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## Brief Report

### Speciality training in rheumatology: Promotion, repetition and dropout rates in the city of Buenos Aires<sup>☆</sup>



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## ABSTRACT

**Objectives:** To evaluate the trajectory of students enrolled in the specialty training in rheumatology.

**Methods:** Retrospective analysis (2009–2016). Promotion, repetition, and dropout rates were determined. Analysis was performed to define variables associated with academic success.

**Results:** Out of 119 students, the actual promotion rate was 66.4%, 11.8% failed an exam (at least) and completed the course after the stipulated time, and the dropout rate was 7.6%.

Among residents, the promotion rate was 82.5% vs. 48.2% among the rest ( $p < 0.001$ ), the lagging students' repetition rate was 3.2% vs. 21.4% among the rest ( $p = 0.005$ ), and the dropout rate was 3.2% vs. 12.5% among the rest ( $p = 0.06$ ). A higher average score in medical school increased the chances of success in the postgraduate programme (OR 3.41 CI 95% 2.0–6.4;  $p < 0.001$ ).

**Conclusions:** The residency was associated with higher rates of academic success in postgraduate studies. The average score in medical school can help identify students at risk of failure.

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## Tasas de promoción, repitencia y abandono en la Carrera de Especialistas en Reumatología en la Ciudad de Buenos Aires

### RESUMEN

**Objetivos:** Evaluar la trayectoria de los alumnos de la Carrera de Especialistas en Reumatología y determinar factores asociados al resultado en el posgrado.

**Métodos:** Análisis retrospectivo (2009–2016). Se determinaron tasas de promoción, repitencia y abandono. Se realizaron análisis multivariados para determinar variables asociadas al éxito académico.

**Resultados:** Sobre 119 alumnos, la promoción efectiva fue 66.4%, la repitencia sin retraso fue 14.3%, la repitencia con retraso fue 11.8% y el abandono fue 7.6%.

### Palabras clave:

Entrenamiento en reumatología

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La promoción efectiva de la residencia fue 82.5% vs. 48.2% en el resto ( $p < 0.001$ ), la repitencia con retraso fue 3.2% vs. 21.4% en el resto ( $p = 0.005$ ) y el abandono fue 3.2% vs. 12.5% en el resto ( $p = 0.06$ ). El éxito en el posgrado fue mayor a mejor promedio en la carrera de Medicina (OR 3.41 IC95% 2.0–6.4;  $p < 0.001$ ).

**Conclusiones:** La residencia se asoció a mayor éxito académico en el posgrado. El puntaje promedio en la cursada de Medicina puede ayudar a identificar a los alumnos en riesgo de fallar.

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## Introduction

Residency is a system of postgraduate education that includes a monthly stipend and is set up in the form of in-service training. Applicants are selected by means of a competitive examination and/or additional requirements defined by each jurisdiction.<sup>1</sup>

There are other postgraduate training offers, including specialisation courses and attendance courses, which are generally honorary and financed by the interested parties. These may be full-time or part-time.<sup>2</sup>

In the City of Buenos Aires area, the Argentine Society of Rheumatology (SAR in its Spanish acronym) offers a part-time theoretical course of 3 years duration. This course is completed in parallel with the residencies which come under the government of the City of Buenos Aires (GCBA in its Spanish acronym), postgraduate courses run by the University of Buenos Aires and residencies/fellowships in private institutions within the city and its surrounding areas. All students are required to take multiple-choice examinations each year and a final written (multiple-choice) and oral examination at the end of the course. Those who pass this course can obtain a diploma issued by the SAR which enables them to advertise as rheumatologists and is recognised by the National Ministry of Health.<sup>3</sup>

Micelli et al.<sup>4</sup> have observed that there is a disparity in postgraduate training in rheumatology in Argentina.

EULAR recommends that all Rheumatology training courses should incorporate a predefined process to identify and support trainees at risk of failing.<sup>5</sup>

Therefore, this study was conducted with the aim of determining the academic success rate on the Rheumatology Specialists' degree course (CER in its Spanish acronym) of the group of students who sat for the GCBA residency exam, and to identify factors that could explain their progress over the course of these postgraduate studies.

## Materials and methods

Two authors (VLC and GS) analysed the databases for the order of merit obtained in the GCBA rheumatology residency exams between 2009 and 2016. The order of merit granted with the final grade in the residency exams is official information published annually by the GCBA. A total of 220 applicants were identified, of which (a) one group obtained the top places and was awarded the GCBA residency; (b) other students were not awarded the GCBA residency but were admitted to the CER course through other modalities, and (c) the rest dropped out.

The progress of the students in groups A and B in the SAR's CER degree course was analysed retrospectively through the records provided by the SAR's Education Unit.

The trainees studied at different centres, but shared the same theoretical training course and were assessed at the SAR by independent academic staff. There were no exclusion criteria. All trainees were monitored until they dropped out or successfully completed their course.

In addition, the authors compiled data on the students' mode of study.

Academic results were described as follows: the effective graduation rate (defined as the percentage of students who enrolled and completed the course without resits within the 3 following academic years); the resit rate without repeating a year (defined as the percentage of students who failed an exam but completed the course within the stipulated time); the resit rate, not repeating a year (defined as the percentage of students who failed at least one exam and matriculated as students repeating one year or completing the year outside the stipulated time); and lastly the dropout rate (defined as the percentage of students who enrolled and did not complete the course).<sup>6</sup>

## Statistical analysis

A descriptive analysis was undertaken for all variables. The Student's t-test was used to compare mean percentages and nominal variables were analysed using the chi-square or Fisher's test, as appropriate. Univariate and multivariate analyses were run: in the multivariate analysis, the outcome variable was considered to be academic success on the postgraduate course, defined as students who graduated or resat examinations without repeating the year. A value of  $p < 0.05$  was considered statistically significant. Epi Info version 3.5.4. and R software were used for statistical analysis.

## Ethical considerations

Since the data was retrospective, informed consent was not obtained. The study was evaluated by the Bioethics Committee and registered under number 01/2020.

## Results

A total of 119 students were analysed, of whom 85 (71.4%) were female. Sixty-three (52.9%) students completed their residency at GCBA (group A) while 56 (47.1%) students completed their Rheumatology training through other modalities (group B).

Group A included only full-time students with monthly remuneration who studied at the Rehabilitation Institute and at the Rivadavia, Ramos Mejía and Tornú hospitals.

Group B included: (1) 30 (54%) part-time and unpaid students who studied at the four institutions mentioned above; (2) plus 17 (30%) part-time and unpaid students who studied at other public hospitals or private institutions in the City of Buenos Aires; (3) plus 7 students (12%) who studied at university or private institutions as full-time residents or fellows, and (4) 2 other students (4%) who studied at other university institutions in Buenos Aires and whose mode of study could not be determined.

Overall, 79 (66.4%) students graduated, 17 (14.3%) completed the course without repeating, 14 (11.8%) completed the course repeating the year and 9 (7.5%) dropped out. Students who finished later finally passed between 6 months and 3 years later than expected.

There were 33 foreign students (28% of the total); the 5 foreign students who were admitted to the residency course had a 100% successful graduation rate.

Table 1 shows the characteristics and progress of the students analysed.

**Table 1**

Characteristics of the students and progress on the Rheumatology Specialists' Degree course, according to whether they did their residency on the Government of the City of Buenos Aires (GCBA) course or not.

Variable	Did residency at GCBA (n = 63)	Did not do residency at GCBA (n = 56)	P
Sex			
Female	45 (71.4%)	40 (71.4%)	1.000
Non-Spanish			
Yes	5 (7.94%)	28 (50.0%)	<.001
Mean Medical degree course			
Mean (SD)	8.52 (0.69)	7.12 (1.10)	<.001
GCBA Residency Exam Score <sup>a</sup>			
Median [Q1-Q3] <sup>b</sup>	33.55 [31.0–35.5]	23.0 [20.3–28.3]	<.001
Effective graduation			
Yes	52 (82.5%)	27 (48.2%)	<.001
Resits without repeating year			
Yes	7 (11.1%)	10 (17.9%)	.4
Repeated year			
Yes	2 (3.2%)	12 (21.4%)	.006
Dropped out			
Yes	2 (3.2%)	7 (12.5%)	.06

<sup>a</sup> The maximum score on the residency test was 50 points.

<sup>b</sup> First quartile (Q1) and third quartile (Q3).

**Table 2**

Univariate analysis of academic success rates on the rheumatology specialist degree course.

Variable	Success: yes (n = 96)	Success: no (n = 23)	p
Sex			
F	67 (69.8%)	18 (78.3%)	.582
Non-Argentinian			
Yes	19 (19.8%)	14 (60.9%)	<.001
Mean on Medical Degree Course			
Mean (SD)	8.14 (0.99)	6.69 (1.02)	<.001
Grade in GCBA Residency Exam <sup>a</sup>			
Median [Q1-Q3] <sup>b</sup>	31.5 [27.9–34.5]	21.5 [19.3–25.3]	<.001
Residency at GCBA			
Yes	59 (61.5%)	4 (17.4%)	<.001
Failed midterm exams in the first year			
Yes	8 (8.33%)	10 (43.5%)	<.001

<sup>a</sup> The maximum score on the residency test was 50 points.

<sup>b</sup> First quartile (Q1) and third quartile (Q3).

In the univariate analysis it was observed that, except for the variable gender, all variables were statistically significantly associated with academic success (Table 2). In the multivariate analysis it was observed that the probability of success was more than 3 times higher when the degree course average increased by one point (OR: 3.16; 95% CI: 1.87–5.85;  $p < 0.001$ ).

Students who did their residency at GCBA performed better than the subgroup of students who studied part-time and without pay at those same four institutions: the success rate, adjusted for the average in the medical degree course, was 93.65% for GCBA residents vs 60% in the other group (OR: 8.6; CI95%: 5.5–13.5;  $p < 0.001$ ).

## Discussion

In this paper, it was observed that students on the Rheumatology residency showed a higher academic success rate, with the average score at medical school as a key factor to highlight.

Harmonising the training of rheumatologists is essential to ensure the same standards of care for the entire population.<sup>7,8</sup> As has been seen, part-time and unpaid students had a lower academic success rate.

According to official data, in Argentina, the dropout rate for all national residencies was 4% for the period 2014–2015.<sup>9</sup> Rieb-

schleger et al.<sup>10</sup> reported a 16% dropout rate in US paediatric rheumatology fellows and identified male and foreign graduates as being at the highest risk of dropping out. In this study, the dropout rate in rheumatology residency was slightly lower than the national rate; the overall dropout rate was 7.6%, no gender differences were observed, and only foreigners who did not complete a residency at GCBA dropped out.

Lohr et al.<sup>11</sup> determined retrospectively in the United States that a web-based exam was the strongest predictor of students' degree success as measured by scores on the Rheumatology certification exam. In the absence of a similar tool that cross-screens all rheumatologists in training, our data may provide guidance to academic units training rheumatologists in this country.

This study had the following limitations: the data correspond to students who took the Rheumatology residency exam at GCBA, while recognising that there are other training modalities.<sup>4</sup>

There is no data on the assessment of students' skills and competencies,<sup>5,7,12,13</sup> as this task was undertaken by each academic unit.

However, according to a study published in 2015,<sup>14</sup> there were around 850 rheumatologists in Argentina; in this study, the post-graduate progress of 119 students who entered the course between 2009 and 2016 was evaluated independently.

In conclusion: overall, the effective graduation rate was 66.4%, the resit rate without repeating a year was 14.3%; the resit rate repeating a year was 11.8% and the dropout rate was 7.6%. Students who took the GCBA residency course performed better than the rest of the students in all the items evaluated. The average score obtained during the medical degree course may help teachers to detect students at risk of failing early on.

## Ethical considerations

As the data is retrospective, informed consent was not obtained. The study was evaluated by the Bioethics Committee and registered under number 01/2020.

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## Authorship

Conceptualisation and methodology: VLC, KR, AB, GPE and GS.  
Research data: VLC, GCa, CG, AS, FR, GCi, MR, SP, MAM, JMB, MCDLV, GS and EMK.

Project curation, validation, management and supervision: all authors.

Formal analysis: KR, AB, GPE and GS.

Original draft preparation, viewing, drafting, writing, revising and editing: All authors wrote the article, approved the final manuscript as submitted, and agree to be responsible for all aspects of the work.

## Conflict of interest

The authors declare that they have no conflicts of interest.

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