

ORIGINAL ARTICLE

A survey on the perception of the specialty of Endocrinology and Nutrition among students preparing for the entrance exam for medical specialty training in Spain



Lourdes García Blasco^{a,*}, Pedro J. Pinés Corrales^a, Felicia Hanzu^b, Alberto Fernández Martínez^c, Irene Bretón Lesmes^d, Javier Escalada San Martín^e, in representation of the Board of Directors of the Sociedad Española de Endocrinología y Nutrición (SEEN) [Spanish Society of Endocrinology, Nutrition], the SEEN Foundation (FSEEN)

^a Complejo Hospitalario Universitario de Albacete [University Hospital Complex of Albacete], Spain

^b Hospital Universitari Clínic de Barcelona [Clinical University Hospital of Barcelona], Spain

^c Hospital Universitario de Móstoles [University Hospital of Mostoles], Spain

^d Hospital General Universitario Gregorio Marañón [Gregorio Marañón General University Hospital], Spain

^e Clínica Universidad de Navarra [University of Navarra Clinic], Spain

Received 12 October 2022; accepted 8 January 2023

KEYWORDS

Endocrinology & Nutrition;
Students;
Survey;
Training

Abstract

Introduction and aims: Previous studies have shown that there is decreasing interest in E&N among medical students. The aim of our study was to evaluate the perception of E&N among a sample of medical students.

Material and methods: We surveyed 2252 students prior to taking the exam that allows access to specialised training in Spain.

Results: Overall, 9.9% (222 participants) would probably choose E&N. The most positive aspects in includes of the specialty are its logical pathophysiological basis (54%) and that the work is dynamic and varied (27%), while the least attractive aspects are the few interventional techniques. The parts of the specialty that most attract students are hypothalamic–pituitary disease and diabetes mellitus.

Conclusions: The proportion of candidates who want to study E&N as their first choice is adequate in relation to the number of places available.

© 2023 SEEN y SED. Published by Elsevier España, S.L.U. All rights reserved.

* Corresponding author.

E-mail address: lgblasco@sescam.jccm.es (L. García Blasco).

PALABRAS CLAVE

Endocrinología y
Nutrición;
Estudiantes;
Encuesta;
Formación

Encuesta sobre la percepción de la especialidad de Endocrinología y Nutrición entre los estudiantes que preparan el examen de acceso a la formación especializada en España

Resumen

Introducción y objetivos: Estudios previos han mostrado que el interés por la Endocrinología y Nutrición está disminuyendo entre los estudiantes de medicina. El objetivo de nuestro estudio es evaluar la percepción de la Endocrinología y Nutrición en una muestra de estudiantes de medicina.

Material y métodos: Encuestamos a 2252 estudiantes antes de hacer el examen MIR.

Resultados: El 9,9% (222 participantes) elegirían probablemente Endocrinología y Nutrición. Los aspectos más positivos de la especialidad son sus bases fisiopatológicas lógicas (54%) y que el trabajo es dinámico y variado (27%), mientras que los aspectos menos atractivos son las pocas técnicas intervencionistas. Las partes de la especialidad que más les atraen son la patología hipotálamo-hipofisaria y la diabetes mellitus.

Conclusiones: La proporción de candidatos que quieren estudiar Endocrinología y Nutrición como su primera opción es adecuada con relación al número de plazas ofertadas.

© 2023 SEEN y SED. Publicado por Elsevier España, S.L.U. Todos los derechos reservados.

Introduction and aims

Endocrinology and Nutrition (E&N) includes the study and treatment of diseases with low prevalence and a complex pathophysiological basis, such as pituitary or adrenal disorders, and diseases with high prevalence and greater social and health-related impact, such as diabetes, obesity or disease-related malnutrition.^{1–5} Traditionally, it has been considered a non-procedural based specialty, but in recent years multiple technological advances have been incorporated, such as continuous subcutaneous insulin infusion therapy, continuous interstitial glucose monitoring, thyroid and carotid ultrasound, morpho-functional assessment of the patient's nutritional status and body composition assessment in obesity.^{6–9} Despite this, previous studies have shown that there is decreasing interest in E&N among medical students in Spain.¹⁰ The aim of our study was to evaluate the perception of E&N among a large sample of medical students and young doctors prior to taking the MIR exam that allows access to specialised training in Spain.

Material and methods

We performed a cross-sectional descriptive study whereby an anonymous and non-validated questionnaire (see appendix) was sent to the students of one of the main companies dedicated to the preparation of the MIR exam (CTO-Medicina Group) from 9 February 2021 at 4.30 p.m. to 12 February 2021 at 4.30 p.m. (72 h).

Results

We obtained 2252 completed questionnaires from an equal number of students: 62.4% were filled in by MIR candidates in 2021 and 37.6% by sixth-year medical students who would take their MIR exam in 2022. A total of 11,827 candidates

took the MIR exam in this year. All Spanish universities, both public and private, except the University of Oviedo, were represented in the survey, with 29% of candidates coming from non-Spanish universities.

Overall, 2.6% (58 participants) considered E&N as their first choice (score 10 out of 10) for specialised training, a figure that increased to 5.5% (36 participants out of a total of 653) among candidates from non-Spanish universities, and decreased to 1.4% (22 participants out of a total of 1599) among candidates from Spanish universities ($p < 0.0001$). Besides that, 9.9% (222 participants) would choose E&N with a score equal to or higher than 8 out of 10.

The teaching of the subject during pre-graduate medical training had had a very positive influence on 7% of those surveyed. The results increased to 37.9% when taking into account the candidates who considered it their first choice and dropped to 6.2% in the rest ($p < 0.0001$).

Survey respondents were asked about their preferences regarding a career in E&N. The most positive aspects of the specialty are its logical pathophysiological basis and that the work is dynamic and varied, as well as its solid scientific background. However, we obtained different numbers when we compared the participants who considered E&N as their first choice with the rest (Table 1). In addition, the least attractive aspects were a perceived deficit in interventional techniques and a difficult pathophysiological basis (Table 1).

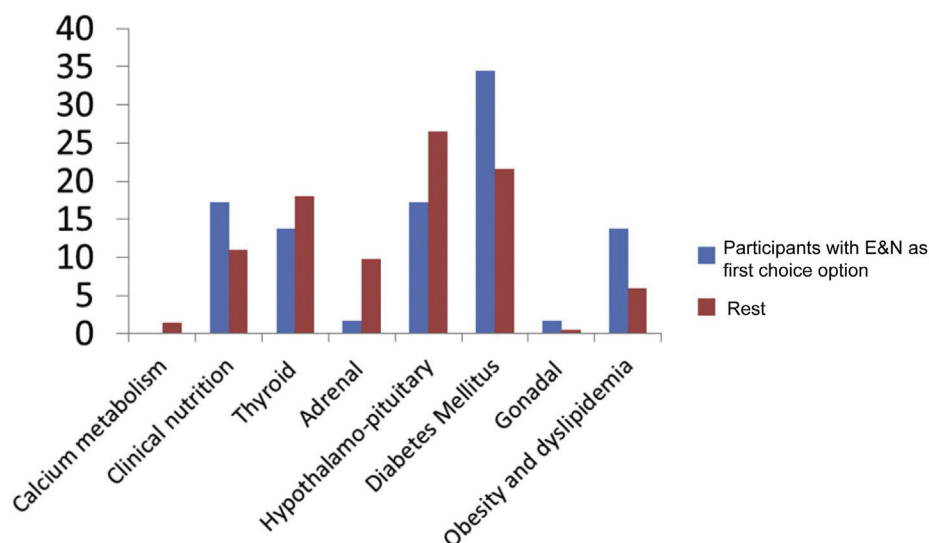
Finally, E&N's most attractive areas among responders were hypothalamic-pituitary disorders and diabetes mellitus. In addition to these, clinical nutrition was added to the list for candidates considering E&N as their first choice (Fig. 1).

Discussion

Previous studies have shown that there is decreasing interest in the E&N specialty among students in Spain. In other countries, the reduced interest in Endocrinology and Diabetology

Table 1 More and less attractive aspects of the E&N specialty among the students who consider it their first option and the rest of the students (test χ^2).

What do you consider to be the most attractive aspect of the specialty?						P value
	It has logical pathophysiologi- cal bases	The work is dynamic, varied and with solid scientific background	There are no specialty on-call shifts, so they are not usually mandatory	There is a great job offer in Private Medicine	Patients are not acutely ill	
Responders who considered E&N as their first choice	32.8%	58.6%	1.7%	6.9%	0%	<0.0001
Rest of participants	54%	27%	8.66%	5.2%	5.1%	
What do you consider to be the least attractive aspect of the specialty?						
	It has logical pathophysiologi- cal basis	Non-procedural based speciality	As there are no specialty on-call shifts, if there are they are from Internal Medicine	It has little visibility or recognition in society	The benefits of medical care for patients are long term	
Responders who considered E&N as their first choice	17.2%	25.9%	19%	19%	19%	0.0087
Rest of participants	16.8%	44.5%	8.4%	14.7%	14.5%	

**Figure 1** Frequencies of E&N's most attractive sections for students who desire E&N specialty as their participants with E&N as first choice option (blue bar) and for the rest (red bar).

has been evidenced by the difficulty in filling all the positions offered in these training areas.¹¹ In our view, some of the factors explaining E&N's decreasing appeal among medical students include a far larger number of medical specialty choices as well as an increase in the number of training posts available for E&N (44, 75 and 97 places in the years 2002, 2012 and 2022, respectively).¹⁰ Both factors could lessen competition for access to E&N specialty training

positions, though they do not explain the shift in prevailing views concerning the characteristics of this specialty.

Puttanna et al. performed a survey on this topic in the United Kingdom and found similar results¹¹: a total of 316 participants including final-year medical students and junior doctors responded to a questionnaire on Diabetes and Endocrinology. Only 9% of respondents answered that they would "possibly" or "likely" choose Endocrinology

and Diabetology as a specialty, a result that is similar to ours (9.9%). They also described that the participants who had had access to practical training in endocrinology and diabetes outpatient clinics were more likely to be interested in choosing this specialty. Perceived advantages of Endocrinology and Diabetology included: interesting and rewarding specialty (38%), working with a friendly and supportive team (18%) and opportunity for research (14%). The most frequently described disadvantages were: “being the medical registrar” (27%), non-procedural specialty (23%) and looking after majority of general medical admissions (22%).

Our study shows that 2.6% of the candidates surveyed considered the specialty of E&N as their first choice at the time of the survey. This could imply that the demand for the specialty outweighs the offer, since the final list of those admitted to the MIR exam held on 29 January 2022 included 13,059 candidates and, therefore, the possibility of filling a greater number of posts if necessary.^{12,13} However, when we analyse the data of candidates from Spanish universities, it is reduced to 1.4%. In the last five years, an average of 86.4 vacancies in Endocrinology and Nutrition have been offered in Spain, which represents 1.17% of the total number of vacancies. This situation may have detrimental consequences for the future availability of physicians with E&N specialty training. First, the limited access to specialty training for non-Spanish doctors in Spain may hinder access for a fraction of medical students, who are also, as shown in our study, significantly more interested in E&N specialty training. Later in their career development, the employment offers for specialist doctors from outside the EU may not motivate them to remain in Spain at the end of their specialised training.

It is important to highlight the importance of teaching the subject during pregraduate medical studies: 37.9% of the participants who would choose E&N specialty as their first option considered “very positive” the influence of the teaching for their choice. On the other hand, our healthcare system requires all physicians to have received adequate undergraduate teaching in E&N, which would enable early screening and referral of patients at risk of suffering disorders within the subject’s field.^{14,15} For this reason, the SEEN/FSEEN believes that the teaching of Endocrinology and Nutrition in medical schools deserves special consideration.

Overall, medical students consider that the most attractive aspect of our specialty is that it has a logical pathophysiological basis. However, when we analyse the participants’ willingness to choose our specialty, the most attractive aspect is that the work is dynamic, varied and it also has a solid scientific basis. This might indicate a more comprehensive and accurate view of the specialty among participants who consider it their first choice. Similarly, candidates consider that the least attractive aspect of the specialty is the lack of ancillary techniques. This response is the same among candidates who consider it their first choice, but it is worth noting the importance given by these participants to the lack of visibility and recognition in society. As regards the perceived shortfall in ancillary techniques in our specialty, it should be noted that in recent years there has been a steady increase in the use of technologies and invasive techniques in E&N, such as muscle ultrasound, bioimpedance and functional tests in the context of morpho-functional assessment of malnutrition, ultrasound

and minimally invasive percutaneous treatments of thyroid and parathyroid disorders, interstitial glucose monitoring and continuous insulin infusion therapy in the field of diabetes, and fibroscan-based elastography in the assessment of metabolic liver disease, among others. Finally, the candidates consider hypothalamus-pituitary disease the most attractive field within the specialty. Thyroid and adrenal disorders also had high acceptance. For those candidates who consider the specialty of E&N as their first choice, however, the most attractive areas are diabetes and clinical nutrition.

Finally, we found significant perception discrepancy between the most and least attractive aspects, and the areas of greatest interest when analysing the candidates whose priority option was E&N as opposed to the rest. It should be an objective of SEEN/FSEEN to promote the participation of E&N specialists in undergraduate teaching, supporting their participation as associate teachers, doctors or professors. Other relevant goals include teaching of E&N as a subject with its own personality and focus within the curricula, reaching a consensus on a common vision and objectives by establishing, for example, the minimum number of ECTS credits associated with the subject and, finally, facilitating a more active participation in internships and the completion of final degree projects by medical students, which can provide hands-on and direct learning experience about all aspects of the specialty.

Conclusions

The proportion of candidates who want to study E&N as their first choice is adequate in relation to the number of places available, but lower among those from Spanish universities. The teaching of the subject may exert a very positive influence on those students who consider E&N to be their first choice. The perception of E&N among the participants is different among the group of students and among those who consider it as their first choice.

Conflict of interest

None of the authors acknowledge any conflict of interest in relation to the content of this work.

Acknowledgement

To CTO-Medicina group for distributing the questionnaire to students.

References

1. Order SCO/3122/2006, of 20 September, which approves and publishes the training programme for the specialty of Endocrinology and Nutrition. [Internet]. Available from: <https://www.boe.es/buscar/doc.php?id=BOE-A-2006-17806> [consulted 28.2.21].
2. Atlas de la diabetes de la Federación Internacional de Diabetes. 9ª edición. 2019. [Internet]. Available from: <https://diabetesatlas.org/es/> [consulted 28.2.21].
3. Valdés S, Maldonado-Araque C, Lago-Sampedro A, Lillo JA, García-Fuentes E, Pérez-Valero V, et al. Population-based national prevalence of thyroid dysfunction in Spain and

- associated factors: di@bet.es study. *Thyroid*. 2017;27:156–66, <http://dx.doi.org/10.1089/thy.2016.0353>.
4. Aranceta-Bartrina J, Pérez-Rodrigo C, Alberdi-Aresti G, Ramos-Carrera N, Lázaro-Masedo S. Prevalencia de obesidad general y obesidad abdominal en la población adulta española (25–64 años) 2014–2015: estudio ENPE. *Rev Esp Cardiol*. 2016;69:579–87.
5. Álvarez-Hernández J, Planas Vila M, León-Sanz M, García de Lorenzo A, Celaya-Pérez S, García-Lorda P, et al. Prevalence and costs of malnutrition in hospitalized patients; the PREDyCES® study. *Nutr Hosp*. 2012;27:1049–59.
6. Resolution of 26 April 2019, of the General Directorate of the Basic Portfolio of Services of the National Health and Pharmacy System, by which the agreement of the Benefits, Insurance and Financing Commission of 5 November 2018 is made public, and of 28 March 2019, on the glucose monitoring system using sensors (flash) in adults in the common portfolio of services of the National Health System. [Internet]. Available from: <https://www.mscbs.gob.es/profesionales/prestacionesSanitarias/CarteraDeServicios/ContenidoCS/docs/Resolucionglucosadultos.pdf> [consulted 28.2.21].
7. Moreno-Fernández J, López LM, Gómez FJ, Pines P, Blanco B, González J, et al. Long-term effects of continuous subcutaneous insulin infusion in adults with type 1 diabetes mellitus patients: results of a public healthcare system. *Endocrinol Diabetes Nutr*. 2021;68:116–22.
8. Díaz-Soto G, Torres B, López Gómez JJ, Gómez Hoyos E, Vil-lar A, Romero E, et al. Impacto económico y satisfacción de la implantación de una consulta de alta resolución de patología nodular tiroidea en Endocrinología. *Endocrinol Nutr*. 2016;63:414–20.
9. Price KL, Earthman CP. Update on body composition tools in clinical settings: computed tomography, ultrasound, and bioimpedance applications for assessment and monitoring. *Eur J Clin Nutr*. 2019;73:187–93.
10. García Blasco L, Cambor Álvarez M, Ferrer García J, Botella Romero F. ¿Quo vadis endocrinología y nutrición? *Endocrinol Diabetes Nutr*. 2019;66:291–6.
11. Puttanna A, Byrne ML, Eyre-Brook SN, Madhra M, Nwokolo M, Mitchell A. Changing perceptions: a multicentre survey of final-year medical students' and junior doctors' perceptions of diabetes and endocrinology. *Postgrad Med J*. 2019;1–5, <http://dx.doi.org/10.1136/postgradmedj-2018-13609>.
12. Definitive list of those admitted to the MIR exam to be held on 29 January 2022. [Internet]. Available from: https://www.consalud.es/especial-mir/mir-2022-13059-admitidos-listado-publicado-sanidad_107163_102.html [consulted 2.12.22].
13. Offer of places for the degree in Medicine in the 2018-2019 academic year. [Internet]. Available from: <https://www.redaccionmedica.com/contenido/images/3.%20Oferta%20de%20Medicina%20ver.final%281%29.pdf> [consulted 9.8.21].
14. Esposito D, Ragnarsson O, Johannsson G, Olsson DS. Prolonged diagnostic delay in acromegaly is associated with increased morbidity and mortality. *Eur J Endocrinol*. 2020;182:523–31, <http://dx.doi.org/10.1530/EJE-20-0019>.
15. Rubinstein G, Osswald A, Hoster E, Losa M, Elenkova A, Zacharieva S, et al. Time to diagnosis in Cushing's syndrome: a meta-analysis based on 5367 patients. *J Clin Endocrinol Metab*. 2020;105:dgz136, <http://dx.doi.org/10.1210/clinem/dgz136>.