

## ORIGINAL ARTICLE

### Quo vadis, Endocrinology and nutrition? ☆



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#### Abstract

**Introduction:** In Spain, the system used to select a medical specialty is the MIR (internal resident physician) exam. The MIR selection number may reflect the interest in a given specialty. Our study objective was to confirm the increase in the selection number and to analyse possible factors influencing the decision.

**Material and method:** To analyse change over time in the MIR number with which this specialty is chosen and to compare it with other related specialties, as well as the reasons why it is preferred using an anonymous survey to 108 MIRs of endocrinology.

**Results:** The average number of MIR for Endocrinology and Nutrition has gradually increased to 2336 in year 2018, a trend that coincides with an increase in the number of places offered but is more marked as compared to other medical specialties. Respondents weighed different factors when choosing specialty. When asked about the most positive aspects of the specialty, the highest rated was that day to day activity was “less intense”. The most commonly mentioned negative aspect was the low number of techniques. When asked if the specialty had met their expectations, respondents gave an average score of 8.7, although the perceived prestige of the specialty scored only 6.7 points.

**Conclusions:** There is an obvious deterioration of the MIR selection number of our specialty that it is not so marked in other specialties.

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**PALABRAS CLAVE**

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residente;  
Número;  
Elección;  
Examen

**¿Quo vadis, Endocrinología y Nutrición?****Resumen**

**Introducción:** En España, la elección de la especialidad se realiza vía examen médico interno residente (MIR). El número de elección de plaza MIR puede reflejar el interés por una especialidad. El objetivo del estudio es corroborar el aumento del número de elección y analizar los posibles factores influyentes a la hora de elegirla.

**Material y método:** Analizar la evolución del número de orden con el que se elige nuestra especialidad y compararla con otras especialidades afines, así como las preferencias a la hora de elegirla realizando una encuesta anónima a 108 MIR de Endocrinología.

**Resultados:** El número medio de elección ha ido aumentando progresivamente hasta llegar el último año al número 2336, esta tendencia coincide con un aumento en el número de plazas ofertadas, aunque es más marcada que en otras especialidades médicas relacionadas. En la encuesta se evaluaron diferentes factores influyentes a la hora de elegir especialidad. También se preguntó sobre los aspectos considerados más positivos y negativos de la especialidad. Se consideró como más positivo que sea tranquila y el más negativo, la escasez de técnicas. A la pregunta de si la especialidad había cumplido sus expectativas se dio una puntuación de 8,7 sobre 10, aunque la percepción del prestigio de la especialidad se puntuó solo con 6,7 puntos. **Conclusiones:** Hay un deterioro evidente del número de elección de nuestra especialidad que no es tan marcado en el resto ramas médicas relacionadas.

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**Introduction**

New medical graduates are required to choose a specialty in Medicine. Apart from the subjective value of personal vocation, the factors that appear to influence this choice are market demand; the prestige of a given specialty among colleagues and patients; the length of the training period; the expected lifestyle or quality of life associated with the specialty; and the financial reward anticipated over the middle term.<sup>1-3</sup>

A study was made to analyse the perceived progressive deterioration of Endocrinology and Nutrition as a specialty of choice in the Spanish internal resident physician examination (médico interno residente [MIR]). The study involved endocrinology residents throughout the country, with a view to exploring the possible factors affecting their choice of specialty.

**Material and methods**

The study consisted of two parts. The first part comprised a retrospective observational study based on the collection of annual data regarding the ranking of Endocrinology and Nutrition as the MIR specialty of choice in Spain during the period from 1994 to 2018. At the same time, comparisons were made with other medical specialties related to Endocrinology, such as Cardiology, Gastroenterology, Internal Medicine, Neurology and Rheumatology. In these latter specialties, the ranking as MIR specialty of choice was analysed every 3–6 years (1994, 2000, 2005, 2010, 2015 and 2018). The mean ranking of the specialty per year was used as a measure of comparison between the different specialties. The number of resident positions offered per specialty and year was also analysed. To obtain this information, a

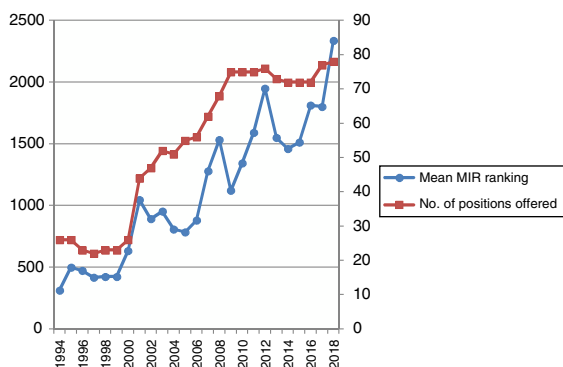
website was used to access data concerning specialty and year.<sup>4</sup> The official website of the Spanish Ministry of Health, Social Services and Equality was used to consult the data referring to the latest MIR call.<sup>5</sup>

The second part of the study comprised a cross-sectional survey targeted to fourth year residents in Endocrinology and Nutrition. The survey consisted of a total of 14 questions (Annex 1). Of these, 8 had weighted scores from 0 to 10; another four had multiple answers of which only one could be chosen; and the remaining two questions allowed for the choice of as many answers as the respondent wished. Demographic information (age, gender, Autonomous Community [region]) was also compiled. The study was conducted during a course of the specialty organized by the Spanish Society of Endocrinology and Nutrition, and mandatory for fourth year residents in 2016 and 2018. The results of the survey are reported as percentages or means according to whether the data were of a quantitative or qualitative nature.

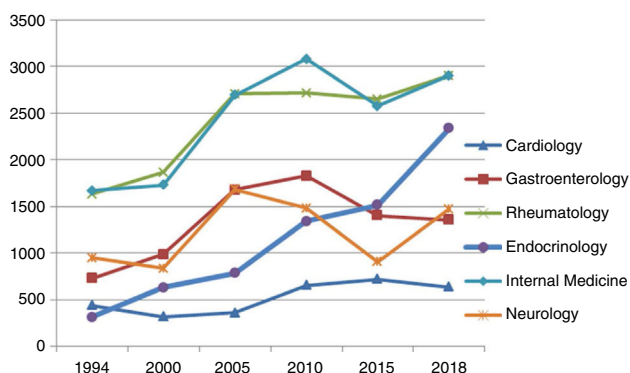
The STATA version 13 statistical package was used for the analysis of the results obtained.

**Results**

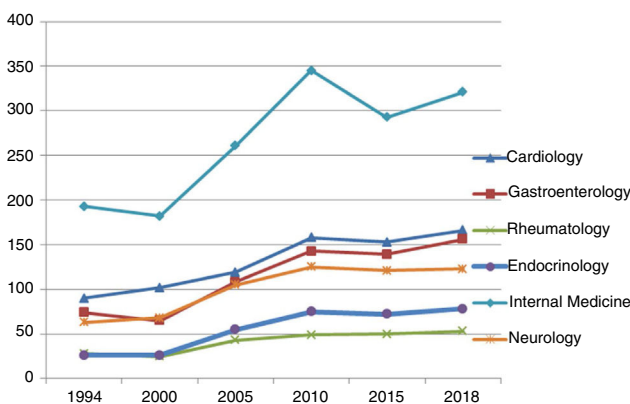
The mean ranking of Endocrinology and Nutrition as the MIR specialty of choice has gradually increased. In 1994, the specialty was chosen with a mean MIR ranking corresponding to 313, versus 1045 in the year 2001 and 2336 in 2018 (the highest level). At the same time, the number of resident positions offered increased from 26 in 1994 to 78 in the year 2018 (the highest number for this specialty in MIR history). Thus, in this year the maximum number of positions offered in Endocrinology and Nutrition was consistent with its highest ranking as MIR specialty of choice (Fig. 1). We also examined the choices of other related medical



**Figure 1** Variation over time in mean MIR ranking and the number of positions offered in Endocrinology and Nutrition from 1994 to 2018.



**Figure 2** Variation over time in the mean MIR ranking of the different medical specialties from 1994 to 2018.



**Figure 3** Variation over time in the number of resident positions offered in different medical specialties from 1994 to 2018.

specialties such as Cardiology, Internal Medicine, Neurology, Rheumatology and Gastroenterology (Fig. 2), as well as the variations in time of the number of positions offered (Fig. 3).

Cardiology has always been chosen with a relatively low selection number, though in 1994 it had a slightly worse ranking than Endocrinology and Nutrition; the mean MIR ranking in that year was 439, and increased to only 634 in 2018, despite the fact that the number of positions offered increased from 90 to 166.

With regard to Gastroenterology, the MIR ranking was 730 in 1994, and increased to 1826 in 2010, coinciding with an

increase in the number of positions offered ( $n = 143$ ). However, in recent years the mean ranking of this specialty has decreased, reaching 1354 in the year 2018, with a greater number of positions offered ( $n = 156$ ).

Rheumatology has always been chosen with a higher selection number; in the year 1994 the mean MIR ranking was 1631, with 28 positions being offered. In 2018, the mean ranking was 2900, with a total of 53 positions.

With regard to Neurology, the mean ranking was 947 in the year 1994, with 63 positions offered. In the MIR call corresponding to 2018, the mean ranking of Neurology was 1474, with 123 positions offered.

Finally, with regard to Internal Medicine – a specialty that traditionally has offered many more resident positions than any of the other specialties studied – the mean ranking was 1666, with 193 positions offered in the year 1994. In the year 2018, the mean ranking was 2899, with 321 resident positions being offered.

The second part of the study comprised a survey of fourth year residents in Endocrinology and Nutrition in 2016 and 2018. The years of the MIR call were 2012 and 2014, and 76 and 72 resident positions were offered, respectively. The survey comprised 108 MIR residents (73% of the positions chosen), though we do not know whether anyone abandoned their specialty. The gender distribution was 70% female and 30% male. The mean age was 28.4 years, with a standard deviation (SD) of 2.1 years.

The first 5 questions of the survey assessed the influence of different reasons for choosing the specialty, with weighted scores from 0 to 10. The results are shown in Table 1.

The sixth question of the survey explored whether or not Endocrinology and Nutrition was their first choice. A total of 66.4% of the respondents answered “Yes, the choice was clear to me from the start”, while 29.9% answered “Finally yes, but I was hesitating with other options”. Only 3.7% (4 participants) answered “No, but I chose it for other reasons”.

The most popular branch of the specialty prior to accepting a resident position was diabetes and lipids (29.9% of those surveyed), followed by neuroendocrinology (25.8%), thyroid and adrenal disease (each 16.5%), and nutrition (9.3%). The least popular were gonads and calcium metabolism (each 1%). After the years of resident training, diabetes and lipids remained the most popular branch of the specialty (28.6% of those surveyed), followed by thyroid disease (20.4%), neuroendocrinology (18.4%), nutrition (17.4%), adrenal disease (11.2%), calcium metabolism-related diseases (3.1%), and finally gonads (1%). Obesity was not specifically mentioned as such, but was included in the nutrition section.

In questions 8 and 9, the respondents could choose among different aspects, scored according to whether they were considered positive or negative. The aspect most positively assessed was that it is a “calm” medical specialty (82%), while the most negatively rated aspect was the scarcity of techniques (46%). The other results are reported in Table 2.

Another three questions were scored from 0 to 10. In reply to the question “Would you choose the specialty again?”, the mean score was 9.5 with a SD of 1.1 points. In reply to the question “How prestigious do you think the specialty is?”, the mean score was 6.7 with a SD of 1.6 points.

**Table 1** Scoring of factors influencing the choice of specialty.

Question	Mean (points)	Standard deviation (points)
Personal vocation	8.7	1.9
Quality of life	8.1	2.1
Practices and teaching body	6	3.1
Personal reasons	4	3.4
Financial reward	3.5	2.7

**Table 2** Aspects of Endocrinology and Nutrition considered to be positive and negative (percentage of respondents).

Positive aspects	Negative aspects
''Calm'' specialty (82.2%)	Scarcity of interventional techniques (46.7%)
Treatment of patients with chronic disease (57%)	No specialist duties (44.8%)
Research potential (54.2%)	Low hospitalization (35.2%)
No specialist duties (43%)	Treatment of patients with chronic disease (14.3%)
Scarcity of interventional techniques (30.8%)	''Calm'' specialty (1%)
Low hospitalization (23.4%)	Research potential (0%)

Finally, in reply to the question ''Has the specialty met your expectations?'', the mean score was 8.7 out of 10, with a SD of 1.1 points.

Regarding the question referring to job opportunities, most of the respondents expressed a preference for working at a public health center with research possibilities (60% of the respondents), followed by combined public and private health centers with research options (38%). Lastly, only 1% were exclusively interested in research and 1% in private health centers with the possibility of research.

## Discussion

Of note are the few studies published in this field related to our concrete specialty.

Medical specialization in Spain is currently based on the MIR resident training system. Following this single national access examination, the candidates choose their specialty and teaching hospital according to their ranking obtained in the MIR examination.<sup>6</sup> This system has proven to be an excellent way to improve the clinical competence of specialist physicians.<sup>7</sup>

A recent communication has evaluated the offers of and the demand for our specialty and presented a map based on the Autonomous Communities and the requested centers with the best rankings. In its review on the choice of Endocrinology and Nutrition versus other specialties, comprising pooled data covering the period 2011–2015, Endocrinology and Nutrition was seen to be in a median eleventh place of the ranking of specialties.<sup>8</sup>

The analysis of the Endocrinology and Nutrition choice curve, characterized by a progressively worsening mean ranking, caused us to ponder whether a similar pattern could also be seen in other specialties. Comparison with other medical specialties was therefore made. The observed patterns were different, however. In all the other specialties, there was a progressive worsening in the MIR ranking parallel to the increase in the resident positions offered.

However, in general, during the last 6–10 years this trend has changed, with an improvement or a stabilization of the mean choice ranking. Of note is the fact that Endocrinology and Nutrition was more in demand than the other specialties during the first years studied. Nevertheless, in the last few years there has been a sharp rise in the mean choice ranking. In our opinion, this could be related to several factors, such as an excessive dependence on consultation along with a scarcity of proprietary techniques, which could lessen interest among some future professionals; low hospitalization; and the absence of specific duties on call (which in turn may imply poorer financial reward).

With regard to the results of the survey, mention should be made of the regular prestige of the specialty referred to by the residents. From our point of view, the main attractions for new specialists include undoubted leadership in areas such as diabetes or nutrition. By contrast, the perceived weaknesses continue to be the lack of techniques and possible professional infringement. These factors could be related to the score attributed to the prestige of the specialty. Mention should also be made of the division between positive (30.8% of those surveyed) and negative appraisal (46.7% of those surveyed) of the techniques found in the specialty, and which could reflect different professional profiles.

On lines similar to our own questionnaire, a study was made among 3632 candidates that chose their resident position in 2012, with similar results. The most valued attributes influencing the choice of specialty were the potential for promotion and future professional development, with a score of 7.4, which was almost 3 points above the worst-rated attribute (financial reward). This latter finding is consistent with our own data.<sup>9</sup>

Regarding specialty preferences, Dorsey et al., in Chicago (USA), described a growing trend among medical students to choose specialties with a ''controllable'' lifestyle, defined by the following characteristics: personal free time for leisure activities, family and hobbies; and control of weekly hours dedicated to professional responsibilities. In their



statistical analysis, these authors found lifestyle alone to account for 37% of the variability in specialty preference. After controlling for other factors, such as income, working hours and training years, the percentage variability explained by a "controllable" lifestyle increased from 37% to 55%.<sup>10</sup>

Bland et al., from the University of Minnesota (USA), conducted a high quality review of the evidence available from 1987 to 1993 regarding the reasons influencing the choice of Primary Care.<sup>11</sup> Public university health centers were almost twice as likely to be chosen by residents in Family Medicine as private health centers (16.2% versus 9.3%, respectively).<sup>12</sup> Aspects such as the composition of the teaching body, admission, curriculum, the existence of subjects related to Primary Care, or rotations in this care setting, have been related to greater interest in the specialty of Primary Care. Campos-Outcalt and Senf<sup>13</sup> showed a mandatory nature of rotation in Primary Care to increase the proportion of students choosing Family Medicine as their specialty.

Our survey has shown interesting results, such as the scant importance given to financial reward when choosing a specialty. Medscape<sup>14,15</sup> published the 2018 financial compensation summary in the United States, based on the survey of over 20,000 physicians from 29 different specialties. The physicians with the highest incomes were, in decreasing order, plastic surgeons, traumatologists and cardiologists. This year, the lowest incomes, starting from the lowest position, were specialists in preventive medicine, paediatricians, and endocrinologists. Fifty-five percent of the physicians feel their remuneration to be fair. However, the physicians least satisfied with their financial status were specialists in rehabilitation (46%), followed by allergologists and endocrinologists (both 47%). Eighty-two percent of the professionals dedicated to endocrinology and diabetes would choose the same specialty again, and these, moreover, were the physicians with the lowest incidence of burnout syndrome.

Our study has a number of limitations. With respect to the first part, we did not analyse the mean data referring to choice for every year in the other medical specialties. In part two, the survey used had not been validated, and was designed by the authors themselves. In addition, there was a clear bias in the selection of the study population, which exclusively comprised residents in Endocrinology and Nutrition. The strengths of the study are the lack of publications of this kind in the specialty of Endocrinology and Nutrition, and the data referring to MIR choice covering the period from 1994 to date.

In conclusion, our study shows a worsening in the ranking of Endocrinology and Nutrition as the MIR specialty of choice that has not been confirmed in other specialties. The main reason influencing choice was personal preference for the specialty from the start. A total of 66.4% of those surveyed clearly regarded this specialty as their first choice. The most popular area within the speciality both before and after resident training was diabetes – lipids. The aspect most positively assessed was that Endocrinology and Nutrition is a "calm" specialty, while the most negatively rated aspect was the scarcity of techniques. Most residents would choose the specialty again and consider that it has met all their expectations. By contrast, the prestige of the

specialty received a score of only 6.7. Lastly, most of those surveyed would like to work in a research-friendly public health center.

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All the authors have contributed intellectually to the work; meet the conditions for authorship; and have approved the final version of the article.

## Conflicts of interest

None.

## Appendix A. Supplementary data

Supplementary data associated with this article can be found, in the online version, at [doi:10.1016/j.endien.2019.03.004](https://doi.org/10.1016/j.endien.2019.03.004).

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