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Influence of gender on the academic performance of nursing students: a quantitative analysis in Paraguay, 2024

Influencia del género en el rendimiento académico de estudiantes de enfermería: un análisis cuantitativo en Paraguay, 2024

Influência do gênero no desempenho acadêmico de estudantes de enfermagem: uma análise quantitativa no Paraguai, 2024

Abstract

Introduction: the nursing profession, historically feminized, continues to be highly sought after in higher education. However, despite the numerical predominance of women, gender inequalities persist that could influence students' academic performance. **Objective:** to determine the influence of gender stereotypes on the academic performance of university nursing students in Paraguay. **Method:** quantitative, analytical, cross-sectional study with a descriptive-correlational scope. A structured questionnaire was applied to a sample of 116 students from five public and private university campuses, complemented with academic data extracted through documentary analysis. **Results:** the findings revealed a significant percentage difference in academic performance, where women were 19.9% more likely to experience negative alterations in their performance compared to their male counterparts. This gap suggests relevant implications for educational trajectory and future workforce integration. **Conclusion:** the study reveals persistent gender-related inequities in a profession traditionally led by women, highlighting the need for inclusive educational policies that promote equitable conditions for the academic and professional development of all students.

Keywords: inequalities, gender stereotypes, academic performance, students, higher education

Resumen

Introducción: la carrera de Enfermería, históricamente feminizada, continúa siendo altamente demandada en el ámbito de la educación superior. No obstante, a pesar de la predominancia numérica de mujeres, persisten desigualdades de género que podrían incidir en el rendimiento académico de los estudiantes. **Objetivo:** determinar la influencia de los estereotipos de género en el rendimiento académico de estudiantes universitarios de enfermería en Paraguay.



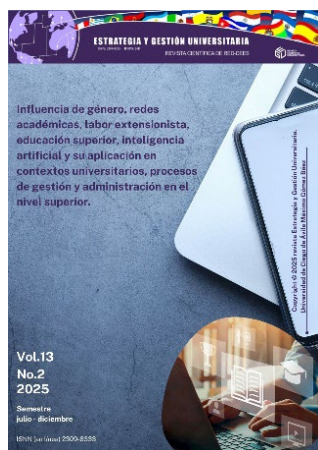
Método: estudio de enfoque cuantitativo, de tipo analítico, transversal y de alcance descriptivo-correlacional. Se aplicó un cuestionario estructurado a una muestra de 116 estudiantes de cinco sedes universitarias públicas y privadas, complementado con datos académicos extraídos mediante análisis documental. **Resultados:** los hallazgos evidenciaron una diferencia porcentual significativa en el rendimiento académico, donde las mujeres presentaron un 19,9% más de probabilidades de experimentar alteraciones negativas en su desempeño, en comparación con sus pares varones. Esta brecha sugiere implicancias relevantes en la trayectoria educativa y futura inserción laboral. **Conclusión:** el estudio revela inequidades persistentes vinculadas al género en una profesión tradicionalmente liderada por mujeres, lo cual subraya la necesidad de políticas educativas inclusivas que promuevan condiciones equitativas para el desarrollo académico y profesional de todos los estudiantes.

Palabras clave: desigualdades, estereotipos de género, rendimiento académico, estudiantes, educación superior

Resumo

Introdução: a profissão de enfermagem, historicamente feminizada, continua sendo altamente demandada no ensino superior. No entanto, apesar da predominância numérica de mulheres, persistem desigualdades de gênero que podem impactar o desempenho acadêmico dos estudantes. **Objetivo:** determinar a influência dos estereótipos de gênero no desempenho acadêmico de estudantes universitários de enfermagem no Paraguai. **Método:** estudo quantitativo, analítico, transversal e de alcance descritivo-correlacional. Um questionário estruturado foi aplicado a uma amostra de 116 estudantes de cinco sedes universitárias públicas e privadas, complementado por dados acadêmicos extraídos por meio de análise documental. **Resultados:** os achados evidenciaram uma diferença percentual significativa no desempenho acadêmico, onde as mulheres apresentaram 19,9% mais chances de experimentar alterações negativas em seu rendimento em comparação aos colegas homens. Essa disparidade sugere implicações relevantes na trajetória educacional e na futura inserção no mercado de trabalho. **Conclusão:** o estudo revela desigualdades persistentes relacionadas ao gênero em uma profissão tradicionalmente liderada por mulheres, ressaltando a necessidade de políticas educacionais inclusivas que promovam condições equitativas para o desenvolvimento acadêmico e profissional de todos os estudantes.

Palavras-chave: desigualdades, estereótipos de gênero, desempenho acadêmico, estudantes, ensino superior



Introduction

In higher education, the Nursing program is characterized by high demand and a marked predominance of women among its students. However, this overrepresentation of women does not guarantee equal conditions. Various studies suggest that gender stereotypes, along with structural differences in access to resources, significantly affect students' academic performance (Baldeón-Padilla et al., 2020). The stereotype threat, understood as the pressure individuals experience when faced with the possibility of confirming negative prejudices about their group, can have a real impact on their performance, even in traditionally feminized disciplines like Nursing.

Although the profession has historically been associated with femininity, there has been a growing presence of men in recent decades (Hermosilla & Rufinelli, 2017). This incorporation, however, has not eliminated traditional perceptions about gender roles. Recent research indicates that both men and women continue to internalize stereotypical views about their place in the profession (Prosen, 2022), which affects the educational and professional trajectories of students. Gender, understood as a social construct linked to norms, roles, and differentiated expectations (Corrales et al., 2024), can subtly or explicitly influence motivation, performance, and opportunities for academic development.

Darias and Rodríguez (2021) demonstrated that more than 67% of nursing curricula in Ibero-America contain an androcentric bias, with stereotypically feminine content and limited inclusion of gender equity approaches. Teresa-Morales et al. (2022) describe that nursing continues to be perceived as a low-status profession, with little autonomy and limited academic demands, reinforcing representations that may discourage academic commitment, particularly among women. These social constructions impact self-efficacy, learning strategies, and evaluation outcomes, limiting student performance (García, 2022).

Wan Chik et al. (2012) emphasized that understanding gender differences in academic performance is essential for educators to offer differentiated and equitable support. Other authors, such as Ortigoza (2022), note that socialization, cultural norms, and individual characteristics linked to gender are relevant factors in explaining the performance disparities observed between men and women in educational contexts. Women's trajectories, in particular, are often marked by additional burdens, familial and social pressures, and reduced access to mentors and academic role models.

Moreover, the effects of gender on academic performance are not limited to schooling but also extend to access to leadership positions, salary equality, and professional development. According to the Pan American Health Organization (2024), nurses continue to face structural barriers to professional advancement, despite constituting the majority of the workforce in the health sector. This reality highlights that gender inequities cannot be eliminated by mere numerical presence but require a thorough review of educational and cultural structures.

Based on this theoretical framework, the present study aims to analyze the influence of gender on teaching-learning processes, using academic performance in university nursing students as an indicator. The main hypothesis proposed is:

University students show differences in their academic performance determined by the cultural construction of gender. From this, the null hypotheses were formulated:

H1: There were no alterations in the academic performance of university nursing students based on gender.

H2: There were no alterations in the academic performance of university nursing students.

The approach adopted is quantitative, allowing for an objective measurement of the observed differences and facilitating the identification of potential barriers to academic equity. This research falls within the line of studies on gender equality in higher education and seeks to provide empirical evidence that contributes to the formulation of inclusive policies and pedagogical strategies that ensure fair conditions for all students, regardless of gender. Recognizing and making visible these inequities is the first step toward transforming educational environments into more equitable spaces, with a direct impact on the quality of health care and the social development of the country.

Methods and materials

Type of Study: This study was conducted using a quantitative approach, with an analytical, non-experimental, cross-sectional design, and a descriptive-correlational scope. This typology allowed for the exploration of the association between gender and academic performance without manipulation of variables. The main data collection technique was a structured survey.

Population and Sample: The population consisted of university students in the Nursing program from five higher education institutions: the Faculty of Nursing and Obstetrics at the National University of Asunción (FENOB-UNA), with campuses in San Lorenzo (Main Campus), San Estanislao, Concepción, and Quindy; and the Ibero-American University (UNIBE), main campus. The selection of these institutions was based on convenience, considering the accessibility for researchers and the territorial representation of urban and rural areas in the Central, San Pedro, Concepción, Paraguari, and Asunción departments. These institutions encompass both the public and private sectors.

Only students enrolled in the first semester of the years 2019 and 2020 were included. Participation was voluntary, after signing an informed consent form.

For the sample size calculation, the formula for finite populations was applied, considering a confidence level of 95% and a margin of error of 5%. The total population was 190 students, and an expected sample size of 128 participants was estimated. Ultimately, an effective sample of 116 students was obtained, selected through simple random sampling.

Table 1

Sample calculation

University	Population	Sample
FENOB-UNA MAIN CAMPUS	131	93
FENOB-UNA SAN ESTANISLAO CAMPUS	15	6
FENOB-UNA QUINDY CAMPUS	22	6
FENOB-UNA CONCEPCIÓN CAMPUS	11	3
UNIBE MAIN CAMPUS	11	8
Total	190	116

Source: Authors' own elaboration.

Data Collection Techniques and Instruments: two methods of data collection were used. The first was a digital questionnaire with two sections: Section 1 contained closed questions for population identification, while Section 2 included closed questions for sociocultural and demographic characterization, as well as aspects of daily life and gender dimensions. The second method involved obtaining statistics from secondary sources. In Section 1 of the questionnaire, respondents were asked for their identification numbers to obtain their grades from each educational institution's database, applying the document analysis technique.

Procedures for Instrument Validation: for the validation of the instruments, the expert opinion technique was used, selecting five professionals. The degree of agreement among the experts was determined using the content validity coefficient (CVC) of Hernández Nieto (2002), resulting in a value of 0.866, indicating good validity and agreement (Pedrosa et al., 2014). Subsequently, the instrument was subjected to a pilot test with 17 final-year nursing students. The results were analyzed for internal reliability using Cronbach's Alpha, yielding a result of 0.93, indicating high or excellent consistency.

Data Collection Procedures: formal permission was requested from each institution for conducting the research. Once the instrument was validated, the final application of the digital questionnaire proceeded. The link was provided by the researchers so that students could access it from their devices to complete the survey. An informed consent form was provided for participation, which was voluntary.

Data Processing and Analysis: the data were consolidated in Excel format, then processed and analyzed using SPSS v. 21 and Stata v. 16. The analysis consisted of two stages: descriptive analysis for population characterization, assessment between gender variables and academic performance, and regression analysis to determine the explanatory variables of academic performance by gender.

Ethical Aspects: the study was approved by the Ethics Committee of the Graduate School of the Ibero-American University - Paraguay. Participation in the research was voluntary, with informed consent included at the beginning of the questionnaire, ensuring that the identification data of the subjects were protected. The secondary information provided by the universities was treated with full confidentiality and strictly used for research purposes.

Results and discussion

This section presents and analyzes the findings regarding the influence of gender on the academic performance of university nursing students in Paraguay, considering sociodemographic variables, quantitative data, and the application of statistical tests.

Table 2

Characteristics of the study population

Sociodemographic characteristics		Frequency	
		freq.	%
Gender	Female	93	80,2
	Male	23	19,8
Age group	21 to 25 years	91	78,4
	26 to 30 years	18	15,5
	31 to 35 years	4	3,4
	36 to 42 years	3	2,7
Marital status	Single	92	79
	Married	8	7
	Cohabiting	16	14

Source: Authors' own elaboration.

Note. Table 2 shows that the sample consisted of 116 students, of which 80.2% were women and 19.8% were men. The predominant age group was 21 to 25 years (78.4%). Regarding marital status, 79% identified as single, while 14% were cohabiting and 7% were married.

Table 3

Academic performance of nursing students by gender

Gender		Average Grade 1 st Year	Average Grade 4 th Year	Maintained Average
Female	n=93	4,00	3,91	87,10%
Male	n=23	3,98	3,92	91,30%

Source: Authors' own elaboration.

Note. Table 3 reveals that although the overall averages at the beginning and end of the program were similar between men and women, there was a greater tendency for female students to experience a loss in performance. Only 87.1% of them maintained their average throughout the program, compared to 91.3% of the men. This difference suggests an unfavorable pattern specifically affecting women.

These results align with previous studies documenting how gender stereotypes and social expectations differentially affect university students. Authors such as Wan Chik (2012), Ortigoza (2022), and Davalos (2021) agree that women face additional pressures related to gender roles, which can negatively impact their academic performance.

Moreover, it has been observed that in traditionally feminized contexts such as nursing, men may benefit from a phenomenon known as “minority favoritism,” receiving greater attention or institutional support (Fernández & Canova, 2024). This could explain the slight advantage observed in their sustained performance.

However, men also face unique challenges in this field, including social stigmatization, discrimination, and the absence of male role models in the academic sphere (Caputo & Ross, 2023; Mora-Heras, 2022). Despite this, their adaptation strategies appear more effective in terms of academic stability, as our data indicate.

On the other hand, women tend to use deep learning strategies more frequently, which could explain their overall higher academic performance in previous studies (Duarte et al., 2021; Grajales-Alonso et al., 2022). However, they also report higher academic stress associated with conflicts related to gender roles, as noted by Corrales et al. (2024), with 63% of women expressing this pressure compared to 22% of men.

Table 4

Application of the hypothesis test by measure of association

	Average or Acceptable 1 st Year	Average or Acceptable 4 th Year	
Female	<i>a</i>	<i>b</i>	<i>a+b</i>
Male	<i>c</i>	<i>d</i>	<i>c+d</i>
	<i>a+c</i>	<i>b+d</i>	<i>n</i>

$$OR = (a \times d) / (c \times b)$$

Source: Authors' own elaboration.

Note. For the hypothesis test, academic averages for the 1st and 4th Years were dichotomized, considering grades from 2 to 3 as “Average or Acceptable,” and absolute numbers from 4 to 5 as “Very Good to Excellent Averages.”

The exposure factor belonging to the female gender.

Ho: University students experienced a change in their academic performance determined by the cultural construction of gender.

H1: There were no changes in the academic performance of nursing students based on gender.

H2: There were no changes in the academic performance of nursing students.

With a p-value of 0.05, the score obtained for the Female gender was 0.19, with a standard error of 0.608. Therefore, H1 and H2 were rejected, and Ho was accepted: Female students had a 19.9% higher likelihood of experiencing changes in their academic performance (average or acceptable performance) compared to male students.

The study also confirms the need to consider the role of the institutional context in the reproduction of inequalities. The lack of female representation in leadership teaching positions and the use of androcentric curricula (Darias & Rodríguez, 2021; Atak & Meriç, 2023) reinforce exclusionary models that affect the motivation and academic self-esteem of women.

Teacher representation, especially that of female mentors, has been shown to have a positive effect on the performance of female students, increasing GPA by up to 0.38 points in longitudinal studies (Atak & Meriç, 2023). This highlights the importance of creating more equitable and representative academic environments.

Beyond academic performance, these disparities have repercussions on professional trajectories, affecting job promotion, salary equality, and access to leadership positions. According to the Pan American Health Organization (2024), 73% of Latin American nurses report having experienced salary discrimination, and only 28% hold managerial positions despite being the majority in the profession (ICN, 2023; Cassiani et al., 2020).

Additionally, future job satisfaction is closely linked to the equity experienced during the training process. Shim and Park (2023) demonstrated that higher levels of perceived equity during training translate into greater commitment and retention in the profession.

Table 5

Academic performance of nursing students by gender

Average or Acceptable					
			1 st Year	2 nd Year	
Gender	Female	Count	36	20	94
		% Within Female Gender	38%	21%	81%
	Male	Count	7	5	24
		% Within Male Gender	29%	20%	19%
		Count			116
	Total				100%

Source: Authors' own elaboration.

This research presents some limitations that should be considered when interpreting the results. First, the cross-sectional design employed allows for the identification of associations between gender and academic performance at a specific point in time but does not enable the establishment of causal relationships or the observation of changes over time. Second, although the sample of 116 students represents 61% of the target population, its convenience selection and concentration in five university campuses limit the generalization of the findings to other educational contexts in the country. Finally, the absence of longitudinal follow-up prevents the analysis of the evolution of academic performance differences between genders throughout the university trajectory, which would have provided a deeper understanding of the factors involved.

Conclusions

Based on the results of the study and considering the central ideas that guided this research, the following conclusions are drawn, highlighting the main contributions of the work:

This study confirms that gender stereotypes significantly influence the academic performance of university nursing students in Paraguay. The analyzed sample demonstrates a clear disparity, with women having a 19.9% higher likelihood of experiencing negative changes in their academic performance compared to men. This finding underscores a persistent issue in higher education in nursing, challenging the notion that this field, seemingly led by women, is free from gender inequalities.

The research highlights that while no significant differences are observed in the initial and final averages of the program, a detailed analysis of the data reveals a marked difference in the decline of academic performance over the years of study, with this decline being more pronounced among women. This suggests that although both groups may start their studies with a similar level of performance, women experience a greater deterioration in their performance as they progress in their studies.

These results have important implications for the design of educational policies and support programs for nursing students. Educational institutions need to implement strategies that address gender inequalities and promote an equitable learning environment for all students.

This research contributes to the understanding of how gender stereotypes affect the professional development of women in nursing. Women not only face obstacles in their academic performance but also encounter challenges in achieving leadership positions and attaining salary equality in the workplace.

The study provides concrete evidence of the influence of gender stereotypes on the academic performance of nursing students in Paraguay, leading to the necessity of addressing gender inequities in higher education to ensure that all students have equal opportunities for academic and professional success.

From the obtained results, the importance of future research that addresses

this phenomenon from a longitudinal or comparative approach is emphasized, thus allowing for the monitoring of the evolution of gender gaps in academic performance throughout university training. Such studies will contribute to identifying risk and protective factors, as well as designing more effective educational interventions aimed at promoting gender equity in higher education.

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Declaration of author responsibility

Silvia María Ramos Valenzuela 1: Conceptualization, Data curation, Formal analysis, Research, Methodology, Resources, Software, Supervision, Validation/Verification, Visualization, Writing/original draft and Writing, review and editing.

Jorge Quintin Zarza Díaz 2: Conceptualization, Formal Analysis, Research, Methodology, Validation/Verification, Visualization, Review, Writing and Editing.

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