



Evaluation of the Relationship Between Socio-Economic Level and Severity of Emergency

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Abstract

Background; Social Class has shown relation with admissions at Emergency Departments. To assess whether there is a relationship between the level of triage and the social class of patients who attend the emergency department and whether there are other variables that can modulate this association. Methods Observational study with 1000 patients was carried out between May and July 2018 in the Emergency Department of the University Hospital Arnau de Vilanova in Lleida. Sociodemographic variables such as age, gender, country of origin and marital status were analyzed. The triage level and the main explanatory variable was social class. Social class was calculated based on the CSO-SEE 2012 scale. Results 49.4% were male and the average age was 51.7 years. Most of the patients (66.6%) attended the emergency department under their own volition and the most common triage levels were level III or Emergency (45%). There is a significant relationship between age and triage level. The younger patients had a lower triage level ($p < 0.001$). The percentage of patients with lower social class who attended the emergency department for minor reasons was 42% higher compared to the rest of the patients (RR = 1.42; 1.21-1.67 95% CI, $p < 0.001$). Conclusions; Patients with a lower socioeconomic class go to the Emergency Department for less serious pathologies.

Keywords: Emergencies; Triage; Social class; Health management.

1. Introduction

The relationship between people's living conditions and their health status was established within the first decades of the 19th century. It then became clear that diseases were associated with the inadequate economic, environmental and dietary conditions of the poor who worked in large European urban factories [1].

The analysis of health problems using the so-called social and economic determinants approach is a central issue for the World Health Organization (WHO) and the Ministries of Health of several countries [2].

It is well known that health and disease are related to the standard of living of the population. The social class is one of the social factors that determines this and it is influenced by a series of parameters such as education, housing, profession, etc...

The relationship between social status, health condition, and the use of health care resources is a growing field of interest. Its importance is supported by the existence of multiple reports such as the Black Report 1980. This was the first relevant study that related social status with ill-health and, specifically, to mortality.

There are data that conclude that less favored social groups have worse survival opportunities, with more potential years of life lost than the favored groups [3].

The increase in social inequalities between regions, countries and social strata has an effect on health conditions. For example, life expectancy at birth in Sierra Leone is 34 years and in Japan it is 81.9; the probability of a person dying between the ages of 15 to 60 years is 8.3% in Sweden, 46.4% in Russia and 90.2% in Lesotho, and life

expectancy in developed countries varies between five and ten years depending on differences in salary, education and working conditions.

Only in recent years has the gender perspective begun to be explored with more intensity [4] due to the greater social and economic relevance of women and the growing demands for full equality between the sexes. These demands have increased in our country since the Organic law 3/2007, of March 22nd, was passed which aimed to achieve equality between women and men. Article 27 of this law establishes the principle of equality in health policy and the principle of equal treatment between men and women [5].

Currently there is a high number of immigrants in the population. Among the levels of care in the public network, hospital emergency services are especially vulnerable to any increase in care pressure. In addition, the fact that all immigrants in an emergency situation must be examined regardless of their administrative situation, makes these hospital emergency services bear a substantial part of the care burden of this population [6].

The socioeconomic level is a variable related to health. In order to obtain a useful indicator for socioeconomic level in epidemiological and public health studies some have proposed assigning social class based on occupation by creating a National Classification of Occupations (CNO) [7].

We can consider that the occupation of an individual determines, to a large extent, their social class (profession or trade, purchasing power). In turn, this is determined by previous socioeconomic factors (level of education, purchasing power of the family, etc.). In addition, employment can also be used to study occupational pathology and as a risk factor for certain diseases [8].

Currently, health information, such as death certificates and health surveys, are used in many countries including Great Britain. In these cases analysis of mortality (related to occupational risks) is applied and constitutes a fundamental variable in studies of equity in the use of health services.

The WHO is currently working on developing its Health for All program, that aims to reduce health inequality for the entire population [9].

The challenge is to understand the particularities of the inequities in our healthcare system and how it compares to other countries. It is necessary to use quantitative and qualitative theoretical and methodical tools to investigate how the structure of our society makes us ill and kills us unequally.

Given the hypothesis that social class is positively associated with triage level, we planned to carry out this study with the aim of evaluating whether this relationship exists and whether there are other variables that can modulate this association.

2. Material and Method

An observational study of 1000 patients that was carried out between May and July 2018 in the Emergency Department of the Arnau de Vilanova University Hospital in Lleida. The Hospital's area of influence includes 300,000 people and, at the moment, it is the only public Emergency Service in the city, and it is the Reference Service of Lleida's Health Region.

2.1. Study Variables

Sociodemographic variables such as age, gender, country of origin and marital status were analysed. The response variable was the triage level based on the Andorran Triage System (Level I resuscitation, Level II Emergency, Level III Urgency, Level IV Less urgent and Level V Non-urgent). The main explanatory variable was social class. The social class was calculated based on the CSO-SEE 2012 scale, and taking the highest social class between the surveyed person and the reference person. We established the highest social class as I and the lowest as VII. We grouped social classes III and IV, as well as V and VI, given the similarities in the sample.

Other variables were the means of arrival at the Emergency department (basic or advanced ambulance, or under their own volition), if there was a referral to the hospital by the family doctor, if the patient lived alone or not, and what were their rights to access the healthcare.

The inclusion of patients was voluntary and required signing an informed consent form. Patients were excluded from the study if they were a minor or if consent was not given. Access to medical records and handling of confidential data was not required for the study, therefore, evaluation of the CEIM of IRBLLEIDA was exempted as recorded in project number 13/2016/2018. All data were processed anonymously and based on the Data Protection Act of 2010 and according to the 2018's European regulation.

2.2. Statistical Analysis

The mean (and standard deviation) and the absolute frequency (and percentage) were calculated to describe the quantitative and qualitative variables respectively. The ANOVA test or T-test were used to evaluate the statistical association between qualitative and quantitative variables. The chi-square independence test was used to evaluate the association between pairs of qualitative variables. The relative risk (RR) was used to compare the percentages, calculating the confidence interval at 95%. All the analysis were performed using the R statistical package.

3. Results

1000 patients were included. Table 1 describes the sample. 49.4% were men and the mean age was 51.7 years. 64% of the patients were Spanish and 19.8% from the rest of Europe. Most of the patients (66.6%) attended the emergency department under their own volition and the most common triage level was level III or Emergency (45%). 62.8% of patients did not receive referrals from their family doctor. Patients with a lower social class (VIII)

were 37.9%, and patients with the highest social class were 8.4%. The rest of the patients are distributed homogeneously across the rest of the groups.

Table-1. Sample description

		N
	<i>N = 1000</i>	
Gender:		1000
Man	494 (49.4%)	
Woman	506 (50.6%)	
Age	51.7 (20.7)	1000
Country:		999
Spain	645 (64.6%)	
Rest of Europe	198 (19.8%)	
Africa	103 (10.3%)	
South America	43 (4.30%)	
Asia	8 (0.80%)	
Others	2 (0.20%)	
Marital status:		998
Single	283 (28.4%)	
Married	505 (50.6%)	
Separated	72 (7.21%)	
Widowed	122 (12.2%)	
Pareja de hecho (non married couple)	16 (1.60 %)	
Arrival at the Emergency Department		1000
Basic Ambulance	303 (30.3%)	
Advanced Ambulance	37 (3.70%)	
Under their own volition	660 (66.0%)	
Referral by your family doctor (PCP)		994
Yes	370 (37.2%)	
No	624 (62.8%)	
Triage Level:		999
Resuscitation	13 (1.30%)	
Emergency	149 (14.9%)	
Urgency	450 (45.0%)	
Less urgent	308 (30.8%)	
Non-emergency	79 (7.91%)	
Do you live alone?		990
Yes	150 (15.2%)	
No	840 (84.8%)	
Social Class		1000
I	84 (8.40%)	
II	204 (20.4%)	
III-IV	193 (19.3%)	
V-VI	140 (14.0%)	
VII	379 (37.9%)	

3.1. Sample Characteristics Based on Triage

There is a significant relationship between age and triage level. The younger patients have a lower triage level ($p < 0.001$). Regarding the use of public resources, most patients with a triage level I arrive at the emergency department in an advanced ambulance. However, 30% of patients with a triage level V, arrive with a basic ambulance. Most patients of high social class come for an Emergency, while patients of lower social class come for non-urgent reasons. The rest of the results can be seen in [Table 2](#).

Table-2.

	Reanimation	Emergency	Urgency	Less urgent	Not urgent	P value
	<i>N</i> = 13	<i>N</i> = 149	<i>N</i> = 450	<i>N</i> = 308	<i>N</i> = 79	
Gender:						0.156
Male	9 (69.2%)	73 (49.0%)	208 (46.2%)	157 (51.0%)	46 (58.2%)	
Female	4 (30.8%)	76 (51.0%)	242 (53.8%)	151 (49.0%)	33 (41.8%)	
Age	59.5 (19.4)	63.0 (20.6)	55.0 (20.3) 44.1 (18.3) 40.1 (<0.001
Country						
Spain	10 (76.9%)	115 (77.7%)	308 (68.4%)	173 (56.2%)	39 (49.4%)	
Rest of Europe	3 (23.1%)	24 (16.2%)	77 (17.1%)	70 (22.7%)	24 (30.4%)	
Africa	0 (0.00%)	5 (3.38%)	40 (8.89%)	44 (14.3%)	13 (16.5%)	
South America	0 (0.00%)	2 (1.35%)	21 (4.67%)	18 (5.84%)	2 (2.53%)	
Asia	0 (0.00%)	0 (0.00%)	4 (0.89%)	3 (0.97%)	1 (1.27%)	
Others	0 (0.00%)	2 (1.35%)	0 (0.00%)	0 (0.00%)	0 (0.00%)	
Marital status						
Single	2 (15.4%)	19 (12.8%)	104 (23.1%)	127 (41.4%)	30 (38.5%)	
Married	7 (53.8%)	86 (57.7%)	232 (51.6%)	138 (45.0%)	42 (53.8%)	
Separated	0 (0.00%)	9 (6.04%)	38 (8.44%)	22 (7.17%)	3 (3.85%)	
Widowed	4 (30.8%)	34 (22.8%)	68 (15.1%)	15 (4.89%)	1 (1.28%)	
Pareja de hecho	0 (0.00%)	1 (0.67%)	8 (1.78%)	5 (1.63%)	2 (2.56%)	
Arrival to the Emergency department						
Basic Ambulance	3 (23.1%)	56 (37.6%)	166 (36.9%)	52 (16.9%)	25 (31.6%)	
Advanced Ambulance	7 (53.8%)	21 (14.1%)	6 (1.33%)	3 (0.97%)	0 (0.00%)	
Under their own volition	3 (23.1%)	72 (48.3%)	278 (61.8%)	253 (82.1%)	54 (68.4%)	
Referred by PCP						
Yes	6 (46.2%)	80 (55.6%)	198 (44.0%)	74 (24.1%)	11 (13.9%)	
No	7 (53.8%)	64 (44.4%)	252 (56.0%)	233 (75.9%)	68 (86.1%)	
Social class						
I	0 (0.00%)	17 (11.4%)	41 (9.11%)	21 (6.82%)	5 (6.33%)	
II	2 (15.4%)	34 (22.8%)	101 (22.4%)	57 (18.5%)	10 (12.7%)	
III-IV	4 (30.8%)	29 (19.5%)	100 (22.2%)	48 (15.6%)	12 (15.2%)	
V-VI	2 (15.4%)	16 (10.7%)	54 (12.0%)	56 (18.2%)	12 (15.2%)	
VII	5 (38.5%)	53 (35.6%)	154 (34.2%)	126 (40.9%)	40 (50.6%)	

PCP: Primary care physician

3.2. Relationship between Triage Level and Social Class

Table 3 shows the relationship between triage levels and social class, obtaining statistically significant results ($p = 0.009$) which shows a significant association. These show patients with a lower social class go to the emergency department for less urgent reasons. However, there are no differences in the degree of use of health services (using an ambulance and going to the emergency department without a referral from a family doctor).

Table-3.

	I	II	III-IV	V-VI	VII	P value
	<i>N</i> = 84	<i>N</i> = 204	<i>N</i> = 193	<i>N</i> = 140	<i>N</i> = 379	
Gender:						0.386
Male	39 (46.4%)	112 (54.9%)	90 (46.6%)	64 (45.7%)	189 (49.9%)	
Female	45 (53.6%)	92 (45.1%)	103 (53.4%)	76 (54.3%)	190 (50.1%)	
Age	51.0 (19.1)	51.7 (19.9)	56.1 (21.6)	43.5 (20.5)	52.7 (20.4)	<0.001
Country						
Spain	69 (82.1%)	162 (79.4%)	148 (76.7%)	75 (53.6%)	191 (50.5%)	
Rest of Europe	15 (17.9%)	26 (12.7%)	32 (16.6%)	37 (26.4%)	88 (23.3%)	
Africa	0 (0.00%)	7 (3.43%)	5 (2.59%)	7 (5.00%)	84 (22.2%)	
South America	0 (0.00%)	6 (2.94%)	7 (3.63%)	19 (13.6%)	11 (2.91%)	
Asia	0 (0.00%)	2 (0.98%)	1 (0.52%)	1 (0.71%)	4 (1.06%)	
Others	0 (0.00%)	1 (0.49%)	0 (0.00%)	1 (0.71%)	0 (0.00%)	
Marital status						
Single	26 (31.0%)	47 (23.0%)	46 (23.8%)	64 (46.0%)	100 (26.5%)	
Married	45 (53.6%)	120 (58.8%)	107 (55.4%)	51 (36.7%)	182 (48.1%)	
Separated	5 (5.95%)	15 (7.35%)	13 (6.74%)	10 (7.19%)	29 (7.67%)	
Widowed	7 (8.33%)	21 (10.3%)	23 (11.9%)	10 (7.19%)	61 (16.1%)	
Pareja de hecho	1 (1.19%)	1 (0.49%)	4 (2.07%)	4 (2.88%)	6 (1.59%)	

Arrival at the emergency department						
Basic Ambulance	18 (21.4%)	55 (27.0%)	65 (33.7%)	34 (24.3%)	131 (34.6%)	
Advanced Ambulance	3 (3.57%)	8 (3.92%)	10 (5.18%)	4 (2.86%)	12 (3.17%)	
Under their own volition	63 (75.0%)	141 (69.1%)	118 (61.1%)	102 (72.9%)	236 (62.3%)	
Referral by PCP						0.323
Yes	28 (33.3%)	81 (40.3%)	81 (42.2%)	49 (35.0%)	131 (34.7%)	
No	56 (66.7%)	120 (59.7%)	111 (57.8%)	91 (65.0%)	246 (65.3%)	
Triage						
Resuscitation	0 (0.00%)	2 (0.98%)	4 (2.07%)	2 (1.43%)	5 (1.32%)	
Emergency	17 (20.2%)	34 (16.7%)	29 (15.0%)	16 (11.4%)	53 (14.0%)	
Urgency	41 (48.8%)	101 (49.5%)	100 (51.8%)	54 (38.6%)	154 (40.7%)	
Less urgent	21 (25.0%)	57 (27.9%)	48 (24.9%)	56 (40.0%)	126 (33.3%)	
Non-emergency	5 (5.95%)	10 (4.90%)	12 (6.22%)	12 (8.57%)	40 (10.6%)	
Do you live alone?						<0.001
Yes	7 (8.33%)	18 (8.91%)	22 (11.5%)	18 (12.9%)	85 (22.8%)	
No	77 (91.7%)	184 (91.1%)	170 (88.5%)	122 (87.1%)	287 (77.2%)	

The percentage of low-class patients (V-VIII) who go to the Emergency Department for minor emergencies (non-emergency or less urgent) was 42% higher compared to upper-middle class (I-IV) patients (45.17% versus 31.81%, RR = 1.42; 1.21-1.67 95% CI, $p < 0.001$). At the same time, upper class (I-IV) patients go to the Emergency Department for major emergencies (Urgency, Emergency or Resuscitation) with a 24% higher probability than lower class (V-VIII) patients (68.19% versus 54.83%, RR = 1.24; 1.13-1.37 95% CI, $p < 0.001$)

4. Discussion

Patients with a lower socioeconomic class go to the Emergency Department for less serious pathologies. This is the first study in our country that evaluates the association between social class and severity of the emergency. According to our results, there is a significant association between social class and the level of triage for which they present to the Emergency Department. In other words, those patients with a lower social class come for less serious reasons. However, social class does not affect the use of healthcare resources, that is, the use of healthcare transportation to the Emergency Department, nor the referral by their family doctor.

Most patients of high social class come for Emergency reasons, while patients from a lower socioeconomic class consult for less urgent reasons.

Previous studies [10] had shown that social class had an effect on the use of the Emergency Department, in terms of number of visits, but had not evaluated the severity of it Sarría, *et al.* [11]. Similar results were observed with respiratory emergencies in the UK [12].

In our sample, younger patients came for more minor pathologies, which seems logical considering that the most serious pathologies are generally associated with older age and comorbidities. However, patients generally have a mean age of 51 years, which we can consider a young population and which, until now, had not been described in our country [13].

Regarding the use of public resources, we have not detected variation between the different social classes. Although it should be noted that there are 30% of patients with non-urgent pathologies who come to our service using medical transportation. Something that shows the misuse of this health resource.

Finally, referral by the family doctor is relatively small, since only 30% of patients who attended the Emergency Department did so by means of a referral report. Of the patients with levels IV and V (non-urgent) only 1% were referred by their family doctor. Most patients (more than 80%) live with a family member or friend, and patients who live alone usually consult by their own for non-urgent pathology.

At the moment we do not have similar studies conducted in our country to be able to compare the results since it is a topic that has been poorly researched to date.

The main limitation of our study is that patients with higher severity conditions or that require resuscitation often cannot participate in the study because they are transferred to other critical care units and this may skew the results.

5. Conclusion

Patients with a lower socioeconomic class go to the Emergency Department for less serious pathologies.

We believe that it is important to continue running educational campaigns and programs to avoid misuse of the Emergency Department and health services more generally. However, new studies must be carried out along these lines in order to have a good description of the social impact in the emergency care.

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