

Expectations of medical students and pediatric residents in their professional development

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ABSTRACT

Introduction. The number of vacancies for medical residencies in Argentina, especially in pediatrics, has increased. Knowing some aspects of medical students (MS) and postgraduate students (PS) in pediatrics could explain this phenomenon.

Objectives. Describe the motivational profile, the intention to migrate, and the perception of primary care in MS and PS in pediatrics.

Population and methods. A cross-sectional study was conducted in a pediatric hospital in the City of Buenos Aires, on a self-administered survey between October 2023 and September 2024.

Results. Eighty-two MSs and 48 PSs participated; 96.9% presented high intrinsic motivation, 29.2% had high extrinsic motivation, 17% intended to migrate, and 60.8% had a positive perception of primary health care.

Conclusions. The majority showed high intrinsic motivation. The intention to migrate was low. More than half perceived primary health care positively.

Keywords: primary health care; medical education; human migration; motivation; pediatrics.

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INTRODUCTION

The aging of the population and increased survival in patients with chronic diseases have kept the demand for physicians at high levels. In recent decades, the shortage of healthcare professionals has been evident worldwide, making training new physicians a priority.¹

In Argentina, the number of medical students remains stable, but not those who choose to train in a residency.² There are more and more unfilled positions in core specialties such as pediatrics and clinical or critical specialties such as intensive care and neonatology. In 2024, 452 vacancies were available for pediatric residency training; however, 388 physicians applied.³

Different studies have addressed the factors that intervene in the decisions of health personnel regarding their training and future place of work. The relevance of personal characteristics,⁴ academic and motivational profiles,⁵ and working conditions and life expectations are described.^{6,7}

Motivation is essential in choosing a medical career and its subsequent performance.⁸ It can be intrinsic, related to altruism and personal growth, or extrinsic, associated with external factors such as prestige and remuneration.^{9,10}

In Argentina, as in other developing countries, a percentage of trained physicians emigrate seeking better income and working conditions, which may aggravate the country's shortage of health professionals.¹¹

We did not find studies in Argentina that jointly analyze physicians' motivation, academic profile, professional expectations, and perception of primary health care (PHC).

We aimed to characterize these aspects in MSs and PSs, describe their motivations, estimate the intention to migrate, assess perceptions about PHC, and explore factors that influence these variables. This knowledge can serve as a basis for developing long-term strategies to address and improve the situation.

POPULATION AND METHODS

An analytical cross-sectional study was conducted in a pediatric hospital in the City of Buenos Aires during the period from October 2023 to September 2024. We included MSs who studied Pediatrics at the hospital site and PSs of the Pediatric Specialist Medical Degree at the University of Buenos Aires (UBA) who are also pediatric residents from the 2nd to the 4th year. Those who did not complete the entire survey were excluded.

Study procedure and data collection

The study population received a self-administered survey in person (*Supplementary Material*). Each participant completed the survey only once.

The anonymous, self-administered survey contained demographic data (gender, age, place of birth, residence, marital status, and religion) and four sections: 1) motivation for career choice; 2) academic profile and career expectations; 3) migration; and 4) perceptions about PHC.¹²

A pilot test with 10 participants was conducted, and the survey was adapted. The survey obtained a Cronbach's alpha of 0.76, demonstrating adequate internal consistency.

Motivation for career choice

The section corresponding to motivation for career choice was evaluated using the *Motivations to Study Medicine Scale* validated in Spanish.¹³ The survey contains 12 items grouped into two domains: intrinsic motivation (IM) and extrinsic motivation (EM). IM arises from a personal interest in helping others and wanting personal growth. EM depends on external factors such as the prestige associated with the profession and the remuneration for the work performed.

The degree of both motivations was dichotomized into high or low to facilitate analysis.

The multivariate logistic regression analysis was adjusted with the variables for IM: income, age, nationality, and age when considering studying medicine and research work. For EM: age, nationality, age when thinking about studying medicine, undergraduate/postgraduate student, gender, and research work.

Academic profile and professional expectations

This section consists of variables related to performance in languages other than English, conference attendance, and professional satisfaction.

Concerning professional expectations, we asked about plans ten years after completing medical training: plans for a residency (if MS), master's degree, doctorate, expected salary in dollars ten years from now, and ideal place of work.

Intention to migrate

Migration was assessed by asking, "Where do you expect to work in 10 years?" (Argentina, foreigner, undecided).

Foreigners were asked whether they planned to return to their country and for how long. For the analysis, multinomial logistic regressions were used, adjusted for nationality, income, age, gender, MS/PSA, and EM.¹⁴

Perceptions of primary health care

PHC is the first level of medical care provided in rural or urban health facilities.

For the section corresponding to perceptions of PHC, a five-point Likert-type scale with 11 items was used, validated in Spanish.¹⁵ It presents three domains: 1) perceptions about the physician in PHC; 2) health care work; and 3) economic consequences.

The domains were divided into “good” and “bad” perceptions. For the multivariate analysis, logistic regression was performed, adjusted for gender, age when studying medicine, MS/PS, IM/EM, and age.

Sampling and sample size calculation

Due to the lack of precedents in our setting, we used the work of Mayta-Tristán P et al. to calculate the sample size.¹⁴ Estimating a prevalence of intention to migrate of $38.3\% \pm 5$, with a confidence level of 95% and a population of approximately 200 MS and PS, the sample size was 129 subjects.

Statistical considerations

According to normality, continuous variables were described with mean and standard deviation or median and interquartile range (Kolmogorov-Smirnov test). Categorical variables

were described with proportions and a 95% confidence interval. Data was analyzed in SPSS™ Version 26. Differences in proportions were evaluated with the chi-square test, and associations were analyzed with logistic regression.

Ethical considerations and informed consent

The hospital's Research Ethics Committee (registration N.º 10571 on 07-18-2023) approved this study. The participants were requested to provide informed consent.

RESULTS

One hundred thirty participants were included; none refused to participate or were excluded. *Table 1* shows the general characteristics of the population.

The majority (96.9%) showed a high degree of IM, while 29.2% had a high degree of EM. Multivariate analysis showed an association between age when planning to study medicine and higher IM (OR 0.7; 95%CI 0.5-0.9; $p=0.02$) and between being male and high EM (OR 2.6; 95%CI 1-7; $p=0.05$).

Eighty-six percent of the respondents reported being satisfied with the choice to study and practice medicine, although most were dissatisfied with their income. *Table 2* represents the section on future expectations.

The prevalence of intention to migrate was 17% (95% CI 12.4-22.8). Seventy-one percent of foreigners planned to leave in ten years. Those who planned to stay in Argentina projected incomes \$1,200 lower than those who planned to

TABLE 1. Sociodemographic characteristics of the population

Variable	Medical student (N)	Postgraduate student (N)	p
Gender (male/female)	11/37	15/67	0.5*
Age (years)	25 (24-26) [#]	29 (28-30) [#]	
Marital status (single/married)	46/2	73/9	0.2*
Argentine (yes/no)	35/12	74/8	0.01*
Children (yes/no)	4/44	1/81	0.4*
University undergraduate degree (public/private funding)	118	70/12	-
Medical relative (yes/no)	20/28	37/45	0.7*
Higher education father ^{**} (yes/no)	26/22	46/36	0.8*
Higher education mother ^{**} (yes/no)	30/18	44/38	0.3*

* A chi-square test was performed to evaluate statistical association.

[#] Median and interquartile range.

^{**} Higher education was defined as university level or higher.

N: number.

emigrate (95%CI -2288.43 to -115.32; $p < 0.02$) and \$1,613 less than the undecided (95%CI -540 to -2686; $p = 0.02$). In the multivariate analysis, foreigners were 7 times more likely to choose to go abroad (OR 7.84; 95%CI 1.90-32.40; $p = 0.004$) (Table 3).

In PHC, 97% had a positive perception of the worker, 60% evaluated the care work positively, and 65% had a negative perception of the income. The likelihood of positively evaluating care work (OR 1.197; 95%CI 1.010-1.418; $p = 0.038$) increased yearly. No significant associations were found in other domains.

DISCUSSION

In this study, the great majority of the respondents presented a high level of IM, as described by Flores Meléndez et al.

Promoting IM during undergraduate training is essential since students with more altruistic motivation can achieve greater satisfaction and professional success.¹⁷

Strategies such as community-based learning and mentoring programs may be key to consolidating this trend.^{18,19} However, EM also plays an important role, complementing IM and enhancing learning.²⁰

TABLE 2. Respondents' future career intentions and expectations

Variable	N (%)
Do you want to do a residency? *	
Yes	44 (91.7)
I do not know	4 (8.3)
What specialization? *	
Pediatrics	5 (11.4)
Clinical specialties	17 (38.6)
Surgical specialties	12 (27.2)
Psychiatry	3 (6.8)
Ophthalmology	3 (6.8)
Anesthesiology	1 (2.4)
I do not know	3 (6.8)
Where will you do your residency? *	
In Argentina	34 (77.3)
Abroad	10 (22.7)
Will you be pursuing a master's degree? N = 130 (%)	
Yes	42 (32)
No	16 (12)
I have not decided yet	72 (55)
Will you pursue a doctorate? N = 130 (%)	
No	28 (22)
I have not decided yet	88 (68) t
Yes	14 (11)
Will you do any rotations abroad? N = 130 (%)	
Yes	90 (69)
No	40 (31)
Ten years after finishing medical school, are you planning to work at (how many jobs at a time)? N = 130 (%)	
One job	36 (28)
Two jobs	84 (65)
Three jobs	10 (8)
Where do you expect to be working in ten years? N = 130 (%)	
High complexity hospital/institute	103 (79.2)
Primary health care	20 (15.4)
Non-governmental or governmental organization	2 (1.5)

*Answered only by medical students. N: number.

TABLE 3. Multivariate analysis of intention to migrate#

Variable	OR	95%CI
Gender (male)	0.7	(0.2 - 2.4)
Age	0.9	(0.7 - 1.1)
Foreigner	7.8	(1.9 - 32.4)*
Undergraduate student	1.5	(0.4 - 5.7)
Hospital rotations abroad	0.2	(0.03 - 1.5)
Ten-year income	1	(1 - 1.02)
High extrinsic motivation	0.7	(0.2 - 2)

Multinomial logistic regression, reference stay in Argentina, in the category go abroad.

* p-value <0.05.

In our study, the 10-year prevalence of intention to migrate in the whole sample was 17%, a lower value than that reported in other studies. In Romania, the migration rate was 42.2%,²¹ and in Tunisia, it reached 68%.²² These differences may be related to each region's socio-political and economic particularities.

Mayta-Tristán identified that those who wished to migrate expected to earn \$2,000 more than those who preferred to stay.¹⁴ In our bivariate analysis, participants who planned to migrate estimated earnings above \$1,200; however, this difference was not statistically significant in the multivariate analysis. This could indicate that other factors, such as career development or stability, are prioritized in the decision to migrate, which should be further investigated in future studies.

Concerning vacancies in the residency systems, improving working conditions such as limiting on-call duty, ensuring rest, adequate pay, lactation, daycare, facilitating leave, and promoting recreation could attract and retain new physicians.²³

Our study showed that the majority positively perceived PHC workers and healthcare tasks. When asked, the respondents indicated that they knew how much a physician earned in Argentina, and none of them expressed satisfaction with those salaries.

A study in our country surveyed second-year medical students on factors that predispose them to work in disadvantaged areas.²⁴ One out of five wanted to work in PHC, similar to our study, where it was one out of six. Factors such as choosing pediatrics, being older, being female, and having more MI influence this decision. In our study, older age was related to a better perception of PHC work.

Only 15% of our sample expressed the intention to work in PHC in ten years, similar to

what Mamani et al. found in Peru.²⁵

One limitation of the study was that it was only conducted with students from the UBA, so the results do not necessarily reflect the intentions of students from other provinces, who may have different working conditions and professional expectations.

Another limitation of this study is that the sample size estimation was based on migrants, which may affect the validity of the results for such a heterogeneous population as MS and PS.

On the other hand, although MSs and PSs may appear to be different populations, they are included because both are in the advanced stages of their formation and close to making key decisions about their professional future. Although pediatricians can work in PHC, other specialties, such as family medicine, have a greater affinity for this field. Our objective was not to compare these populations but to describe them together.

This study provides insight into students' motivations, aspirations, and perceptions of their future careers. Research with larger and more nationally representative samples could address the problems identified here and contribute to designing effective strategies to retain graduates in the Argentine health system.

CONCLUSION

Most respondents showed a high degree of IM, which was associated with the age at which they planned to study medicine. Being male was associated with higher EM. Despite low salary perceptions, most were satisfied with their choice to study and practice medicine. About 20% of the participants have intention to migrate in the next ten years, and foreigners are significantly more likely to migrate after completing their studies. The perception of PHC work was positive, although income was perceived negatively. ■

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