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Assessment of the Graduates of the Medical Career on the Acquisition of Professional Competencies during their Training

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Abstract

Introduction: Competence-based medical education emerges as an effective pedagogical strategy for solving problems and making decisions about the future professional. In our country, resolution 1314/07 of the Ministry of Education defines basic professional skills to acquire during the career. Students' assessment of what they have learned is a source of information to evaluate the process, which is crossed by multiple individual and contextual factors that affect their training. The objective of this work is to analyze the assessment of graduates about their training process and the acquisition of basic skills, and their relationship with certain individual and contextual characteristics.

Methods: The assessment of 342 graduates of the medical career of the Faculty of Medical Sciences of the UNLP was analyzed. Information was collected on the following variables: Socio-demographic characteristics, academic trajectory, work history and assessment of the training received for each of the competencies defined by Ministry of Education.

Results: Competencies valued as not fully acquired according to general practitioner profile. The comparative analysis showed a significant relationship between the assessment of competencies not fully acquired and students that work during their college career or according to the profession of their parents.

Conclusion: results obtained will allow, to support the review of medical competencies demanded by the National Ministry of Education and to propose alternatives to improve the training process of those most vulnerable students.

Keywords: Assessment; Competencies; Graduates; Perception

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Introduction

In recent years, university education policies have focused on the training of professionals capable of working and making team decisions, in order to solve problems successfully and efficiently in a future work environment [1-2]. In this framework, Competency-based education [3-5] emerges as a response to this new educational scenario, with a more comprehensive approach to university education in the last 20 years [6-9].

The medical career does not differ to this situation. The training of a medical doctor is a complex task that involves mastery of biomedical, socio-medical and humanistic sciences applied to the clinic. The importance of applying this educational model rests fundamentally in the fact that the graduate manages to develop a capacity to respond to the demands, integrating practical and cognitive skills.

These complex skills can only be evaluated in the action, since the result of the training should be the recognized competence of the students during and at the end of the career and not only the knowledge acquired and the effort in the activities of training.

In 2007, the National Ministry of Education approved by the decree/resolution 1314/07 [10] the curriculum of the medical career for universities in the country. The document prepared by the Association of Medical Sciences Faculties of the Argentine, details the basic curricular contents, minimum time load and intensity criteria of the practical training for medical careers, defining 40

competences or activities to be achieved.

The assessment of what they the students have learned and their experiences during the training becomes a source of information to evaluate the learning process and results obtained [11-17].

The results of the training process are traversed by individual factors and the context that influence them. In fact, the conceptions about learning, as well as the strategies themselves arise from the influences and family, social, and school experiences of the subjects. Variables such as age, school performance and previous learning experiences, family and group expectations, and personality characteristics, form in the subject a general attitude towards study and learning [18-19].

Several scientific papers refer to the assessment of students about their training processes [11-15]. In our country, there are few reports about the assessment of medical professional competencies in general, and more specifically those determined by decree/resolution 1314/07 [16-17].

As a result of this analysis, the present work proposes to analyze the assessment of graduates of the medical career on their training process in relation to the acquisition of basic professional skills defined in Argentinian National Ministry of Education (Resolution No. 1314/07), and their relationship with certain characteristics of the student and his social-family environment.

Material and Methods

The study evaluated 342 graduates of the Faculty of Medical Sciences of the UNLP who completed their studies during the years 2016 and 2017. Information was collected on: sociodemographic characteristics, academic background, work history and assessment on the training received for each of the competencies defined by Ministry of Education.

Graduates answered a structured questionnaire with the 40 professional competences to be assessed. Data were analyzed using the SPSS program (Inc, Chicago, IL, US). The descriptive analysis was summarized by means ± SD for quantitative variables and % for qualitative variables.

The sample of observations was divided into pages - from the median - of the percentages obtained on the assessment of graduates of the degree of acquisition for each of the competences, allowing the identification of those that were most frequently assessed as non-fully acquired competencies (upper quartile) and those valued as well acquired (lower quartile).

For the explanatory analysis, the frequency of characteristics such as: Academic performance, origin, stable work during the career, teaching activity, research or extension during the race, presence of a father or mother with professional activity was compared between upper and lower quartile health related. The t-student was used for the difference between averages and Chi^2 for the analysis of differences between percentages. Significance was considered when $p<0.05$.

Results

As shown in Table 1, all the sociodemographic characteristics of the graduates were register. According to this data, only 17% lived as a couple at the time of the study. Although 2/3 reported having worked during the career, only 45.6% characterized this work as stable and permanent.

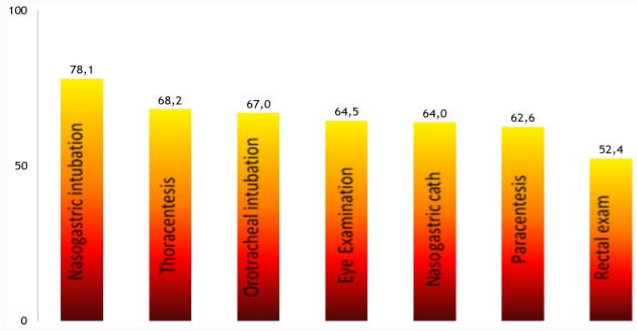

Figure 1: Percentage of graduates who valued competences as "Not Completely Acquired".

Table 1: Socio-demographic characteristics of graduates.

Features	Average ± SD	%
Age	29 ± 4.4	
Female Gender		68.4
City of Origin		
La Plata (where university headquarters is located)		36.8
Other cities of Buenos Aires State		52.6
Work during the Career		66.6
Progenitors with University Studies		
Mother		24.5
Father		36.4
Related with health disciplines (mother or father)		24.5

In terms of academic performance, graduates have an average of 8.9 ± 2.2 years of career duration, 6.7 ± 0.9 on average with deferrals and 3.9 ± 2.9 failed subjects. Only 15.6% have no history of deferrals.

Among all students, 45.6% carried out teaching activities during the career; 36.8% performed community activities, and only 8.7% had focused on research activities.

Assessment on the acquisition of professional skills

The descriptive analysis shows that the average of competencies perceived as not fully acquired was 23.7% ± 15.1. Only 3% of the graduates consider that all the competences were acquired in an appropriate manner.

Figure 1 describes the competences that were valued as not fully acquired by more than 50% of the graduates.

The competences valued as not fully acquired by about 40% of the graduates were: Abilities to report diseases of mandatory notification (44.4%/100%); immobilization and transfer of patients (41.6%/100%); screening for visual acuity (39.2%/100%); and bladder catheterization (39.4%/100%); all of them competences of low complexity and therefore accessible to practice during the teaching process.

The graduates mentioned by graduates that they were able to acquire the following competence without problems:

- Identify risk groups in the community
- Elaborate Medical Records
- Interpret and rank the data obtained to reformulate the diagnostic hypotheses
- Measure weight and height of infants, children and adults
- Perform vital signs evaluation

The comparative analysis between the upper and lower quartile of the percentages obtained on the assessment of graduates of the competences perceived as not fully acquired showed that there were no significant differences between both quartiles with respect to the academic average with deferrals (6.1 *vs.* 6.7); the home town of the graduate (56% outside La Plata -capital city of Buenos Aires and University headquarters - in upper and lower quartiles); and background of teaching activities, research or community activities during the career (68% *vs.* 69% in upper and lower quartiles respectively).

On the contrary, significant differences were observed in relation to those who worked permanently during the career: 42% of the graduates belonging to the group that reported the highest percentages in relation to the competences not fully acquired reported a formal job, in comparison with 32% of graduates belonging to the group that reported the lowest percentages (upper quartile *vs.* lower quartile, p=0.03).

Noteworthy, the presence of a parent with profession related to health system showed significant differences: 32% of the graduates who reported the highest percentage values about competencies not fully acquired had a medical mother or father and/or nurse, compared with 19% of graduates who reported the lowest percentages (upper quartile *vs.* lower quartile, p=0.02).

Discussion

The results reported by other authors on the assessment of graduates about the training process in general [11-15,19] is ratified in the present work when analyzing the results obtained on each of the competences. Although other authors reported the assessment of students and graduates on several professional competencies; in this paper refers to the ability to apply the theoretical knowledge acquired and not specifically to the competencies mentioned in the ministerial resolution. The descriptive analysis of the quartiles allows us to identify those competences that are not important for a general practitioner profile like lumbar puncture or thoracentesis, that might be acquire in a postgraduate training. On the other hand, results obtained alert us about some competences that should necessarily be acquired by a general practitioner and that are valued as not fully acquired, such as fundus or nasogastric intubation, common in professional practice.

It is interesting to note that within the competences that obtained a low percentage of people who did not fully acquired them (<5%); such as interpreting and ranking the data obtained to reformulate the diagnostic hypotheses and identify risk groups in the community; they are expression of complex learning, related to the formation of critical thinking and professional criteria.

Finally, the significant relationship between have a formal job during the career and having a parent that is a health professional worker suggests the existence of individual factors that are associated with the learning process. However, it should be noted that factors related to the teaching process have not been evaluated, so that many questions remain in this regard that must be evaluated in detail in order to bring new conclusions to the complex teaching-learning process.

In this sense, we report the results of the present investigation with the intention of providing information to the teachers about the medical competences stipulated in Argentina and to propose other alternatives in order to improve teaching conditions in university classrooms, trying to focus on those students who belong to more vulnerable groups.

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