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Abstract:	The immigrant population in Seville has grown over the last 10 years, most of which are Latin Americans. Our aim was to describe the health status perceived in this emerging population. In 2011, a cross-sectional study was performed on a representative sample of 190 Latin American immigrants between the ages of 25 and 44 years residing in Seville (Spain).The self-sensed health status was 18% excellent, 28% very good, 42% good, 11% regular, and 1% poor. The average number of days of satisfactory health status during the last month was 22. Statistically significant differences were found: a) Higher satisfactory perception of health in men than in women (30% versus 9%) and b) Higher average number of days with excellent health in people with satisfactory perception than those with an unsatisfactory perception of their health status (23 and 15, respectively). Logistic regression, educational level, number of days of good health, and doing physical exercise were the variables that best explained the satisfactory perception of health status. Most people studied have a positive self-assessment of their health status, especially men, who engage in physical activity and those who have three and more weeks of good health per month. Our results permit us to support, to a large extent, the theory of the "healthy immigrant".

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Abstract
The immigrant population in Seville has grown over the last 10 years, most of which are Latin Americans. Our aim was to describe the health status perceived in this emerging population. In 2011, a cross-sectional study was performed on a representative sample of 190 Latin American immigrants between the ages of 25 and 44 years residing in Seville (Spain).The self-sensed health status was 18% excellent, 28% very good, 42% good, 11% regular, and 1% poor. The average number of days of satisfactory health status during the last month was 22. Statistically significant differences were found: a) Higher satisfactory perception of health in men than in women (30% versus 9%) and b) Higher average number of days with excellent health in people with satisfactory perception than those with an unsatisfactory perception of their health status (23 and 15, respectively). Logistic regression, educational level, number of days of good health, and doing physical exercise were the variables that best explained the satisfactory perception of health status. Most people studied have a positive self-assessment of their health status, especially men, who engage in physical activity and those who have three and more weeks of good health per month. Our results permit us to support, to a large extent, the theory of the "healthy immigrant".

Kew words (MeSH): Emigration and Immigration; Health Status; Latin America; Spain.

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Introduction

The immigrant population in Spain during 2012 represents 12.2% of the total resident individuals, with a presence of 8.7% in the Autonomous Community of Andalucía and 4.2% in Seville [1]. In said city, the immigrant population, in their vast majority from Latin America, has increased by 3.4% over the last 10 years [2]. This has provoked a great interest in getting to know the implications of this phenomenon in different settings, among which is in health. Research on the immigrants' health in Spain has led us to identify it as being a young and healthy population [3, 4], with a similar pathology to that of the local populations [5].

These types of approaches are of great importance, given that – as suggested by Gushulak [6] and Rodríguez et al. [7] – studying health exclusively through the patients attending healthcare services may create stereotypes which identify the immigrant population as sick individuals, when the reality seems to be different. As posed by the aforementioned authors [6,7], the lack of immigrant representation in some regional health surveys is what provokes works such as the one reported herein, which tries to reply to questions that have not been answered with the information from available population-based healthcare records.

Some authors [8-10] reveal how the health of the immigrant group worsens as their length of stay increases in the host country. Perhaps this fact is associated to the hypothesis of the "healthy immigrant", linked to deterioration of health after their arrival in the host country, which different studies have related to the loss of social status [11], lack of materials [12], economic uncertainty [13], discrimination, and rupture of social support [14], among other factors.

In population studies that assess health status, the common question is "How has your health status been within the last 30 days?" as a strong indicator in which those surveyed appraise their health in terms of lack of disease, functional limitations and, subjective health experiences [15, 16]. In Spain, there are published few articles on health status and quality of perceived health that focus mainly on the study of morbidity cared for in the immigrant collectivity [17] and on the use of healthcare services [18] except for the National Health Survey conducted in 2006, which offers data on the life styles of the population by autonomous communities, differentiating Spaniards from foreigners, but without specifying their origin [19], but obviously, health status cannot be exclusively measured through the population that attends healthcare centers and the results obtained cannot be extrapolated

to other contexts. This is why the objective, herein, is to describe the self-perceived health status in the adult Latin American immigrant population in Seville, during 2011.

Methods

A cross-sectional descriptive study was carried out, using a stratified sampling with proportional allocation by variables of: gender, age, and administrative districts in Seville (Spain). A representative sample of 190 subjects was taken from a total population of 8,675 Latin American immigrants between 25 and 44 years of age; said age range was used as it was the most frequent when performing studies in this population [20].

The study used some sections of the survey from the Surveillance System of Risk Factors associated to behavior from the Centers for Disease Prevention and Control of the United States [21]; this article will present the results of the analysis of the dependent variable *perception of health status* with the socio-demographic type independent variables of gender, age, marital status or living together, educational level and others of interest such as doing physical activity, category of body mass index, risk of alcoholism and days of good health within the last month.

This research denominated *immigrant* as "that person who, being from a country of origin different from Spain, at the moment of conducting the survey has a regular established place of residence within the national territory"; corresponding to the definition used by the National Statistics Institute in its 2007 National Survey on Immigrants [22].

This study also considered the definitions for these variables: a) *health status:* subjective perception of comprehensive well-being [16] with five response options (excellent, very good, good, regular, and poor). For some statistical analyses, the prior variable was dichotomized as *satisfactory* perception of health (excellent, very good, and good) and *unsatisfactory* (regular and poor); b) it was considered that subjects engaged in *physical activity during leisure time,* if they performed any type of physical activity for at least 30 minutes, three or more times a week outside work or the academic scenario [23]; c) to calculate the body mass index (BMI), weight in kilograms was divided by the height expressed in square meters, categorizing the result of this index into: underweight: ≤18.5, normal weight: 18.5 to 24.9, overweight: 25.0 to 34.9, and obesity: ≥35.0.

Data was collected from January to May 2011. The selection criteria included: people from any gender residing in any of the Official Neighborhoods or Census Sections from the 11 administrative districts in Seville; being between 25 and 44 years of age; having been born in any of the countries considered by the United Nations Organization in its classification of nationalities, territories, and regions [24] as countries from Latin America or from the South (Argentina, Bolivia, Brazil, Chile, Colombia, Cuba, Ecuador, Paraguay, Peru, Uruguay, Venezuela) and having emigrated to Spain; being able to communicate and understand the requirements of the study; and having signed the informed consent form. The information was gathered by a sole pollster.

To recruit participants, several associations and groups of Latin American immigrants from the district were contacted to facilitate data collection. The procedures used to conduct this study followed the ethical principles gathered by the 1975 Helsinki Declaration by the World Medical Association (updated in 2008), with the approval from the Ethics and Experimentation Committee at the University of Seville, meeting current established norms in Spain and the European Union for experiments with human subjects. A written informed consent was created to protect the honor, anonymity, and personal intimacy of the subjects, according to Organic Legislation 15/1999 regarding Protection of Personal Data; the surveys were numbered.

The data was analyzed via the SPSS statistical package version 18.0 for Windows. Descriptive analyses were conducted, using central tendency and dispersion measurements for quantitative variables, whether they had a normal distribution or not; proportions were used for the qualitative variables. The study explored relationships of some variables of interest, using the statistics indicated for independent samples, thus: a) *difference of proportions*: the χ^2 test was applied if the values expected from the boxes in the contingency tables were ≥5, on the contrary the Yates' continuity correction was used; b) measurement differences: student's t test was used, and c) *logistic regression model:*

A step by step model was used, which introduced the variables: age, gender, marital status or living with someone, educational level, BMI category, engaging in physical activity, risk of alcoholism, previous occupation, current occupation, and days per month in good health. The likelihood of entering the model was between 0.05 and 0.09 and the classification table cutoff point was 0.5; the statistical significance for each variable was examined via the individual β parameter. All the parameters estimated were adjusted by the effect from the rest

of the variables included in the block. Only the variables presenting statistical significance ($p<0.05$) were included in subsequent models. Lastly, the dependent variable was included: perception of health status, assigning the value of 1 for those reporting a satisfactory perception and 0 for those reporting it as unsatisfactory, according to the definition already shown.

Results

Socio-demographic characterization. The general socio-demographic profile of the 190 participants was as follows: mean age was 33.8±6.3 years; 60% were women; in regard to marital status, 45.3% were married, 36.8% were single, and 8.9% lived with a partner without being married; regarding educational level, 3.7% had no schooling, 15.3% had completed elementary school, 40% had finished high school, 16.8% had higher education, and 24.2% had university degrees. By country of origin, from the highest to the lowest contribution to this survey, we found the following: Bolivia (32.6%), Peru (18.9%), Colombia (16.8%), Ecuador (11.1%), Paraguay (5.2%), Chile (4.2%), Brazil (1.6%), Nicaragua (1.1%), and Argentina and Cuba (0.5% each). On analyzing the length of residence in Spain, it was found that the sample had a mean of 5.4±3.6 years, slightly higher than the mean of time of residence in Seville (4.6±3.2 years). In respect to the occupation they had in their country of origin, the highest proportions were found in those employed by another (53.7%), self-employed (13.3%), unemployed and student (11.6% each), and housewife (5.8%). However, with respect to the current occupation, the highest frequency was found in those employed by another (59.3%), followed by self-employed (18.4%), unemployed (10.5%), student (6.8%), and housewife (4.7%). A moderate correlation ($ro=0.36$; $p<0.01$) was found between the previous and current occupations.

Perceived health status. Table 1 reveals that 87.1% of the participants believed their health status to be between excellent, very good, and good. A significant difference was found among the perception proportions of the categories for this variable by gender (χ^2 with Yates' correction = 18.57; p= 0.001); in men, the proportion of "excellent" health status is almost three times that observed in women.

Although differences were not statistically significant, Table 2 shows that the perception of satisfactory health status was higher in women, in those under 35 years of age, with high school education or higher, normal weight,

engaging in physical exercise, and with no risk of alcoholism; the probability value was close to having statistical significance in this last variable.

The average number of days of excellent health within the last month for the group was 22.0%±10.9%, with a significant statistical difference (t=12.7; p<0.001) when comparing the subjects with unsatisfactory perception to subjects with satisfactory perception of their health (14.6±2.2 and 23.1±10.4 days, respectively).

The logistic regression model for perception of health status demonstrated excellent general agreement (86.7%). The probability value of χ^2 from the Hosmer and Lemeshow test accepts the null hypothesis, which states that the theoretical distribution of the model does not differ from that observed (χ^2=5.61, p=0.47). Within the logistic regression model, satisfactory perception of health status is a function of the variables at educational level, days of excellent health, and practicing physical activity during leisure time (Table 3).

Discussion

This study of a representative sample of 190 immigrants between 25 and 44 years of age residing in the city of Seville found that nine out of every ten subjects reported believing their health status as excellent, very good, or good; higher results than the study carried out by Rodríguez et al. [7] in 167 Latin American individuals in the Basque Country (74.7%). Significant differences exist in self-assessment of health status as a function of gender; said differences have been observed in diverse studies [25,26], this may be due, amongst other motives, to the "double work shift" women have when, besides their wage-earning employment, they must fulfill their domestic chores at home [27]. Our research highlights the mean of 22.1 days for the study group where health status was excellent within the last month.

On comparing the results obtained in this work with those published by other authors regarding the autochthonous population [18,28]; according to gender, a better assessment of health was found in immigrant males (85.6% against 75%) and somewhat lower in immigrant females (89.3% against 82%). Observation of the differences in health as a function of gender and age as determinants of the health self-assessment has been sufficiently documented by other studies [29-32].

In this study, satisfaction with health status was higher in those under 35 years of age; a similar finding was reported in works by Salinero et al., [33] with immigrants in Madrid and by Newbold [9] with immigrants in Canada. Satisfaction with health status was the same among those married or living with a partner (87.4%), as opposed to that reported by Salinero et al., [33] who indicated that married subjects had the highest proportions of satisfaction.

Individuals with high school education or above had higher proportions of satisfaction with health status than those with elementary education or less, which also coincides with the appreciation by Martín et al. [34] in the results from a secondary study of the 1999 Survey on Disabilities, Deficiencies, and Health Status (EDDES99) in Spain, research by Lindström et al., [35] in a general Swedish population; and research by Newbold [9] on immigrants in Canada. The three reports found an inverse relationship between satisfaction with health status and educational level. When comparing years of residency in Spain and perceived health status, the results revealed a higher proportion of dissatisfaction among immigrants who had lived in the country for five or more years; the same situation was noted in studies by Salinero [33] and by Aerny et al., [36] carried out in a group in Madrid; additionally, these two works showed a higher risk of suffering from poor health when compared to the autochthonous population (OR: 1.16). The rapid reduction of perceived health status by immigrants after the first five years is explained by Newbold [9] as the product of reduced optimism against the cultural and socioeconomic reality of the host country.

On comparing the BMI categories, despite some studies [37, 38] having found median agreement among the anthropometric measurements (weight and height) reported by the individuals interviewed and the BMI obtained from measuring the same individuals with standardized parameters; in this study overweight and obese subjects had a worst perception of their health status when compared to those who had normal weight; the aforementioned was also reported by Herman et al., [38] among Canadian adults.

Regarding the influence of healthy habits on the perception of health, we found that individuals who practice physical exercise and who do not drink alcoholic beverages have higher probabilities of having a satisfactory perception of their health; the same observation was reported by Martín et al., [34] in a multilevel study of the characteristics which impact on perception of health status. In relation to the number of days with good or

excellent health, our study found a statistically significant difference amongst the average of those who consider their health status as satisfactory when compared to those who believe that it is unsatisfactory (23 and 15 days, respectively); this relationship was also found in the logistic regression. This indicator is known to be composed of days of mental and physical health, used as one of the elements to assess quality of life with which validation processes have demonstrated their relationship [39].

This study had some limitations that should be indicated: responses from the participants to the survey questions were via self report, which may represent a margin of error that involves every subjective response, which may be conditioned by factors beyond the reach of the investigators. Nevertheless, the anonymity of the surveys favored a higher degree of sincerity when answering the questions. Another limitation was that the cross-sectional character of the study did not permit us to establish a causal relationship among perceived health status, BMI, and the independent variables studied. However, it was possible to explore some associations which will allow us to design future analytic studies that will indicate the sense of the relationships of these variables with higher precision.

Conclusions

Most of the subjects studied have a positive self-assessment of their health status, especially men, with the presence of overweight and obesity being moderate. The results permit us to support, to a great extent, the theory of the "healthy immigrant", which points to good health behaviors in this group of immigrants. This is largely due to selective migration of individuals with better health status and higher economic capacity to encounter a migratory process, although difference may exist depending on the country of origin. However, it cannot be forgotten that with the increase in years of residence in the country, immigrants 's health behaviors are increasingly similar to the local peoples´. This phenomenon has been identified in the U.S., although it has not been able to be verified in Spain as the immigration process is very recent.

From the knowledge outlined in this research, the healthcare and social organisms in Seville will have new elements to intervene with health prevention and to promote activities. This study is the beginning of a future research program in this particular line to guide in the design and implementation of differential actions from the perspective of the necessities of the Seville Latin American immigrant group.

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Table

Table 1. Perceived health status according to gender and total

Health status	% Men (n=76)	% Women* (n=113)	% Total ($CI_{95\%}$) (n=189*)
Excellent	30.3	8.8	17.5 (12.5-22.5)
Very good	17.1	35.4	28.0 (23.0-33.0)
Good	38.2	45.1	42.3 (37.3-47.3)
Regular	13.2	9.7	11.1 (6.1-16.1)
Poor	1.3	0.9	1.1 (0.0-6.1)

*One woman out of 114 did not respond

Table

Table 2. Distribution of the sample according to the total, and satisfactory perception of health status according to the variables of interest

Variables	% Total (N=190)	% Satisfactory health status*	Statistic	p Value
Gender				
Men	76 (40.0)	65 (85.5)	0.39*	0.53
Women	114 (60.0)	101(88.6)		
Age in years				
25-34	101 (53.2)	90 (89.1)	0.59*	0.44
35 and over	89 (46.8)	76 (85.4)		
Married or with a partner				
Yes	103 (53.2)	90 (87.4)	0.00*	0.99
No	87 (45.8)	76 (87.4)		
Educational level				
Elementary or less	36 (18.9)	28 (77.8)	3.70†	0.54
Secondary or higher	154 (81.1)	138 (89.6)		
Years of residency in Spain				
Less than 5	90 (47.4)	81 (90.0)	1.07*	0.30
5 or over	100 (52.6)	85 (85.0)		
Weight category‡				
Normal weight	97 (51.0)	87 (89.7)	0.96*	0.32
Overweight and obesity	92 (48.4)	79 (84.9)		
Practices physical activity				
Yes	127 (66.8)	110 (88.9)	1.97*	0.65
No	63 (33.2)	56 (86.6)		
Risk of alcoholism				
Yes	25 (86.8)	19 (76.0)	3.37†	0.06
No	165 (13.2)	147 (89.1)		

*: Pearson's χ^2; †: χ^2 with Yates' correction; ‡: one subject was underweight.

Table

Table 3. Results of the logistic regression for perception of health status and some variables of interest

Variable	βi	EEβi	Wald	Sig.	Exp (β)
Educational level	0.56	0.24	5.27	0.02	1.74
Days of health excellent	0.14	0.03	18.59	<0.01	0.86
Physical activity during leisure time	0.57	0.23	6.15	0.01	0.57
Constant	1.97	0.98	3.99	0.01	7.14