumulative feedback between the innovation and the use of these functionalities.

In this context, information and knowledge assume a strategic role in the production of innovative processes in the health area, where scientific cooperation, through network mechanisms, can generate the sharing of information and the mapping of different skills and knowledge, which can contribute to the development of research from the generation of knowledge to the introduction of the product in the market and its subsequent dissemination.

However, when designing network structures, it is necessary to identify and bring together the relevant actors, analyze the current context of the environment in which these structures are to be implemented, determine and communicate to the participants the expectations regarding their functioning and develop strategies to keep the network activated. (3). These structures play an important role as tools for coordinating multidisciplinary studies. However, the emergence in recent years of associating the technologies used in these structures with the effects caused in society has brought a new theoretical perspective in the field of social studies of technique, in this case sociotechnical analysis (5).

Given this and the characteristics of the environment and the actors involved in these structures, it is important to consider the Actor-Network Theory (TAR), proposed by Latour (6) (7), for a better understanding of aspects related to cooperative networks, given the propositions of ANT relating to the field of scientific studies and knowledge production. According to Latour and Callon (8), apud Cavalcanti; Alcadipani, 2013, the Actor-Network Theory is also known as the sociology of translation, as it works in an attempt to organize the diverse and contradictory interests caused by changes in the identities of the actors and their possibility of interaction within the network to achieve common goals.

In this sense, the definition of sharing

strategies among network participants is fundamental. However, it is not so simple to establish this action, as the relational assets present in these cooperation spaces must also be considered, as well as the configuration of the attributes that constitute these assets, among them trust, motivation, reciprocity, loyalty, commitment, honesty and integrity, among others, which represent a complex set of values, attitudes and virtues, whose relevance is highly associated with the context in which it is inserted (9).

The field of research under study is Leishmaniasis, as it is still considered one of the most neglected diseases in the world and generates great medical demands, which remain unmet. Currently, research priorities are to address major gaps in disease transmission and epidemiological patterns, as well as aspects of diagnosis, treatment, and prevention of all three major forms of leishmaniasis (10).

In Brazil, even with installed capacity in research institutions, the disease is observed with high incidence rates, with more than 20,000 cases registered in the cutaneous form and 3,000 cases in the visceral form annually, with a lethality of 10% in children under a year according to the World Health Organization (WHO). Another important aspect concerns the contrast observed between the profile of publications on leishmaniasis and the epidemiological situation of the disease in Brazil and worldwide. While the number of publications on the subject has increased significantly in recent years, advances in combating the various forms in which the disease presents itself have been minimal and non-existent when it comes to the treatment of humans. (11) (12).

To understand these dimensions, theoretical aspects related to the panorama of research on leishmaniasis and some concepts and theories associated with cooperative networks will be addressed. It presents the methodological details used in the research, which involved carrying out semi-structured interviews and applying a questionnaire addressing, in general, the professional trajectories of the interviewees in relation to scientific cooperation and the panorama of cooperative scientific production in a network. And finally, the presentation of the results obtained in the research, as well as its discussion and final considerations on the subject under study.

METHODOLOGY

The research consisted of a descriptive exploratory study composed of qualitative and quantitative approaches. The data collection techniques used were semi-structured interviews and the application of a questionnaire.

The qualitative approach consisted of surveying and identifying relevant information about the panorama of cooperative scientific production in networks and about the management and governance of cooperative research networks. In this approach, the results of the research by Sampaio et al. (11) on social network analysis (SAR), focusing on research networks on leishmaniasis.

After analyzing these results, researchers considered the most central in research networks were selected, that is, those with the greatest number of collaborations and the greatest influence in mobilizing research groups in the area of leishmaniasis and who, therefore, would have the greatest potential for act collaboratively. Once the most relevant researchers in the field of leishmaniasis were identified, the interviews were scheduled.

Between March and May 2017, 12 face-to-face semi-structured interviews were scheduled and carried out with researchers from Fiocruz and ``Universidade de Brasília`` (UnB). The purpose of the interviews was to

initially understand the professional trajectory of the interviewed researchers with a focus on their scientific cooperation and to understand in general how the panorama of cooperative scientific production in a network is. In this sense, 12 researchers were interviewed, whose studies are distributed in five research areas in the field of leishmaniasis: 1) entomology, biology of vectors and reservoirs of infectious agents; 2) parasitology; 3) experimental disease models; 4) clinical research and clinical trials; and 5) research and development of drugs and medicines.

In the quantitative approach, the application of a questionnaire (electronic survey) was used as a data collection technique through a specific link sent to the researchers via e-mail. The construction of the questionnaire took place from the interviews carried out previously, and made it possible to classify the group according to the processes carried out in the scope of scientific production, following the model of the Drugs for Neglected Diseases initiative - DNDi, called Dimensions of the scientific production process that presents the following sequence: **Basic research > Translation (phases I and II clinical trial) > Development (phase III - Registration) > Implementation (access),**indicated on the website: https://www.dndial.org/doencas/portfolio/.

The questionnaire was submitted between 09/04 and 10/16/2017 to 546 researchers in leishmaniasis from Fiocruz, extracted from the CNPq lattes database, including the 12 researchers who had previously participated in the semi-structured interviews.

In the universe of researchers extracted from the CNPq database, it was considered as a criterion for the selection of those who work in some way with research on leishmaniasis, either in the teaching process - through the guidance of master's theses and doctoral theses –, either in the scientific production process – through collaboration in the production of scientific articles –, or in the daily work process – through the development of scientific research related to the topic of leishmaniasis –, totaling a final sample of 546 researchers submitted to the questionnaire. The total number of responses to the form was accounted for by sixty respondents, making up a percentage of 10.99%, and this percentage of responses is considered satisfactory, taking into consideration, that the sample population consists of researchers who, due to the nature of their activities, are extremely busy.

RESULTS AND DISCUSSION

The initial proposal of the interviews was to understand the process of scientific production in leishmaniasis, with emphasis on the professional trajectories of the interviewees in relation to scientific cooperation, and to identify the panorama of cooperative scientific production in a network, with the objective of identifying the factors that influence the scientific cooperation, interaction between researchers and cooperative intelligence for research groups.

Minayo (13) considers the interview one of the main field approach techniques in qualitative research, as it allows collecting subjective data related to values, attitudes and opinions of respondents, providing a greater level of depth in the dialogue between interviewer and interviewee. Regarding the questionnaire, according to Gil (14), its construction process aims to translate the research objectives into specific questions, which must provide the necessary data to describe the characteristics of the researched population.

The use of the electronic survey as a collection instrument to measure the relational assets present in cooperative research networks proved to be an important indicator to be used in the analysis of the

incidence and influence of these assets in these networks, as already indicated by Silva (9). The author also highlights the importance of the presence of these relational assets for the composition of more complex relationship networks, in which the choice of actors who will form the network is governed not only by capital knowledge, but also by skill and clarity in the relationships between these actors. It is important to understand here that relationships are even broader than interactions, since they presuppose not only effective communication, but also continuous reciprocity between the actors involved.

This way, the results of the research regarding the importance of relational assets for the establishment of scientific cooperation, considering the productive process of science, showed that trust and integrity were the most cited as determinants for the beginning of a cooperation, followed by honesty and integrity. reciprocity (Figure 1).

It is important to associate Latour's (7) contributions with ANT to this analysis, which characterizes the existing relationships between the actors, the identity that each one assumes, its configuration within the network and the exploration of human and material capacities, fundamental for the cooperation success.

Rovere (15), highlights reciprocity as the main relationship bond for establishing a collaboration. According to the author, it is characterized by the provision of sporadic help among peers. In turn, trust is highlighted by the author as the main relationship link for there to be an association between peers, which goes beyond cooperation, being characterized by the sharing of objectives and projects.

PROFESSIONAL TRAVEL FOCUSING ON SCIENTIFIC COOPERATIONS

The interviewed researchers were unanimous in informing that their scientific cooperation took place mainly with postgraduate students for the preparation of theses, dissertations and scientific articles, or with other researchers with whom they related, or through their postdoctoral activities, or by participating in scientific conferences.

This culture of cooperative research development only intensified with the development of more specific research activities in their areas of knowledge that needed or needed cooperation. Which can be translated into repeated actions of trust and solidarity for sharing objectives, activities and projects.

The process of cooperation in a more hierarchical way with postgraduate students can be associated with the mechanisms and norms for evaluating the researcher expressed by the Coordination for the Evaluation of Higher Education Personnel (Capes), which require this follow-up on the part of the researcher as form of evaluation and which have been governing the process of academic guidance in the country. In addition, this follow-up is also important for the researcher to understand the structure and functioning of research groups, the management of research projects and the evaluation of the ability to guide master's dissertations and doctoral theses (16).

One question raised by the interviewed researchers, who direct their studies in the research area to the biology of vectors and the reservoirs of infectious agents aimed at leishmaniasis, was the difficulty in carrying out basic research in this area, and part of these difficulties associated with the little knowledge that one has about transmitting mosquitoes, sandflies.

According to three of these researchers interviewed, there is a lack of professionals to work with field research to understand more and better about the life cycle of the sandfly, as

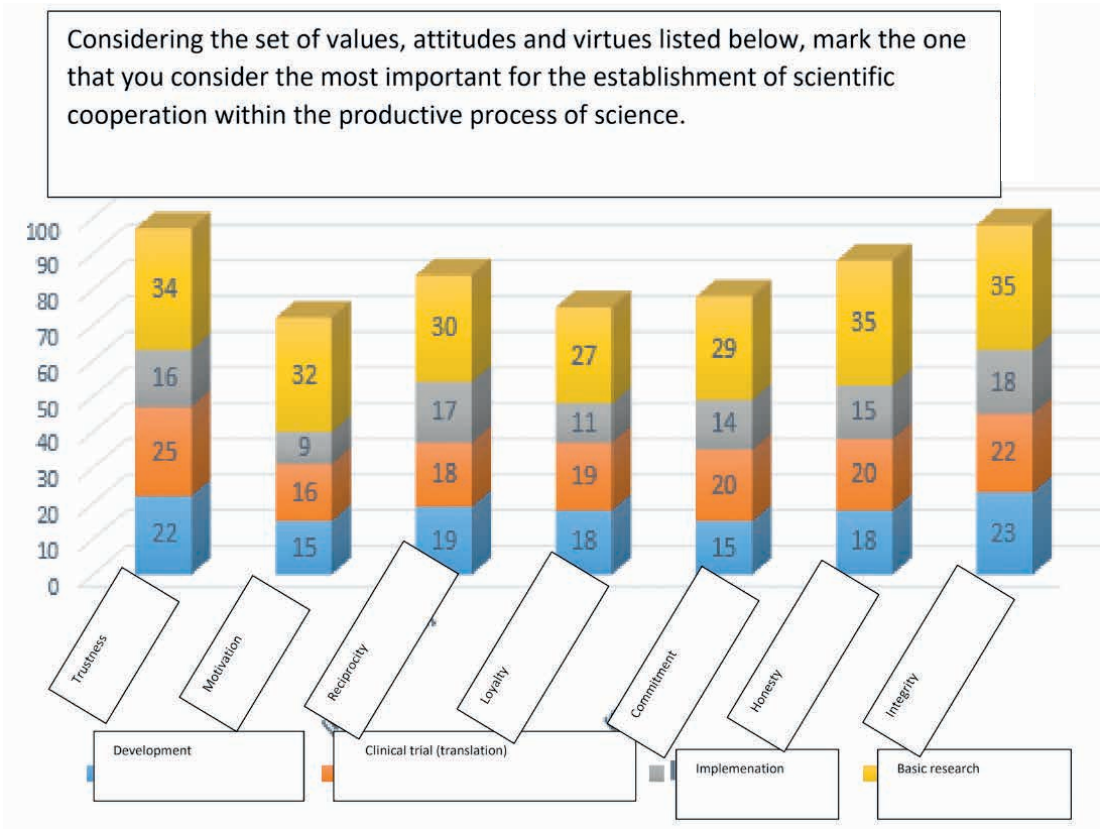

Figure 1 – Importance of relational assets for establishing scientific cooperation

Source: author's elaboration

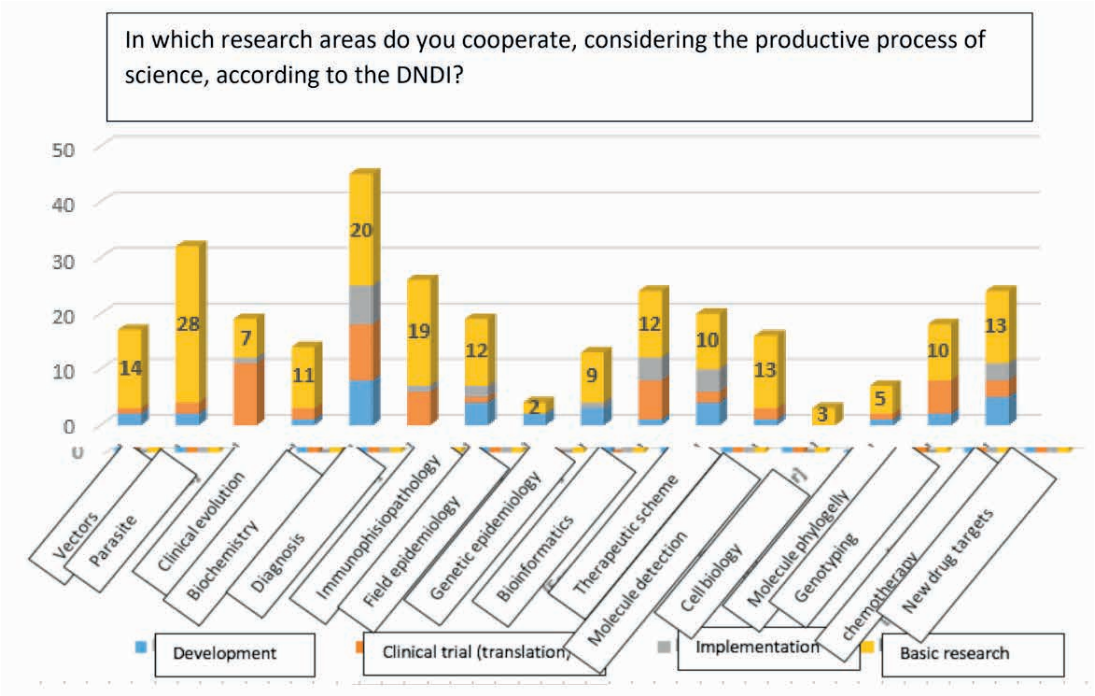

Figure 2 – Scientific cooperation in leishmaniasis in the productive process of science

Source: author's elaboration

well as to cover the vast geographic extension of the country, considering that in each region the vector has a different behavior.

The survey result corroborates the need for more professionals to work with insects, in this case, entomologists. As mentioned in the statements, this translates into a lack of training for professionals to work in the field. Here, the vector research area appears as a prominent area in cooperation, that is, those researchers who work in vector studies are among those who most cooperate in basic research, as shown in Figure 2.

Therefore, in this study, the stimulus to cooperation goes through the identification (mapping) of needs and the availability of specific resources for each stage of the scientific process, in order to promote their sharing.

Another important issue is the need to know more about molecular biology, biochemistry and metagenomics associated with the insect for a more accurate understanding of the vectorial transmission process, which includes the need to integrate several areas of knowledge.

This question corroborates the indication of the researchers responding to the survey, in which 37 claims that other technical skills are very relevant for the establishment/success in the development of cooperative research, as shown in Figure 3.

In this context, a failure of science is evident related to the little knowledge that is available about the leishmaniasis vector and its transmission cycle. Scientists are still raising more questions than getting answers in these studies. Therefore, the scientific community needs to research more, which requires more integration of knowledge, skills and abilities for integration into projects.

The group of researchers working in the field of parasitology (leishmania parasites) work on: 1) the identification and isolation of strains; 2) genotyping and identification of the diversity of parasite species; 3) analysis of proteins associated with leishmania using advanced techniques in molecular biology; 4) mapping of the genetic characteristics of the parasite; 5) the identification of vectorial transmission and the impact of the parasite infection by virus in the treatment of the disease.

An important issue indicated by the group of researchers working in the field of parasitology was the difficulty in successfully treating human cases of the disease, attributed to the complexity of vectorial transmission and the polymorphism of the parasite, which creates difficulties in arriving at conclusive results on therapeutic schemes. This generates a scientific paradox: Brazil is one of the largest producers of knowledge in the world about leishmaniasis, but it still has not managed to reach effective results on therapeutic regimens for the treatment of the disease. Studies show the increase in the incidence and prevalence of the disease in the country (10).

The possibilities of advances in the treatment of the disease were also associated with difficulties in establishing mechanisms for the standardization of diagnostic methods, despite reports on advances in this area in recent years. The complexity of the leishmania parasite has also been associated with a difficulty in both the decision on diagnosis and the development of treatment standards.

This discussion on studies of the parasite and on diagnostic methods can be complemented with the result of the survey on the predominant areas of activity of researchers in research on leishmaniasis, as shown in Figure 4.

It is observed that in relation to the predominant area of research of the respondents, there was a greater and more uniform concentration of researchers in the area of diagnosis. However, it is noteworthy

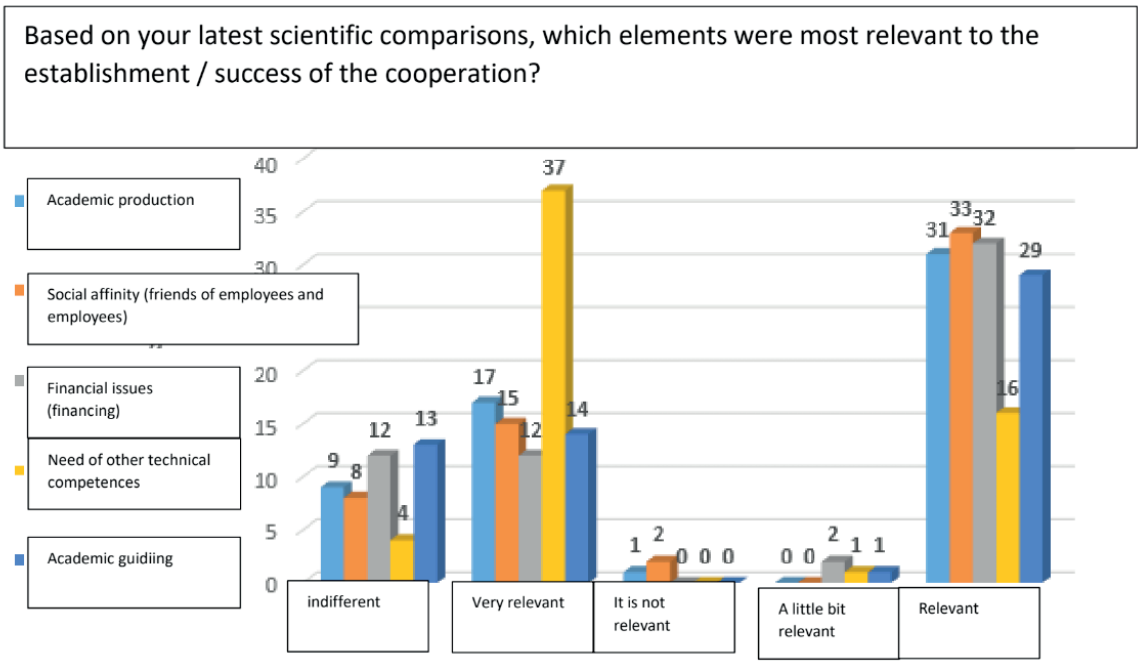

Figure 3 – Relevant elements for establishing cooperation

Source: author's elaboration

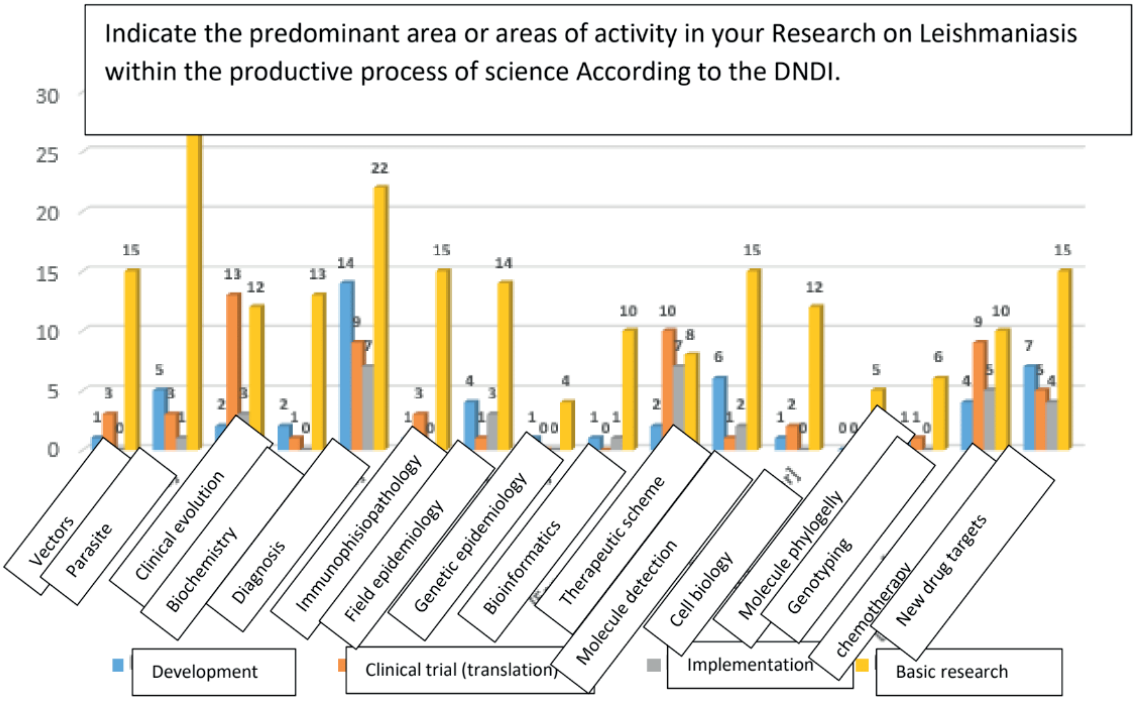

Figure 4 – Predominant areas of activity in research on leishmaniasis

Source: author's elaboration

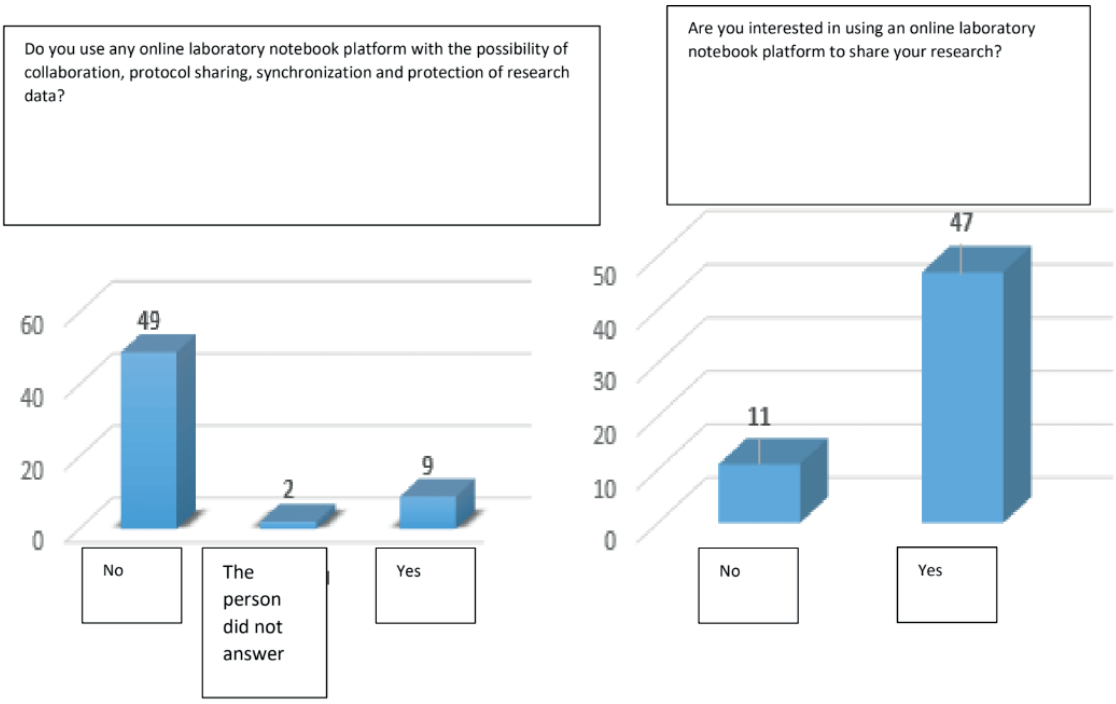

Figure 5 – Use of digital interaction tools

Source: author's elaboration

that the areas of parasite and diagnosis stood out as predominant in basic research.

Another important characteristic observed is the lack of communication and collaboration between the research groups that work in different laboratories producing autonomous and isolated research, with different approaches and less concentration on the theme that covers the entire production chain of knowledge associated with leishmaniasis. This context directly influences the process of sharing information, activities and resources among these actors.

The reality observed in the interviewees' reports about the lack of communication and collaboration between researchers and research groups was also observed in the survey results, which pointed to the need to use mechanisms that promote this interaction and collaboration. In this sense, an online platform that promotes interaction and the exchange of knowledge among researchers at the institution was considered extremely important.

The social network model is a structure that is increasingly used today by actors and organizations, connected by one or several types of relationships, for sharing information, knowledge, interests and efforts in pursuit of common goals, which can provide a new dynamic in the relationships between researchers and research groups.

Respondents who direct their studies to the areas of clinical research, development of experimental models and new drugs, declared that there are great difficulties in developing clinical trials and in obtaining efficient therapeutic schemes, as well as in developing effective drugs, especially due to issues of financing, as they are very prolonged and sometimes risky activities that require sufficient and adequate financial and material resources for their execution. This way, the time required by these studies for their conclusion also implies the question of the researcher's evaluation, which is dimensioned by the production and publication of articles with research results.

An important issue that fuels the discussion of scarce funding is related to the availability of technological resources. Thus, institutional capacity for raising and sharing resources for research and cooperative intelligence gains importance, which must act to provide the researcher with strategic information, prospecting public notices for funding national and international research and carrying out systematic mapping and analysis of research networks to identify potential partners for sharing technological platforms, products and services, among others (17).

Another point raised in the interviews was about ethical regulation in research and legislation involving the riskiest clinical trials, such as those with human beings, for example. With regard to this discussion, greater flexibility was advocated in Brazilian legislation with regard to the issue of commitment and responsibility for the results of clinical research.

NETWORK COOPERATIVE SCIENTIFIC PRODUCTION

In relation to this topic, all highlighted the importance of sharing knowledge and information that in some way contribute to the advancement of their research, either to generate new knowledge in their area of expertise, or due to the need for other technical skills, or the need to add complementary knowledge from other areas that directly influence the results of their research.

Some barriers mentioned in the interviewees' reports in relation to scientific collaborations are also highlighted, such as the appropriation of research data that have not yet been published and the competition of some researchers for the increase of their

scientific productions, which express both the difficulty and the importance of if you share data.

Note the studies on relational sociology by Rovere (15), in which he points out that for there to be a level of cooperation between peers, activities and resources must be shared, and that in the field of science, data are considered some of the most important resources. The author also considers that these actions are directly associated with values such as solidarity, reciprocity, interest and acceptance.

However, for these values to be present in the relationships between researchers, and consequently to contribute to the establishment of cooperation, it is important to have, as identified by Axelrod (18), apud Martins, 2013, an iterated (repeated) relationship (continuous interaction and systematic) between these actors, which occurs with a continuous flow of exchange of strategic information.

The observed reports indicate that scientific cooperation in the area of leishmaniasis does not happen continuously or periodically, but due to the specific need of each researcher to share financial and infrastructure resources for research, as well as the need to obtain other technical capabilities for the development of your research.

This discussion about the process of collaboration between researchers is further reinforced by the result of the survey shown in Figure 3, when respondents evaluated the most relevant factors for establishing cooperation, the most relevant being the need for other technical skills.

Another important aspect about scientific cooperation is that none of the interviewed researchers mentioned the use of any specific digital interaction tool specialized in the scientific field to share data or research information. The main means of communication cited for interaction with other researchers, basically of a commercial nature, were email, Google tools, Dropbox, social networks and videoconferences, in addition to face-to-face meetings, congresses, symposiums and other scientific events.

The aspect related to the use of digital interaction tools was corroborated by the result of the survey, because when asked about the use of these tools – which enable collaboration, sharing of protocols, synchronization and protection of research data –, 83% of the respondents stated that they did not use these types of functionalities, configuring a paradigm to be broken in the field of research. However, 79% of respondents stated that they were interested in using these tools, as shown in Figure 5.

Face-to-face meetings, such as congresses, symposiums and workshops, were highlighted as important means of communication and knowledge exchange. However, the difficulty of raising financial resources for this type of activity was flagged as a barrier.

Regarding the means of communication cited by respondents for interaction with other researchers, the survey results also confirm this finding. The most used information and communication technology tools in the interaction between researchers and in the management of their projects indicated by the respondents were Google Docs and Dropbox.

Through the testimonies collected and analyzed, it is observed that scientific cooperation in the field of leishmaniasis still depends a lot on knowledge about the other and on interest in what the other is developing in their research area, and this involves trust in the use of data, in addition to issues of funding and recognition. However, there is still a gap in the process of communication and sharing between research groups to promote greater integration of knowledge, skills and abilities in the various areas of research.

The testimonies evidenced the growing need to establish a culture of networking, given that this orientation is already a reality in funding notices and in researchers' evaluation mechanisms. However, there is a question about the incentives for this networking to happen, mainly due to the difficulties associated with holding face-to-face forums for interaction between researchers.

FINAL CONSIDERATIONS

The results of the research confirmed that for the establishment of a collaboration – whose characteristic is to be a punctual and sporadic help between researchers – it is initially necessary that these researchers recognize the performance of each one in the process of scientific production and get to know each other, expressing interest by doing the other. When this collaboration evolves into a cooperation or association, with the sharing of activities and resources, objectives and projects, it is imperative that the assets of trust and reciprocity are present.

Regarding the analysis of barriers and difficulties that prevent the establishment of scientific cooperation, obstacles in relationships and aspects related to mistrust proved to be the most relevant assets in this process, which can direct the association of cooperative research networks to networks of more complex relationships, which are governed by skill and clarity in the relationships between the actors, thus enabling the sharing of resources, objectives and projects.

The use of information and communication technology tools by researchers to promote digital interaction between them may still represent a paradigm to be broken in Brazil, as the use of these tools is still considered very timid compared to the range of digital tools currently on the market. world, both to store and share data and codes efficiently and to help researchers to connect with other researchers in order to find specialized knowledge for new cooperations, in the form of a cooperative intelligence that makes intelligence, not only as an attribute individual, in a social relationship of knowledge exchange.

In this sense, the mobilization and direction of these actors in the research network to use these tools is extremely important, but it is necessary to have a strategic management of network resources to provide infrastructure that provides a digital platform with these functionalities.

Based on the reports observed in the interviews, it was possible to identify some important aspects related to research on leishmaniasis. The main one was that, despite the great progress in research and the existing potential in the Brazilian scientific community, which led the country to be one of the countries that most produces scientific knowledge in the world about leishmaniasis – a large part of this knowledge translated by the publication of scientific articles –, there are still many questions to be answered both about the process of vectorial transmission and about the genetics of the parasite, in addition to the need to advance further in cooperation patterns to establish a standardization of research methods for the diagnosis and, above all, for the identification of a therapeutic scheme that benefits human cases affected by the disease.

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