

BRIEF REPORT

Factors related to the use of paediatric emergency services: results from the Spanish National Health Survey

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Objectives. To determine the frequency of use of Spanish pediatric emergency services, and to describe user profiles and geographic variations.

Methods. Descriptive study based on data from the Spanish National Health Survey. We calculated descriptive statistics and analyzed crude and adjusted odds ratios (ORs).

Results. Thirty-five percent of the 5495 respondents had come to an emergency department in the past year, and 88.1% of them had used the services of a Spanish national health service hospital. Factors associated with higher use of emergency services were male sex of the patient (OR, 1.202; 95% CI, 1.047-1.381), a higher educational level of parents (OR, 1.255; 95% CI, 0.983-1.603), and younger age of the child (OR, 0.909; 95% CI, 0.894-0.924). Emergency department use varied widely from one Spanish community to another. There was a positive correlation between use and the presence of a foreign-born population ($p=0.495$, $P=0.031$).

Conclusions. The rate of emergency department use is high in Spain. Variability between geographic areas is considerable, and some variation is explained by population characteristics.

Keywords: Hospital emergency department. Pediatric emergency services. Accessibility, health services. Demand, health services.

Factores relacionados con la utilización de los servicios de urgencias en la población pediátrica española. Resultados de la Encuesta Nacional de Salud

Objetivo. Determinar la frecuencia de utilización de los servicios de urgencias (SU) en la población pediátrica española, describir el perfil de los usuarios y la variabilidad geográfica.

Método. Estudio descriptivo a partir de la Encuesta Nacional de Salud. Se calcularon estadísticos descriptivos, *odds ratio* (OR) crudas y ajustadas.

Resultados. De los 5.495 encuestados, el 35% acudió al SU en el último año, utilizando el 88,1% los servicios del Sistema Sanitario Público. El sexo varón [OR: 1,202 (IC 95%: 1,047-1,381)] y el nivel de estudios superiores [OR: 1,255 (IC 95%: 0,983-1,603)] se asociaron de forma significativa, y directa a la frecuentación, mientras que la edad lo hizo de forma inversa [OR: 0,909 (IC 95%: 0,894-0,924)]. La utilización de los SU es muy variable entre comunidades autónomas, encontrándose una correlación positiva con la población extranjera ($r = 0,495$, $p = 0,031$).

Conclusiones. La tasa de utilización de los SU en España es elevada. Existe una variabilidad considerable entre zonas geográficas, en parte explicada por las características de la población.

Palabras clave: Urgencias hospitalarias. Urgencias pediátricas. Accesibilidad. Demanda asistencial.

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Introduction

Assistance to emergency departments (EDs) has been increasing considerably in recent years, owing, among other reasons, to greater accessibility to them¹. Most of the consultations are resolved with high domicile, a very small percentage that requires hospital admission, which is why they are mostly non-urgent, especially in paediatric ages². Inadequate use of consultations to the US may be influenced by the ease of access to hospital care³. According to the results of other studies, the factors that predispose to the use of

EDs include age, marital status, educational level and income, as well as the region of residence. The differences found in the different regions can be attributed to cultural aspects, the availability of services and accessibility, determined by the degree of rurality in each area⁴. Few investigations on paediatric emergency care have been conducted in Spain, including the study of geographic variability. In this sense, the information provided by the Spanish National Health Survey (SNHS) can provide relevant information in this regard, given the rigorous methodology used, as well as its broad scope of study.

The objective of the present study was to determine the frequency of use of paediatric ED in the Spanish population, characterize the profile of the users, analyse the geographical variability of the attendance to the ED, and the implication of the sociodemographic factors associated with it.

Method

Descriptive cross-sectional study based on the information obtained from SNHS. In a second phase, an ecological design has been proposed, where the unit of study is the Autonomous Communities. The collection of information was carried out from July 2011 to July 2012, throughout the national territory, according to the sampling plan detailed in the SNHS⁵. The study population consisted of children under the age of 14 from households selected for SNHS.

The following variables were collected for each subject: use of EDs in the last year (yes/no), number of visits to the ED, type of service used (public hospital, non-hospital emergencies, private clinic/others), Age and sex of the child, level of parent studies (no studies/primary studies, secondary/university studies), household income level (€550 € -1,050 €, € 1,051 € -1,850 € 1,851 € -2,700 €, > 2,700 €), social class (upper, middle, low), size of municipality of residence (< 20,000, 20,000-100,000, > 100,000 inhabitants), time since he felt ill until he requested assistance (minutes) and time since requested assistance until it was attended (minutes). In addition, the following indicators were collected by Autonomous Communities: total number of inhabitants, total number of foreigners, to-

tal number of unemployed, number of Social Security affiliates, proportion of population illiterate and without education, proportion of population with higher education.

The individual data were obtained from the SNHS⁶. The Social Indicators of the Autonomous Communities have been elaborated by the National Statistical Institute (NSI), which obtains them from its different sources (Survey of Active Population, Municipal Register of inhabitants and Survey of Family Budgets)⁷.

A descriptive analysis of the main variables studied was performed, calculating means, standard deviation (SD), median and 25-75 percentiles (P25-75) for the quantitative variables; absolute and relative frequencies for the qualitative ones. The relationship between the sociodemographic variables and the demand for emergencies has been studied with a bivariate analysis, using the Student t test for the quantitative variables and the Pearson chi-square test for categorical variables. The calculation of crude and adjusted odds ratios (OR) and their 95% confidence interval (CI), as well as the Spearman correlation coefficient, were performed. The significance level considered was 0.05. The data was analysed using the IBM SPSS Statistics 19 software.

Results

The SNHS children questionnaire was carried out on a sample of 5,495 subjects, 52.6% of whom were male and 47.4% were female, with a median age of 7 [P25-75: 3-11] years. Of the total respondents, 35.0% (95% CI: 34.0% -36.0%) reported having ever used EDs in the past year. The most used type of service

Table 1. Profile of the patients who used the emergency services

	Have you used the emergency services in the last 12 months?		P Value
	Yes N = 1,924 n (%)	No N = 3,571 n (%)	
Age (years) [mean (DE)]	5.90 (4.33)	7.65 (4.30)	< 0.001
Sex			0.006
Male	1,060 (55.1)	1,828 (51.2)	
Woman	864 (44.9)	1,743 (48.8)	
Level of studies			0.0026
No studies/primary studies	105 (5.5)	241 (6.7)	
Secondary/University Studies	1,213 (63.0)	2,086 (58.4)	
There is no record	606 (31.5)	1,244 (34.8)	
Size of municipality of residence			0.863
< 20,000 inhabitants	634 (33.0)	1,181 (33.1)	
20,000-100,000 inhabitants	514 (26.7)	974 (27.3)	
> 100,000 inhabitants	776 (40.3)	1,416 (39.7)	
Monthly Household Income			0.506
5,50-1,050 €	325 (16.9)	621 (17.4)	
1,051-1,850 €	512 (26.6)	910 (25.5)	
1,851-2,700 €	344 (17.9)	591 (16.5)	
> 2,700 €	230 (12.0)	444 (12.4)	
There is no record	513 (26.7)	1,005 (28.1)	
Social class			0.054
High (I-II)	275 (14.3)	483 (13.5)	
Media (III-IV)	447 (23.2)	741 (20.8)	
Low (V-VI)	523 (27.2)	971 (27.2)	
There is no record	679 (35.3)	1376 (38.5)	

SD: standard deviation

was a hospital of the Public Health System (54.9%), followed by other non-hospital public health services (33.2%).

The bivariate analysis showed that respondents who had used ED in the last 12 months were younger than respondents who had not used them [5.9 SD (4.3) vs 7.6 SD (4.3) years; $P < 0.001$], were mostly male (36.7% vs 33.1% females, $p = 0.006$) and had secondary school/college level studies (Table 1). After the multivariate analysis, the age of the child was maintained as a variable related to the use of EDs, with an adjusted OR of 0.909 [95% CI: 0.894-0.924], and sex, with a higher OR for males 1,202 [CI 5%: 1047-1381].

Analyzing the type of service, public hospitals are more frequented by subjects of large municipalities (42.4% of users come from municipalities with more than 100,000 inhabitants, $p < 0.001$), and with a low-income level (21.9% between 550-1,050 €) or medium (38.4% between 1,050-1,850 €), with non-hospital emergencies being more demanded by the inhabitants of small municipalities and similar income level ($p < 0.001$). The emergencies of private clinics are mostly residents of large municipalities (62.7%), and income level above 2,700 € (44.9%), $p < 0.001$. As for the level of studies, a higher percentage of parents with university studies was found among emergency room users of private clinics, as well as a higher

frequency of high social class. It should be noted that the time from which the child felt sick until the request for assistance was higher in the users of private clinics than in those of public hospitals, however the time until it was attended was similar (median of 30 minutes in both types of centres) (Table 2).

The percentage of respondents who reported having come to the ED in the last year is very variable between Autonomous Communities, ranging from 24.2% in Melilla or 28.7% in Asturias, to 39.8% in Murcia or 42%, 8% of Catalonia (Figure 1). So is the number of visits to the ED, with an average ranging between 1.17 (SD: 0.381) from Melilla or 1.36 (SD: 0.78) from Cantabria, to 2.53 SD: 2.18) from the Canary Islands or 3.3 (SD: 4.19) in Ceuta, the differences being statistically significant ($p < 0.001$).

As for the sociodemographic indicators studied, a positive correlation was found between the percentage of use of the ED and that of the foreign population ($p = 0.495$, $p = 0.031$). We also found that direct relationship between the percentage of foreign population and the number of times ED is attended ($p = 0.520$, $p = 0.022$).

Discussion

The percentage of ED use found in Spain is quite high, with more than one-third of the paediatric popu-

Table 2. Variables related to the type of assistance used

	Type of service			p Value
	Public hospital N = 1,057 n (%)	Non-hospital emergencies N = 639 n (%)	Emergency private Clinic/Others N = 225 n (%)	
Edad (años) [media (DE)]	5.82 (4.38)	6.11 (4.25)	5.61 (4.27)	0.234
Sex				0.177
Male	594 (56.2)	333 (52.1)	130 (57.8)	
Woman	463 (43.8)	306 (47.9)	95 (42.2)	
Size of municipality of residence				< 0.001
< 20,000 inhabitants	335 (31.7)	252 (39.4)	46 (20.4)	
20,000-100,000 inhabitants	274 (25.9)	202 (31.6)	38 (16.9)	
> 100,000 inhabitants	448 (42.4)	185 (29)	141 (62.7)	
Monthly Household Income				< 0.001
550-1,050 €	170 (16.1)	145 (22.7)	10 (4.4)	
1,051-1,850 €	298 (28.2)	184 (28.8)	29 (12.9)	
1,851-2,700 €	202 (19.1)	94 (14.7)	48 (21.3)	
> 2,700 €	106 (10.0)	52 (8.1)	71 (31.6)	
There is no record	281 (26.6)	164 (25.7)	67 (29.8)	
Level of studies				< 0.001
Incomplete primary	24 (2.3)	15 (2.3)	2 (0.9)	
Primary studies	33 (3.1)	26 (4.1)	5 (2.2)	
Secondary studies	521 (49.3)	337 (52.7)	93 (41.3)	
University studies	150 (14.2)	54 (8.5)	55 (24.4)	
There is no record	329 (31.1)	207 (32.4)	70 (31.1)	
Social class				< 0.001
High (I-II)	142 (13.4)	71 (11.1)	61 (27.1)	
Medium (III-IV)	253 (23.9)	140 (21.9)	54 (24.0)	
Low (V-VI)	295 (27.9)	196 (30.7)	30 (13.3)	
There is no record	367 (34.7)	232 (36.3)	80 (35.6)	
Time since he became ill until he asked for urgent assistance (min) [Me (P25-75)]	120 [60-1440]	180 [60-1.440]	180 [60-1.440]	0.108
Time since he asked for urgent assistance until he was attended (min) [Me (P25-75)]	30 [10-60]	20 [10-60]	30 [10-60]	< 0.001

SD: standard deviation; Me: median P25-75: 25-75th percentile.

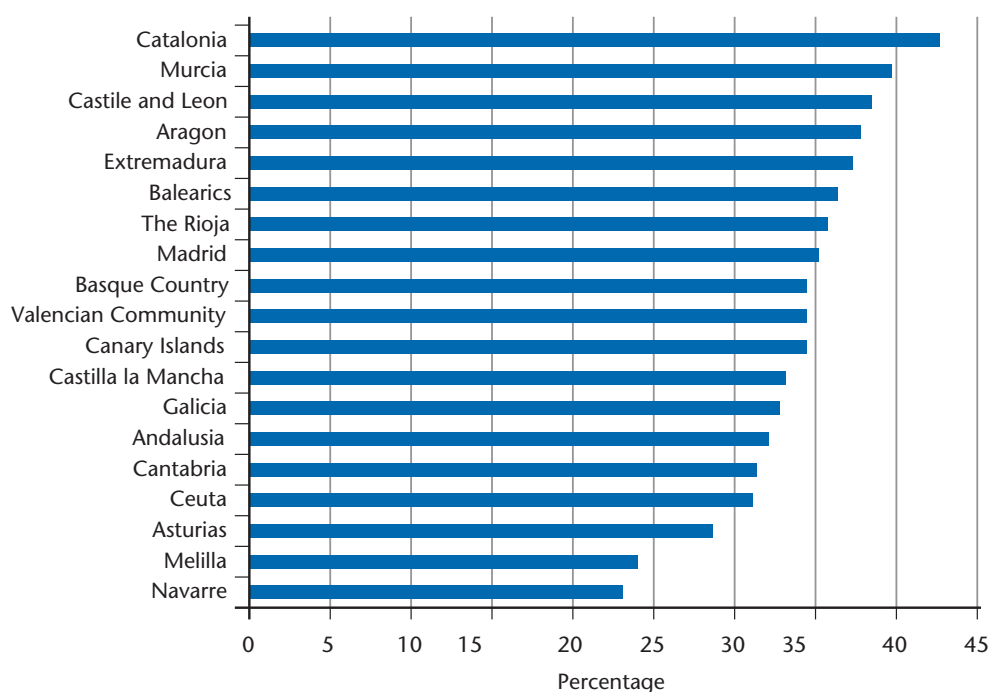


Figure 1. Percentage of use of emergency services by autonomous community.

lation surveyed, most of them young children, who come to the Public Health System. No results were found in other European countries. However, in the United States, much lower figures have been published, 14.1% in public insurance users and 11.5% in private⁸.

The greater frequency of younger children is something that coincides in different studies⁸⁻¹¹, perhaps because parents do not obtain adequate care in other prehospital services, being often referred to the ED.

Male sex is a predisposing factor for the use of ED, coinciding with what has been found by other authors^{9,12,13}. Knowing the reason for attending the ED or diagnosis at discharge may help to discern the cause of this sex difference. However, it was not possible to obtain this information in our work.

In other countries, there has been a greater frequency in families with low income levels^{8,9}, although our results do not show this statistically significant relationship. The fact that a high level of studies is related to greater attendance to the EDs, contrary to what is found by other authors^{4,14}, could be because the population that answers the SNHS has in its majority superior studies, reason why it would be necessary to compare with the non-responder population to ensure that there is no sample selection bias.

Regarding variability by Autonomous Community, it is only partially explained by the population of foreigners, although this relationship cannot be established at the individual level, but ecologically, since it has been obtained from the analysis of aggregated data; other studies will be necessary to delve into their causes.

As a conclusion, it can be said that the high frequencies found can perhaps be attributed to the saturation of the primary care consultations, with a slower

functioning produced by the high demand, which causes the parents to go directly to the ED. The facility to be attended to in these devices, can be attended without pre-established schedules or prior procedures, would foster this situation, in which parents seek immediate attention and response to any health problems of their children.

Conflicting interests

The authors declare no conflict of interest related to this article.

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Ethical Responsibilities

All authors have confirmed the maintenance of confidentiality and respect for patients' rights in the author's responsibilities document, publication agreement and assignment of rights to EMERGENCIAS.

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