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UNIVERSITY CHARACTERISTICS ASSOCIATED WITH THE AWARD OF PLACES FOR MIDWIVES IN THE PERUVIAN RURAL SERVICE

CARACTERÍSTICAS UNIVERSITARIAS ASOCIADAS A LA ADJUDICACIÓN DE PLAZAS PARA OBSTETRAS EN EL SERVICIO RURAL PERUANO

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ABSTRACT

Objective: To determine the university characteristics associated with the allocation of place for obstetricians in the Rural and Urban Marginal Service in Health (SERUMS), 2019. **Methods:** Secondary base analysis obtained from the Peruvian Ministry of Health, where 506 obstetrics licenses were selected who submitted the national obstetrics exam (ENAOBS) and who have applied to SERUMS in the 2019-2 call. The characteristics of the universities where the obstetricians come from, the score obtained in the national and university exam and if it is suitable for SERUMS were evaluated. For the bivariate analysis it will be used in the Student's T, ANOVA and Pearson's Correlation tests, while to adjust the model a logistic regression was performed, a 95% confidence level. **Results:** The obstetrics graduate visited mostly from a private university (66.01%), from the Lima region (41.7%) and applied for the paid modality (99.41%). It was found that 49.61% [95% CI: 45.23-53.98] were suitable for SERUMS. The average university qualification was 13.87 ± 1.35 and that of the ENAOBS was 10.93 ± 2.02, which had a significant correlation (p <0.001) that had a greater slope in graduates of public university (R = 0.56). Belonging to a public university (OR = 2.62) and studying in Lima (OR = 1.49) were significantly associated (p <0.01) to be able to perform SERUMS in obstetrics. **Conclusion:** Being a graduate in obstetrics from a public university and studying in Lima gives you a better chance of being able to award a place in the SERUMS.

Key words: Educational Measurement; Health education; Midwifery; Peru (source: MeSH NLM).

RESUMEN

Objetivo: Determinar las características universitarias asociadas a la adjudicación de plazas para obstetras en el Servicio Rural y Urbano Marginal en Salud (SERUMS), 2019. **Métodos:** Análisis de base secundaria obtenida del Ministerio de Salud peruano, donde se seleccionaron 506 licenciados de obstetricia que rindieron el examen nacional de obstetricia (ENAOBS) y que hayan postulado al SERUMS en la convocatoria 2019-2. Se evaluaron las características de las universidades de donde procedían los obstetras, el puntaje obtenido en el examen nacional y universitario y si fue apto para el SERUMS. Para el análisis bivariado se utilizaron las pruebas de T de Student, ANOVA y Correlación de Pearson, mientras que para ajustar el modelo se realizó una regresión logística, considerando un nivel de confianza del 95%. **Resultados:** El egresado de obstetricia proviene en su mayoría de una universidad privada (66,01%), de la región Lima (41,7%) y postula a la modalidad remunerada (99,41%). Se halló que el 49,61% [IC95%:45,23-53,98] fueron aptos para el SERUMS. La calificación universitaria promedio fue de 13,87±1,35 y la del ENAOBS de 10,93±2,02, las cuales mostraron una correlación significativa (p<0,001) que tuvo una mayor pendiente en egresados de universidad pública (R=0,56). El pertenecer a una universidad pública (OR=2,62) y estudiar en Lima (OR=1,49) se asociaron significativamente (p<0,01) al estar apto para realizar el SERUMS en obstetricia. **Conclusión:** Ser egresado en obstetricia de una universidad pública y estudiar en Lima brinda mayor probabilidad de ser apto para adjudicar una plaza en el SERUMS.

Palabras clave: Evaluación educacional; Educación médica; Obstetricia; Perú (fuente: DeCS BIREME).

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INTRODUCCIÓN

The university is an institution that, among its functions, seeks to train academically future professionals, thus providing competent human resources in certain areas[1,2]. The Peruvian university system is made up of 51 public and 92 private universities, which are supervised by the National Superintendency of Education (SUNEDU), in order to monitor and guarantee the university quality that is being provided[3].

In 2016, the Ministry of Health approved the National Obstetrics Examination (ENAOBS), which is a tool for evaluating the knowledge of obstetric professionals. In addition, the results determine who could award places in the Marginal Rural and Urban Health Service (SERUMS). The aim is to promote and ensure the proper training of obstetricians and, as a result, to ensure better sexual and reproductive health care[4,5].

On the other hand, SERUMS is the care that a health professional must provide for a year in a vulnerable population in order to be able to hold a position in public institutions. Research in this area has focused on two clear topics: i) the problems and/or accidents that occur in this process 6-8 and ii) the debate on whether their implementation is necessary[9-11]. However, despite the fact that it is now a mandatory requirement, it is not known which elements would favour eligibility for a position; information that would help the aspiring obstetrician to compare the characteristics of the academic institution where he would be trained. Therefore, the aim of the research was to determine the university characteristics associated with being eligible for a place at SERUMS.

METHODS

Design

A cross-sectional analytical study using a free-access secondary base of the Peruvian Ministry of Health (MINSA) that reports the results of the public tender for the allocation of places to the Rural and Marginal Urban Health Service (SERUMS) during 2019[12].

Population and sample

The 506 obstetrics professionals who participated in the call were selected from the various regions of Peru.

Procedures and variables

It was considered as the main variable because it is suitable or not to award a place in the SERUMS, which is generated on the basis of the qualification obtained in the National Examination of Obstetrics and the university average that it has presented, both under a system of vigesimal scoring. According to MINSA, a professional with an average passing grade of 11 or more is considered to be suitable. On the other hand, it was also assessed whether the participant came from a public or private university, whether he had studied in Lima, the geographical region of origin (coast, mountain range or jungle), nationality and the modality in which he applied (paid or equivalent).

The database was downloaded in an Excel format, where the quality of the data obtained was assessed. All those participants who have no data or have data inconsistency were deleted and then exported to the STATA software. The descriptive analysis of the categorical variables was reported using frequencies and percentages, while the numerical variables were reported using arithmetic means and standard deviation, due to the normal distribution they presented, which was evaluated by the Shapiro-Wilk test.

Statistical analysisa

In the inferential analysis, the variation of the means was evaluated by the Student T test or ANOVA, according to whether there were 2 or more comparison groups. In addition, the correlation between the ENAOBS grades and the university average were evaluated using the Pearson Correlation test. The crude analysis of categorical variables was carried out using Pearson's Chi Square test and the adjusted analysis by means of a Logistic Regression, where crude and adjusted OR (Odds Ratio) and their respective confidence intervals were reported. Every analysis considered a 95% confidence level.

Ethical considerations

The study did not require the presence of informed consent since the data are freely available; also, due to its nature of secondary baseline analysis, the approval of an institutional ethics committee was not required.

RESULTS

The study included 506 obstetrics professionals, of whom 49.61% [95% CI: 45.23-53.98] were able to get a place in the Rural and Marginal Urban Service during the 2019 call, where the average grade at university was 13.87±1.35 (minimum: 8.79; maximum: 17.56), while the average score of the National Obstetrics Examination was 10.93±2.02 (minimum: 4.02; maximum: 16.4). The participant comes mostly from a private university (66.01%), from the Costa region (62.06%) and applies by paid modality (99.41%). No foreign nationals were found. (Table 1)

Table 2 shows that the qualification obtained in the National Obstetrics Examination is significantly higher when the participant comes from a public university ($p<0.001$) and studied in Lima ($p=0.005$). Also, the average obtained at the university was significantly

higher when the participant had studied in Lima (p<0.001) and came from the Costa region (p=0.043). On the other hand, the correlation between the university qualification showed a higher slope when the participant came from a public university (R=0.558) than when he came from a private university (R=0.425) (Figure 1).

Finally, the adjusted analysis showed that having belonged to a public university increases the probability of being able to reach a place in the Rural and Marginal Urban Service in obstetrics (OR=2.99; p<0.001). Also, another predisposing factor for being fit was having studied in the country's capital (OR=2.26; p=0.001). (Table 3).

Table 1. General characteristics of obstetrics professionals applying to the Rural and Urban Marginal Health Service (SERUMS), 2019.

	n	%
Type of university		
Public	172	33.99
Private	334	66.01
Headquarter in the Capital		
Yes	211	41.70
No	295	58.30
Geographic region		
Coast	314	62.06
Mountain	178	35.18
Jungle	14	2.77
Nationality		
Peruvian	506	100
Foreigner	0	0
Modality		
Paid	503	99.41
Equivalent	3	0.59
Suitable for SERUMS		
Yes	251	49.60
No	255	50.40
University average		
(Average ± S.D)	(13.87 ± 1.35)	
National Obstetrics Exam Score		
(Average ± S.D)	(10.93 ± 2.02)	
Total	506	100

S.D: Standard deviation.

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Table 2. Marks obtained in the national examination and in the university average according to institutional characteristics, 2019.

	Qualification obtained					
	National Obstetrics Exam Score			University average*		
	Average	S.D	p value†	Average	S.D	p value†
Type of university						
Public	11.74	2.02	<0.001	13.72	1.42	0.079
Private	10.51	1.89		13.94	1.31	
Headquarter in the Capital						
Yes	11.23	2.12	0.005	14.47	1.31	<0.001
No	10.72	1.92		13.43	1.20	
Geographic region						
Coast	10.89	2.09		13.98	1.42	
Mountain	11.02	1.88	0.583††	13.68	1.21	0.043††
Jungle	10.49	2.06		13.65	1.11	

* Weighted average of marks obtained in university courses / † Tested by Student's T Test / †† Tested by ANOVA test / S.D: Standard deviation

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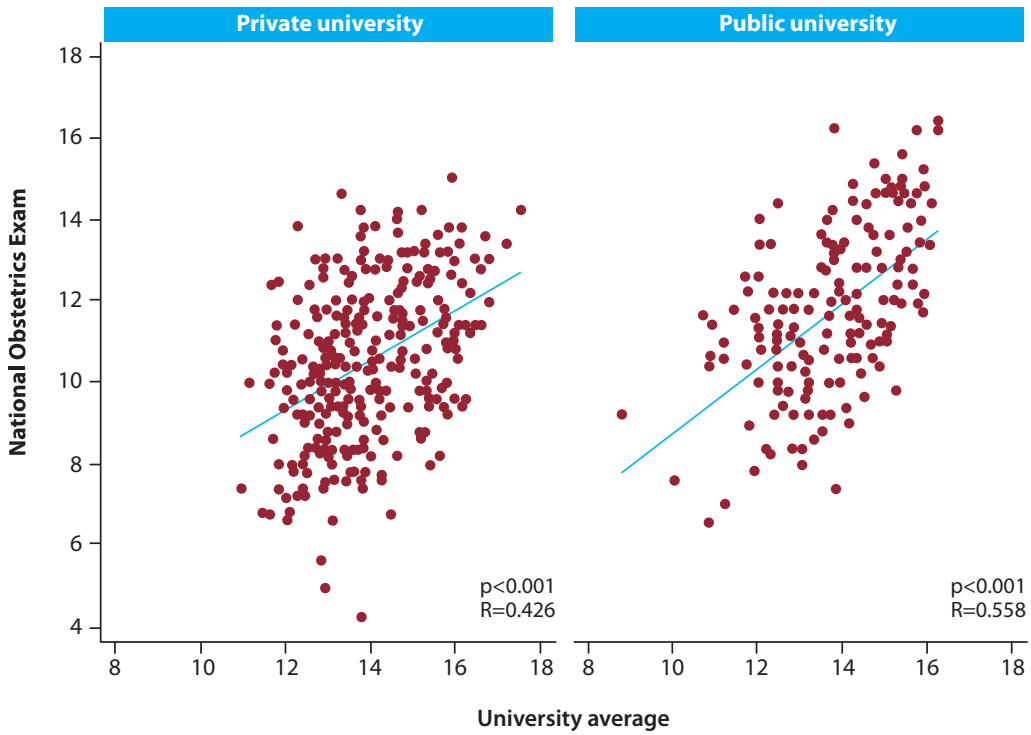

Evaluated using Pearson's correlation test.

Figure 1. Correlation between the national obstetrics examination score and the university average according to the type of university.

Table 3. Institutional characteristics associated with being able to perform the Marginal Rural and Urban Health Service (SERUMS) in obstetrics.

	Suitable to perform the SERUMS in obstetrics					
	Crude analysis †			Adjusted analysis ††		
	ORc	[IC95%]	p value	ORa	[IC95%]	p value
Type of university						
Public	2.62	[1.75 – 3.91]	<0.001	2.99	[1.99 – 4.49]	<0.001
Private		Ref.			Ref.	
Headquarter in the Capital						
Yes	1.49	[1.03 – 2.17]	0.026	2.26	[1.37 – 3.72]	0.001
No		Ref.			Ref.	
Geographic region						
Coast		Ref.			Ref.	
Mountain	1.09	[0.75 – 1.61]	0.621	1.45	[0.86 – 2.44]	0.160
Jungle	0.41	[0.09 – 1.46]	0.123	0.43	[0.12 – 1.53]	0.191

ORc: Odds Ratio Crude; Ora: Odds Ratio Adjusted; IC95%: 95% Confidence Interval.
† Tested by Pearson's Chi Square Test.
†† Evaluated by Logistic Regression Test.
R2=0.05; p<0.001.

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DISCUSSION

The results showed that having a training in a public university predisposes to a better qualification in a national exam and a higher university average. This differs from some reports that, due to the type of financing, the private university has better infrastructure, equipment and laboratories[13], which would favor the learning of its students[14]; it has also been found that public university students have disadvantages, such as an increased risk of developing anaemia[15].

However, a study carried out in Brazil mentions that teachers in public institutions show more experience in teaching and more frequently attend pedagogical training activities; also, in the private education sector, there is usually a greater teaching burden[16]. This suggests that, in a general context, the private university would provide better technological tools for its students, while the public institution would have better-trained teachers, which would determine to a greater extent greater knowledge in students.

On the other hand, having studied in the capital of the country proved to be a factor that predisposes having a higher qualification and therefore being able to award a place. This may be due to the fact that Peru is a country with notorious social inequality that does not include in its academic training the knowledge of Andean and Amazonian peoples[17,18], which translates into the presence of greater educational opportunities in the capital city; this is due to: (i) the high concentration of universities, resulting in a greater variety of educational options and costs[19] and (ii) the considerable density of professionals with postgraduate studies who migrate to the city of Lima, which exceeds 60% and reflects the centralist and inequitable distribution of the country[20].

Finally, the geographical region where the participant studied did not become a determinant in the qualifications he obtained; in this regard, no evidence has been found that compares on the basis of the same regions (coast, mountain range and jungle), but it has been done in rural or urban settings, where it was not a determinant of academic performance[21]. This may be due, in part, to the fact that Peru is in the process of homogenizing university characteristics, which must be fulfilled regardless of the geographical region of origin.

The present research provides evidence for the first time of the determinants that predispose to be able to award a place for obstetricians at the SERUMS in obstetrics, which becomes the first clinical work of many professionals. Certain limitations should also be considered, such as the possibility that some graduates with low qualifications have not applied, because they are less likely to join SERUMS; with a possible underestimation of the proportion of unsuitable professionals.

CONCLUSION

We conclude that, by means of a multivariate model, having studied the university career of obstetrics at a public university and in the capital of the country are factors that predispose to having a higher academic qualification in the national examination and in the university average, as well as being able to award a place in the SERUMS.

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