

The academic context of doctoral students in Spain: the case of EDFES

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Abstract

This article examines the regulation and evolution of doctoral studies in Spain, highlighting their importance in the construction of the European Higher Education Area (EHEA) and the European Research Area (ERA). It focuses on how Royal Decree 99/2011 has restructured doctoral programs to meet modern research and innovation requirements, promoting university-based training and collaborations with various institutions to foster R&D&I. The article provides a study of the Doctoral School of the Spanish Federation of Sociology (EDFES), based on 409 cases. It emphasizes EDFES's collaboration with university programs to enrich doctoral training through effective supervision, skills development, and internationalization. Additionally, it explores academic and professional preferences, noting an inclination towards participation in research activities, reflecting active engagement with the academic and scientific community. The study also examines students' involvement in research activities and their interaction with the scholarship system. The article concludes by emphasizing the importance of collaboration networks and the integration of doctoral students into scientific and professional activities to advance their training and the development of sociology. It also highlights the need for a gender perspective and the design of inclusive practices at all levels of the doctoral process, ensuring equal opportunities for success in academic and professional careers.

Keywords

Doctoral training; scientific cooperation; associationism; academic diversity; professional development; institutional policies.

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Introduction

The *Organic Law 4/2007*, of April 12, which modifies the previous one, defines the structure of university education in Spain in three cycles: Bachelor's, Master's, and Doctorate. Doctoral studies, corresponding to the third educational cycle as defined in the 2005 Bergen Communiqué, culminate in the award of the official title of Doctor. This title is valid throughout the national territory. The current regulations establish that the organization and implementation of these studies must conform to the statutes of each university, which must align with the criteria approved by the Government for the award of the Doctor title, following the prior report of the Council of Universities. These criteria are currently regulated in Spain by *Royal Decree 99/2011*, of January 28, which regulates official doctoral studies.

As indicated in the preamble of this regulation, doctoral studies, within the framework of the construction of the European Higher Education Area (EHEA), "must take into account the new foundations of the Revised Lisbon Agenda, as well as the construction of the European Research Area (ERA) and the objectives outlined for it in the 2007 Green Paper".

Thus, the doctorate plays a fundamental role in the intersection between the EHEA and the ERA, key pillars in the construction of a knowledge-based society (Drucker, 1969; Stehr, 1994; Castells, 1996; Mansell & Wehn, 1998). Research, as an integral part of university higher education, must be prioritized, not only for its contribution to the advancement of knowledge but also for its impact on the development of critical skills in doctoral students (Barnett, 1997). Additionally, academic and professional mobility in the doctoral and postdoctoral stages must be valued and promoted, as it is essential for the development of international networks and collaborations, as well as for the training of young researchers in a global context (Teichler, Ferencz & Wächter, 2011).

The current context, marked by a transition towards a sustainable economic model, positions doctoral graduates as key figures in society. Their role is pivotal in the generation, transfer, and application of Research, Development, and Innovation (R&D&I). In this sense, it is important for doctoral graduates to assume leadership roles in all institutions dedicated to innovation and research, thus facilitating the conversion of knowledge into tangible benefits for social welfare.

From a European perspective, current regulations have experienced significant advancements in defining doctoral programs since the Berlin Communiqué in 2003 up to

the Leuven Communiqué in 2009. During this period, European ministers of higher education have progressed in developing the essential aspects that should characterize these programs within the framework of the European Higher Education and Research Areas. Concurrently, the European University Association (EUA) has conducted various meetings and activities, generating a series of studies and recommendations that have contributed to the development of doctoral programs.

The particularities of doctoral studies, with their diversity of needs and methods in different areas of knowledge, require flexible regulation. This flexibility facilitates the implementation of a doctoral training model based on the university, but which also integrates collaboration with other national and international bodies, entities, and institutions involved in R&D&I.

This Royal Decree aims to contribute to the training of leaders and essential collaborators in the transfer of knowledge towards social welfare, in coordination with the main recommendations of European and international forums. These recommendations encompass the structure and organization of the doctorate, required competencies, access conditions, the development of the research career in its early stages, the crucial role of supervision and mentoring, the incorporation of doctoral students in an environment that fosters communication and creativity, the importance of internationalization and mobility, and the evaluation and accreditation of quality as benchmarks for their recognition and international attractiveness.

Below is a summary table synthesizing the key aspects of Royal Decree 99/2011, providing an overview of the regulations for official doctoral education in Spain.

Table 1. Key aspects of Royal Decree 99/2011, regulating doctoral education in Spain.

| Aspect | Description |
|--------------------------------------|--|
| Objective of the Royal Decree | To regulate official doctoral education in Spain to ensure its quality, alignment with the European Higher Education Area (EHEA), internationalization, and coherence with the Spanish university system. |
| Structure of the Doctorate | Structured into advanced training programs, original research, and the presentation of a doctoral thesis. Should promote the acquisition of skills and competencies necessary for scientific research. Must include training and research activities. Programs must be linked to high-quality research lines. |
| Admission and Access | Requires holding an official master's degree or equivalent. Those holding a bachelor's degree may also access provided they demonstrate equivalent training to that of a master's and appropriate research experience. |
| Duration | Minimum of three years and maximum of five, full-time. |

| | |
|---|---|
| | Part-time modalities may be established. |
| Evaluation | Research activity and the doctoral thesis are evaluated by an academic tribunal. Must ensure originality and contribution to the advancement of knowledge. Scientific publications resulting from the thesis and other training activities are also considered. |
| Doctoral Thesis | Must be an original research work. Can be presented in any official language of the Spanish State or in another widely spoken European language. Must contribute to the advancement of knowledge in the corresponding discipline. |
| Supervision and Guidance | There must be a supervisor responsible for guiding the doctoral candidate during their training. Tutorial sessions may be established to monitor the candidate's progress. Supervision and guidance must ensure the quality and achievement of the doctoral objectives. |
| Training and Research Activities | Doctoral programs must include specific training activities such as courses, seminars, conferences, research stays at other research centers, etc. These activities should complement the doctoral candidate's research training and contribute to the development of advanced skills and competencies. Participation in research activities, such as research projects, scientific publications, and interdisciplinary collaborations, is essential for doctoral training. |
| Monitoring and Evaluation of the Doctorate | Mechanisms for monitoring and evaluating the progress of the doctoral candidate and the doctoral program as a whole must be established. Adequate supervision of the quality of training and research conducted must be ensured. Doctoral candidates should receive regular feedback on their progress and performance. |
| Degree Award and Title Conferment | To obtain the doctoral title, the doctoral candidate must successfully complete all training and research activities established in the doctoral program. Must publicly present and defend the doctoral thesis before an academic tribunal that will evaluate its quality and originality. Once the evaluation process is successfully completed, the university will confer the doctoral title. |
| Quality and Accreditation | Doctoral programs must undergo evaluation and accreditation processes to ensure their quality and alignment with the criteria established in the EHEA. Participation of external experts in evaluation processes is encouraged to ensure objectivity and quality of programs. Accreditation of doctoral programs is the responsibility of evaluation and accreditation agencies recognized by the Government. |

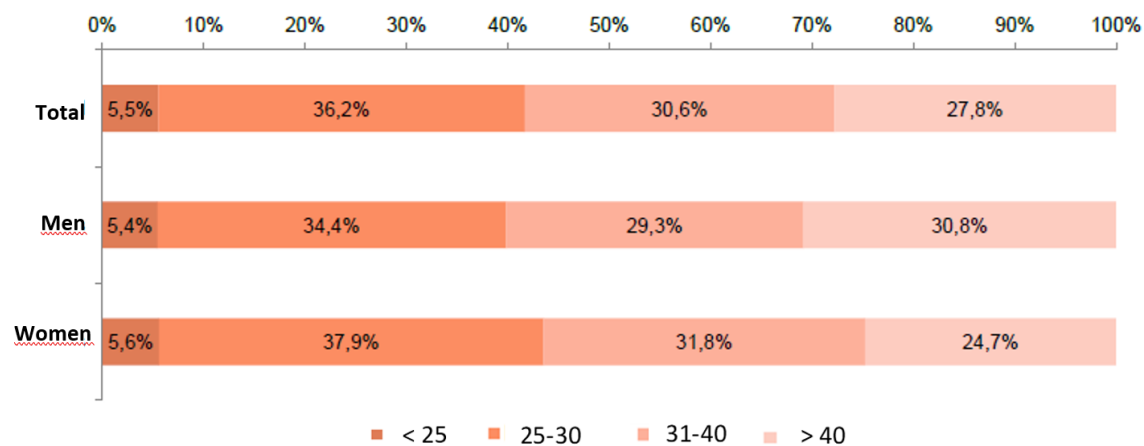
Source: Own elaboration based on the review of Royal Decree 99/2011.

Once the regulatory review has been conducted, it is imperative to advance this contribution by recognizing that the fundamental component of doctoral training is the advancement of scientific knowledge through "original research." Additionally, as established by Organic Law 2/2023, of March 22, on the University System, it is necessary to focus on acquiring competencies and skills relevant to quality research and its development. To achieve this, the Doctoral Schools of Spanish universities (50 public

and 36 private universities), as well as the various doctoral programs recognized by them, have the responsibility to ensure quality training that enables students to attain the purpose of this final educational stage.

According to the report "Data and Figures of the Spanish University System. Publication 2022-2023" (Subdirectorato General of University Research Activity of the General Secretariat of Universities, 2023), the number of doctoral degrees awarded in the academic year 2021-2022 (the latest data available at the national level) amounted to 1,185, with a total of 93,652 enrolled individuals, representing a 3.6% increase compared to the previous academic year. During the same period, the number of students enrolled in Bachelor's degrees was 1,338,304, and in Master's degrees, it was 258,991.

Figure 1. Distribution of doctoral students enrolled by gender and age group (Academic year 2021-2022).

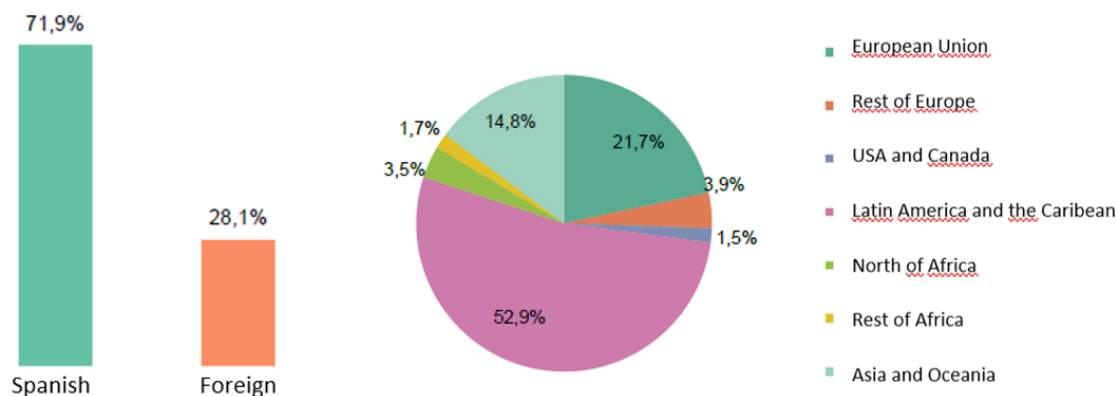


Source: Subdirectorato General of University Research Activity, General Secretariat of Universities, 2023 (page 82).

Considering other variables to understand the profile of doctoral students, there is a gender balance, with 50.3% women and 49.7% men. This distribution contrasts with the statistics of Bachelor's studies, where women represent 56.3% of total enrolments, compared to 43.7% men. Regarding age, over half of doctoral students (58.4%) are over 30 years old, with a trend towards younger ages in the field of Sciences and older ages in the areas of Social Sciences and Law.

Regarding the origin of students, 28.1% of the total enrolled in doctoral programs were of foreign nationality, with half of them coming from Latin America and the Caribbean (52.9%).

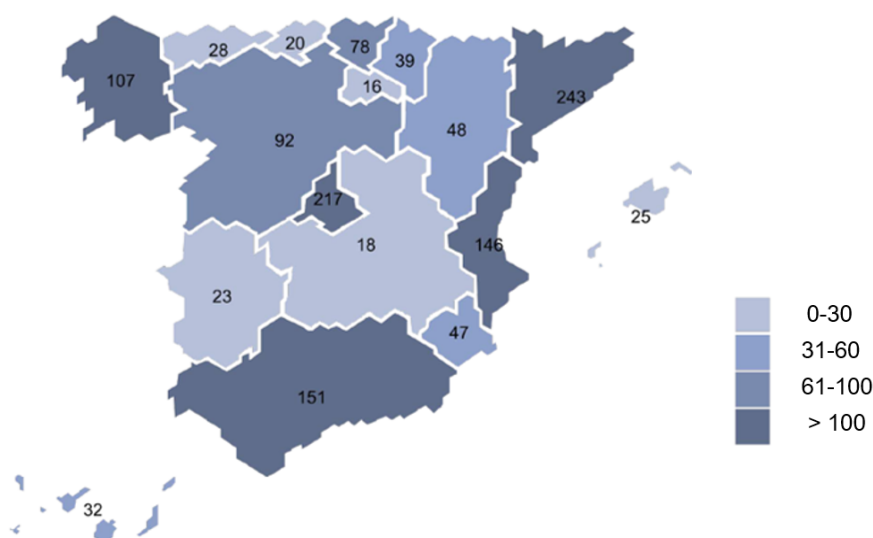
Figure 2. Distribution of the number of doctoral students enrolled by region (according to nationality, academic year 2021-2022).



Source: Subdirectorato General of University Research Activity, General Secretariat of Universities, 2023 (page 82).

In doctoral degrees, the distribution by field and type of university varies significantly compared to bachelor's and master's degrees. Out of the 1,185 doctoral degrees, 307 (25.9%) belong to the field of Social Sciences and Law, 279 (23.5%) to Engineering and Architecture, 236 (19.9%) to Sciences, 198 (16.7%) to Health Sciences, and 165 (13.9%) to Arts and Humanities. Private universities offered a total of 113 degrees and accounted for only 6.0% of doctoral students.

Figure 3. Territorial distribution of doctoral degrees awarded by autonomous community (academic year 2021-2022)



Source: Subdirectorato General of University Research Activity, General Secretariat of Universities, 2023 (page 26).

The number of theses defended in 2021 was 11,344, representing a 25.6% increase compared to the previous year. Of these, more than half (52.7%) were defended by doctoral candidates under the age of 35, and a quarter (25.4%) by foreign students, half of whom came from Latin America and the Caribbean, as previously noted regarding the number of students enrolled in third-cycle university studies.

1. Contextualizing the case study: EDFES

In accordance with current regulations and general data regarding doctoral studies in Spain, the analysis of the Doctoral School of the Spanish Federation of Sociology (EDFES) is approached as a case study.

The Spanish Federation of Sociology (FES) is the scientific society whose main objective is to promote and disseminate the study and research in the field of Sociology in Spain (Spanish Federation of Sociology, 2024). The FES brings together professional sociologists, academics, researchers, and students, as well as institutions and organizations interested in Sociology and the promotion of sociological knowledge.

The FES participates in the development of public policies and the debate on relevant social issues in Spain, contributing sociological knowledge to various areas of society and politics. It is an active and committed entity that serves as a meeting point and reference for professionals and researchers in this field.

Among its activities, the FES organizes congresses, conferences, seminars, and other academic and scientific events to promote the exchange of knowledge and experiences among its members and the sociological community at large. Within the framework of these actions, the project of the Doctoral School of the Spanish Federation of Sociology (EDFES) was initiated in 2018 with the aim of collaborating and complementing the work carried out by doctoral programs in Spanish universities in this area of knowledge. As indicated by Royal Decree 99/2011, of January 28, regulating official doctoral education, EDFES, as an institution involved in R&D&I in Spain, becomes an allied actor for doctoral training, considering doctoral students and future doctors as the main focus of its daily activities.

Among the objectives of EDFES are: 1) to train doctoral candidates and guide them in their doctoral work, seeking to ensure that these have greater quality and impact; 2) to provide support during the completion of the doctoral thesis, being aware that it is a predominantly solitary work; 3) to establish a network between doctoral students and FES

that will allow information to flow about training demands, conferences, and publications; 4) to know the doctoral theses on sociology currently being developed in Spain; and, 5) to give visibility to high-quality doctoral theses being defended in our country, with the possibility, through the FES Research Committees, of obtaining an acknowledgment of quality for the work done.

The importance of this Doctoral School lies in its ability to cultivate an intellectually stimulating and enriching environment, where individuals can develop their academic and professional potential to the highest level, through innovative programs, opportunities for interdisciplinary collaboration, and a solid support infrastructure. In summary, the EDFES serves as a complement to the doctoral training provided by the official university doctoral programs. Considering the broader context of doctoral procedures and specifically, certain attrition scenarios (Golde, 2005), the EDFES provides a platform for educational and professional enhancement within the global sociological community. Moreover, the free accessibility and the prospect of forging partnerships between doctoral programs and the EDFES represent a chance to bolster academic and scientific collaborations on both domestic and international fronts.

2. Methodology

The study presented in this article follows a quantitative methodological approach to collect, analyze, and present demographic and interest data of individuals affiliated with the Doctoral School of the Spanish Federation of Sociology (EDFES). From the universe of 409 individuals enrolled in the EDFES, the information gathered from institutional records has been supplemented with an online questionnaire. This questionnaire aims to identify individual aspects related to activities and areas of interest, focusing primarily on expanding demographic and interest-related information of the participants.

The research encompasses various key aspects. Initially, a detailed analysis is conducted on the distribution by gender and educational level among the members of the FES Doctoral School. Additionally, data related to scholarship application status among EDFES affiliates are examined, evaluating different situations from non-application to granting or denial. Furthermore, enrollment in doctoral programs is scrutinized, calculating enrollment and non-enrollment rates. Other considerations include membership in research groups, progress in the doctoral program in different years, interest in international mention for doctoral theses, affiliation with FES, participation in

research committees, as well as membership in territorial associations. Finally, interest in various areas of academic activities is assessed, and the percentages of individuals interested in each are calculated.

This wide range of analyses provides a comprehensive insight into the dynamics within EDFES, from demographic composition to academic and research preferences. The research is based on a rigorous methodological approach, including ethically gathering data from multiple sources, as well as detailed descriptive analysis. Attention to these aspects is crucial for understanding the academic and scientific landscape in which the project operates, as well as guiding future institutional and strategic decisions.

By delving into each aspect, the aim is to identify patterns and trends that may influence the experience of EDFES members and the development of the institution as a whole. Additionally, the intention is to provide a solid foundation for future research and actions aimed at strengthening and enriching the doctoral experience in EDFES and other key actors in doctoral training. Ultimately, this analysis contributes to the advancement of knowledge and progress of society as a whole by fostering academic excellence and scientific innovation.

Once the data have been collected and analyzed, the results are presented in the form of tables and graphs, which are used to develop the descriptive analysis and conclusions of the study.

3. Main results

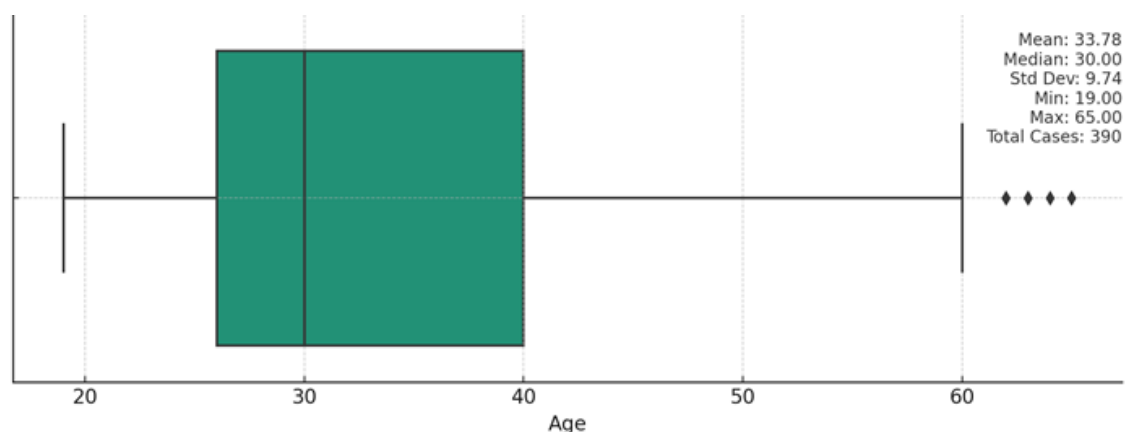
The results obtained from the demographic and interest analysis of individuals enrolled in the Doctoral School of the Spanish Federation of Sociology (EDFES) reveal a series of findings that provide a significant understanding of the composition and preferences of this academic community. Since its inception, the EDFES has grown at an average annual rate of 100 enrollees per year, increasing from 104 individuals in its first year to 409 by mid-April 2024. Below, the main results obtained in each of the variables analyzed are presented in detail.

3.1 Characterization of the doctoral student population

The gender distribution shows a slight predominance of women in our sample, representing 53.79% of the total individuals affiliated with EDFES. The age range spans from 19 to 65 years. The average age for the entire group of individuals is approximately 33.78 years, with a standard deviation of 9.74 years. When breaking down this

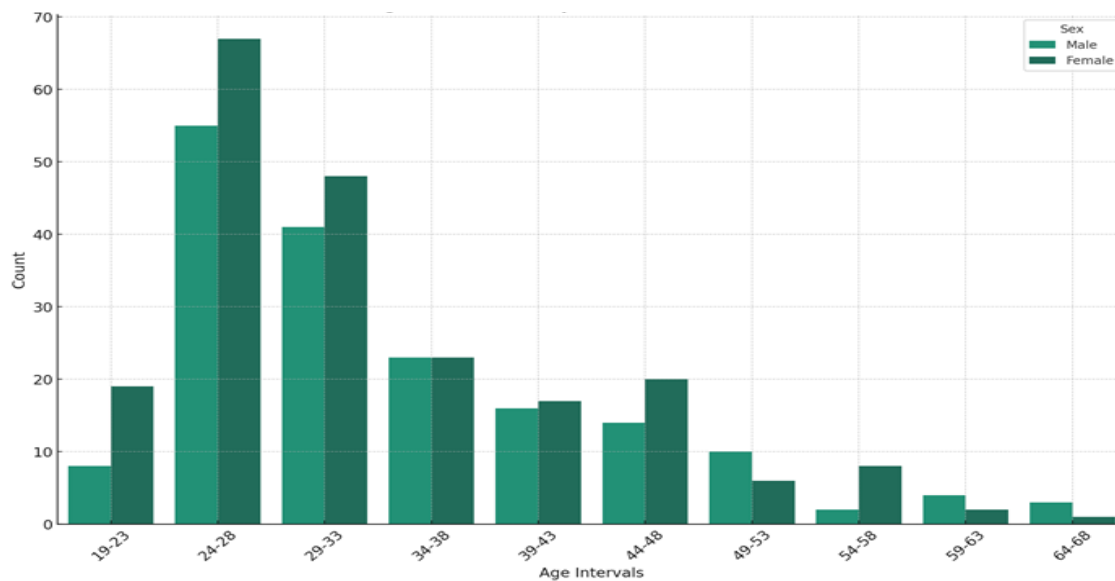
information by gender, it is observed that men have an average age of 34.23 years and a standard deviation of 10.22 years, while women have an average age of 33.41 years with a standard deviation of 9.32 years. This suggests that, although the average age is similar between the two genders, men exhibit slightly greater variability in their ages compared to women.

Figure 4. Age Distribution.



Source: own elaboration.

Examining the distribution of age in five-year intervals, it is found that the highest concentration of individuals, both men and women, is in the 25 to 34 age range. The least represented intervals, especially among women, are those at the extremes, namely, under 24 years and over 55 years. A detailed comparison by gender within these age intervals shows a fairly balanced distribution, although with a slight predominance of women in the 25-29 age group and of men in the 30-34 age group.

Figure 5. Age Distribution by Sex in 5-Year Intervals.

Source: own elaboration.

This analysis reflects that, while the average age and age extremes do not differ significantly between men and women, there are subtle differences in the dispersion and concentration of ages, which may have relevant implications for studies considering age as a determining factor in academic and professional development.

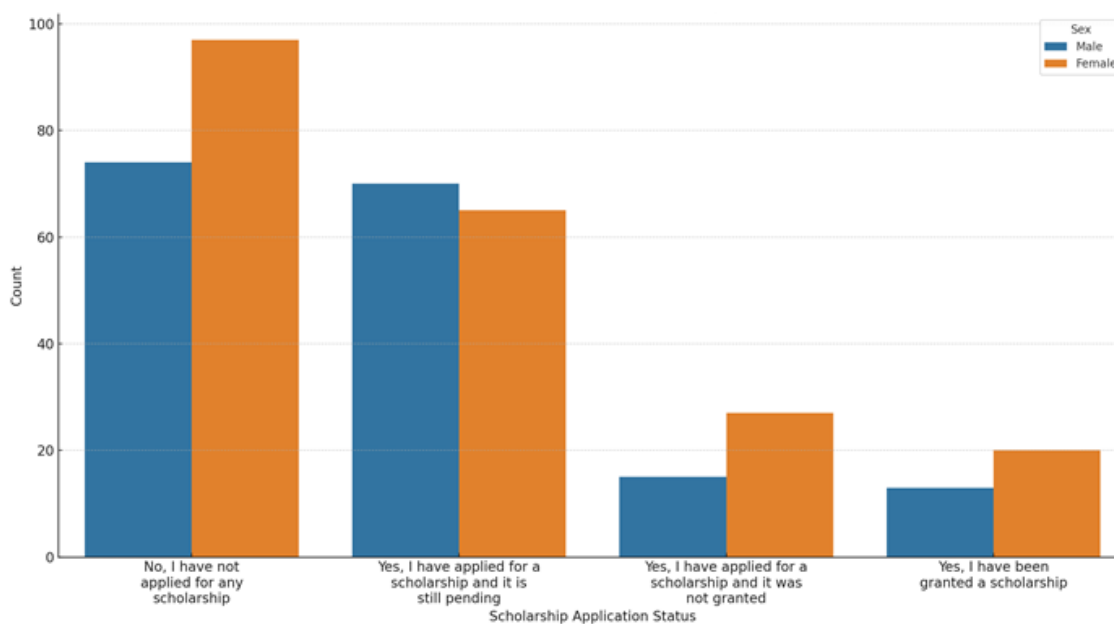
Regarding educational level, individuals affiliated with EDFES (62.35%) have completed undergraduate studies, approximately one-third (33.99%) have completed graduate studies, while a small percentage (3.67%) did not specify their educational level.

On the other hand, regarding the status of scholarship applications, it was observed that the majority of affiliated individuals (43.28%) have not applied for any scholarship. However, a significant proportion has been awarded a scholarship (33.74%), while a small percentage is pending resolution (10.51%) or has not been granted the requested scholarship (8.07%). A smaller number (4.40%) did not specify their scholarship application status.

The analysis of "scholarship application status" segmented by gender reveals interesting patterns and some significant differences between men and women in their interaction with the research funding system. In general terms, a similar percentage of men and women choose not to apply for scholarships, with 43.02% of men and 46.41% of women, possibly because their educational or professional situation does not meet the criteria required by research scholarship calls. Despite this initial similarity, differences become evident in the subsequent stages of the application process.

A higher percentage of women, 12.92%, are awaiting resolution on their scholarship applications, compared to 8.72% of men. Additionally, women experience a higher rate of rejection in their scholarship applications, with 9.57% compared to 7.56% of men. This aspect highlights a potential disparity in the success rate between genders, which could reflect differences in the evaluation of applications or in the selection criteria applied.

Figure 6. Scholarship Application Status by Sex.



Source: own elaboration

On the other hand, men show a better outcome in obtaining funding for their doctoral studies, with 40.70% of them receiving scholarships, compared to 31.10% of women. This notable difference suggests that once men decide to apply for a scholarship, they have a significantly higher probability of success than women.

The vast majority of individuals enrolled in EDFES (84.84%) are enrolled in doctoral programs at the time of registration, with a smaller number of students (12.22%) who have not yet accessed their enrollment as they are in earlier educational stages (Bachelor's and Master's) but have an interest in pursuing doctoral studies later on.

On the other hand, a balanced distribution is observed regarding membership in research groups among individuals affiliated with EDFES. Nearly 40% belong to a research group, while a similar percentage conducts their studies without being linked to a formally academically established team.

Regarding the year of doctoral studies at the time of registration to the FES Doctoral School, it is observed that the majority of students register in their first year of doctoral studies (33.99%), indicating a constant influx of new students into the community. The second year of doctoral studies is also well represented, with 21.76% of individuals at this stage.

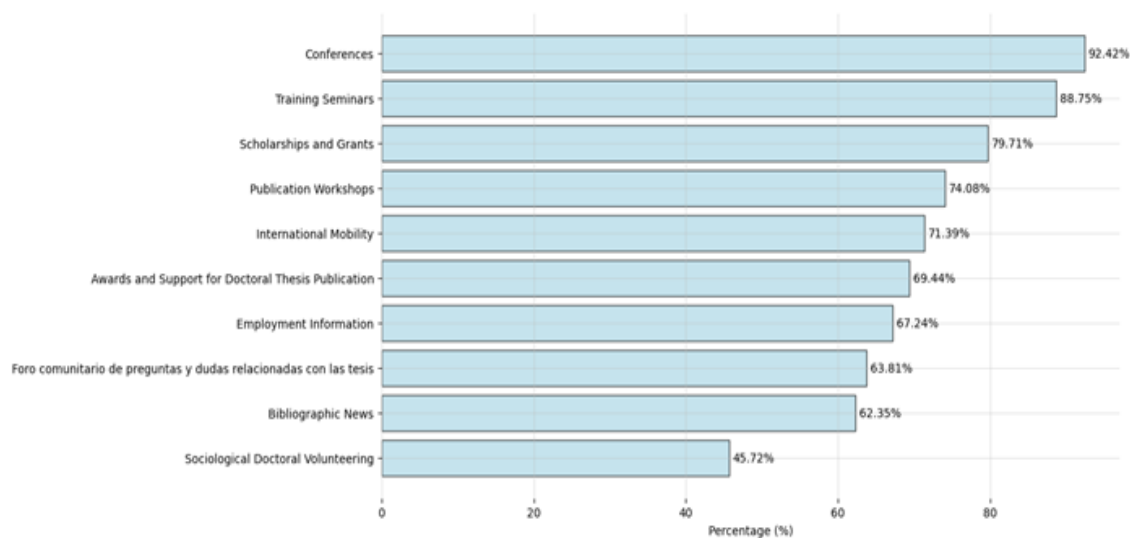
In the context of a doctoral thesis in Spain, the “international mention” is a recognition granted to certain research works. This distinction is awarded to theses that meet specific criteria established by academic regulations and educational institutions. Particularly, it is common to require a stay in a foreign country of at least 3 months duration, the writing of a part of the thesis in the language of that country, and the evaluation by at least one international or foreign expert.

The majority of individuals affiliated with EDFES (69.66%) plan to apply for the international mention for their doctoral thesis, reflecting a significant interest in the internationalization of doctoral research. On the other hand, 30.34% state that they will not apply for this mention, responses that may be related to different mobility and funding opportunities, as well as different approaches in the academic career or research preferences.

3.2 Academic interests

The detailed analysis of the academic interests of individuals affiliated with the Doctoral School of the FES (EDFES) reveals a wide diversity of areas of interest and preferred activities. These interests not only reflect the individual trends and needs of the members of the academic community but also provide valuable information about the research and development areas that are prioritized and relevant to the EDFES community.

The most popular activities include participation in congresses (92.42%), followed by training seminars (88.75%) and scholarships and grants (79.71%). Workshops on publications (74.08%) and international mobility (71.39%) are also significant areas of interest. Additionally, there is interest in awards and grants for doctoral thesis publication (69.44%), job information (67.24%), community forum for questions and doubts related to the completion of the doctoral thesis (63.81%), bibliographic news (62.35%), and sociological doctoral volunteering (45.72%).

Figure 7. Activities of Interest Related to FES.

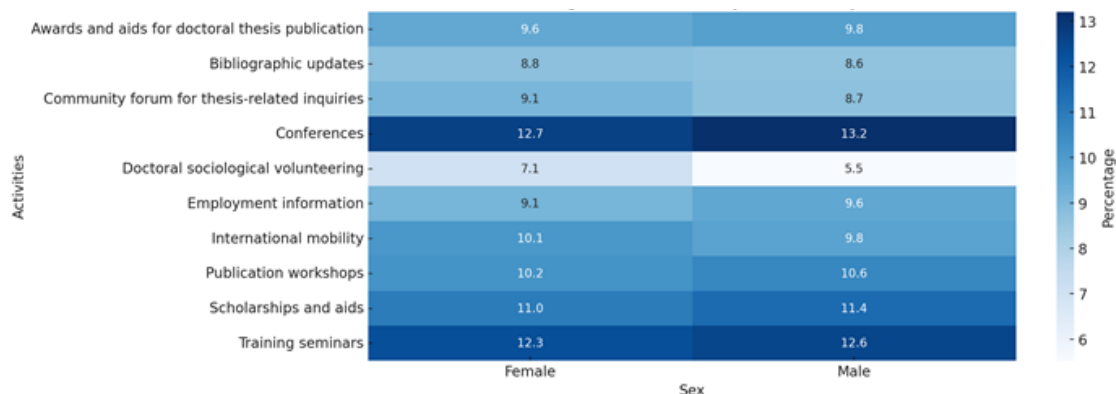
Source: own elaboration.

The high interest in congresses and training seminars not only suggests a strong commitment to professional development and knowledge exchange across various fields of study but also offers a range of substantial benefits for doctoral candidates. These activities provide an invaluable platform for research presentation in a formal academic setting, enabling budding researchers to share their findings, receive critical feedback, and establish meaningful connections with other professionals in their field. Furthermore, congresses and training seminars facilitate result discussion and the exploration of new ideas, which can inspire new lines of inquiry and enrich the academic work of doctoral students.

To delve further into this line of inquiry, the interests of doctoral candidates are analyzed using heat maps, which allow for comparison based on other variables of interest. This approach enables the identification of trends and preferences that are particularly important for understanding the needs of doctoral candidates and, from an institutional perspective, for providing elements to outline a roadmap for EDFES.

The first of these refers to the interests of the doctoral population concerning their gender. This heat map shows that there are subtle differences in activity preferences between men and women. For example, conferences and training seminars are slightly more popular among men, while women exhibit a proportionately greater interest in scholarships and grants. This pattern may reflect differences in opportunities or perceived needs between genders, perhaps influenced by gender roles or disparities in professional trajectories, as observed in the analysis of scholarship/grant application and awarding.

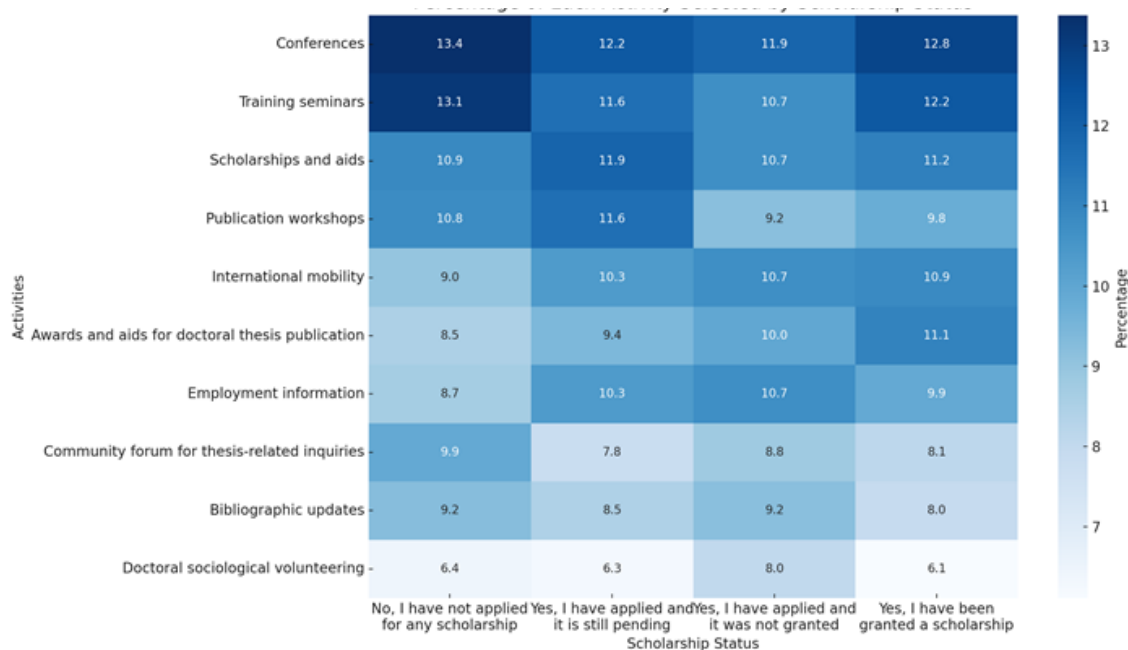
Figure 8. Percentage of Each Activity Selected by Sex.



Source: own elaboration.

In this regard, the analysis of the heat map correlating the status of scholarship applications with activities of interest provides significant insights into how the financial situation and expectations of doctoral candidates influence their decisions to participate in complementary activities. To delve deeper, we will consider two key comparisons: between those who have not applied for scholarships versus those who have applied for some form of scholarship, and between those who have been successful in their scholarship applications versus those who have been rejected.

Figure 9. Percentage of Each Activity Selected by Scholarship Status.



Source: own elaboration.

The comparison between doctoral candidates who have not applied for scholarships and those who have may reveal significant differences in terms of proactivity and perceived needs. Individuals who have not applied for financial assistance for their doctoral thesis may not meet the requirements, already have other forms of funding, or may not feel the need to seek external support. This situation could be related to lower participation in activities that generally require or involve financial support, such as training seminars or conferences. In contrast, those who have applied for scholarships seem to be actively seeking resources, as reflected in their more intense participation in activities that not only strengthen their resumes but also expand their professional networks through attendance at conferences and scientific publishing workshops.

Furthermore, the differences between those who have received scholarships and those who have not, with the former group having more resources available, highlight disparities in research dedication. Academics who have received a scholarship have the opportunity to fully dedicate themselves to their research and participate in events and activities that require considerable investment, such as international mobility or enrollment in specialized training workshops. Conversely, those whose applications have been rejected may need to reassess their funding and professional development strategies. This could drive them to increase their participation in activities that offer valuable opportunities for networking and visibility, such as conferences and seminars, in an effort to enhance their future prospects and support.

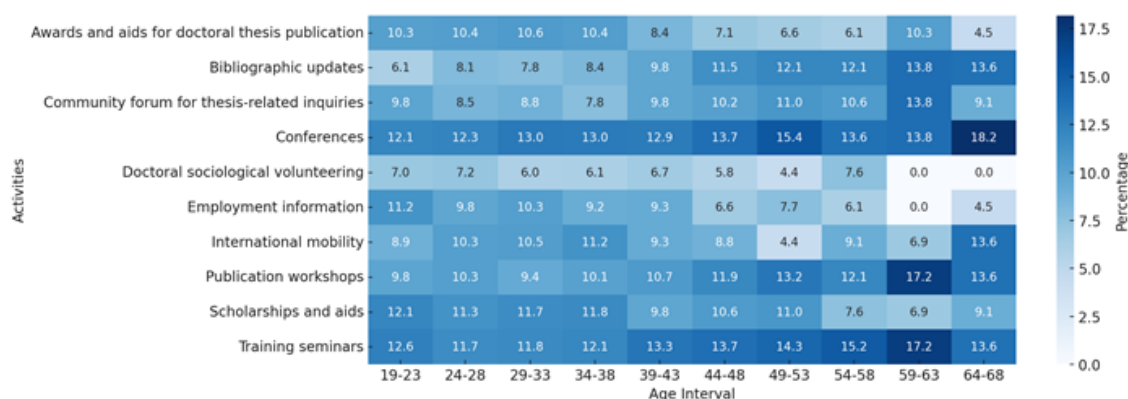
To validate these hypotheses and obtain a clearer picture, this variable will be related to participation rates in various activities. As presumed from the previous results, the comparison between individuals who have not applied for scholarships and those who have reveals notable differences in their participation in various academic activities. Specifically, the differences are more pronounced in activities that require additional resources, such as "international mobility," as previously discussed, and "awards and aids for the publication of doctoral theses," but it should be noted that scholarship recipients show higher participation in all listed activities compared to those who have been denied. This divergence can be attributed to the financial security provided by the scholarship, which allows recipients to dedicate more resources and time to activities that promote their academic and professional development. The most significant increases are observed in "congresses" and "training seminars," suggesting that additional financial

support facilitates participation in relevant academic events, which often involve considerable expenses.

Therefore, it can be inferred that lack of research funding can be a significant obstacle that limits development opportunities for academics, especially those in early stages of their careers. Implementing more scholarship and financial aid programs could be key to levelling the playing field and enabling more individuals to take advantage of professional and academic development opportunities.

Shifting focus to the preferences that doctoral candidates have regarding different actions, these preferences notably change with age, possibly reflecting different stages of the academic career and shifting priorities. Younger individuals show greater interest in scholarships and international mobility, which is consistent with the need for funding and enriching experiences in early stages. In contrast, older participants lean more towards publishing workshops and community forums, indicating a focus on finalizing and disseminating their work.

Figure 10. Percentage of Each Activity Selected by Age Interval.



Source: own elaboration

3.3 Associationism and cooperation: affiliation with the FES, participation in committees, and affiliation with territorial associations

The analysis of affiliation with the Spanish Federation of Sociology (FES), which entails an economic cost, within the community of the FES Doctoral School (EDFES), a project that is developed free of charge, reveals a diversity of experiences and preferences among its members. According to the collected data, nearly half of the individuals (45.83%) are not yet affiliated with the FES but express a clear interest in becoming part of the

institution. This trend suggests a recognition of the importance of institutional membership and may reflect a desire to fully integrate into the academic and scientific community represented by the FES as a scientific society.

On the other hand, it is observed that approximately a quarter of the individuals (28.24%) are not affiliated with the FES, which could indicate various reasons, such as a lack of familiarity with the benefits of affiliation, a perception of access barriers, or simply a preference to stay out of institutional structures. However, it is important to note that a similar percentage (25.95%) is already affiliated, suggesting a recognition of the benefits and opportunities offered by FES membership.

Regarding participation in research committees and working groups, there is a diverse distribution among EDFES members. A significant proportion (45.78%) are not part of any FES committee, which may reflect a variety of reasons, such as lack of time or economic resources, or interest in other activities. Nevertheless, 28.39% express interest in joining such committees to develop their sociological expertise, indicating potential growth in participation and commitment to the academic, scientific, and cooperative life of the institution. Additionally, the fact that 25.83% are already part of a committee suggests active engagement and significant contribution to management and decision-making within the academic community.

Regarding affiliation with territorial associations (scientific societies of the different Spanish autonomous communities), it is observed that the majority of EDFES members (52.60%) are not affiliated with any territorial association. This trend may be due to a variety of factors, such as lack of local participation opportunities, prioritization of activities at the national or international level, or simply a lack of awareness of the existence and benefits of these associations. Conversely, 30.47% of young researchers are affiliated with a territorial scientific society, demonstrating a commitment to the regional academic community and suggesting a connection with local research and collaboration networks. Additionally, the fact that 16.93% are not affiliated but express interest in doing so indicates potential growth in participation and strengthening of territorial associations as platforms for knowledge exchange and academic collaboration at the local level.

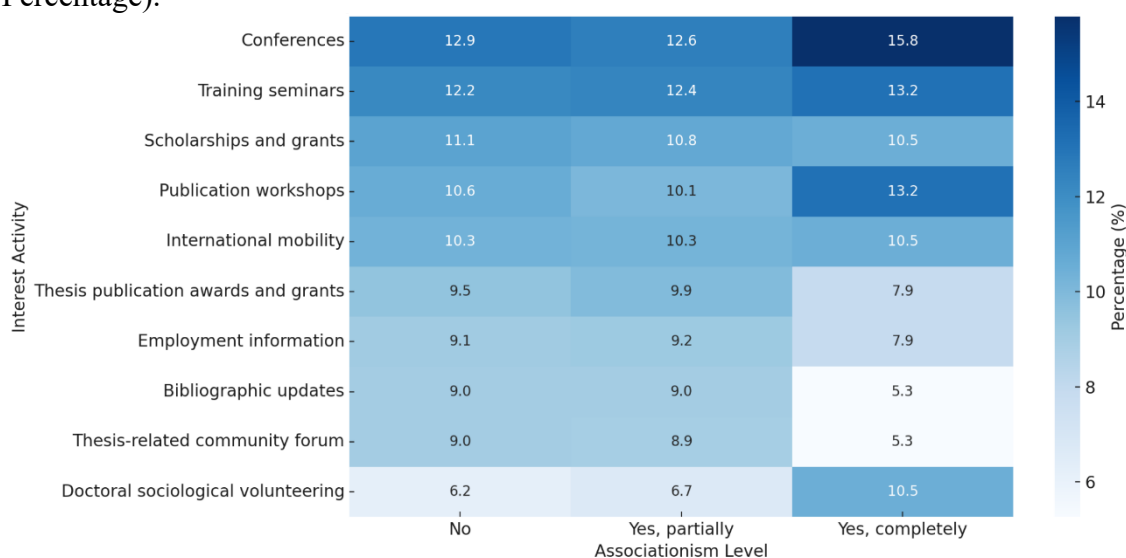
Thus, affiliation data demonstrate the facts and desires of belonging to scientific societies at regional and/or national levels at different levels. Although the number of doctoral students belonging to territorial associations is higher, presumably due to the

lower price of their fees based on the activity they perform, there is also a higher desire to belong to the FES as a national scientific society, which has more national and international prestige due to its trajectory and actions.

Analyzing the affiliation data together, it is observed that doctoral students appear as a population divided in half regarding the degree of integration into the associative movement of their discipline. Among those who are linked in one way or another to these academic and professional networks (research groups, territorial association, or national association), only a minority (1.7%) are fully integrated into all the associations considered.

The different levels of integration into scientific societies also influence interest in various activities, as shown in the following figure.

Figure 11. Heatmap of Interest Activities vs. Associationism Level (Column Percentage).



Source: own elaboration.

Doctoral students who are fully integrated into associations ("yes, fully") show the highest percentages of participation in almost all listed activities. This high level of participation reflects access to resources, opportunities, and support facilitated by the networks established through associations. For example, participation in "conferences" and "training seminars" is notably high among this group, suggesting that associationism provides the platforms and support necessary to engage in these important spaces for professional development and networking.

In contrast, those who are partially associated ("yes, partially") also participate in a variety of activities, although in generally lower percentages compared to those fully associated. This may indicate that while these partial connections provide certain benefits, they do not offer the same level of support or access as full integration. Nevertheless, participation in activities such as "scholarships and aids" and "bibliographic updates" remains considerable, demonstrating that even partial participation in associations can be beneficial.

Doctoral students who do not participate in associations ("no") show the lowest percentages of participation in all activities. This could indicate various barriers, including limitations in access to resources or lack of information about available opportunities.

Based on these results, the analysis highlights the importance of integration into networks and associations as a catalyst for participation in a variety of academic and professional activities. Educational institutions and funding bodies should consider strategies to promote and facilitate associationism among doctoral students, especially for those in early stages of their careers or with limited access to established academic networks.

4. Discussion and conclusions

This study has explored the structure and regulation of doctoral studies in Spain from a sociological perspective, analyzing the intersection between educational policy, academic research, and social dynamics. The Organic Law 4/2007 and Royal Decree 99/2011 establish a regulatory framework aimed at ensuring the quality, internationalization, and coherence of doctoral programs within the context of the European Higher Education Area (EHEA) and the European Research Area (ERA).

Nationwide data reveal that doctoral studies play a fundamental role in training leading academics and professionals in research and knowledge transfer, contributing to the advancement of scientific knowledge and the development of critical skills in students. The flexibility in the regulation of doctoral programs allows for adaptation to the diverse needs and methods in different areas of knowledge, promoting collaboration among universities, institutions, and national and international organizations.

Furthermore, statistics demonstrate an increase in enrollment and doctoral thesis readings, with a balanced gender representation and significant international

participation. This panorama reflects the growing importance of doctoral studies as a driver of research and innovation in Spain, as well as its crucial role in building a knowledge-based society and international collaboration.

Thus, elucidating all these findings through a case study such as the Doctoral School of the Spanish Federation of Sociology (EDFES) adds value to existing publications on knowledge areas in third-cycle university studies, outlining sociodemographic profiles as well as formative dynamics generated in academia during the doctoral period.

The results obtained from the demographic and interest analysis of individuals affiliated with the EDFES provide a comprehensive view of the composition and preferences of this academic community. These findings are essential for better understanding the needs and aspirations of doctoral students and researchers in training, as well as for informing the policies and institutional practices carried out by the EDFES.

The slight predominance of women in our sample reflects the global trend towards increased female participation in higher education and research, underscoring the importance of promoting gender equity and diversity at all levels of academia.

The significant proportion of individuals affiliated with the EDFES who have been granted a scholarship reflects institutional commitment to financial support for doctoral research. However, the presence of individuals who have not yet applied for scholarships or are pending resolution indicates the need to improve accessibility and transparency in scholarship application and award processes. Similarly, the gender differences highlighted in this case study regarding the acquisition of financial aid for doctoral studies, which disadvantage women, can serve as the basis for further research into the underlying causes of these differences and for the development of strategies aimed at ensuring more equitable access to scholarships and other academic resources.

The balanced distribution regarding membership in research groups suggests a high level of collaboration and teamwork within the academic community. However, the presence of a considerable percentage of individuals not yet affiliated with research teams indicates an opportunity to promote greater participation in collaborative research activities. Likewise, the interest expressed by many individuals in joining different academic networks suggests an active commitment to governance and decision-making.

The wide range of academic interests shown in the results section reflects the diversity and breadth of research areas represented in the EDFES. High participation in

activities such as conferences, training seminars, and scholarships demonstrates a strong commitment to professional development and academic excellence. Additionally, interest in institutional affiliation and participation in territorial associations indicate a desire to establish broader connections and collaborations in the academic and professional spheres.

Associationism and cooperation among doctoral students and doctors within the sociological scientific community are fundamental pillars driving knowledge progress and fostering academic collaboration. These practices play a crucial role in creating an environment conducive to the exchange of ideas, the implementation of joint research projects, and the establishment of strong professional networks, which enrich academic debate and contribute to the generation of collective knowledge about complex social issues.

Furthermore, collaboration among researchers at different stages of their academic careers promotes teamwork and co-authorship of scientific publications, as demonstrated by existing literature. By combining complementary skills and knowledge, researchers can maximize the impact and relevance of their studies, thus promoting the advancement of the discipline.

Associationism also strengthens solidarity and advocacy for common professional interests. Associations and scientific societies represent and defend the rights of researchers, promoting ethical and professional standards in scientific practice. Additionally, they offer support resources and services, such as funding programs and training opportunities, benefiting the entire academic community. In this way, associationism and cooperation among doctoral students and doctors are essential aspects of academic life in sociology.

In summary, doctoral studies in Spain stand as a fundamental pillar in the country's educational and scientific system, contributing to social, economic, and cultural development. This is why there are still many challenges to address regarding access, equity, and quality that require ongoing attention from educational institutions, government bodies, and the academic community as a whole.

With all this, the study has presented a diverse and complex tapestry of doctoral academic life in Spain, through a case study, which clearly demonstrates that the described practices contribute both to the advancement of knowledge and academic collaboration, and to individual and disciplinary professional development as a whole.

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