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### BRIEF REPORT

## Doctoral theses on forensic medicine in Spain<sup>☆,☆☆</sup>



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#### KEYWORDS

Forensic medicine;  
Doctoral theses;  
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Doctorate

#### Abstract

**Introduction:** The analysis of doctoral theses can be a good indicator of scientific and research activity.

**Methods:** A descriptive and retrospective analysis of theses in Spain on Forensic Medicine, was conducted between 2000 and 2019, through the TESEO database, using the descriptor “forensic medicine”.

**Results:** A total of 179 theses were identified (9.4 theses per year). 51.4% of the doctoral students were females, presenting theses in 33 different Spanish Universities (24% from Murcia University). In 41 theses there was only one director, two in 118 theses and three in 20 theses. 25.82% of the thesis directors were male. Most frequently the theses related to Forensic Pathology (38.55%), Toxicology or Forensic Psychiatry.

**Discussion:** The production of theses in Forensic Medicine could be considered stable, except for in 2016 in relation to regulatory issues. The wide variety of topics for theses should be highlighted, according to multidisciplinary contents of Forensic and Legal Medicine.

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<sup>☆☆</sup> Partial results of this study were presented in poster format at the 22nd National Association of Forensic Doctors (ANMF for its initials in Spanish) Symposium and in the 2nd School of Legal Medicine (EML for its initials in Spanish) Symposium of the Complutense University of Madrid, Madrid, on 8th March

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**PALABRAS CLAVE**

Medicina forense;  
Tesis doctorales;  
Investigación;  
Bibliometría;  
Doctorado

**Tesis doctorales en medicina forense en España****Resumen**

*Introducción:* El análisis de las tesis doctorales es un indicador de la actividad científica y de investigación.

*Material y método:* Análisis descriptivo retrospectivo de las tesis en España sobre medicina forense entre 2000-2019 a partir de TESEO, usando el descriptor «medicina forense».

*Resultados:* Se obtuvieron 179 tesis (9,42 tesis/año). El 51,4% de doctorandos fueron mujeres, presentándose tesis en 33 universidades distintas. La Universidad de Murcia aglutina el 24% de las tesis de la muestra. En 41 tesis hubo un solo director/a, en 118 dos y en 20 tres. El 65,28% de directores/as fueron varones. El 38,55% de tesis pertenecían a patología forense, seguidas de toxicología y psiquiatría forense.

*Discusión:* La producción de tesis doctorales sobre medicina forense en España es estable, a excepción del año 2016, por aspectos normativos. Destaca una gran diversidad de temáticas acorde con el carácter multidisciplinar de la medicina legal y forense.

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**Introduction**

In 1975, the Ministry of Education and Science created the TESEO database, which was able to recover information on doctoral theses defended in Spanish universities. The information was forcibly provided by the doctorate committees of the different universities and was freely accessible on the Internet (<https://www.educacion.gob.es/teseo>).<sup>1</sup>

The results of bibliometric analysis of doctoral theses are a valuable indicator for assessing and comparing the evolution of scientific and investigative activity. Up until now, different studies have been conducted to analyse the bibliometric features of the theses in different medical specialities.<sup>2-5</sup> However, previous publications analyzing the relative profile of the doctoral thesis defence in legal and forensic medicine materials are unknown.

The aim of this study was to carry out this analysis aimed at obtaining practical information which would be applicable when designing recommendations and guiding proposals for future research studies in this field.

**Material and method**

A descriptive retrospective analysis was conducted of the doctoral theses defended and approved in Spain during the period between the year 2000 up until August 2019 from the information contained in the TESEO database on 01/09/2019, using the thesaurus descriptor in the advanced search with code 320300: "Forensic medicine". The initial sample consisted of 224 doctoral theses which were filtered, eliminating 45 studies which did not belong to the forensic medicine area of knowledge, resulting in a final sample of 179 doctoral theses. From the information contained in the TESEO file of each of the sample theses the following were recorded: date data of doctorate defence, the gender of the doctorate student, the university for the thesis defence and the number and sex of all the theses directors, in addition to

the study subject matter or area and subtheme of the thesis from its title and abstract. For registration and descriptive analysis the software Excel® 97-2003 (Microsoft®) was used.

**Results**

The sample obtained was of 179 doctoral theses. Temporary distribution of them is contained in Fig. 1, with the mean of studies defended during this period being 9.42 per year, and ranging between 0 defended theses in the year 2003 and 31 in 2016.

Out of the total of theses composing the sample, 51.4% (92 doctoral theses) of the doctorate students were women compared with 48.6% men (87 doctoral theses). During the period studied doctoral theses were defended and approved in 33 different Spanish universities, of which in only 7 were 10 or more doctoral theses (Fig. 2) presented. The University of Murcia was where 24% of all theses were defended in Spain during the period under study (43 theses). Regarding the directors, in 41 theses there was only one, in 118 there were two and in 20 there were three directors, making up a total of 337 theses directors. Regarding the sex of the directors, in 220 of the 337 (65.28%) they were male and in 117 (34.72%) they were female. Distribution by sex according to the number of directors and according to whether it was the first, second or third director are shown in Table 1. A group of 10 directors (5 male and 5 female) comprised 30.26% (102) of the total directors of the doctoral theses.

Regarding doctoral thesis topics, 69 (38.55%) of them related to the area of forensic pathology (44 of which were dedicated to anthropology, essentially identification and entomological aspects), 25 (13.97%) to forensic toxicology (of these 10 were dedicated to thanatochemistry studies and to the post mortem interval and 7 to drug and alcohol abuse analysis), 25 (13.97%) to forensic psychiatry (where 12 stand out relating to violent behaviour and of these 9 to gender-based violence), 24 (13.41%) to different

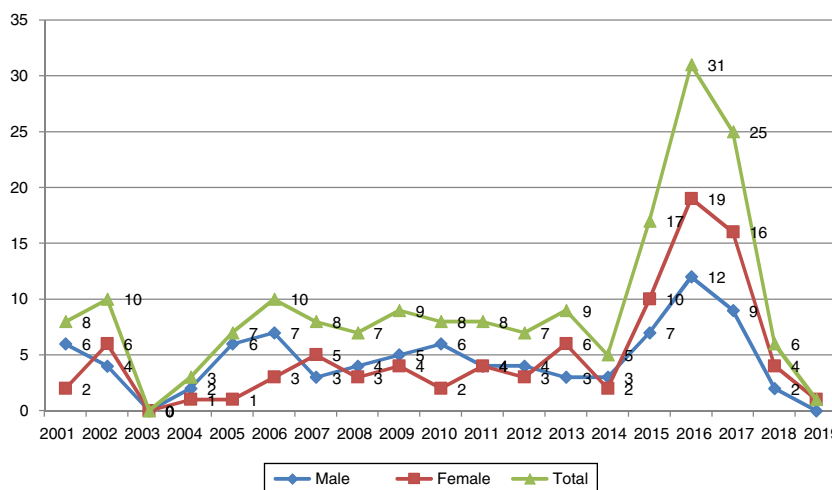


Figure 1 Temporary distribution of the theses defended differentiating between the gender of the doctorate student (n = 179).

Table 1 Directors of doctoral these in forensic medicine.

	Thesis	Males	Percentage	Women	Percentage	Directors
Thesis with a single director	41					
Gender of the director		27	65.85	14	34.15	41
Thesis with 2 directors	118					
Gender of the first director		81	68.64	37	31.36	118
Gender of the second director a		75	63.56	43	36.44	118
		156		80		236
Thesis with 3 directors	20					
Gender of the first director		13	65	7	35	20
Gender of the second director		13	65	7	35	20
Gender of the third director		11	55	9	45	20
		37	61.67	23	38.32	60
Total	179	220	65.28	117	34.72	337

medico-legal aspects of medical care (with studies relating to informed consent, patient rights, previous instructions and the principle of autonomy being outstanding), 13 (7.26%) to the assessment of bodily harm, 9 (5.03%) to professional medical liability and clinical security, 6 (3.35%) to occupational medicine, 4 (2.23%) to the phenomenon of violent incidents for healthcare professionals and finally another 4 (2.23%) to different areas such as management, bioethics, genetics and criminological affairs.

### Discussion

Our study (accepting the limitation that the only descriptor was "forensic medicine") reports a stable trend in doctoral production in Legal and Forensic Medicine up until the year 2014. At this point a notable increase began, reaching its maximum in 2016 and returning to initial values towards 2018.

We attribute this peak in doctoral production with the change in the law governing doctoral courses in Spanish universities and how, as a consequence of the reform included in the Bologna Plan, Royal Decree 99/2011<sup>6</sup> limited the

period for presentation of theses to 5 years for students who had already started their doctorate studies regulated by prior rulings. In practice this meant that all students who had followed the previous courses had to present their doctorates before 10th November 2015 and defend them before 11th February 2016 (although different universities approved further deferrals). The fact that all the doctorate students who had not defended their doctoral theses within this time limit were obliged to restart their doctorate undoubtedly motivated the production peak recorded in this study.

Furthermore, this research study reports the existence of a limited number of universities responsible for the major part of the production of doctoral theses on forensic medicine in Spain. The leading university of this doctoral production is notably the University of Murcia, which accounts for 24% of all the theses defended in Spain during the period under study (43 theses), followed by the University of Granada (18) and the Complutense University of Madrid (14). The successful experience of these universities, and the knowledge of the models of training used for this end could be useful as a guide to future doctoral production in forensic medicine in Spain, and particularly so in the

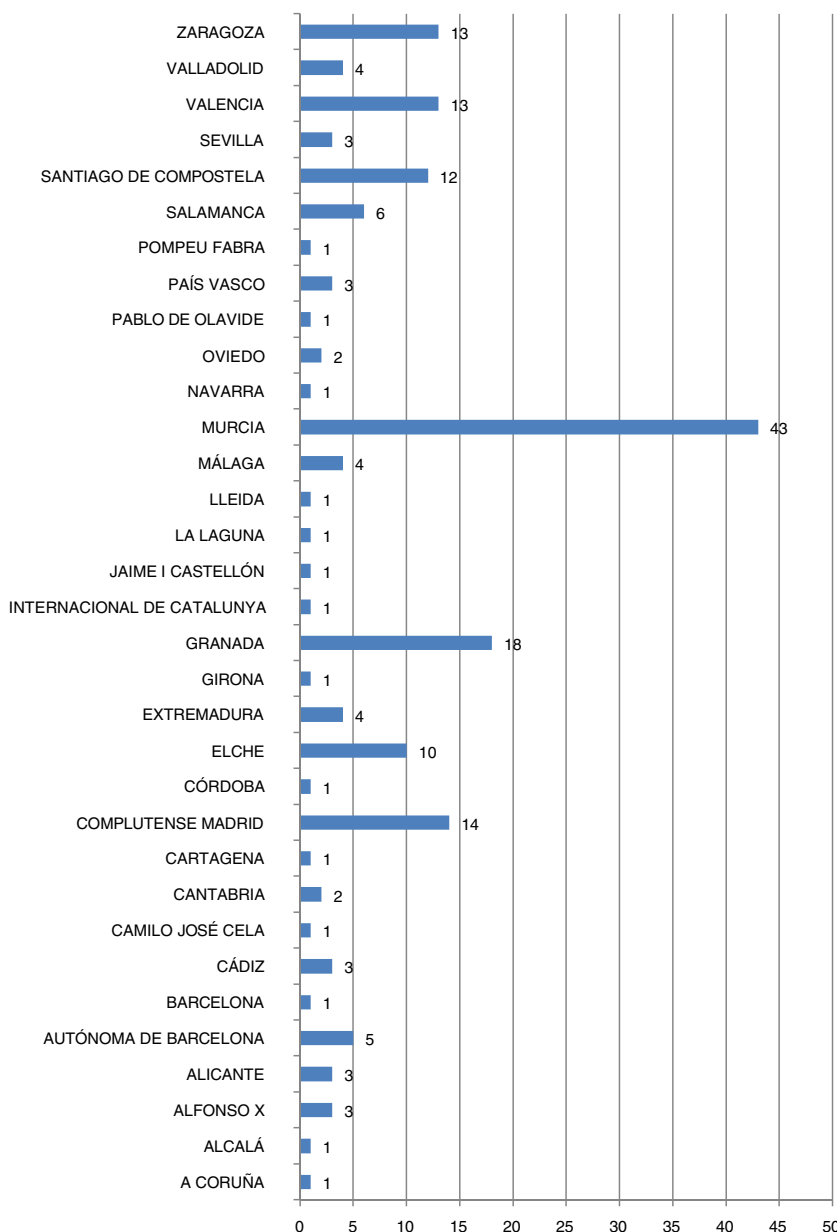


Figure 2 Universities where the defence of the doctoral theses studied took place (n = 179).

current context of uncertainty regarding the future of forensic medical training and the 21st century legal medicine specialist.<sup>7</sup>

Another aspect assessed in our research was gender, both of the doctorate students and the directors of the doctoral theses. Everyone is aware that the medical collective has undergone major changes and transformations in the last few decades.<sup>8</sup> It is likely that the unquestionable feminisation of the medical profession will progressively change the current profile with regard to gender. In the sample studied, already 51.4% of doctorate students were women, although 65.28% of the directors were men. This discrepancy between the majority gender in the profession and the management of theses is analogous to that observed in the case of management jobs (management and assistant management) in Legal and Forensic Science Institutes, where women

currently represent only 41.1% although they make up 59% of the Forensic Body of Doctors.<sup>9</sup> We do not doubt that in keeping with medical demographic changes which will take place in the near future, doctorate students will be increasingly female (they already represent 59.6% of doctorate students if we bear in mind only the second half of the temporary period of the sample under study) and the sex of the doctoral directors will become mainly female. We understand that one element of contrast here would have been to have the age of the doctorate students and the theses directors gender available. However, the TESEO is unable to provide this information.

Regarding the subject matter of the sample theses, we would emphasize that there is a great diversity of areas treated due to the multidisciplinary nature of Legal and Forensic Medicine and also the great variety of departments

involved in doctoral production with different specific and defined lines of investigation being carried out in each of them. Forensic pathology is the field of study comprising the majority of doctoral theses (38.55%), with forensic anthropology standing out within this said field. Forensic toxicology (13.97%), forensic psychiatry (13.97%), medico-legal aspects of medical care (13.41%), evaluation of bodily harm (7.26%), medical professional liability and clinical safety (5.03%), occupational medicine (3.35%) and the phenomenon of violence against healthcare professionals (2.23%) represent most of the themes covered in doctoral theses. The non-existence of previous studies of similar characteristics on a national and international level impedes the assessment of any trend in this regard. In keeping with a practical hypothetical and utilitarian purpose of the doctoral theses, the subject of upcoming years should cover aspects of the speciality which is still pending resolution, normally included in the rising lines of investigation within that speciality. Today's society is demanding forensic science which rises to the challenge of the scientific and technological times of the 21st century, to offer effective responses to biological questions from the right to information, with the rigour and legal security required by a functioning public service.<sup>10</sup> Upcoming studies could evaluate whether the constant change of demands in the professional knowhow of Legal and Forensic medicine will become a change in trends in the subject matters of future doctoral theses.

## Limitations

The fact that the database TESEO had no thesaurus descriptors other than "forensic medicine", which could have been of interest in Legal and Forensic Medicines is a limitation of the presented study. We are also aware that there is greater doctoral production in areas of forensic medicine in Spain during the period under study than that which the TESEO search reports. However, the fact that some theses relating to forensic medicine did not include the "forensic medicine" thesaurus descriptor (despite the fact their subject matter may have contemplated it) limits their recovery for studies like this one. The inclusion of different thesauri depends on the doctorate student at the time of obligatory inscription in TESEO. Consequently, it is recommended that all doctorate students of theses relating to forensic medicine, on their own initiative or at the bequest of the theses directors, include in the obligatory TESEO file the

descriptor "forensic medicine". This would then facilitate future studies and the search and consequence diffusion and visibility of studies in this speciality.

Moreover the TESEO file does not contain data on the degree (or medical speciality, should it exist) of the doctorate student. This data would have allowed us to become aware of the distribution of the different original qualifications of the doctorate students in the theses presented. It would therefore have been possible to distinguish between medical graduates and the graduates of different health sciences or law.

## Conflict of interests

The authors have no conflict of interests to declare.

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