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SPECIAL ARTICLE

How the COVID-19 pandemic has affected the training of Endocrinology and Nutrition Residents. Results of a survey by the Spanish Society of Endocrinology and Nutrition[☆]



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KEYWORDS

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Abstract

Introduction: COVID-19 disease has become a priority for our healthcare system. The resident physicians training in endocrinology and nutrition (E&N residents) have been integrated into

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COVID-19;
Medical training

the COVID-19 teams. This study has been designed with the aim of analysing the educational, occupational and health impact on E&N residents.

Material and methods: Cross-sectional observational study via a web survey, aimed at E&N residents who are members of the SEEN, carried out in November 2020. The following data were analysed: demographic variables, number of beds in the training hospital, alteration of rotations, integration in COVID-19 teams, participation in telemedicine, scientific activity and impact on physical and emotional health.

Results: 87 responses were obtained (27% of all E&N residents), 67.8% women, 28.1 ± 1.8 years, 60% 4th year E&N residents. 84% participated in COVID-19 teams and 93% in the telemedicine consultations of their service. Most have had their rotations interrupted. 97.7% have participated in scientific meetings or virtual congresses and a third of them have collaborated in scientific work on COVID-19 in relation to endocrinology and nutrition. Overall, 75.8% think the pandemic has affected their mood a lot or quite a lot, and 73.8% think that the pandemic has negatively impacted their training.

Conclusions: The SARS-CoV-2 pandemic has compromised the training, work activity and health of E&N residents. They have been integrated both in COVID-19 teams and in the restructured activity of their departments. However, they have managed to continue their training in virtual format and have participated in scientific work.

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PALABRAS CLAVE

Médico interno
residente;
COVID-19;
Educación médica

Cómo ha afectado la pandemia COVID-19 en la formación de los MIR de Endocrinología y Nutrición. Resultados de una encuesta de la Sociedad Española de Endocrinología y Nutrición

Resumen

Introducción: La enfermedad COVID-19 se ha convertido en una prioridad para nuestro sistema sanitario. Los MIR de Endocrinología y Nutrición (MIR-EyN) se han integrado en los equipos COVID-19. Se ha diseñado este estudio con el objetivo de analizar el impacto a nivel formativo, laboral y en la salud de los MIR-EyN.

Material y métodos: Estudio observacional transversal tipo encuesta vía web, dirigida a los MIR-EyN socios de la SEEN, realizado en noviembre de 2020. Se han analizado: variables demográficas, tamaño del hospital de formación en número de camas, alteración de las rotaciones, integración en equipos COVID-19, participación en teleconsulta, actividad científica e impacto sobre la salud física y emocional.

Resultados: Se han obtenido 87 respuestas (27% de los MIR-EyN); 67,8% mujeres, edad media $28,1 \pm 1,8$ años, 60% MIR-EyN 4.º año. El 84% ha participado en equipos COVID-19 y el 93% en las consultas telemáticas de su servicio. La mayoría ha visto interrumpidas sus rotaciones. El 97,7% ha participado en reuniones científicas o congresos virtuales y un tercio de ellos ha colaborado en trabajos científicos sobre la COVID-19 en relación con la Endocrinología y Nutrición. La pandemia ha afectado a su estado de ánimo mucho o bastante (75,8%) y opinan que ha impactado de forma negativa a su formación (73,8%).

Conclusiones: La pandemia por SARS-CoV-2 ha comprometido la formación, la actividad laboral y la salud de los MIR-EyN. Se han integrado tanto en equipos COVID-19 como en la actividad reestructurada de sus servicios. Sin embargo, han conseguido mantener la formación en formato virtual y participado en trabajos científicos.

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Introduction

The SARS-CoV-2 pandemic has taken on dimensions we could scarcely have imagined a year ago. Globally, as of May 2021, Spain finds itself in ninth place among the countries with the highest numbers of cases.¹

COVID-19 disease has become a priority for our health-care system. For this reason, most of the available healthcare resources at all care levels have been dedicated to it, in terms of logistics, economic and human resources. Moreover, it has been necessary to legislate to limit mobility and other non-essential activities.

Medical residents have joined COVID-19 care teams and in many cases have been working on the front line, according to data from the Spanish Medical Colleges Organisation (OMC) and the General Council of Medical Colleges (CGCOM).² This scenario has altered their education and training programme. This unexpected, unplanned and demanding situation has also had an impact on the health of healthcare professionals in general and residents in particular.

This survey has been conducted by the Spanish Society of Endocrinology and Nutrition (SEEN) with the aim of describing the impact of the COVID-19 pandemic on residents training in Endocrinology and Nutrition (E&N residents) and proposing potential solutions and alternatives.

Material and methods

This is a cross-sectional observational study designed as an online survey. A team from SEEN with experience in training residents designed a questionnaire to meet the study's objectives. This survey was distributed by email by the secretary of SEEN to E&N residents, as well as to department heads and mentors so that they could promote participation. All data were anonymous and self-reported (the full survey can be seen in Appendix B additional material).

The primary objective of this study was to analyse how the COVID-19 pandemic has impacted the training of E&N residents. The secondary objectives were to describe the repercussions of this healthcare crisis on caring activities, scientific activities and the health of E&N residents.

To meet the study's objective, questions were asked about the following dimensions: integration in COVID-19 teams, impact on the specialty training programme, scientific activities during this period, and the repercussions of these caring activities on their physical and mental health, using a 5-point Likert scale.

Once the survey had been agreed upon, it was transferred to a form using the Google Forms[®] tool for data collection and processing. The survey was open from 9 to 22 November 2020, coinciding with the fall in cases after the second wave in Spain.³ According to data from the Ministry of Health, the target population was made up of 323 E&N residents.⁴

The study adhered to the Declaration of Helsinki (October 2013), respecting the guidelines for Good Clinical Practice and European data protection legislation, Regulation (EU) 2016/679. Information on the survey was provided to potential participants, who were also offered the opportunity to contact the study team. Completing the online survey and sending the data was considered to be consent to the analysis and interpretation of said data. The data were collected anonymously. The descriptive data were analysed using the IBM program SPSS Statistics v24 (Armonk, NY, USA).

Results

Study population

In total, 87 responses were received, meaning that 26.9% of the E&N residents in Spain took part. In total, 280 E&N residents, or 86.6% of the total, are also SEEN members; therefore 31% of our E&N resident SEEN members participated.

Some 67.8% of those surveyed were female (n = 59) and the majority were in the third and fourth years of E&N residencies (81.6%), with 60% of fourth-year E&N residents responding. The mean age was 28.1 years (SD 1.8, range 25–34 years). With regard to hospital type, 11.5% were training in a hospital with fewer than 500 beds, 57.5% in a hospital with 500–1000 beds and 31% in a hospital with more than 1000 beds. All the autonomous regions of Spain that offer E&R resident training are represented (Table 1).

Integration in COVID-19 teams

The majority of E&N residents (83.9%) said that they had been a part of COVID-19 teams. With regard to this participation, somewhat more than three quarters of those surveyed (76.2%) had done so for a month or longer (25.4% one month, 35.2% two months and 18.3% three months or longer). The results of E&N residents' assessment of this participation can be seen in Fig. 1. One third of them felt that it has enriched their professional training, while 46% stated that it has negatively affected their training. Nearly two thirds (63%) received specific training on COVID-19 protection and action protocols.

Impact on the specialty training programme

The results are shown in Table 2. Some 43.7% of E&N residents saw their rotations in other departments or units within the same centre interrupted, 70.1% suffered limitations to rotations within their own unit and 38% had to suspend planned external rotations. The percentage with the option to make up those rotations in other departments within the same centre, within their own specialty and in external centres was 19.4%, 21.3% and 15.2%, respectively. Most E&N residents felt that the current situation with reduced in-person visits, closure of hospital wards or suspension of consultations has altered the quality of their rotations a lot (43.7%) or quite a lot (50.6%).

The majority of those surveyed (93.1%) had participated in telephone or online consultations within their department or unit.

Two thirds of those surveyed felt supported in their rotations by their mentor and/or manager (a lot: 31%; quite a lot: 36.8%). However, 32.2% of participants responded that they felt they had little support.

Scientific activity during this period

In terms of clinical sessions, adapted to the health regulations, these remained as normal for 14.9% of E&N residents and were partially maintained in 55.2% of cases. Almost a third of those surveyed had clinical sessions cancelled due to the pandemic. The majority of participants (97.7%) were also able to take training courses or attend scientific meetings or congresses virtually.

One third of E&N residents took part in a study, protocol development, scientific work, research project or clinical trial on COVID-19 in relation to Endocrinology and Nutrition.

Table 1 Characteristics of the E&N residents surveyed (n = 87).

Age (years)	28.1 ± 1.8 (range 25–34 years)	
Gender, n (%)	Female	Male
	59 (67.8%)	28 (32.2%)
Year of residency, n (%)	R1	R2
	4 (4.6%)	12 (13.8%)
Size of the hospital where they are doing their training, n (%)	<500 beds	500–1000 beds
	10 (11.5%)	50 (57.5%)
		R3
		25 (28.7%)
		>1000 beds
		27 (31%)
		R4
		46 (59.2%)

Repercussions on health

Of the 87 E&N residents surveyed, 19 (21.8%) contracted COVID-19, most of whom were female, with no cases requiring hospital admission. A quarter of those surveyed had needed to self-isolate due to close contact or similar, affecting the time spent on a rotation, and some 3% had needed to self-isolate two or three times due to contacts.

In terms of physical health during the pandemic, E&N residents reported symptoms such as headache, dizziness, weight changes and insomnia (Fig. 2).

From a mental health perspective, 75.8% of those surveyed stated that the pandemic has affected their mood either a lot or quite a lot. At the opposite extreme, 4.6% declared that the pandemic had positively affected their mood. On a scale of 1–5, where 1 is the minimum score and 5 is the maximum score, E&N residents responded with the maximum score in 12.6% of cases for greater insecurity, 10.3% for feelings of confusion, 24.1% for feeling more sad, 27.6% for feeling more anxiety and 39.1% for increased fatigue. At the opposite extreme, the minimum score was chosen in 9.2% of cases for greater insecurity, 10.3% for feelings of confusion, 6.9% for feeling more sad, 10.3% for feeling more anxiety and 2.3% for increased fatigue (Fig. 3).

Almost a quarter of the participants considered leaving medicine at some point during the pandemic, while 5.7% considered changing specialty.

Half of the E&N residents surveyed stated that their centre or autonomous community had some sort of mental health resources, but only 9.3% had made use of them.

Future career

Overall, more than 75% of the E&N residents felt that the pandemic has negatively affected their resident training (Fig. 4). The majority of those surveyed (73.3%) also felt that this professional experience will negatively affect their future career, while the percentages who considered the experience to be positive or neutral for their work were 11.6% and 15.1%, respectively. With regard to possible solutions, 88.9% of those surveyed were found to be in favour of prolonging the residency period to complete the training in any year of the specialty if the pandemic disrupted three or more months of their training. The remaining percentage was found to favour this measure for final year residents.

Discussion

The results of this survey indicate that E&N residents' participation on COVID-19 wards has clearly harmed their training by interrupting their cycle of training rotations for a number of months. In spite of this, they have been forced to continue their training, making use of digital channels, and have participated in telephone/online care in Endocrinology and Nutrition. Some 77% of E&N residents recognise the pandemic as having negatively impacted their mood.

This work has some limitations that must be taken into account. Firstly, it is a survey-type study with self-reported data, and those E&N residents who responded may be particularly motivated to participate. Nevertheless, we believe that the response rate is significant, at 26.9% of E&N resi-

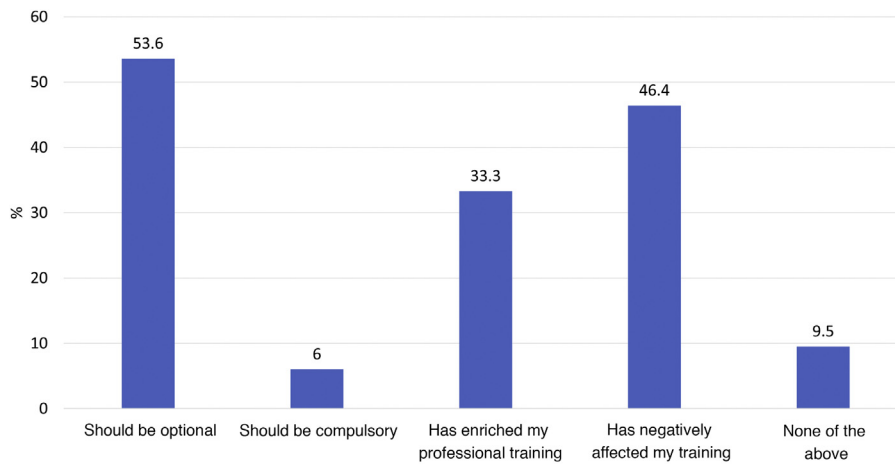


Figure 1 E&N residents' assessment of participation in COVID-19 teams.

Table 2 Impact on the specialty training programme.

	Yes	No	Maybe
Suspension of rotations in other departments/units in the same centre (n [%])	38 (43.7%)	49 (56.3%)	
Is it possible to make up that rotation? (n [%])	7 (19.4%)	13 (36.1%)	16 (44.4%)
Change or limitation of rotation time within their own specialty (n [%])	61 (70.1%)	26 (29.9%)	
Is it possible to make up that rotation? (n [%])	13 (21.3%)	28 (45.9%)	20 (32.8%)
Suspension of external rotations in other centres (n [%])	33 (37.9%)	54 (62.1%)	
Is it possible to make up that rotation? (n [%])	5 (15.2%)	16 (48.5%)	12 (36.4%)

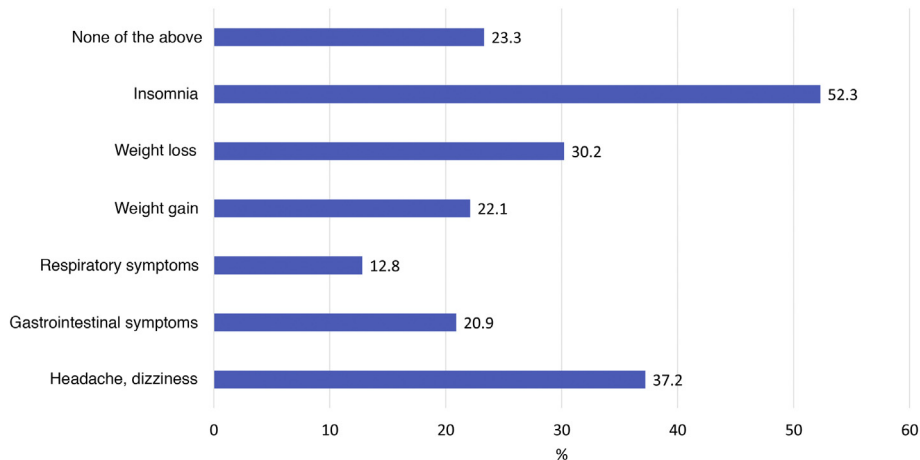


Figure 2 Symptoms reported by E&R residents during the pandemic.

dents in Spain (31% of the total number of residents who are members of SEEN), reaching a rate of 60% for fourth-year residents. It is worth highlighting that the bulk of the responses came from third- and fourth-year residents (81.6% of all participants), which is the period when the greatest contact is maintained with the general activity of Endocrinology and Nutrition departments and when the bulk of training rotations take place. It is likely that residents in their final years (3rd and 4th), due to the skills they had acquired, were those most likely to be directed to work in COVID teams compared to first- or second-year

residents. The impact on final year E&N residents is particularly significant as they are close to the end of their training period, which could affect their future career. A survey conducted by the Spanish Society of Medical Oncology (SEOM) targeting residents in their specialty and young associate managers obtained responses from 35% of their medical resident members,⁵ which was similar to the SEEN survey. In both the SEEN and SEOM surveys, the participation rate was above that of another survey targeting this group, launched by the OMC/CCGOM, which had a response rate of 10.3% of all residents contacted.²

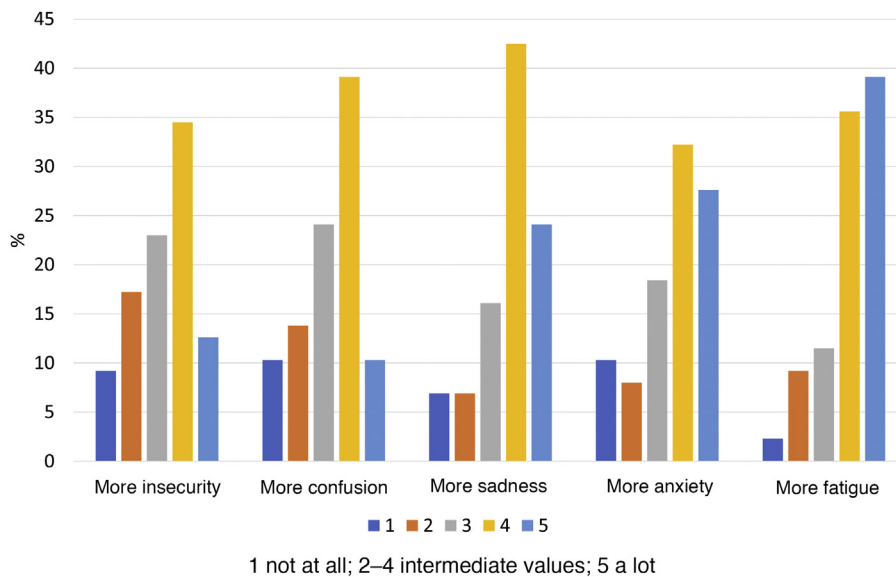


Figure 3 Mental health symptoms experienced by E&N residents during the COVID-19 pandemic.

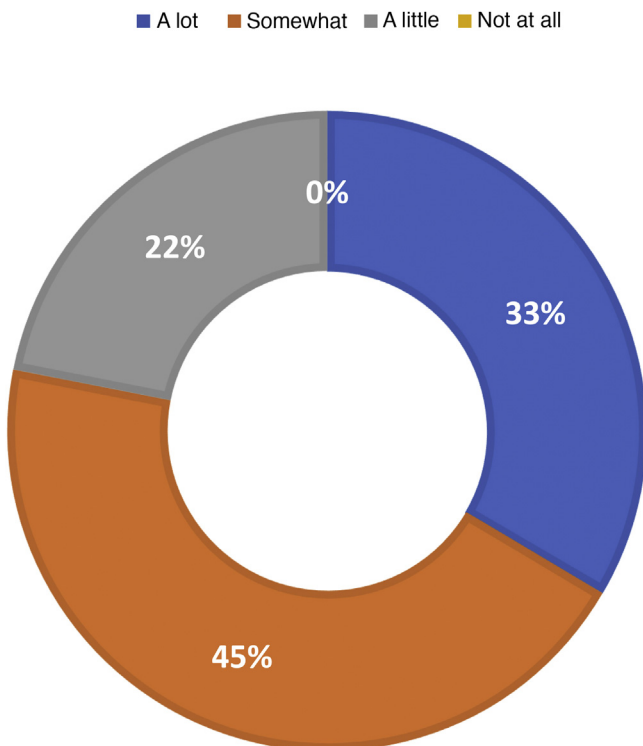


Figure 4 Overall, do you think this situation has negatively affected your training as an E&N resident?

Secondly, a validated tool was not used to analyse the mental health symptoms as the surveys designed for this are excessively long for an online model like that used here. More and more data are being gathered on the mental health impact of the COVID-19 pandemic, not only on the general population, but also on healthcare workers and people with various conditions.⁶⁻⁸ Our objective is not to exhaustively describe mental health symptoms, but merely to highlight their existence and serve as a basis for future actions.

Thirdly, due to the timing of the survey, it collected data on the impact of the first and second waves of the COVID-19 pandemic. It is therefore possible that this impact may have been greater in the third wave. More data are needed in this regard.

With regard to the impact on the care and training dimensions, most E&N residents saw interruptions to their rotations so that they could join COVID-19 teams. This percentage, 83.9%, is greater than that described in the OMC/CGCOM survey, which was 50%. This difference could be due to the nature of the Endocrinology and Nutrition medical specialty, whereas the other survey targeted residents from all specialties. Also in the majority are those E&N residents who are in favour of prolonging the residency training programme where compulsory rotations were interrupted for three months or longer. In fact, in its strategic reflections for the 2018–2022 period, SEEN has already suggested proposing to the National Specialty Commission the extension of E&N resident training to five years to meet the challenges of our specialty and our patients.⁹ The survey detected gaps in specific training on COVID-19 protocols, with 36.8% of E&N residents reporting that they had not received specific training on protocols and actions at the time of taking the survey. Given the evolution of the pandemic, these gaps may have been corrected. The participation of residents' representatives in teaching commissions' working groups should be encouraged, so that they can relate the problems they have experienced in adequately completing their training, which is critical in the final year of the specialty. It would also be important to individually analyse the training gaps in each particular case, in order to propose making up rotations or strengthening other skills. The national specialty commissions should be made aware of these training gaps so that they can submit a request to the Ministry of Health that they be corrected.

According to the survey data, 19 participants contracted COVID-19, 68% of whom were female. The National Epidemiological Monitoring Network (RENAVE) has reported a

higher incidence of infections in women,^{10,11} although it should be taken into account that the majority of E&N residents were women. Moreover, it should be noted that half of the E&N residents had insomnia and one third experienced weight loss, headache or dizziness. Although these symptoms could be attributed to COVID-19 in those who were infected, we believe that the high-stress situation caused by the pandemic itself and the work environment may have contributed to the onset of these symptoms.

Most of those surveyed stated that the pandemic has negatively affected their mood, either a lot or quite a lot, but increased insecurity, confusion, sadness, anxiety and fatigue have also been reported. Among the possible causes are care pressures, the uncertainty of the situation, mobility restrictions and lack of social contact. These mental health symptoms, together with insomnia, appear to be a constant for healthcare professionals who have worked during the pandemic, and are similar to those reported in other studies.¹² The 5.7% who have considered changing specialty is lower than the 25% reported by SEOM.⁵ But it is striking that, in these conditions of personal stress, a significant percentage of participants (around 25%) expressed the possibility of leaving medicine. It is possible that this response rate arises from the general situation of low mood and a perceived lack of support that healthcare professionals have suffered in the first and second waves. It would be necessary to repeat the survey when the general health situation is different from the ongoing situation at the time of this study. In spite of the presence of mental health symptoms and the fact that specific resources were available in half of the autonomous communities, most of those surveyed (91%) did not make use of them. Work on managing and expressing emotions, the use of relaxation techniques, improvements in the work environment and social contact in line with the established health regulations can all help to improve or mitigate such symptoms.

At a scientific level, the good uptake of digital environments by E&N residents, whose age group straddles generations Y and Z and who have lived through the start of the digital age and the massive growth of the Internet, is a noteworthy finding.¹³ This fact also means that they are more demanding of this format, since it is their normal environment and they know exactly what it is capable of. It is therefore important to take their suggestions into account in order to improve digital communication. One third have participated in scientific activities of various types on COVID-19, such as research projects, protocols or clinical trials. Activities of this type are part of the training of E&N residents and the current situation may provide an extra opportunity to motivate clinical research. Scientific associations must act as catalysts and foster such work, in collaboration with the National Specialty Commission.

Conclusions

The SARS-CoV-2 pandemic has compromised the training, work and health of E&N residents. Their response has been exemplary and they have participated in both COVID-19 teams and the restructured activity of their departments. In addition, they have managed to continue their training virtually and have participated in scientific projects.

We believe that these data need to be taken into account in organising future activities, regularising any training deviations and involving the relevant bodies in decision making to minimise the effects of the pandemic on healthcare professionals and E&N residents in particular, who are the future of our specialty.

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Conflicts of interest

The authors have no conflicts of interest in relation to this study.

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Appendix A. Supplementary data

Supplementary material related to this article can be found, in the online version, at doi:<https://doi.org/10.1016/j.endien.2022.02.010>.

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