ORIGINAL ARTICLE

Association between job satisfaction and intention to migrate among Peruvian physicians and nurses

Gabriela C. Rojas[1,a]; Andrea Chávez-Arana[1,a]; Maxly Tarazona-Valencia[1,a]; Franco Romaní-Romaní[1,b]

1 Universidad de Piura, School of Human Medicine. Lima, Peru.
a Medical student; b Physician, master's degree in Epidemiology.

ABSTRACT

Objective: In Peru, there have been more than 2 million international emigrants from 1990 to 2021, including 12.6 % of healthcare professionals. This migration has resulted in a lack of human resources and work overload. Consequently, at the national level, there is a need to identify the factors associated with the intention to migrate among professionals working in healthcare facilities. At the international level, it has been found that one of the main motivations is job dissatisfaction. Therefore, the main objective of this study is to estimate the association between job satisfaction and the intention to migrate among Peruvian physicians and nurses. **Materials and methods:** An observational analytical study of secondary databases using responses from physicians and nurses from the 2016 Encuesta Nacional de Satisfacción de Usuarios en Salud (Ensusalud – National Survey of User Satisfaction in Health). The independent variable was job satisfaction among healthcare personnel, while the dependent variable was their intention to migrate. A comparison of weighted rates of the intention to migrate between job satisfaction categories and other covariates was performed using the chi-square test with second-order Rao-Scott correction. Subsequently, log-binomial models were used to estimate adjusted prevalence ratios (aPR). **Results:** The sample included 5,098 professionals. Among them, 25 % had the intention to migrate. However, such intention was not associated with job satisfaction (aPR: 1.10; 95 % CI: 0.72-1.68). Furthermore, we found that participants aged between 20 and 40 years, those who did not have a professional specialty, had an intermediate command of other languages and perceived a decline in their health due to work had an increase in the intention to migrate of 250 %, 27 %, 34 % and 61 %, respectively. **Conclusion:** We did not find an association between job satisfaction and the intention to migrate among Peruvian physicians and nurses.

Keywords: Job Satisfaction; Emigration and Immigration; Physicians; Nurses; Peru (Source: MeSH NLM).

INTRODUCTION

In Peru, between 1990 and 2021, 2,948,706 people have emigrated internationally without a record of return. Among them, 8.4 % were professionals, scientists and intellectuals, and of these, 12.6 % were physicians and nurses [1]. This phenomenon affects the availability of human resources in Peruvian health facilities and contributes to the shortage of medical personnel and specialists required to address the country's burden of morbidity and mortality [2]. Therefore, at the national level, there is a need to identify those factors associated with the intention to migrate among healthcare professionals.

Among these factors, job satisfaction is a variable resulting from many other workplace conditions, such as the work environment [3], the availability of resources depending on the type of facility [4], exposure to occupational diseases [5] and burnout syndrome [6]. In addition,

international research has linked job satisfaction with the intention to emigrate. For example, one study showed that, among Polish physicians, each increase in job satisfaction score resulted in a 56 % decrease in the probability of intending to emigrate [7].

The intention to migrate may be due to other motivations, such as the desire to seek better opportunities that ensure a higher quality of life and better employment conditions in higher-income countries [8]. All this warrants the evaluation of the influence of job satisfaction as a possible driver of migration among healthcare personnel in Peru. However, we have not found studies that have evaluated the same association of variables in our country.

Given the existing knowledge gap, this study seeks to estimate the association between job satisfaction and the intention to migrate

Gabriela C. Rojas; Andrea Chávez-Arana;
Maxly Tarazona-Valencia; Franco Romaní-Romaní

among physicians and nurses working in Peruvian healthcare facilities. We hypothesize that such an association exists, as it has been observed that interventions aimed at improving job satisfaction could contribute to the long-term retention of healthcare personnel [9]. Secondarily, our study will allow us to estimate the prevalence of the intention to migrate and the level of job satisfaction among Peruvian physicians and nurses.

MATERIALS AND METHODS

Study design and population

We conducted a cross-sectional analytical study using the database from the 2016 Encuesta Nacional de Satisfacción de Salud en Salud (Ensusalud – National Health User Satisfaction Survey) [10]. The survey was administered through face-to-face interviews in healthcare facilities nationwide and targeted both external and internal users. External users included outpatients, insurance office users, pharmacy and drugstore users, and emergency service users. Internal users included physicians and nurses, as well as a final group consisting of management staff. The survey was administered during all service shifts in the healthcare facilities, ranging from one to three shifts per day. It was carried out by the Superintendencia Nacional de Salud (Susalud - National Superintendency of Health) and the Instituto Nacional de Estadística e Informática (INEI – National Institute of Statistics and Informatics).

The reference population was healthcare professionals working in health facilities of the Ministerio de Salud (Minsa – Ministry of Health), regional governments, social health insurance (EsSalud), health services for Peruvian Armed Forces and Peruvian National Police (PNP), as well as private health facilities in Peru during 2016. Therefore, we analyzed the data collected in Questionnaire 2, aimed at medical and nursing professionals who, at the time the survey was administered, had been working continuously for at least one year.

The sampling method used was probabilistic, stratified and two-stage. The primary sampling unit consisted of the healthcare facilities in each department of Peru; additionally, the representativeness of each subsector of the health system (Minsa, regional governments, EsSalud, the Armed Forces and PNP, and the private sector) was taken into account. The second sampling unit consisted of eligible users. Simple random sampling was used in the first stage and systematic sampling in the second stage. The calculated sample size had a 95 % confidence level and a sampling error of ±5 %, achieving national representativeness across all questionnaires. Fieldwork for Ensusalud was carried out from May 13 to July 9, 2016.

The sample was composed of 5,098 healthcare professionals who agreed to respond the survey, of whom 2,216 (43.47 %) were physicians and 2,882 (56.53 %) were nurses, working in 183 healthcare facilities in the 24 departments of Peru. For the present analysis, we included the participants who fully answered the questions of interest for the study variables.

Variables and measurements

We considered job satisfaction among healthcare personnel as the independent variable, defined as the level of satisfaction with their work within the healthcare facility where they work. Section XII of Questionnaire 2 (Satisfaction) included question 78: "How would you rate your level of satisfaction with your overall work at this facility?" Responses were classified into five categories based on the Likert scale: "very satisfied," "satisfied," "neither satisfied nor dissatisfied," "dissatisfied" and "very dissatisfied." For analysis purposes, we recategorized the variable into three groups: "dissatisfied," "neutral" and "satisfied.

The dependent variable was the intention to migrate among healthcare personnel, regardless of the reason. In Section VIII (Migration and Labor Mobility), we included question 22: "Do you have plans to migrate to another location?" The response options were "yes" and "no." We grouped the variables into three categories: sociodemographic, related to professional training, and related to working conditions. The list of variables, their final measurement categories, and the corresponding codes used for their identification in the database are described in Table 1.

Table 1. Definition of the study variables

Variable	Description	Database code
Independiente variable		
Job satisfaction	In the survey, responses to job satisfaction included five categories based on levels of satisfaction. For this analysis, the options were dissatisfied, neutral and satisfied.	EXPO_TRES
Dependent variable		
Intention to migrate	Defined as the respondent's intention or plan to migrate to either a national or international destination. Measured as yes or no.	INT_MIG

Association between job satisfaction and intention to migrate among Peruvian physicians and nurses

Variable	Description	Database code
Sociodemographic covariates		
Age	In the survey, the response included the individual's date of birth and current age. For this analysis, age was categorized into the following ranges: 20-40 years, 41-60 years and 61 years and older.	EDAD_RECAT2
Sex	Categorized as male and female.	C2P4
Marital status	In the survey, the responses to this variable included five categories: single, separated, divorced, widowed, and married or cohabiting. In this analysis, it was categorized as unpartnered and partnered [11].	CIVIL_RECATT
Type of healthcare work facility	The survey considered facilities belonging to the Minsa, EsSalud, the Armed Forces, PNP and clinics. In this analysis, they were classified as either public or private [12].	INST_RECAT
Financial dependents	In the survey, the responses indicated the number of people financially dependent on the healthcare professional. For this analysis, such responses were categorized into the following ranges: none, 1-3 dependents and more than 3 dependents.	DEPEND_ECON_RECAT
Covariates related to professional training		
University of origin	In the survey, respondents reported the name of the university they attended. In this analysis, the variable was categorized as public Peruvian university, private Peruvian university and foreign university [13].	UNIV_RT
Profession	Categorized as attending physician, resident physician and nurse.	PROF_RT
Professional specialty	Measured as yes or no.	ESPEC_RT
Level of proficiency in other languages	Defined as a language other than Spanish and the level of proficiency attained. Categorized as: no proficiency in another language, basic, intermediate and advanced.	NIV_IDIOM
Covariates related to working conditions		
Income	Categorized in the following ranges: 750-1,500, 1,501-3,000, 3,001-5,000, 5,001-7,500, 7,501-10,000, more than 10,000 soles and no response.	C2P39
Perceived deterioration of health due to work	Defined as the respondent's perception of having any illness caused or aggravated by their work at the healthcare facility. Categorized as yes and no.	C2P40
External workplace violence	It consists of four types of violence: physical assault, threats, insults and sexual harassment. It was categorized as yes and no. If there was at least one affirmative response to any type of violence, the variable was interpreted as yes.	VIOLENCIA_RECAT1
Perceived quality of healthcare in the country	Categorized as has improved, remains the same, has worsened, and does not know/no response.	C2P84

We selected the listed variables because national and international studies conducted among healthcare professionals have found associations with both the independent variable (job satisfaction) [4,5,14] and the dependent variable (intention to migrate) [3-6,8,9,14-16]. These associations are summarized in Figure 1.

Gabriela C. Rojas; Andrea Chávez-Arana;
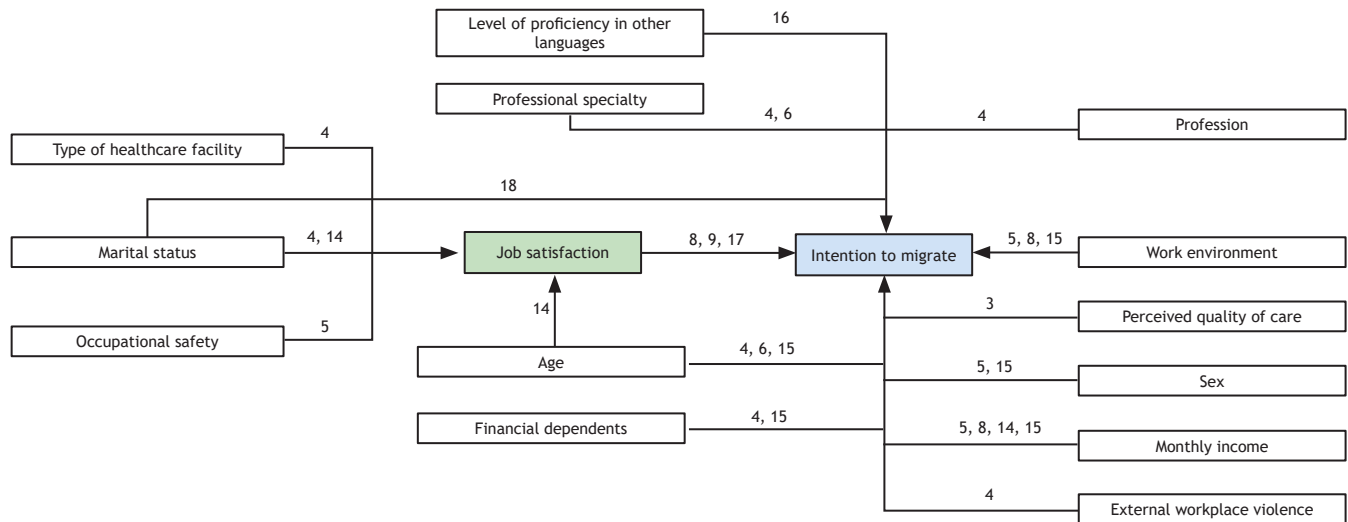Maxly Tarazona-Valencia; Franco Romaní-Romaní

Figure 1. Directed acyclic graph of the association under study between job satisfaction and the intention to migrate among healthcare professionals [3-6,8,9,14-18]
The numbers above each arrow correspond to the bibliographic reference.

Statistical analysis

The statistical analysis was conducted using Stata version 16.0 (Stata Corporation, College Station, Texas, USA), taking into account the complex sampling specifications of the 2016 Ensusalud, which includes weighting by strata, expansion factors and design effect. We used the survey module for complex samples (svy command).

We performed a descriptive analysis of the dependent, independent, sociodemographic variables (age, sex, marital status, type of health facility and financial dependents), those related to professional training (university of origin, profession, specialty, and level of proficiency in other languages) and those related to working conditions (income, perceived deterioration of health due to work, external workplace violence and perceived healthcare in the country). Accordingly, we estimated the weighted proportion with its respective 95 % confidence interval (95 % CI).

We then compared the weighted proportions of the dependent variable across the response categories of the independent variable and covariates using the chi-square test with second-order Rao-Scott correction.

For the multivariate analysis, we used log-binomial models to study the association of the independent variables with the binary outcome of the intention to migrate. This regression allowed us to estimate adjusted prevalence ratios [19]. Job satisfaction, recategorized into dissatisfied, neutral and satisfied, was considered as the exposure of interest. We formulated three models: in the first, in addition to the response variables and the explanatory factor of interest, we included sociodemographic covariates; in the second, we also considered covariates related to professional training; finally, in the third model, we combined both groups of covariates with those related to working conditions.

The variables included in the aforementioned models were those with a *p* value < 0.2 in the crude analysis. The reason for using this cutoff was to identify potential confounding variables that could affect the association between the dependent and independent variables, and to control for their effect through multivariate analysis.

Additionally, we proceed with the multivariate analysis despite the absence of a statistical association in the crude analysis because several studies have demonstrated a significant association between job satisfaction and the intention to migrate [7-9,12,20-25]. This also enabled us to control for its effect when other covariates were included. Another reason for the multivariate analysis was that the crude analysis confirmed a dose-response gradient between these variables.

We assessed the absence of multicollinearity among the independent variables in the three models by evaluating the standard errors of the log-binomial regression estimator. Variables with standard errors greater than 2.0 indicated multicollinearity among the independent variables [26]. We assessed the goodness of fit of the models with McFadden's pseudo R^2, which was conducted using SPSS, version 25.

As a secondary analysis, a binary logistic regression model was built according to the previously described process. However, this model was not used because the high proportion of the study population with the intention to migrate led to an overestimation of the odds ratio [27].

Ethical considerations

The protocol of the present study was approved by the Institutional Research Board of the Universidad de Piura. The data used are anonymous and are published under open access on the portal of Susalud.

RESULTS

Characteristics of the sample

Among the 5,098 professionals analyzed, 66.2 % were women, 49.0 % were between 41 and 60 years of age, 63.5 % had a partner, 85.4 % worked in a public institution and 75.1 % had one to three financial dependents. Regarding professional training, 57.7 % were nurses, while 37.4 % were attending physicians and 4.9 % were resident physicians. Regarding working conditions, 78.2 % did not report having or having had any illness caused and/or aggravated by work. However, 57.8 % reported having experienced at least one type of external violence in their work environment. In addition, 76.0 % were satisfied with their job in the healthcare facility, and 25.2 % were planning to migrate to another location, including another region of Peru or another country (Table 2).

Table 2. Characteristics of the physicians and nurses participating in 2016 Ensusalud (*N* = 5,098)

Characteristics	Unweighted absolute frequency	Weighted proportion (%)	95 % CI		Standard error (%)
Main variables					
Job satisfaction					
Dissatisfied	342	7.0	5.0	9.7	1.2
Neutral	804	17.0	14.5	19.8	1.4
Satisfied	3,952	76.0	72.6	79.1	1.7
Intention to migrate					
No	3,584	74.8	71.6	77.7	1.5
Yes	1,514	25.2	22.3	28.4	1.5
Sociodemographic variables					
Age (years)					
20-40	2,028	41.0	37.5	44.6	1.8
41-60	2,484	49.0	45.4	52.6	1.8
61 and older	586	10.0	8.3	12.0	0.9
Sex					
Male	1,915	33.8	30.1	37.6	1.9
Female	3,183	66.2	62.4	69.9	1.9
Marital status					
Unpartnered	1,715	36.5	32.7	40.5	2.0
Partnered	3,383	63.5	59.5	67.3	2.0
Type of healthcare facility					
Public	4,776	85.4	73.7	92.4	4.7
Private	322	14.6	7.6	26.3	4.7
Financial dependents [a]					
None	455	10.9	8.8	13.4	1.1
1-3	3,779	75.1	71.8	78.1	1.6
More than 3	859	14.0	11.8	16.5	1.2
Variables related to professional training					
University of origin [b]					
Public Peruvian university	3,578	60.8	56.4	64.9	2.2

Gabriela C. Rojas; Andrea Chávez-Arana;
Maxly Tarazona-Valencia; Franco Romaní-Romaní

Characteristics	Unweighted absolute frequency	Weighted proportion (%)	95 % CI		Standard error (%)
Private Peruvian university	1,324	35,0	31.1	39.1	2.0
Foreign university	195	4.3	2.9	6.1	0.8
Profession					
Attending physician	1,867	37.4	33.5	41.5	2,0
Resident physician	349	4.9	3.0	7.9	1.2
Nurse	2,882	57.7	54.4	61.0	1.7
Professional specialty					
No	2,873	48.3	44.3	52.2	2.0
Yes	3,025	51.7	47.8	55.7	2.0
Level of proficiency in other languages					
No proficiency	1,096	20.1	17.5	23.0	1.4
Basic	2,013	41.6	38.1	45.3	1.8
Intermediate	1,432	27.0	23.3	30.9	1.9
Advanced	557	11.3	9.1	14.0	1.2
Variables related to working conditions					
Income (soles)					
750-1,500	248	5.9	4.4	7.9	0.9
1,501-3,000	1,259	30.1	25.9	34.7	2.2
3,001-5,000	1,943	31.8	27.9	35.9	2.0
5,001-7,500	939	18.7	15.6	22.3	1.7
7,501-10,000	450	9.4	7.6	11.6	1.0
More than 10,000	212	3.4	2.4	4.9	0.6
No response	47	0.7	0.4	1.2	0.2
Perceived deterioration of health due to work					
No	3,865	78.2	75.1	80.9	1.5
Yes	1,233	21.9	19.1	24.9	1.5
External workplace violence					
No	2,967	57.8	52.4	63.0	2.7
Yes	2,131	42.2	37.0	47.6	2.7
Perceived healthcare in the country					
Has improved	1,465	32.3	28.0	37.0	2.3
Remains the same	2,255	45.1	41.70	48.5	1.7
Has worsened	1,370	22.5	18.8	26.8	2.0
Does not know / No response	8	0.1	0.1	0.3	0.1

[a] Five missing data values.
[b] One missing data value.

Bivariate analysis

At the crude level, among those who expressed job dissatisfaction, 30.3 % had the intention to migrate, while among those who were satisfied, the proportion was 24.0 %. However, no significant differences were found (p = 0.297). The sociodemographic covariate associated with the intention

to migrate was age: 8.1 % of individuals aged 61 years and older reported the intention to migrate, compared to 34.3 % among those aged 20-40 years ($p < 0.001$).

We found three professional training-related covariates that were associated with the intention to migrate: resident physicians (42.0 %) had a higher intention to migrate compared to attending physicians (25.9 %) and nurses (23.4 %) ($p = 0.002$).

A total of 30 % of individuals without a professional specialty reported the intention to migrate, compared to 20.8 % among those who had one. Finally, those who had no proficiency in other languages had the lowest intention to migrate (19.6 %). The only covariate related to working conditions and associated at the crude level with the intention to migrate was being a victim of external workplace violence (32.9 % vs. 19.6 %, $p < 0.001$). Other associations are shown in Table 3.

Table 3. Frequency of the intention to migrate among physicians and nurses according to job satisfaction response categories and other covariates, Peru (2016)

Characteristic	Unweighted count	Weighted proportion (%)	95 % CI		p value [a]
Main variables					
Job satisfaction					
Dissatisfied	138	30.3	19.60	43.6	0.297
Neutral	301	28.6	22.78	35.32	
Satisfied	1,075	24.0	20.67	27.72	
Sociodemographic variables					
Age (years)					
20-40	809	34.3	29.2	39.7	< 0.001
41-60	629	21.2	18.0	24.7	
61 and older	76	8.1	5.6	11.57	
Sex					
Male	668	28.8	24.3	33.6	0.083
Female	846	23.5	19.8	27.6	
Marital status					
Unpartnered	616	31.1	25.8	36.9	0.074
Partnered	898	21.9	18.3	25.9	
Type of healthcare facility					
Public	1,424	25.0	21.6	28.6	0.640
Private	90	26.9	20.3	34.8	
Financial dependents					
None	192	29.9	22.90	37.9	0.385
1-3	1,061	24.7	21.2	28.5	
More than 3	258	24.5	19.4	30.5	
Variables related to professional training					
University of origin					
Public Peruvian university	979	22.3	19.7	25.1	0.078
Private Peruvian university	449	28.7	21.4	37.3	
Foreign university	86	39.2	23.4	57.6	

Gabriela C. Rojas; Andrea Chávez-Arana;
Maxly Tarazona-Valencia; Franco Romaní-Romaní

Characteristic	Unweighted count	Weighted proportion (%)	95 % CI		p value [a]
Profession					
Attending physician	622	25.9	22.1	30.2	0.002
Resident physician	150	42.0	33.9	50.6	
Nurse	742	23.4	19.6	27.7	
Professional specialty					
No	698	30.0	24.7	35.7	0.003
Yes	816	20.8	18.2	23.7	
Level of proficiency in other languages					
No proficiency	232	19.6	14.3	26.2	0.005
Basic	577	21.7	18.1	25.7	
Intermediate	495	30.7	24.6	37.6	
Advanced	210	35.5	26.3	46.0	
Variables related to working conditions					
Income (soles)					
750-1,500	100	37.7	26.6	50.2	0.453
1,501-3,000	343	24.9	18.4	32.8	
3,001-5,000	563	23.5	20.3	27.1	
5,001-7,500	303	25.8	19.5	33.4	
7,501-10,000	135	23.4	14.9	34.8	
More than 10,000	57	23.3	15.0	34.3	
No response	13	30.4	11.3	59.9	
Perceived deterioration of health due to work					
Yes	396	28.1	24.2	32.3	0.179
No	1,118	24.5	20.9	28.3	
External workplace violence					
No	815	19.6	16.6	23.1	< 0.001
Yes	699	32.9	26.7	39.9	
Perceived healthcare in the country					
Has improved	463	24.1	19.8	29.1	0.810
Remains the same	635	25.5	21.7	29.8	
Has worsen	413	26.3	22.4	30.6	
Does not know / No response	3	25.3	6.1	63.8	

[a] Comparison of weighted proportions using the chi-square test with second-order Rao-Scott correction.

Multivariate analysis

Based on statistical criteria, in the first model, age, sex and marital status were included as covariates; in the second model, we added the following covariates: university of origin, profession, professional specialty and level of proficiency in other languages; finally, in the third model, all covariates were considered (Table 4).

Table 4. Log-binomial regression analysis to assess the association between job satisfaction and the intention to migrate among physicians and nurses, Peru (2016)

Variables	Model 1[a]		Model 2[b]		Model 3[c]	
	PR (95 % CI)	*p* value	PR (95 % CI)	*p* value	PR (95 % CI)	*p* value
Main variables						
Job satisfaction						
Dissatisfied	1.16 (0.75-1.80)	0.505	1.13 (0.71-1.79)	0.616	1.10 (0.72-1.68)	0.651
Neutral	1.09 (0.83-1.44)	0.539	1.10 (0.86-1.40)	0.453	1.04 (0.82-1.31)	0.749
Satisfied	Reference		Reference		Reference	
Sociodemographic adjustment variables						
Age (years)						
20-40	4.31 (2.77-6.71)	< 0.001	3.74 (2.49-5.62)	< 0.001	3.50 (2.42-5.07)	< 0.001
41-60	2.84 (1.83-4.41)	< 0.001	2.69 (1.75-4.15)	< 0.001	2.47 (1.65-3.68)	< 0.001
61 and older	Reference		Reference		Reference	
Sex						
Male	1.39 (1.12-1.72)	0.003	1.32 (1.02-1.71)	0.035	1.27 (0.99-1.61)	0.057
Female	Reference		Reference		Reference	
Marital status						
Unpartnered	1.29 (1.02-1.63)	0.035	1.21 (0.96-1.55)	0.112	1.21 (0.97-1.50)	0.092
Partnered	Reference		Reference		Reference	
Adjustment variables related to professional training						
University of origin						
Public Peruvian university	-		Reference		Reference	
Private Peruvian university	-		1.07 (0.79-1.45)	0.647	1.10 (0.84-1.44)	0.494
Foreign university	-		1.41 (0.91-2.17)	0.123	1.42 (0.97-2.09)	0.074
Profession						
Attending physician	-		Reference		Reference	
Resident physician	-		1.05 (0.80-1.37)	0.716	1.07 (0.83-1.38)	0.602
Nurse	-		1.13 (0.83-1.52)	0.437	1.14 (0.86-1.51)	0.354
Professional specialty						
No	-		1.27 (1.01-1.59)	0.043	1.27 (1.03-1.57)	0.028
Yes	-		Reference		Reference	
Level of proficiency in other languages						
No proficiency	-		Reference		Reference	
Basic	-		0.99 (0.71-1.39)	0.973	1.01 (0.74-1.37)	0.969
Intermediate	-		1.32 (0.99-1.76)	0.056	1.34 (1.01-1.78)	0.041
Advanced	-		1.48 (0.94-2.33)	0.091	1.42 (0.94-2.15)	0.095

Gabriela C. Rojas; Andrea Chávez-Arana;
Maxly Tarazona-Valencia; Franco Romaní-Romaní

Variables	Model 1[a]		Model 2[b]		Model 3[c]	
	PR (95 % CI)	*p* value	PR (95 % CI)	*p* value	PR (95 % CI)	*p* value
Perceived deterioration of health due to work						
No	-		-		Reference	
Yes	-		-		1.61 (1.21-2.14)	0.001
External workplace violence						
No	-		-		Reference	
Yes	-		-		1.07 (0.91-1.27)	0.406

PR: prevalence ratio, 95 % CI: 95 % confidence interval.
[a] Model 1: adjusted to demographic variables.
[b] Model 2: adjusted to sociodemographic variables and related to professional training.
[c] Model 3: adjusted to sociodemographic variables, related to professional training and working conditions. For model 1 McFadden's R^2 = 0.048, for model 2 McFadden's R^2 = 0.061, and for model 3 McFadden's R^2 = 0.080.

In none of the models was the intention to migrate found to be associated with job satisfaction. In Model 1, the three sociodemographic variables were independently associated with the intention to migrate. Professionals aged 20-40 years had 4.31 times higher probability of intending to migrate compared to those aged 61 years and older (95 % CI: 2.77-6.71). Male professionals and those unpartnered had a 39 % and 29 % higher probability of intending to migrate, respectively.

In Model 2, age and sex remained significant factors associated with an increased probability of intending to migrate. Among the variables related to professional training, not having a professional specialty increased the probability of intending to migrate by 27 % (95 % CI: 1.01-1.59).

Finally, in Model 3, age and professional specialty remained as significant factors. Regarding the variables related to working conditions, there was a greater probability of intending to migrate among those who perceived a deterioration in their health due to work (aPR = 1.61, 95 % CI: 1.21-2.14). The goodness-of-fit estimates are presented in Table 4.

DISCUSSION

In a representative sample of nurses and physicians from healthcare facilities in Peru, no association was found between job satisfaction and the intention to migrate. Global studies that have assessed this same association have had contradictory results [14, 23, 28]. On the other hand, we found that various factors may contribute more significantly to the intention to migrate among Peruvian healthcare professionals, such as being 60 years old or younger, not having a professional specialty and perceiving a deterioration in health due to work.

Among the studies with findings consistent with ours, two cross-sectional studies stand out. The first study was conducted among Irish resident physicians, in whom no association was found between the intention to migrate and job dissatisfaction, lack of job opportunities or poor medical training [28]. Similarly, a multicenter study in Nigeria among physiotherapists also found no association between job satisfaction and the intention to migrate [14]. Although this study involved a different occupational group, the sample was drawn from various public and private healthcare institutions nationwide, providing representativeness.

Some studies have found an association between the variables analyzed. A study conducted among a sample of 1,055 nurses from 12 hospitals in the Czech Republic and Slovakia reported a significant association between job satisfaction and the probability of migrating. Such probability of migrating was assessed in terms of the following intentions: to leave the current workplace, change the nursing profession and work abroad. The study was conducted on a non-representative sample, which could explain the discrepancy with our results [23].

Another cross-sectional study surveyed Nigerian resident physicians to assess their intention to migrate and associated factors. A total of 71.3 % of the respondents were dissatisfied with their work environment, and this variable showed a significant association with the intention to migrate. The contrast between their results and ours may be due to differences in design, such as involving only resident physicians and being a single-center study [8].

There are other factors independently associated with the intention to migrate in our study, which have also been identified in other studies, such as age, having a medical specialty, proficiency in languages and perceived deterioration of health due to work. Participants aged 20-40 years reported 3- to 4-fold higher probability of intending to migrate compared to those aged 61 years and older, which is similar to the results of Aiken et al., who found a 30 % higher probability of intending to migrate among physicians younger than 30 years in England and Scotland [29]. This may be related to the fact that younger, generally unattached people with more energy and craving for new experiences outside their place of origin do not have a motivation to stay in the current job or country.

On the other hand, not having a medical specialty was a factor associated with the intention to migrate. General practitioners (i.e., those without a specialty) seek job opportunities in locations with institutions where they can pursue specialization in a medical field, as demonstrated by a study conducted among Polish physicians, which concluded that improving working conditions—including the availability of training opportunities—helps prevent the intention to migrate [7]. Another plausible explanation is that specialist physicians, due to their higher income, tend to remain in their workplace [30]. In Peru, it has been observed that physicians tend to concentrate in the capital or work abroad for further professional development [2,7].

Regarding proficiency in languages, the group with an intermediate level showed a higher intention to migrate, as they can adapt more easily to a different environment compared to those with only a basic level or no knowledge of another language. This finding was previously reported in Peru: among male physicians, having an intermediate or advanced level increased the probability of emigrating by 77 % [16], regardless of other factors. The association between strong proficiency in foreign languages and the intention to migrate can be explained by two reasons. First, countries that receive healthcare professionals mostly require English as the main prerequisite; therefore, the intention to migrate motivates them to learn the language. Second, those who already have a good command of a foreign language tend to have a higher intention to migrate, as they feel more confident in their ability to adapt to a new environment [16].

Personnel who perceive a deterioration in their health due to work—i.e., who believe they have an illness caused and/or aggravated by their job—showed a higher intention to migrate compared to those who do not share this perception. This relationship is independent of job satisfaction; therefore, suggesting that this variable may influence the intention to migrate for reasons unrelated to job satisfaction. To our knowledge, this variable has not been previously measured in international studies; consequently, it would be interesting to take it into account in future research.

The study has limitations that should be considered when interpreting the findings. First, as a study based on secondary sources, the sample size used was not specifically designed to assess the association under analysis; instead, all the individuals who met the selection criteria and were enrolled in the Ensusalud were included. Second, the information was self-reported, which may introduce measurement bias, such as social desirability bias. Third, we used data from a cross-sectional study; therefore, it not possible to determine the temporal sequence between the variables studied.

Additionally, the word "migrate" encompasses the concepts of both internal migration (between the different regions of the country) and external migration (abroad), because the question used from the database is dichotomous and refers to the term as a general concept. In the study, we hypothesize that people from the provinces would preferably migrate to the capital, while residents of the capital would migrate abroad. Future research should analyze the role of migration type in the specific association between job satisfaction and the intention to migrate. Finally, our study did not include other covariates, such as work-related stress [6], family responsibilities or job stability; therefore, their inclusion is recommended in future studies as associated factors.

Among the strengths of the study, we used a secondary data database whose sample design allowed the results to be nationally representative, unlike other single-center studies. Confounding variables were identified through an exhaustive literature search. Likewise, we used a statistical criterion for their inclusion as adjustment covariates in the multivariate model. Finally, we emphasize that, based on our research, there are no studies evaluating the same association of variables in our country.

In conclusion, our research did not reveal a significant association between the job satisfaction experienced by physicians and nurses and their intention to migrate. This finding suggests that job satisfaction alone does not play a decisive role in emigration decision-making. However, we identified other characteristics that influence this intention, such as younger age and belonging to the general practitioner group. We also observed that certain work-related factors—particularly the perceived deterioration of health due to work—are associated with the intention to migrate.

These results highlight the need to address multiple and more complex factors influencing the migration decisions among Peruvian healthcare personnel and underscore the importance of developing retention strategies and improving working conditions for this group of professionals.

Based on the findings, we recommend further study of other variables that better and more closely explain the intention to migrate among physicians and nurses from Peruvian healthcare facilities. Furthermore, it is recommended to design, implement and evaluate strategies aimed at avoiding the loss of recently trained human resources that could contribute to the development of our health sector. Likewise, there is a need to update the Ensusalud database to evaluate whether the COVID-19 pandemic had any effect on our variables and on the intention of Peruvian physicians to migrate.

BIBLIOGRAPHIC REFERENCES

1. Trejo Bedón J, Huaman Vera E, Palomares Cristobal R, Cortez Lope J. Perú: Estadísticas de la emigración internacional de peruanos e inmigración de extranjeros, 1990-2021 [Internet]. Lima: INEI; 2022. Available from: https://cdn.www.gob.pe/uploads/document/file/3472894/Per%C3%BA%3A%20Estad%C3%ADsticas%20de%20la%20Emigraci%C3%B3n%20Internacional%20de%20Peruanos%20e%20Inmigraci%C3%B3n%20de%20Extranjeros%2C%201990%-20%E2%80%93%202021.pdf?v=1659707498

2. Ramírez M. Expectativas profesionales de internos de medicina y su inclinación por la atención primaria de salud. An Fac Med [Internet]. 2008;69(3):176-81.

3. Koch P, Zilezinski M, Schulte K, Strametz R, Nienhaus A, Raspe M. How Perceived Quality of Care and Job Satisfaction Are Associated with Intention to Leave the Profession in Young Nurses and Physicians. Int J Environ Res Public Health [Internet]. 2020;17(8):2714.

4. Vidal Panduro DA, Cochella Tizón OJ. Asociación entre violencia laboral externa e intención de migración en médicos que laboran en instituciones prestadoras de servicios de salud en Perú: análisis de la Encuesta Nacional de Satisfacción de Usuarios de los Servicios de Salud (ENSUSALUD 2016) [Undergraduate thesis]. Lima: UPC; 2019. Retrieved from: https:// repositorioacademico.upc.edu.pe/handle/10757/625800

5. Alameddine M, Kharroubi SA, Dumit NY, Kassas S, Diab-El-Harake M, Richa N. What made Lebanese emigrant nurses leave and what would bring them back? A cross-sectional survey. Int J Nurs Stud [Internet]. 2020;103:103497.

6. Santiago-Ullero B, Valer-Villanueva S, Urrunaga-Pastor D, Benites-Zapata VA. Estrés percibido e intención de migrar al interior del país en médicos y enfermeros que residen en Lima: un análisis exploratorio de la Encuesta Nacional de Satisfacción de Usuarios en Salud (ENSUSALUD), 2015. Rev Peru Med Exp Salud Publica [Internet]. 2017;34(3):404.

7. Domagała A, Dubas-Jakóbczyk K. Migration intentions among physicians working in Polish hospitals – Insights from survey research. Health Policy [Internet]. 2019;123(8):782-9.

8. Adebayo A, Akinyemi OO. "What Are You Really Doing in This Country?": Emigration Intentions of Nigerian Doctors and Their Policy Implications for Human Resource for Health Management. J Int Migr Integr [Internet]. 2022;23(3):1377-96.

9. Braun KP, Shaar M, Gumz A, Shaar A, Pantenburg B, Deutsch S, et al. Job Satisfaction and Intentions to Leave of Foreign-National Urologists Working at German Hospitals: Results of the Cross-Sectional EUTAKD Study. Urol Int [Internet]. 2022;106(12):1304-12.

10. Superintendencia Nacional de Salud. Base De Datos - 2016 [Internet]. Lima: SUSALUD; 2018. Available from: http://portal.susalud.gob.pe/blog/base-de-datos-2016/

11. Pinto da Costa M, Moreira C, Castro-de-Araujo LFS, Da Silva FM, Dos Santos RA. Migration of Junior Doctors: The Case of Psychiatric Trainees in Portugal. Acta Med Port [Internet]. 2021;34(7-8):533-40.

12. Labrague LJ, Gloe DS, McEnroe-Petitte DM, Tsaras K, Colet PC. Factors influencing turnover intention among registered nurses in Samar Philippines. Appl Nurs Res [Internet]. 2018;39:200-6.

13. Mayta-Tristán P, Mejia CR, Riega-Lopez P, Rojas-Mezarina L, Posso M, Mezones-Holguín E. Proyección de trabajo en el interior del país y factores asociados en médicos recién colegiados de Lima, Perú 2010. Rev Peru Med Exp Salud Publica [Internet]. 2011;28(2):186-93.

14. Oyeyemi AY, Oyeyemi AL, Maduagwu SM, Rufai AA, Aliyu SU. Professional Satisfaction and Desire to Emigrate among Nigerian Physiotherapists. Physiother Canada [Internet]. 2012;64(3):225-32.

15. Goštautaitė B, Bučiūnienė I, Milašauskienė Ž, Bareikis K, Bertašiūtė E, Mikelionienė G. Migration intentions of Lithuanian physicians, nurses, residents and medical students. Health Policy [Internet]. 2018;122(10):1126-31.

16. Pereyra-Elías R, Cassana A, Mezones-Holguín E, Mayta-Tristán P. Diferencias según género en la intención de emigración en médicos recién egresados. An Fac Med [Internet]. 2013;74(3):211-6.

17. Dubas-Jakóbczyk K, Domagała A, Kiedik D, Peña-Sánchez JN. Exploring Satisfaction and Migration Intentions of Physicians in Three University Hospitals in Poland. Int J Environ Res Public Health [Internet]. 2020;17(1):43.

18. Võrk A, Kallaste E. Migration intentions of health care professionals: the case of Estonia [Internet]. Estonia: PRAXIS Center for Policy Studies; 2004. Available from: https://www.praxis.ee/wp-content/uploads/2014/03/2004-Migration-intentions-of-health-careprofessionals.pdf

19. Williamson T, Eliasziw M, Fick GH. Log-binomial models: Exploring failed convergence. Emerg Themes in Epidemiol [Internet]. 2013;10(1):1-10.

20. Karayurek Y, Demirci H. Reasons for the relocation of contracted family physicians and job satisfaction. Fam Pract [Internet]. 2021;38(5):556-61.

21. Pantenburg B, Kitze K, Luppa M, König HH, Riedel-Heller SG. Physician emigration from Germany: insights from a survey in Saxony, Germany. BMC Health Serv Res [Internet]. 2018;18(1):341.

22. Opoku ST, Apenteng BA. Seeking greener pastures? The relationship between career satisfaction and the intention to emigrate: a survey of Ghanaian physicians. Int Health [Internet]. 2014;6(3):208-12.

23. Gurková E, Soósová MS, Haroková S, Ziaková K, Serfelová R, Zamboriová M. Job satisfaction and leaving intentions of Slovak and Czech nurses. Int Nurs Rev [Internet]. 2013;60(1):112-21.

24. Bilodeau H, Leduc N, Contandriopoulos AP, Sainte-Marie G, Fournier MA, Dandavino A. Beyond the statistics: why are Quebec physicians emigrating? Cah Sociol Demogr Med [Internet]. 2001;41(2):239-61.

25. Vanasse A, Scott S, Courteau J, Orzanco MG. Canadian family physicians' intentions to migrate: associated factors. Can Fam Physician [Internet]. 2009;55(4):396-7.

26. Chan YH. Biostatistics 202: logistic regression analysis. Singapore Med J [Internet]. 2004;45(4):149-53.

27. Schiaffino A, Rodríguez M, Pasarín MI, Regidor E, Borrell C, Fernández E. ¿Odds ratio o razón de proporciones?: Su utilización en estudios transversales. Gac Sanit [Internet]. 2003;17(1):70-4.

28. Clarke N, Crowe S, Humphries N, Conroy R, O'Hare S, Kavanagh P, et al. Factors influencing trainee doctor emigration in a high income country: a mixed methods study. Hum Resour Health [Internet]. 2017;15(1):66.

29. Aiken LH, Clarke SP, Sloane DM, Sochalski JA, Busse R, Clarke H, et al. Nurses' reports on hospital care in five countries. Health Aff (Millwood) [Internet]. 2001;20(3):43-53.

30. Canchari Huamán DJ, Pérez Valencia MR. Factores asociados a la intención de trabajar en el primer nivel de atención en salud de estudiantes de Medicina de 1er y 5to año en Latinoamérica [Undergraduate thesis]. Lima: UPC; 2019. Retrieved from: https://repositorioacademico.upc.edu.pe/bitstream/handle/10757/625124/Canchari_HD.pdf?sequence=5&isAllowed=y