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Analysis of the selection of medical residents of the University of Cartagena, Colombia, in the Covid-19 pandemic period

Análisis de la selección de médicos residentes de la Universidad de Cartagena, Colombia, en el periodo de pandemia de Covid-19

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ABSTRACT

Introduction: Medical Specialty in Colombia is institutionalized in universities, that is, neither hospitals nor medical-scientific associations can graduate medical specialists.

Objective: to analyze the changes in the characteristics of those admitted to the Medical Specialty selection process in 2021 in the context of the Covid-19 pandemic.

Methods: a prospective observational study of comparative series was proposed. All the aspirants and the 57 admitted and evaluated in the three aspects proposed by the University of Cartagena for the 2021-Covid-19 cohort were included, as follows: 1. Accumulated averages during previous medical studies with a value of 60% of the total score. 2. Evaluation of resumes, worth 30% of the total score. 3. Structured interview, worth 10% of the total score. For this study, a survey was conducted with the 57 doctors admitted to the 2021 Call for medical-surgical specialties (first specialties) of the University of Cartagena. The survey designed by the Postgraduate Department of the faculty points to a prior self-assessment of each admitted doctor and explores the general and cultural aspects of the applicants.

Results: for the 2021 Covid-19 call, there were 918 applicants. Through the first weighting test of the accumulated average in previous medical studies, 127 applicants were selected to continue the process. The number of students admitted to the EM was 57. The percentage of absorption (number admitted to the number of applicants) in the EM programs was 6.2%. In this call, 2021-Covid-19 there were higher total scores. Half of those admitted, who performed mandatory social service, were published even without being linked to a research group, and without the B2 international level of English required by the University of Cartagena. There were a majority of women, aged over 28, which could have an impact on the high score for experience, single, without children, Catholics, and inhabitants of departmental capitals, coming from private universities.

Conclusions: The Covid-19 pandemic imposed changes in the way in which the components of the evaluation were carried out and weighted in the selection of

applicants for medical specializations at the University of Cartagena. In this call -2021 Covid-19-, higher total scores were recorded, this because the value of the exam was replaced by the average of grades obtained in the course.

Keywords: call for applications; education; medical specialty; admitted; official university; private university.

RESUMEN

Introducción: la Especialización Médica en Colombia está institucionalizada en las universidades, es decir, los hospitales ni las asociaciones médico-científicas pueden titular especialistas médicos.

Objetivo: analizar los cambios en las características de los admitidos en el proceso de selección de los aspirantes a especializaciones médicas de la Universidad de Cartagena, en el año 2021 dentro del contexto de la pandemia Covid-19.

Métodos: se realizó un estudio observacional prospectivo de series comparativas. Se incluyeron los médicos inscritos y los admitidos y evaluados en los tres aspectos propuestos para la cohorte 2021-Covid-19: 1. Promedios acumulados durante los estudios médicos previos con valor 60% del puntaje total. 2. Evaluación de hojas de vida, con valor del 30 % del puntaje total. 3. Entrevista estructurada, con valor del 10 % del puntaje total. Se realizó una encuesta a los 57 médicos admitidos, que apunta la autoevaluación previa de cada médico admitido, y explora aspectos generales y culturales de los aspirante.

Resultados: Para la convocatoria 2021-Covid-19 hubo un total de 918 aspirantes. Mediante la ponderación del promedio acumulado en los estudios médicos previos se seleccionaron 127 aspirantes para continuar el proceso. El número de admitidos fue de 57. El porcentaje de absorción (número de admitidos en relación con el de aspirantes) en los programas fue de 6,2%. En esta convocatoria 2021-Covid-19 hubo mayores puntajes totales. La mitad de los admitidos realizó el servicio social obligatorio, tuvieron publicaciones aun sin estar vinculados a un grupo de investigación y sin el nivel B2 de inglés certificado internacionalmente. Persistieron las tendencias de: mayoría de mujeres, edad mayor de 28 años, soltero, sin hijos, católicos, ciudadanos de capitales de departamentos y proveniente de universidades privadas.

Conclusión: La pandemia por Covid-19 impuso cambios en la forma en que se llevaban a cabo y ponderaban los componentes de la evaluación en la selección de los aspirantes a especializaciones médicas en la Universidad de Cartagena. En esta convocatoria -2021-Covid-19-, se registraron puntuaciones totales más altas, esto debido a que el valor del examen fue reemplazado por el promedio de notas obtenido en la carrera.

Palabras Clave: convocatoria; educación; especialidad médica; admitidos; Universidad oficial; Universidad privada.

INTRODUCTION

The Medical Specialty in Colombia is institutionalized in universities, which means, hospitals or medical-scientific associations can hold medical specialists (1).

According to data from the National Information System for Higher Education (SNIES) as of August 2020, Colombia had 530 active Medical Specialty programs in 36 different higher education institutions (Ministry of National Education, 2021).

In 2010, medical specialists who graduated from private universities (PU) accounted for 53% and from Official University for (OU) 47%. From this year onwards, there has been a progressive and sustained strengthening of private provision. In 2018, 61% of all Medical Specialty programs correspond to PU, and 39% to OU. During the same year 66% of the graduates corresponded to PU, and 34% to OU graduates.

If the evolution of Medical Specialty graduates from the gender inclusion perspective, is observed a gradual, but consistent, trend in the feminization. In 2001, women accounted for 36 percent of the total number of graduates, and in the following years, it rose progressively and steadily, especially since 2010, reaching 51 percent in 2018.

The quotas in the Medical Specialty since 2010 increased steadily, and in 2018, the enrollment was 5355 doctors. Of these 1,976 were freshmen. The graduates from the 530 Medical Specialty programs consisted of 1,794, an increase of 25% compared to 2017, being the largest since 2010.

In Colombia, historically, a quarter of graduate doctors access Medical Specialty. Although the supply of these programs has increased significantly in recent years, the situation has not changed due to the parallel increase in the annual number of medical graduates. Thus, for the period 2014-2018, the number of first-year enrollments represented, on average, 24.2% of Medical Specialty graduates, which is equivalent to saying that three-quarters of the graduates had no options to continue their medical specialty process in the country (2).

In Colombia, the admission process for students to enter Medical Specialty is individually accessed by each university, that is, there is no single state test or model. The calls are biannual or annual and include one or several forms of evaluation such as knowledge tests, personal interviews, professional

experience, research, and English language proficiency. The number of quotas of each Medical Specialty is governed by the Ministry of National Education, and the specific weight of each test by the autonomy of each university (1, 3).

The University of Cartagena (Universidad de Cartagena), for the admission of Medical Specialty, has applied for a face-to-face knowledge examination as a central element (80% of the total score). The candidates with the highest score follow the selection process that includes an assessment of the resume (10%) and a personal interview with the professors of the program (10%) according to the validated instrument. The quotas are designated in the order of highest to lowest score guaranteeing access by academic-scientific merit.

In Colombia, the health emergency was decreed by the Covid-19 pandemic in March 2020. This included preventive isolation and prohibition of pre-specialty in the Medical Specialty written knowledge test. This made it necessary to change the selection process to provide continuity in service delivery. The authorized change at the University of Cartagena was to replace the face-to-face knowledge test with the undergraduate grade point average, certified by their corresponding university.

Another important change in the Medical Specialty in Colombia was that since the year 2018, the Law 1917 of 2018 created the System of Medical Residencies. This law guarantees medical residents monthly financial support of three times the value of the current legal minimum monthly wage, equivalent to about \$800.

With the modification in the Medical Specialty admission process in the University of Cartagena, the context of the Covid-19 pandemic and the new modality of remuneration to residents in Colombia, changes in the characteristics of the 2021 cohort

applicants and admitted students are expected. Specifically, in terms of, the number and gender of applicants, socio-demographic characteristics, professional experience, continuing education, and English language performance. This research seeks to fill the information gap regarding the process of admission to Medical Specialty in Colombia, specifically in the University of Cartagena in the context of Covid-19 and the new remuneration status of residents in Colombia.

METHODS

A prospective observational study of comparative series was performed. The registered physicians and the final 57 admitted and evaluated were included. Taking into account: 1. the undergraduate grade point average, (with a 60% value). 2. The evaluation of the resume (with a 30%), the used format contained indicators of scientific publications, whether or not the applicant belonged to a research group, years of medical work experience, continuing medical education, B2 or higher English certification according to the Common European Framework of Reference for Languages. 3. A structured interview (with a 10% value).

Applicants who did not perform all three evaluations were excluded from the analysis. The 2016 cohort previously analyzed by the researchers was used as a contrast group. For this study, a

survey was made to the 57 admitted doctors in the 2021 Call for Medical-Surgical Specialties (first specialties) of the University of Cartagena. The survey, designed by the faculty's post-graduate department, points to a prior self-assessment of each admitted physician and explores general and cultural aspects of the applicants.

RESULTS

For the 2021 Covid-19 call, there were 918 applicants. Using the undergraduate grade point average, the highest-scoring applicants were selected, and 127 applicants were chosen to continue the process. Finally, the number of admitted applicants to the Medical Specialty was 57 doctors. The percentage of absorption (number admitted to the number of applicants) in Medical Specialty programs was 6.2%.

Of the 57 admitted doctors to the 13 Medical Specialty programs, 26 (45.61%) were men and 31 (54.39%) were women. The average age is 28 years with a range of 23 to 40 years. The marital status was, single (n=49, 85.96%), five in free union (8.78%), and three married (5.26%). At the time of the call, 14 (25%) of them lived in Cartagena and 43 (75%) in the capital cities of other departments of Colombia: Medellín, Bogotá, Barranquilla, Santa Marta, Valledupar, Bucaramanga, Popayán, Cali, Villavicencio, among others (Table 1).

Table 1. Sociodemographic characteristics of those admitted to the call for medical-surgical specialties, period 2021-1

Gender	Number	Civil Status			Catholic Religion	Children	From Capital Cities
		Single	Married	Free Union			
Female	31 (54.4%)	29 (51%)	1 (1,7%)	2 (3,5%)	27 (47,4%)	2 (3,5%)	28 (49%)
Male	26 (45.6%)	20 (35%)	2 (3,5%)	3 (5,26%)	19 (33,33%)	3 (5,26%)	15 (26%)
Total	57 (100%)	49 (86%)	3 (5,26%)	5 (8,8%)	46 (89.7%)	5 (8,8%)	43 (75%)

Source: study data.

The number of candidates for the 2021-Covid-19 call decreased considerably compared to the 2016

call where there were 1420 applicants for an absorption percentage of 3.8%.(4).

Regarding the selection process, the average undergraduate qualification of the admitted students was 4.28 (zero to five scale) and ranged from 3.94 to 4.88. The assessment of the resume was on average 4.9 (zero to ten scale) and ranged from 3 to 7.8 points. In the interview, the average was 9.1 (zero to ten scale) and ranged from 5 to 10 points.

After the consolidation of the three evaluations, the total score ranged from 69.26, to 86.56 (scale of 0 to 100) for an average of 75.2. Table 2 shows the maximum and minimum results of, cumulative averages for undergraduate, resume evaluation and interview.

Table 2. Results of the selection process of those admitted to the medical-surgical specialties of the University of Cartagena, period 2021-1

Evaluated Aspect	Value (%)	Highest Score	Lowest Score	Average
Undergraduate grade point average	60	4.88	3.94	4.28
Resume	30	7.8	3	4,9
Interview	10	10	5	9,1
TOTAL	100	86.56	69.26	75.2

Source: study data.

Comparing the results of the 2021-Covid-19 call, with the 2016 call in which the highest total score was 72.5 (scale from zero to 100)(5), with the highest score of the call 2021-Covid-19 of 86.56, there was an increase of 14 points, however, it is not possible to make an objective comparison of the results.

In the 2021-Covid-19 call, due to the state of a health emergency, the face-to-face knowledge examination with a weight of 80% of the total evaluation was changed to the undergraduate grade point average with a value of 60%. The resume value rose from 20% to 30%, taking away value from the cognitive aspect of the written knowledge exam, in the Spanish language.

Of the 57 admitted, 26 (45.6%) came from public universities and 31 (54.4%) came from private universities. This differs from other studies(5), and what was reported by Echeverri in a study conducted by the National University of Colombia, in which, to the nature of the IES- institute of higher education for its initials in Spanish-, there is a slight trend ($r=0.184$, $p=0.0000$) to a higher probability of being admitted when coming from a public IES(6).

The highest number of admissions from public universities could be considered to the economic difficulties often faced by the country's official universities.

Regarding professional experience, those admitted had between 0 to 16 years of professional experience, with an average of 3.6 years; this is related to the average age of those admitted from the cohort and the average age at graduation in Latin America. In this call, professional experience contributed a score in the qualification of the resume.

29 (50.88%) admitted performed the Mandatory Social Service (SSO) and 28 (49.12%) were exonerated for the presentation of the same since in the country there are not enough quotas for the number of doctors who graduate each year.

Of the 57 admitted, 26 (45.61%) belonged to a research group with similar distribution in the OU and PU. Of the 57 admitted 30 (52.61%) have publications in scientific journals, and of these 19 graduated from OU and 11 from PU.

Table 3. Mandatory social service, publications, participation in research groups and additional studies of those admitted under the Specialty Program

Program	quota	Mandatory Social Service		Publications			Participation in Research Groups			Additional Studies		
				SI		NO	SI		NO	Certificate Programs	Masters/ Specialties	English
		SI	NO	OU	PU		OU	PU				
Anesthesiology	6	4	2	3	1	2	1	2	3	5	0	4
Dermatology	2	1	1	1	1	0	0	1	1	2	0	1
General surgery	6	4	2	1	0	5	0	1	5	5	0	0
Gynecology	6	3	3	1	2	3	2	1	3	4	2	2
Internal medicine	12	7	5	4	3	5	4	1	7	12	1	0
Neurosurgery	1	0	1	1	0	0	1	0	0	1	0	0
Orthopedics	4	2	2	0	1	3	1	2	1	3	0	3
Otorhinolaryngology	2	1	1	0	1	1	0	1	1	0	0	2
Pathology	2	0	2	1	0	1	0	1	1	2	0	1
Pediatrics	8	5	3	4	1	3	2	1	5	6	0	1
Psychiatry	2	0	2	1	0	1	1	0	1	1	0	0
Radiology	2	2	0	0	0	2	0	0	2	1	1	0
Urology	4	2	2	2	1	1	2	1	1	4	0	2
TOTAL	57	31	26	19	11	27	14	12	31	46	4	16

Source: study data.

Continuing medical education was also valued in the assessment of the resume. Of those admitted, 46 (80%) had completed at least one certificate program. Only 4 (7%) admitted had other studies such as specialties or master's degrees.

Regarding proficiency in the English language: Of the 57 admitted, 16 (28%) have a certificate of proficiency in English with B2 or higher level, according to the Common European Framework for Languages. Of these 16: 15 are graduates of PU and only 1 come from an OU.

DISCUSSION

In this research, it was possible to show the very significant decrease in demand for Medical Specialty in the 2021-Covid-19 cohort, with an absorption rate of 6.1% compared with the 2016 cohort of 3.8% previously published, which is consistent with the result of 2017 where 1710

applicants were enrolled with an absorption percentage of 3.21% (5).

This decrease of about 50% in demand for Medical Specialty may be more noticeable if we take into account that the conditions of the cost of tuition remained and that it was the first call for Medical Specialty in which future residents will receive economic remuneration. This is especially relevant given that Colombia was the only country in Latin America that did not pay for the work of residents in hospitals (1)

Given that of those admitted to medical residencies at the University of Cartagena, only less than 50% were graduates of said university, it could be considered that the decrease in demand shows a situation not only at the local level, but also in the Caribbean region and Colombia in general. It draws attention to the economic impact of the Covid-19 pandemic since its first year.

Another consideration for the decrease in the number of enrollers could be the change in the process of selections, from the knowledge exam to the undergraduate grade point average used in the 2021-Covid-19 cohort for the health emergency and the obligation imposed by the State to guarantee the educational service. In Colombia, there is no homogeneous system of evaluation for the medical programs, and the results of the students in the state test last year are very different among them, thus, the average grade does not guarantee the comparison of head-to-head applicants.

This is related to the progressive change in the majority gender in Medical Specialty from male to female. In this cohort of 2021-Covid-19, the majority were women, which coincides with authors such as Echeverri J. (General and academic aspects of candidates and admitted to the specialty of pediatrics of the National University of Colombia Journal of the Faculty of Medicine) and this is what has been happening in the country since 1999 (7)

In general, the data on total enrolment, first-year enrolment, and graduates shows a progressive increase in the participation of women, consolidating the trend towards the feminization of medicine, more evident when observing the first-year enrolment, where women account for more than 60% of the total(2)

The average age of those admitted was 28 years, and most of them were single, not recently graduated doctors, but with years of professional experience. This coincides with what the authors found in cohort studies from 2016 and 2017. Echeverry-Raad J. also reported that the cohorts admitted between 2001-2010 are not newly graduated doctors and are older than the average age of medical graduation in Latin America 23 to 26 years(6)

Most of those admitted physicians were single, which coincides with what the authors found in the

2016 and 2017 cohorts, which facilitates mobility between cities and meets the flexibility of scenarios that demand the training of specialists, especially in the University of Cartagena Medical Specialty programs, that are proposed in different high-quality scenarios in Colombia or internationally.

The majority of those admitted lived in capital cities before the call, this coincides with national studies that show the preference of doctors for living in capital cities where they have access to better resources (8)

CONCLUSIONS

The Covid-19 pandemic-imposed changes in the way in which evaluation components were carried out and weighted in the selection of Medical Specialty at the University of Cartagena. The transitional process of selecting residents in the 2021-Covid-19 call changed the face-to-face knowledge exam, for the undergraduate grade point average and valued the assessment of the resume, which included work experience, and scientific and English language skills.

In this call, 2021-Covid-19, there were higher total scores. Half of those admitted performed mandatory social service and had publications even without being linked to a research group and without the international B2 English level required by the University of Cartagena. The trend persisted: a majority of women, aged over 28, which could affect the high score by experience, single, childless, Catholics, and city capitalists from private universities.

The most noticeable indicator was the increase in the percentage of absorption of applicants by about 50% with a significant decrease in applicants for a stable number of quotas. This work does not allow us to explain it, although the context of emergency health and economics, the increase of admissions to private universities and depending

on the undergraduate grade point average, rather than on an examination, could be plausible explanations.

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