Selection of residents: what is the relationship between the career average and knowledge score with the interview modalities in the selection of residents in a Community University Hospital?

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Abstract. The selection process for admission to residences is complex and the selection instruments are expected to be valid and reliable. The objectives were to determine the relationship between the career average and the knowledge test score with the interview score in the selection of residents according to the panel or multi-mini interview modality. **Material and methods.** A cross-sectional design was carried out. The population were the applicants for medical residences in the contests of the period 2006-2010 and the contest 2022. **Results.** In the 2006-2010 contests, 1,254 applicants accessed the interview, 59.2% were women, and in the 2022 contest, 493 applicants accessed the interview and 68.3% were women (p=0.004). Pearson's correlation between academic performance (career average + knowledge test score) and interview score was 0.20 in the 2006-2010 competitions and 0.11 in the 2022 competition. **Conclusion.** The ranking order in the selection of residents in the two periods analyzed was not related to the academic performance of the applicants regardless of the interview modality used.

Keywords: resident selection, selection interview, multi-min interviews, panel interviews, knowledge test, career average.

1   Introduction and Theoretical Framework

In Argentina, each year more than 6,000 doctors graduate from the different medical schools and an equivalent number of vacancies are offered to carry out a residency, although only about half of the recently graduated doctors decide to do so (Dure et al., 2013).

The selection process for admission to residences is complex and the selection instruments are expected to be valid and reliable. The challenge is to be able to identify the professionals who can perform better and achieve greater clinical competencies. (Patterson et al., 2016)

The recommendations for the selection of health professionals are: the selection process for residents must be credible, fair, trustworthy and publicly defensible. Their conclusions mention that the strategies that combine the written tests with the previous academic performance for admission to medical careers have shown a

small positive predictive value, the interviews with no panel modality and the multi-mini interviews (MME), certain validity and reliability. (Prideaux et al., 2011) A systematic review and meta-analysis published by Hamdy et al demonstrated a statistically weak to moderate correlation between performance as a medical student and performance as a resident physician. The objective of this study was to determine the relationship between the career average and knowledge test score with the interview score in the selection of residents according to the panel or MME modality in a Community University Hospital.

2   **Method**

A cross-sectional design was carried out and the population were applicants for medical residencies in the 2006-2010 competitions and the 2022 competition of our institution. The selection of the periods was for convenience and the analyzed sample consisted of all the applicants interviewed in the aforementioned contests. Academic performance was defined as the average resulting from the knowledge exam score (minimum 0-maximum 100 points) and the career average normalized to 100 in order to allow it to be more easily interpreted.

The score of the personal panel interview was the average of the score of the 3 interviewers independently carried out by the program director, the program coordinator and a third professional belonging to another disciplinary area and the MME score was determined with an average of the scores obtained in the 12 stations (range 0 to 50 points).

The following variables of the applicants were analyzed: sex, university of origin grouped into the University of Buenos Aires (UBA), other National Universities, Private Universities and Foreign Universities, and the residence profile was grouped into clinical, surgical and other profiles.

3   **Results**

In the 2006-2010 contests, 1,254 applicants accessed the interview, 59.2% of whom were women, and in the 2022 contest, 493 applicants accessed the interview, 68.3% of whom were women ($p=0.004$). . The university origin in the competitions of the period 2006-2010 and the competition 2022 were from the UBA in 61.1% and 52.7% ($p=0.001$) respectively and the residence profile was mostly clinical in 48.3% and 49.5% ($p= 0.6$) respectively.

The career average in the 2006-2010 contests was 8.1 and in the 2022 contest it was 8.04 ($p= 0.05$) and the knowledge test scores were 68.1 vs 79 ($p < 0, 0001$) respectively.

Pearson's correlation between academic performance and interview score was 0.20 ($p < 0.001$) in the 2006-2010 contests and 0.11 ($p= 0.01$) in the 2022 contest.

Pearson's correlation was less than 0.3 between academic performance and interview score discriminated by sex, type of university management or residence profile regardless of the interview modality used.

4   Discussion

Most applicants for residences were women and this increase can be observed even between the 2006-2010 and 2022 competitions. This trend towards feminization in the health professions has been previously described in our institution and in Argentina. (Borracci & Salazar, n.d.)

Most of the applicants graduated from a public management university. This characteristic is consistent with previous studies in our institution in which approximately 70% of applicants usually come from public management institutions. (Eymann et al., 2006) Likewise, the type of university management in the Single Exam of 2020 was public in 64.7%. (Silberman et al., 2022) This predominance could be explained because most of the training offer in Argentina is publicly managed and is located in the metropolitan area, and our institution is located in said geography. (from the Argentine Nation, n.d.)

The career GPA and knowledge test scores in our population were high. It has been published that the educational trajectory in the bachelor's degree predicts the scores of knowledge exams for admission to the residency. (Hamdy et al., 2006) This study shows that the career average was greater than eight points regardless of the requirement to have an average greater than seven for enrollment and that there could be a ceiling effect when selecting the best residents.

The low correlation between academic performance and interview score regardless of the interview modality showed that program directors value non-cognitive skills.

5   Conclusions

The ranking order in the selection of residents in the two periods analyzed was not related to the academic performance of the applicants regardless of the interview modality used.

6   Limitations and Future Research

This study was carried out in a single training center, the selection strategies have been modified over time and the selection methods were different. It is still pending to develop equitable instruments that predict the best performance of the applicants.

Bibliography

Borracci, & Salazar. (n.d.). El futuro de la feminización de la medicina en Argentina. *FEM Revista de La Fundación Educación Médica.* https://scielo.isciii.es/scielo.php?script=sci_arttext&pid=S2014-9832201800030002

Ministerio de Salud de la Nación Argentina, M. (n.d.). *Observatorio Federal de Recursos Humanos en Salud. La formación de grado y posgrado en Argentina.* https://www.argentina.gob.ar/

Duré, I., Daverio, D., & Dursi, C. (2013). *Planificación y Gestión Del Sistema Nacional de Residencias en Argentina*. Ministerio de Salud de la Nación Argentina. https://www.argentina.gob.ar/sites/default/files/dure-daverio-dursi-observatrhus_pla nif_gestion_sistresid-2013.pdf

Eymann, A., Busaniche, J., Durante, E., Sadler, A., Faingold, D., Figari, M., & Carrió, S. (2006). Análisis de la procedencia universitaria y desempeño en el examen de ingreso de los aspirantes a las residencias del Hospital Italiano de Buenos Aires: 2003-2006. *Revista Del Hospital Italiano de Buenos Aires*, *26*(4), 138.141.

Hamdy, H., Prasad, K., Anderson, M. B., Scherpbier, A., Williams, R., Zwierstra, R., & Cuddihy, H. (2006). BEME systematic review: predictive values of measurements obtained in medical schools and future performance in medical practice. *Medical Teacher*, *28*(2), 103–116.

Patterson, F., Knight, A., Dowell, J., Nicholson, S., Cousans, F., & Cleland, J. (2016). How effective are selection methods in medical education? A systematic review. In *Medical Education* (Vol. 50, Issue 1, pp. 36–60). https://doi.org/10.1111/medu.12817

Prideaux, D., Roberts, C., Eva, K., Centeno, A., McCrorie, P., McManus, C., Patterson, F., Powis, D., Tekian, A., & Wilkinson, D. (2011). Assessment for selection for the health care professions and specialty training: consensus statement and recommendations from the Ottawa 2010 Conference. *Medical Teacher*, *33*(3), 215–223.

Silberman, P., Silberman, M., López, E., Caruso, M. P., Argibay, S. G., & Lois, I. P. (2022). Caracterización de la población inscripta al examen único para residencias médicas 2020. *Revista de Salud Pública*, *28*(2). https://doi.org/10.31052/1853.1180.v2.n28.37707