



ORIGINALES

Academic trajectories of nursing students at the National University of Tucumán through the analysis of academic performance indicators

Trayectorias académicas de estudiantes de la Licenciatura en Enfermería de la Universidad Nacional de Tucumán a través del análisis de indicadores de rendimiento académico

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ABSTRACT:

Introduction: In Argentina, nursing education shows progress, but it still does not improve the quantitative deficit of the group, nor the distribution by regions. The analysis of academic trajectories makes it possible to identify the path taken by the student in the study plan and to plan remedial measures for those aspects considered deficient.

Objective: To analyze the academic trajectories of students of the bachelor's degree in nursing at the National University of Tucumán, through the analysis of academic performance indicators in the period 2015-2019.

Methodes: Descriptive, retrospective, and quantitative study. The population was constituted by the total number of students of the bachelor's degree in nursing in the period 2015-2019.

Results: The average GPA of the career is 6.35 out of 10 and the average actual duration of the career is 13.35 years, exceeding the expected duration of 5 years. A failure rate was found in 57% of the subjects of the first cycle and 38% of the second cycle.

Conclusions: The academic performance of nursing students has decreased in the last decades, which can be seen in the decrease of the grade point average and the increase of the actual duration of the course. These results show the existing decoupling between the academic trajectories of nursing students in relation to those expected by the system.

Keywords: Nursing Students, Nursing, Academic performance, Academic Success.

RESUMEN:

Introducción: En Argentina la formación en enfermería muestra avances, pero aún no mejora el déficit cuantitativo del colectivo, ni la distribución por regiones. El análisis de las trayectorias académicas permite identificar el recorrido realizado por el estudiante en el plan de estudios y planificar instancias remediales para los aspectos que se consideren deficitarios.

Objetivo: Analizar las trayectorias académicas de los estudiantes de la Licenciatura en Enfermería de la Universidad Nacional de Tucumán a través del análisis de indicadores de rendimiento académico en el periodo 2015-2019.

Métodos: Estudio descriptivo, retrospectivo y cuantitativo. La población estuvo constituida por el total de estudiantes de la carrera Licenciatura en Enfermería en el período 2015-2019.

Resultados: El promedio de calificaciones de la carrera es 6,35 de 10 y el promedio de duración real de la misma es de 13,35 años superando los 5 años de duración esperada. Se halló un índice de desaprobación y aplazos en el 57% de las materias del primer ciclo y el 38% del segundo.

Conclusión: El rendimiento académico de las/os estudiantes de enfermería disminuyó en las últimas décadas, y esto se visibiliza en el descenso de los promedios de calificaciones y el incremento en la duración real de la carrera. Estos resultados muestran el desacople existente entre las trayectorias académicas de las/os estudiantes de enfermería, en relación con las esperadas por el sistema.

Palabras clave: Estudiantes de Enfermería, Enfermería, Rendimiento académico, Éxito académico.

INTRODUCTION

Over the last four decades, there has been an intense, continuous, and unprecedented massification of higher education in the world, from 28.6 million students in 1970 to 235 million in 2020⁽¹⁾, and it is expected that this massification will continue until 2030.⁽²⁾ In this process of massification of higher education at the global level, there are differences in access between countries: in middle and high-income countries, access was greater than in low-income countries; consequently, the marked international and intraregional inequality in access to higher education persists⁽³⁾.

Although access to higher education has been opened and increased for historically excluded social strata, there are still systematic inequalities in the trajectories and performance of students according to their social strata, with the participation and performance of students from lower socioeconomic levels being lower than the rest⁽⁴⁾.

In studies carried out with data from the Bachelor's Degree in Nursing at the National University of Tucumán (UNT) in Argentina, processes of massification with high dropout rates and an increase in the duration of the course were evidenced^(5,6), which coincides with several studies at national and global levels^(2,4,7).

From the health point of view, the global shortage of nursing professionals represents a public health problem^(8,9); the deficit of nurses was around 5.9 million in 2018 and could deepen in the next 10 years since it is expected that one in six nursing professionals will retire, so it is required that countries increase the number of nursing graduates at a rate of 8% per year⁽¹⁰⁾. In the case of Argentina, the rate of nurses per inhabitant is well below the average for the continent, and the proportion of nurses close to retirement is high⁽¹¹⁾. These indicators show the need and importance of implementing effective actions to increase the rate of nursing graduates in Argentina⁽¹²⁻¹⁵⁾.

Regarding the training of nursing graduates at the National University of Tucumán (UNT), the high dropout rates and the procrastination of the career are difficulties that are not reversed despite the resources and benefits of national programs. In our

institution, the Bachelor's Degree in Nursing has a duration of 5 years (theoretical duration), divided into two cycles. The first three years are part of the first cycle of the career and at the end of it, the student obtains the title of university nurse, which enables professional practice. The fourth and fifth years of the study plan make up the second cycle, which has a theoretical duration of two years.

The exposed problem gives rise to the development of the present work, whose objective was to analyze the academic trajectories of Bachelor's Degree in Nursing students at the National University of Tucumán through the analysis of academic performance indicators from the period 2015-2019.

METHOD

Type of study

A descriptive, retrospective, and quantitative study was conducted. It was conducted at the Capital campus of the National University of Tucumán, Argentina.

Population and sample

The population under study consisted of 705 students graduating from the Bachelor's Degree in Nursing (n:483 from the first cycle and n:222 from the second cycle) in the period 2015 to 2019. (16,17) The period was selected due to the accessibility and uniformity of the information uploaded to the system, and the year 2020 was excluded due to the particular characteristics of the course during the COVID-19 pandemic (16,17).

Data source

The data was supplied by the Information and Communication Technologies Department of the Faculty of Medicine at UNT. The variables under study for each period analyzed were: 1) Entrants (total number of students who entered the first year of the program), 2) Enrollment (total number of students re-enrolled in the program to study or take final exams), 3) Grade point average of the program (corresponds to the subjects of the 1989 curriculum, with a scale of 0-10, including deferments), 4) Grade point average of the undergraduate and graduate programs (includes deferments), 5) Grade point average of each subject. 6) Average duration of the course (the time taken by students to pass the total number of subjects established in the study plan, whose theoretical duration is 5 years), 6) Graduation-Entry Ratio of the first cycle (the ratio between the number of students graduating at the end of the third year of the course and the number of students entering the first year), and 7) Graduation-Entry Ratio of the course (the ratio between the number of students graduating at the end of the fifth year of the course and the number of students entering the first year).

The grading scale implemented ranges from 0 to 10, which follows the logarithmic format, and evaluations are considered passing with a grade of 4 (four), equivalent to 60% of the evaluated criteria.

Data analysis

A descriptive analysis was made of the variables under study and of the association between the variables of interest. A significance level of $p < 0.05$ was used. Data was processed in spreadsheets and analyzed with R software.

Ethical aspects

Institutional authorization and endorsement of the Ethics Committee of the Faculty of Medicine at UNT was obtained. We worked in accordance with the provisions of the Argentine Personal Data Law No. 25.326, maintaining the anonymity of the individuals involved in the current study. The current study was a risk-free study in accordance with national research laws.⁽¹⁸⁾

RESULTS

It was found that the average length of the course is more than twice the theoretical length established in five years by the study plan, and that the disapproval rate in disciplinary subjects is higher than in non-disciplinary in all the years analyzed except for 2019. The average overall score for the course was 6.28 (95%CI: 6.1-6.5) out of 10 (highest score) (Table 1).

Table 1: Academic indicators of the nursing career.

Career Indicators	2015	2016	2017	2018	2019	Average
Entrants	284	233	335	254	259	273
Students Registration	2496	2571	2694	2835	2644	2648
Average grades	6,40	6,12	6,58	6,39	6,28	6,35
Duration of the career (in years)	14,00	12,00	14,00	14,00	13,0	13,36
Career Failure rate	41,4	27,6	24,1	24,1	34,5	30,3
Disciplinary Failure rate	42,9	28,6	28,6	28,6	35,7	32,9
Non-disciplinary failure rate	40,0	26,7	20,0	20,0	40,0	29,3
Entry / Graduation ratio	17,0	24,0	12,0	19,0	19,0	18,0

Source: Own elaboration with data from the Direction of Information and Communication Technologies of the Faculty of Medicine of the UNT.

When analyzing the academic performance indicators of the first cycle, it was found that the actual duration is an average of 9.08 years, which represents three times the theoretical duration of 3 years. The disapproval rate of the disciplinary subjects is higher than that of the non-disciplinary subjects in all the years analyzed. The average grade for the cycle was 4.41 (95% CI: 4.0-5.0) out of 10 (maximum grade), which is considered low (Table 2).

Table 2: Indicators of academic performance in the first cycle of the nursing career.

Academic indicators of the First Cycle	2015	2016	2017	2018	2019	Average
Average grades	4,26	4,35	4,5	4,59	4,37	4,41
Duration (in years)	7,57	8,11	7,76	7,66	9,08	8,04
Failure rate	52,4	33,3	28,6	28,6	42,9	37,1
Disciplinary Failure rate	62,5	37,5	37,5	37,5	50,0	45,0
Non-disciplinary failure rate	46,1	30,7	23,0	23,0	46,1	33,8
Entry / Graduation ratio	19,7	45,1	33,7	25,2	38,2	32,38

Source: Own elaboration with data from the Directorate of Information and Communication Technologies of the Faculty of Medicine of the UNT (n:483).

When analyzing the academic performance indicators of the second cycle, it was found that the average grade point is significantly higher than that of the first cycle (4.41 vs. 6.08, $p < 0.001$). Although the theoretical duration of this cycle is 2 years, the average duration of the course was 8.0 years (95%CI: 7.3-8.8), which implies that the real duration is four times the theoretical duration. The disapproval rate in this cycle is three times lower than in the first cycle of the course (50.0 vs. 17.0, $p < 0.001$) and disapproval were only recorded in the disciplinary courses (Table 3).

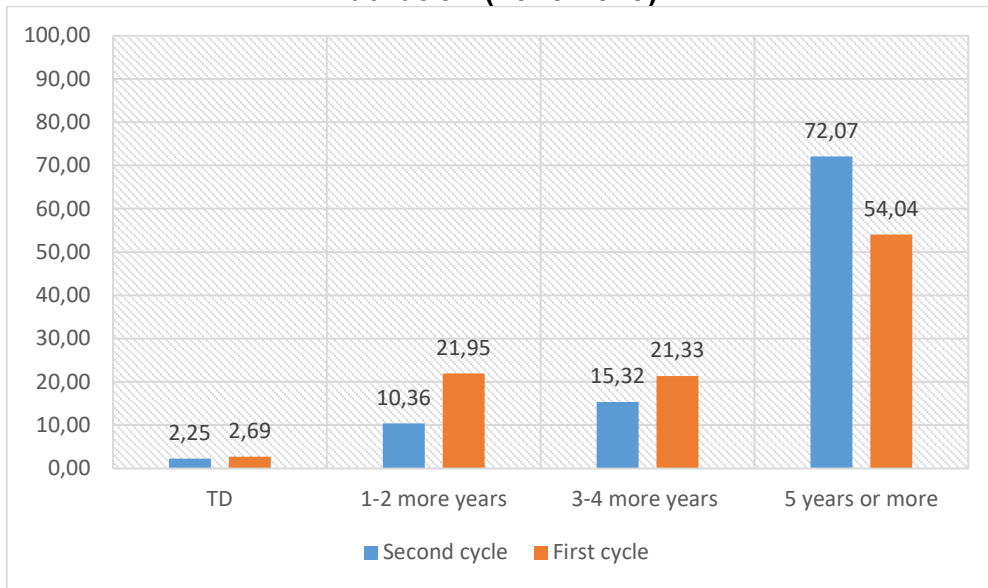
Table 3: Indicators of academic performance in the second cycle of the course.

Academic indicators of the Second Cycle	2015	2016	2017	2018	2019	Average
Average grades	6,21	6,12	6,22	5,94	5,89	6,08
Duration (in years)	8,91	9,11	8,41	7,47	6,71	8,05
Failure rate	12,0	12,0	12,0	12,0	12,0	12,0
Disciplinary failure rate	17,0	17,0	17,0	17,0	17,0	17,0
Non-disciplinary failure rate	0,0	0,0	0,0	0,0	0,0	0,0

Source: Own elaboration with data from the Directorate of Information and Communication Technologies of the Faculty of Medicine of the UNT (n:222).

When analyzing the distribution of students according to the time it takes to complete the first cycle of the degree, it was found that only 2.69% do so in the expected time, while 54.04% take more than 5 years. Meanwhile, at the general level, only 2.25% finish the course within the theoretical duration and 72.07% take 5 or more years to complete it (Figure 1).

Figure 1: Percentage distribution of first and second cycle graduates based on duration (2015-2019)



Source: Own elaboration with data from the Directorate of Information and Communication Technologies of the Faculty of Medicine of the UNT (n:483 from the first cycle and n:222 from the second cycle). **Note:** TD: theoretical career duration.

DISCUSSION

In the present study, it was found that the academic trajectories of the students are very far from the current curricular provisions, with extraordinarily long durations and relatively low grades. Neither the UNT nor its Bachelor's Degree in Nursing escapes the global processes of massification of higher education ^(2,19,20). Thus, if we compare the enrollment of the career in the period 2015-2019 (average of 2648 students) with the year 2003 (1205 students in the Capital and Aguilares campuses), we found that it increased by 119%⁽⁵⁾, in line with the process of global massification of higher education described by different authors.

On the other hand, we found significant differences between the cycles of the career in the average grades. In the first cycle, the grades are lower than in the second cycle of the course; the first and third years are the courses with the lowest GPAs of the entire course. In the case of the first year, these results could be explained by the process of alienation, learning and affiliation of the students described by Alain Coulon⁽²¹⁾: the students have to learn the profession, adapt to the codes, learn to "use" the institution and assimilate its routines. The formative trajectory that begins with entering the university generates a very important change in people's lives and, like any change, requires reorganization in order to better adapt to new practices ⁽²²⁾.

A relevant fact is the high proportion of subjects with a failing average in the third year of the course. This could be related to the gap between the supposed student and the real student⁽²³⁾; in other words, to the existing differences between teachers' expectations of what higher education is and the representations they construct about their students, and to the differences between theoretical and real academic trajectories, which are generally seen as individual problems of "students who don't study enough", "don't know anything", "don't understand the basics", as is often heard

in the university environment, where nothing of the institutional order is questioned and nothing of the teaching practice is reviewed⁽²⁴⁾.

There are also differences in grade point averages according to the type of subject. In the overall average, grades for non-disciplinary subjects are slightly lower than for disciplinary subjects, and this difference was not statistically significant. However, when this analysis is carried out by cycle, we find that in both cycles the average grades of non-disciplinary subjects are higher than those of disciplinary subjects, which is related to the high failure rates in the latter group of subjects.

Comparing our results with a study previously conducted in the institution itself, with data from 2003, we found that in that year the average GPA of the first cycle was 6.7 and that of the career was 7.1.⁽⁵⁾ These results are above the averages found in the period 2015-2019, which is evidence that the academic performance of nursing students in terms of grades has decreased over time. This decrease could be related to the process of massification of the career, resource deficits and the characteristics of the new students who inhabit the university⁽²⁵⁻²⁷⁾.

Regarding the duration of the career in the period 2015-2019, our results are related to the 2018 data of the report issued in the national accreditation process of the nursing career of the UNT, in which it is mentioned that the average duration of the career is 13 years and that 64% of the students take more than 10 years to graduate⁽²⁸⁾. However, if we compare the results of the period 2015-2019 with the study carried out in 2003, we can see that the duration of the career has increased by 5.25 years, while in the first cycle it only increased by 2.73 years⁽⁵⁾. These findings demonstrate the mismatch between the academic trajectories of nursing students and those expected by the system, and contrast with studies from other institutions that report that more than half of students graduate on time⁽²⁹⁾.

Regarding the graduate-entry ratio, the average for the period 2015-2019 is 32 technicians and 17 graduates in nursing, with an average of 12 first cycle graduates for every one hundred entrants, and 6 career graduates for every one hundred entrants. If we compare these results with the work carried out with the 2003 cohort of students, we find an increase in these indicators of 0.84% and 4.70% respectively⁽⁵⁾. But in both cases, this increase in graduates is well below the 10% suggested by the World Health Organization to reverse the deficit of nurses in the world⁽³⁰⁾.

Both the duration of the Bachelor's Degree in Nursing and the intermediate degree are far from the average of the entire UNT and the university's own health careers. The long duration of the degree could be one of the aspects that contribute to the high attrition rate in the student population of the Bachelor's Degree in Nursing and that deserves to be corrected to achieve better academic indicators.

CONCLUSIONS

The study concludes that only 2.25% of the students complete the nursing course in the expected time (theoretical duration) and that difficulties are identified in the disciplinary subjects, which have higher failure or rejection rates. When analyzing the academic performance indicators of the second cycle, it was found that the average grade is significantly higher than in the first cycle. However, the actual duration is four

times the theoretical duration, while in the first cycle it was only three times the expected duration.

The academic performance of nursing students has declined in recent decades, as evidenced by the decrease in GPAs and the increase in length of study. The average career length has increased by more than twice the theoretical length in recent years, and these results demonstrate the existing disconnect between the academic trajectories of nursing students and those expected by the system.

Although the ratio of graduates to entrants for both the professional and the intermediate degree has slightly increased compared to the 2003 reports, in both cases this increase is far below the ratio suggested by the World Health Organization to reverse the deficit of nurses in Argentina and in the world.

To have a global vision of the problem studied, it is necessary to complete the study with a qualitative approach, where the social representation of the different actors involved in this problem within the institution can be explored.

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