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Map of Sickness absence in Spain

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TITLE PAGE

TITLE: MAP OF SICKNESS ABSENCE IN SPAIN**AUTHORS:** Matilde-Leonor Alba-Jurado¹, María-José Aguado-Benedí², Noelia Moreno-Morales³, María Teresa Labajos-Manzanares³, Rocío Martín-Valero³CORRESPONDENCE AUTHOR: rovalemas@gmail.com

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KEYWORDS: PREVENTIVE MEDICINE, PUBLIC HEALTH, OCCUPATIONAL & INDUSTRIAL MEDICINE, SICKNESS ABSENCE, HEALTH CARE WORKERS**Orcid ids :** Matilde-Leonor Alba-Jurado <https://orcid.org/0000-0002-3640-1047>Noelia Moreno Morales <https://orcid.org/0000-0001-5907-9735>Maria Teresa Labajos Manzanares <https://orcid.org/0000-0002-3911-4406>Rocío Martín Valero <http://orcid.org/0000-0002-1664-3647>

TITLE: MAP OF SICKNESS ABSENCE IN SPAIN

ABSTRACT

Objectives: To provide a broad and thorough description of sickness absence (SA) in Spain, focusing on the different regions of the country and stressing on its main characteristics.

Methods: A study of the SA processes managed by the medical units of the Spanish Institute of Social Security in 2018. The geographical scope of this observational study is the Autonomous Community, describing incidence, prevalence and average duration, by diagnostic chapter, number of workers in SA and average duration by age ranges and sex, diagnoses and economic activities that generate SA cases.

Results: We analysed a total of 540,045 SA processes by common contingencies and 63,441 by professional contingencies. The national average prevalence in non-professional contingencies is 32.98/1000 for employees and 30.48/1000 for self-employed workers; in professional contingencies it is 3.99/1000. The national incidence in non-professional contingencies is 24.8/1000 for employees and 9.51/1000 for self-employed workers; in professional contingencies it is 3.55/1000. The average duration is 58.67 days, with the longest duration being neoplasms, and the shortest corresponds to infectious disease. "Influenza" and "lower back pain" are the diagnoses that generate the largest number of SA situations, along with the characteristic of working for the Public Administration.

Conclusions: SA is one of the benefits of the Social Security system whose economic cost was 11,554,711.16 euros in 2019, 8.89% of the general Social Security budget for that year. This concerning cost demands a better control, making it necessary to improve the knowledge of the diagnosis and the circumstances that surround the worker.

KEY MESSAGES

What is already known about this subject?

- Sickness absence (SA) is one of the main causes of work absenteeism, loss of productivity and workers' health, permanent disability, and greater risk of disease, unemployment and death in Spain and nearby countries.
- Increasing efforts are being made to control SA and early reincorporation of workers who have suffered a period of SA due to disease or accident.

What are the new findings?

- There is a much higher incidence in Spain among employees than among self-employed workers, whereas the average duration is much higher in the latter.
- There is a high frequency of SA cases among workers of the Public Administration in Spain.

How could this affect the clinical policies or practices in a predictable future?

- This implies the need to increase the effort to know the main factors that influence SA in Spain, the characteristics of the workers and the activity they carry out.
- It is essential to implement a strict control of the diseases with greater incidence and prevalence, studying the age ranges, sex and the characteristics of the job in which they are produced, in order to reduce the negative effects on healthcare, social and economic costs.

STRENGTHS AND LIMITATIONS OF THIS STUDY

This work provides a broad and thorough description of sickness absence (SA) in Spain, focusing on the different regions of the country and stressing on its main characteristics, thus generating a global view of this benefit. This implies the need to increase the effort to know the main factors that influence SA in Spain, the characteristics of the workers and the activity they carry out. From our knowledge, this is the first study where summarized ranking of the eight most frequent diagnoses and the ten main economic activities that generate sickness absence (SA)

INTRODUCTION

Sickness absence (SA) is one of the benefits of Social Security, included in article 169 of the Consolidated Text of the General Law of Social Security, RDL 8/2015 of October 30th. It is defined as “*a situation due to common or occupational disease or accident in which the worker requires and receives medical assistance and is unable to work*”. It comprises benefits in kind (medical assistance) and monetary compensations (benefits for SA). To be entitled to this subsidy, there must be a part of occupational sickness absence, issued by a family practitioner, generally from the Public Healthcare System, and the successive certification reports, as well as some special requirements of contributions to the Social Security system. If it is caused by occupational accident or disease, this medical leave is issued by the physicians ascribed to the Insurance Companies linked to the Social Security system. The maximum duration of such leave is 365 days, which can be extended for another 180 days if the recovery and return of the worker to the workplace is expected in that time.

With respect to the rest of countries of the Organisation for Economic Co-operation and Development (OECD), Spain is in an intermediate position regarding the SA days per worker/year. Mexico is in the highest position with 27.7 days, whereas Chile, in the lowest position, has 7.3 days. Spain has an average of 10.3 days, which is similar to the level of Austria and the Netherlands (10 days) (<https://stats.oecd.org/index.aspx?queryid=30123>)

The total financial cost of SA in the consolidated Social Security budgets for 2019 in Spain reached 11,554,711.16 euros, which is 8.89% of the general Social Security budget¹. This percentage, *per se*, demonstrates the importance of properly knowing the diagnosis, the characteristics of the workers and the work activities that generate the SA. The importance of SA caused by disease or accident is not only determined by the social and financial costs that each State dedicates to it², but also by the resources that employers assign to it³, as well as the productivity losses⁴ and the deterioration of these workers' health⁵. It has been reported that work absenteeism due to illness is, in itself, a risk factor to fall sick, new periods of SA, unemployment, permanent disability pension⁵⁻⁷, social exclusion⁸ and death⁹⁻¹¹. Long SA periods generate both an early retirement from the job market, a slower salary increase and an impoverishment of household wealth^{5,6-8}.

Few studies at the national level describe the current situation of such benefits in our country; to date, the studies found in the literature related to this topic describe it partially, in some provinces or specific areas¹², about some specific diseases¹³ or specific groups of workers¹⁴.

The general objective of this study is to provide a wide and thorough description of SA in Spain, focusing on the different regions of the country and stressing on the main characteristics, thus generating a global view of this benefit.

The specific objectives would be the description of the incidence, prevalence and average duration of SA and the description of the main diseases and economic activities that generate the most situations of SA in Spain.

MATERIAL AND METHODS

This study was carried out using the statistical databases provided by the Spanish Institute of Social Security (INSS), which are published in the website of this organisation (www.seg-social.es/wps/portal/wss/internet/EstadisticasPresupuestosEstudios/), and databases obtained from specific programs used by the Medical Units.

The reference population was formed by all the workers in Spain covered by the Social Security system in the year 2018. The study excluded the SA cases of civil workers, Armed Forces personnel and workers of the General Judicial Benefit Society, whose control and management were not an object of study. The sample matches the study population.

The variables used were: age (in ranges), sex, average SA duration, diagnosis and diagnostic group (CIE-10), employee or self-employed, non-professional contingency (common disease or non-work accident) or professional contingency (work accident and professional disease), and occupations with higher SA ranking according to the International Standard Industrial Classification of all Economic Activities (ISIC Rev-4).

The geographical scope of the study was the Autonomous Community.

It is an observational study. The statistical calculations used refer to all the people affiliated with the system, who were entitled to receive the SA benefit (AFI), calculated according to the data provided by the Public Employment Service, the General Treasury of Social Security, INSS and the Social Institute of the Navy.

Incidence: the ratio that calculates the number of SA (MP2R) per 1000 affiliates. To compute the SA, we used the number of real registrations for the benefit (MP2R). Monthly datum: $MP2R * 1000 / AFI$. Accumulated datum: $average(MP2R) * 1000 / AFI$

Prevalence: the ratio that calculates the number of SA processes in force per 1000 affiliates. To compute the processes in force, we used the number of perceivers at the end of the period (MP4). Monthly datum: $MP4 * 1000 / AFI$. Accumulated datum: $average(MP4) * 1000 / AFI$

The mean general duration is the average of all durations per day. The mean duration per age range and sex was calculated by dividing the number of days in SA by the number of workers in SA in that range. We also described the number of workers in SA per 1000 affiliates. We calculated the median and the maximum and minimum values for the average duration per diagnostic chapter, using the statistics software Excel®.

Patient and public involvement

Anonymised patient data were used in this study. Patients and member of the public were not involved in conducting of the study.

RESULTS

We analysed a total of 540,045 SA processes by common contingencies and 63,441 SA processes by professional contingencies, which were the ones who had been followed-up by the Medical Units of INSS. The total number of SA in 2018 was 5,146,730 processes. The total covered population is 16,373,239 workers.

SA Prevalence

The national prevalence is 32.98/1000 workers in non-professional contingencies and employees, and 30.48 in self-employed workers. In professional contingencies, the national prevalence is 3.99/1000 workers. It ranges between 27.3 in La Rioja and 40.45 in the Canary Islands in non-professional contingencies and employees. In self-employed workers it ranges between 21.5 in the Balearic Islands and 40.63 in Region of Murcia. In professional contingencies, it ranges from 2.73 in Community of Madrid to 5.51 in Galicia (Table 1).

SA incidence

The national incidence is 24.8 in non-professional contingencies and employees, and 9.51 in self-employed workers. In professional contingencies it is 3.55. Its values range between 12.76 in Extremadura and 36.7 in Catalonia for employees and non-professional contingency; for self-employed workers it ranges between 7.71 in Community of Madrid and 16.46 in Chatered Community of Navarre. In professional contingencies, it ranges from 2.89 in Madrid to 5.15 in the Balearic Islands (Table 1).

Average SA duration

The average duration is 58.67 days (in non-professional contingencies from 38.81 days in employees to 91.38 days in self-employed workers) with a median of 48.53 days. In non-professional contingencies for employees, it ranges between 24.64 days in Chatered Community of Navarre to 67.53 in Extremadura. For self-employed workers, it varies between 55.15 days in Navarra to 112.86 days in Extremadura. In professional contingencies, it ranges from 30.94 days in the Balearic Islands to 50.14 in Cantabria (Table 1).

Workers in SA and average duration (age ranges and sex).

The total number of workers in SA by age and sex is higher in men than in women (Figure 1). According to age range and sex, the number of affiliates in SA is higher in women, except in Castilla-León, Chatered community of Navarre and the Basque Country between 16 and 25 years of age, Principality of Asturias and La Rioja between 26 and 35 years and La Rioja in 36-45 and 46-55 years.

The average duration is also higher in women than in men in all the age ranges, except in Community of Madrid and La Rioja for 16-25 years, and Principality of Asturias, Balearic Islands, Canary Islands, Catalonia and Chatered Community of Navarre in workers over 65 years of age.

In women, the average duration is 58.5 days (minimum 12, maximum 137), with a median of 52 days. In men, the average is 53.08 days (minimum 13, maximum 118), with a median of 44.

Average SA duration (diagnostic chapter)

The average SA duration, in general, is 56.82 days, with a median of 52.80 days. In all the Autonomous Communities, the longest duration corresponds to neoplasms, followed by heart diseases and mental disorders. The shortest duration corresponds to infectious diseases (Table 2).

SA situations by International Classification Diseases 10 (ICD-10) diagnosis

Table 3 describes the main diagnoses that generate the largest numbers of SA cases (ranking of the leading 8 diagnoses). The most frequent diagnoses are: “*Influenza, virus not indentified*”, “*Lower back pain*” and “*Noninfective gastroenteritis and colitis, unspecified*”.

SA situations by International Standard Industrial Classification of all Economic Activities (ISIC Rev-4)

There is an outstanding number of SA situations in “*General public administration activities*”, “*Hospital activities*”, “*Retail sale in non-specialized stores with food, beverages or tobacco predominating*” and “*General cleaning of buildings*” (Table 4).

DISCUSSION

The obtained results confirm many of the findings described by other authors at both the national and international levels.

The incidence and prevalence are much higher in common contingencies (non-professional cause) than in professional contingencies, which is logical, since professional contingencies only include the accidents occurred in the workplace, as well as the professional diseases described in the Royal Decree 1299/2006 of November 10th, and not all diseases, accidents and injuries that any worker can suffer. The prevalence shows an increasing trend in time when compared to other studies carried out in Spain^{3,15}, in line with the upward tendency of SA in other countries near Spain in the last decades¹⁶, whereas other authors reported its stabilisation².

There is a significant difference between the incidence of employees and that of self-employed workers, which is much higher in the former. This is in line with the results obtained in other studies conducted in Spain³ and at an international level^{6,17,18}.

The average duration shows a clear difference between employees and self-employed workers, being longer in self-employed workers. This finding is in line with that of other studies at the national³ and European¹⁷ level. Non-professional contingencies show a longer duration with respect to professional contingencies, which has remained like this for years¹².

The differences observed in the number of employees regarding age and sex are in line with the patterns obtained in other studies, with higher incidence¹⁶ and longer duration¹⁸ in women. There is a sex breach in some European countries (Spain, Ireland, France, Belgium and United Kingdom) compared to others (Netherlands, Portugal and Italy)^{19,20}. The incidence increases with age, which is in agreement with most studies at the national^{3,21} and international^{6,16,19,20-22} level, with higher intensity according to the number of affiliates per sex and age range (Table 2). Among the multiple explanations for this fact, it is worth highlighting the following: the double work women usually carry out, i.e., payed work and domestic work, with greater responsibilities with respect to the family (traditional gender role)^{20,22}, the different behaviour of women toward disease²⁰, their greater morbidity related to maternity²³ and more fragile health, as well as their lower commitment to work²⁰. Other authors highlight the occupational differences, which could explain more than half of the gender differences²², as well as the stress level²². However, this gender breach is not constant in the long term in all the

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3 European countries^{20,21}; in fact, some studies question its existence based on the
4 occupational level²⁴ and the stress level²⁵.

6 SA increases with age, especially its duration (Table2), in all the Autonomous
7 Communities. This finding is in line with most studies at the national^{12,26} and
8 international level²⁷.

10 The longest duration by diagnostic group is in oncological diseases, cardiovascular
11 diseases and mental disorders, which is in line with other studies²⁸⁻³⁰. Moreover, this
12 fact poses a serious problem of public health, given the accelerated increase of chronic
13 diseases in all the countries around Spain³¹, with the consequent increase in the
14 incidence and duration of SA and the cost that it implies^{3,28}.

17 The diagnosis that generates the largest number of SA cases, after the flu, is “*lower
18 back pain*”. This finding is in line with numerous studies, being, globally, the main
19 diagnosis of sick leave due to its high incidence and recurrence rate^{32,33}, as well as to the
20 duration^{21,34,35} and economic costs of such sick leaves³⁵. This is due to the great
21 prevalence of such pathology, regardless of whether or not it generates SA cases^{33,36},
22 among other factors.

25 The frequency of SA, as a function of the economic activity carried out by the worker,
26 shows a clear disagreement with other studies, since workers of the Public
27 Administration are in the 1st, 2nd and 3rd positions in the described ranking in almost all
28 the Autonomous Communities. This could be explained by the difference between
29 workers of the public sector, who represent a greater number of SA cases than
30 employees in the private sector, as in other countries^{17,37,38}. However, in previous
31 studies carried out in Spain, the Public Administration did not represent or occupied
32 such an important place in terms of SA frequency, being greatly surpassed by the
33 industrial and construction sectors^{14,39}.

37 **Conclusion**

39 Our study has important strengths, such as its thoroughness and wide representativeness
40 of the whole of SA cases in Spain. Since it is a transversal study, it did not allow
41 drawing conclusions about causality or relationships between the different variables;
42 therefore, it would be interesting to carry out further studies that analyse the main
43 factors that influence SA in Spain.

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53 All authors critically appraised the drafted manuscript and made important intellectual
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www.seg-social.es/wps/portal/wss/internet/EstadisticasPresupuestosEstudios/

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Table legends

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Table 1: Prevalence, incidence and average duration of sickness absence in Spain (2018)

	PREVALENCIA			INCIDENCIA			DURACION MEDIA		
	NO PROFESIONAL		PROFESIONA L	NO PROFESIONAL		PROFESIONA L	NO PROFESIONAL		PROFESIONA L
	CUENTA AJENA	AUTONOMO S		CUENTA AJENA	AUTONOMO S		CUENTA AJENA	AUTONOMO S	
ANDALUCIA	29,41	31,43	4,26	19,72	9,28	3,98	44,79	98,35	37,24
ARAGON	32,52	30,48	3,94	25,95	11,15	3,39	36,47	75,45	41,45
ASTURIAS	36	38,96	5,01	18,73	10,85	3,53	58,55	105,03	47,08
ILLES BALEARS	31,29	21,7	4,72	27,02	6,46	5,15	33,02	84,01	30,94
CANARIAS	40,45	26,45	3,85	25,23	7,96	3,51	48,53	100,87	38,17
CANTABRIA	39,77	38,68	4,84	23,38	10,92	3,18	51,39	108,36	50,14
CASTILLA Y LEON	32,68	31,71	4,35	19,46	9,15	3,44	47,95	95,36	42,07
CASTILLA-LA MANCHA	32,4	35,57	4,48	19,91	9,93	3,96	46,02	98,54	38,08
CATALUÑA	35,14	28,76	3,8	36,37	10,17	3,6	28,54	83,48	36,06
EXTREMADURA	31,59	38,9	4,64	12,76	8,94	3,68	67,53	112,86	41,42
GALICIA	39,79	44,29	5,51	18,52	10,54	3,57	61,39	111,82	49,83
MADRID	29,17	20,79	2,73	25,54	7,71	2,89	33,89	77,75	33,11
MURCIA	35,55	40,63	4,12	20,21	11,33	3,39	48,39	98,49	40,2
NAVARRA	35,73	30,72	4,28	43,87	16,46	3,88	24,64	55,15	37,86
LA RIOJA	27,3	25,65	4,41	25,28	10,91	3,91	34,53	69,95	38,87
VALENCIA	30,68	29,28	4,4	18,06	8,79	3,34	49,29	96,3	42,34

PAIS VASCO	39,58	28,3	3,84	31,15	10,52	3,96	38,16	79,6	36,55
TOTAL NACIONAL	32,98	30,48	3,99	24,98	9,51	3,55	38,81	91,38	38,23

	PREVALENCE			INCIDENCE			AVERAGE DURATION		
	NON- PROFESSIONAL CONTINGENCIES		PROFESSIONAL CONTINGENCIES	NON- PROFESSIONAL CONTINGENCIES		PROFESSIONAL CONTINGENCIES	NON- PROFESSIONAL CONTINGENCIES		PROFESSIONAL CONTINGENCIES
	EMPLOYEES WORKERS	SELF-EMPLOYED WORKERS		EMPLOYEES WORKERS	SELF-EMPLOYED WORKERS		EMPLOYEES WORKERS	SELF-EMPLOYED WORKERS	
ANDALUSIA	29,41	31,43	4,26	19,72	9,28	3,98	44,79	98,35	37,24
ARAGON	32,52	30,48	3,94	25,95	11,15	3,39	36,47	75,45	41,45
PRINCIPALITY of ASTURIAS	36	38,96	5,01	18,73	10,85	3,53	58,55	105,03	47,08
BALEARIC ISLANDS	31,29	21,7	4,72	27,02	6,46	5,15	33,02	84,01	30,94
CANARY ISLANDS	40,45	26,45	3,85	25,23	7,96	3,51	48,53	100,87	38,17
CANTABRIA	39,77	38,68	4,84	23,38	10,92	3,18	51,39	108,36	50,14
CASTILE and LEON	32,68	31,71	4,35	19,46	9,15	3,44	47,95	95,36	42,07
CASTILE LA MANCHA	32,4	35,57	4,48	19,91	9,93	3,96	46,02	98,54	38,08
CATALONIA	35,14	28,76	3,8	36,37	10,17	3,6	28,54	83,48	36,06
EXTREMADURA	31,59	38,9	4,64	12,76	8,94	3,68	67,53	112,86	41,42
GALICIA	39,79	44,29	5,51	18,52	10,54	3,57	61,39	111,82	49,83
COMMUNITY of MADRID	29,17	20,79	2,73	25,54	7,71	2,89	33,89	77,75	33,11
MURCIA	35,55	40,63	4,12	20,21	11,33	3,39	48,39	98,49	40,2
CHARTERED COMMUNITY of NAVARRA	35,73	30,72	4,28	43,87	16,46	3,88	24,64	55,15	37,86

LA RIOJA	27,3	25,65	4,41	25,28	10,91	3,91	34,53	69,95	38,87
VALENCIA	30,68	29,28	4,4	18,06	8,79	3,34	49,29	96,3	42,34
BASQUE COUNTRY	39,58	28,3	3,84	31,15	10,52	3,96	38,16	79,6	36,55
NATIONAL TOTAL	32,98	30,48	3,99	24,98	9,51	3,55	38,81	91,38	38,23

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Table 2. Sickness absence and average duration, by age and sex

		ANDALUSIA		ARAGON		P. OF ASTURIAS		BALEARIC ISLANDS		CANARY ISLANDS		CANTABRIA		CASTILE AND LEON		CASTILE LA MANCHA		CATALONIA		EXTREMADURA		GALICIA		COMMUNITY OF MADRID		REGION OF MURCIA		C. C. OF NAVARRE		LA RIOJA		VALENCIA		BASQUE COUNTRY	
		Woman	Man	Woman	Man	Woman	Man	Woman	Man	Woman	Man	Woman	Man	Woman	Man	Woman	Man	Woman	Man	Woman	Man	Woman	Man	Woman	Man	Woman	Man	Woman	Man	Woman	Man	Woman	Man	Woman	Man
16-25	Total workforce	28 519	30 319	7 211	9 576	1 836	2 100	11 010	10 470	11 404	9 813	2 235	2 292	6 859	9 934	7 294	10 106	92 204	83 921	2 064	2 793	6 082	7 549	43 592	42 510	5 649	7 818	5 488	7 886	1 457	2 034	15 154	18 327	8 401	12 209
	Average affiliated workers	68552.40	89 788.42	12715.03	17 792.34	5368.35	6 294.17	16392.26	19 260.69	19549.26	23 478.52	3792.28	4 566.60	16025.01	22 400.00	13405.17	21 951.23	112945.81	122 308.48	7057.99	11 732.44	17279.67	21 582.01	81635.82	97 705.09	13971.74	19 847.78	6659.14	8 653.16	2699.60	2 696.28	46147.56	56 875.39	17735.00	22 613.08
	SA/1000 affiliates	34.67	28.14	47.26	44.85	28.5	27.8	55.97	45.29	48.61	34.82	49.11	41.83	35.67	36.96	45.34	38.36	68.02	57.17	24.37	19.83	29.33	29.14	44.5	36.25	33.69	32.82	68.67	75.94	44.97	45.85	27.36	26.85	39.47	44.99
	Total days of SA	834 572	846 610	131 509	167 205	50 471	56 482	185 291	178 221	309 354	231 868	48 036	48 391	167 468	222 267	309 354	242 410	1 358 613	1 249 511	94 375	105 025	231 248	264 978	659 008	707 760	189 971	225 126	70 415	105 159	26 249	38 326	434 028	500 328	170 994	232 766
Average duration	29	27	18	17	27	26	16	17	27	23	21	21	24	22	42	23	14	14	45	37	38	35	15	16	33	28	12	13	18	18	28	27	20	19	
26-35	Total workforce	100 886	86 518	20 411	20 921	7 876	8 438	22 333	19 262	32 182	25 520	7 126	6 214	23 829	23 851	22 958	23 179	195 844	166 163	8 168	6 905	25 440	23 811	126 980	102 745	19 347	18 506	5 488	7 886	1 457	2 034	15 154	18 327	8 401	12 209
	Average affiliated workers	300 358.69	330 969.33	48 943.45	55 044.50	29 131.98	30 748.08	51 679.23	54 743.11	80 321.79	82 314.91	18 686.80	19 468.05	73 916.47	83 188.54	59 795.11	75 578.35	310 001.82	347 500.15	36 076.74	41 472.33	88 778.42	92 930.24	334 003.39	351 427.98	53 485.35	64 162.37	23 761.08	27 464.21	11 184.28	11 558.26	169 672.13	189 654.50	72 276.88	83 896.41
	SA/1000 affiliates	27.93	21.78	34.75	31.67	22.53	22.87	36.01	29.32	33.39	25.84	31.78	26.60	26.86	23.89	32.00	25.55	52.65	39.85	18.87	13.87	23.88	21.35	31.68	24.36	30.14	24.04	52.48	51.62	33.13	36.82	24.45	19.81	37.83	34.70
	Total days of SA	4 002 601	2 741 036	613 970	475 288	326 129	321 994	596 265	434 597	1 290 175	833 828	282 294	203 621	918 856	733 947	927 034	686 484	4 915 171	3 405 555	475 765	307 251	1 289 570	1 018 756	3 636 681	2 344 947	882 767	621 458	325 739	275 255	127 536	108 671	2 207 518	1 512 322	1 228 249	847 290
Average duration	39	31	30	22	41	38	26	22	40	32	39	32	38	30	40	29	25	20	58	44	50	42	28	22	45	33	21	16	28	21	44	33	35	24	
36-45	Total workforce	118 614	117 512	25 565	26 492	13 494	14 020	23 709	22 637	40 199	35 601	10 016	9 757	31 594	32 035	26 742	29 050	221 680	205 633	9 621	9 250	38 674	35 964	151 187	125 041	23 103	24 813	20 685	22 630	5 864	6 555	63 233	65 615	51 452	55 641
	Average affiliated workers	416 547.17	493 349.53	73 820.89	88 587.25	53 033.04	57 508.87	72 634.45	79 189.07	113 319.60	124 332.39	31 436.56	34 354.87	116 512.04	134 105.28	85 921.38	117 415.38	467 172.39	536 140.86	51 846.68	57 864.40	154 779.30	159 073.44	448 746.41	492 003.79	74 900.72	103 493.33	37 428.06	44 884.12	18 530.51	19 654.64	256 013.07	308 714.88	131 005.73	147 561.07
	SA/1000 affiliates	23.73	19.85	28.86	24.92	21.20	20.32	27.20	23.82	29.56	23.86	26.55	23.67	22.60	19.91	25.94	20.62	39.54	31.96	15.46	13.32	20.82	18.84	28.08	21.18	25.70	19.98	46.06	42.02	26.37	27.79	20.58	17.71	32.73	31.42
	Total days of SA	5 485 098	4 853 604	1 017 787	884 342	729 537	710 147	871 595	690 262	1 994 219	1 537 765	522 237	427 368	1 601 141	1 341 221	1 320 806	1 180 792	7 299 940	5 952 905	6 840 002	5 233 999	2 405 243	1 925 240	5 625 202	4 022 176	1 271 496	1 132 594	584 891	5 155 333	2 168 911	1 962 011	3 345 778	2 905 621	2 137 768	1 898 819
Average duration	46	41	39	33	54	50	36	30	49	43	52	43	50	41	49	40	32	28	71	56	62	53	37	32	55	45	28	22	36	29	52	44	41	34	
46-55	Total workforce	93 419	97 446	20 531	21 134	12 107	11 379	19 560	18 340	33 484	32 340	7 739	7 993	27 137	28 786	20 740	24 528	161 373	145 283	9 133	9 654	32 304	30 656	116 428	97 152	17 870	19 928	17 679	17 432	4 652	5 523	52 477	56 490	44 669	47 083
	Average affiliated workers	376 667.85	452 781.53	72 642.41	86 832.17	50 430.1	54 182.72	59 519.62	70 647.25	103 329.08	124 900.1	27 966.17	32 274.09	121 691.32	144 244.47	78 676.23	113 500.26	420 095.39	483 766.12	4 899.11	61 304.89	155 675.61	146 483	392 653.45	435 113.09	63 760.45	88 653.91	36 669.67	43 790.26	16 865.87	19 151.91	227 708.97	286 020.66	132 334.79	149 918.57
	SA/1000 affiliates	20.67	17.93	23.55	20.28	20.01	17.50	27.39	21.63	27.00	21.58	23.06	20.64	18.58	16.63	21.97	18.01	32.01	25.03	15.55	13.12	17.29	17.44	24.71	18.61	23.36	18.73	40.18	33.17	22.99	24.03	19.20	16.46	28.13	26.17
	Total days of SA	5 662 005	5 761 219	1 161 473	1 064 204	892 531	800 712	986 970	817 858	2 095 638	1 869 968	514 677	492 931	1 843 156	1 685 686	1 338 200	1 442 138	7 170 290	6 146 120	7 567 911	7 560 888	2 592 300	2 198 003	5 597 323	4 348 939	1 266 827	1 234 944	690 509	631 366	226 762	248 332	3 621 543	3 415 316	2 402 084	2 300 411
Average duration	60	59	56	50	73	70	50	44	62	57	66	61	67	58	64	58	44	42	82	78	80	71	48	44	70	61	39	36	48	44	69	60	53	48	
56-65	Total workforce	54 794	55 337	13 132	12 022	9 140	7 504	11 512	9 850	16 303	15 530	5 491	5 206	18 430	19 782	11 693	14 709	85 972	74 294	6 060	6 574	22 907	19 711	67 732	53 708	11 580	11 798	9 312	8 423	2 931	3 133	33 820	33 628	2 8812	26 181
	Average affiliated workers	225 629.08	261 355.04	45 478.18	56 875.03	34 528.21	37 293.19	34 180.32	40 291.24	48 415.01	64 110.82	18 313.97	22 216.8	81 337.65	106 472.69	44 685.46	72 066.5	237 960.81	279 504.05	30 888.53	42 159.4	87 344.91	92 663.59	217 723.25	240 497.55	35 155.93	48 115.93	21 505.51	26 507.11	10 467.84	13 056.28	12 880.03	16 604.89	82 120.99	95 280.63
	SA/1000 affiliates	20.24	17.64	24.06	17.61	22.06	16.77	28.07	20.37	28.06	20.19	24.99	19.53	18.88	15.48	21.81	17.01	30.11	22.15	16.35	12.99	21.85	17.73	25.93	18.61	27.45	20.43	36.08	26.48	23.33	20.00	21.88	16.87	29.24	22.90
	Total days of SA	4 016 323	4 392 212	954 029	886 164	799 503	654 003	722 340	644 055	1 270 661	1 239 034	458 470	446 106	1 611 454	1 563 351	971 777	1 205 977	5 269 955	4 690 436	5 675 700	6 314 005	2 297 445	181 0405	4 144 407	3 305 759	1 026 123	969 808	47 8852	45 7600	200 637	200 286	2 884 959	2 773 183	2 023 474	1 882 291
Average duration	73	79	72	73	87	87	62	65	77	79	83	85	87	79	83	81	61	63	95	96	100	91	61	61	88	82	51	54	68	63	85	82	70	71	

	Total workforce	1009	912	218	229	143	135	248	248	405	507	93	90	309	369	222	243	1499	1783	109	118	496	416	1427	1472	209	205	97	99	48	53	565	586	395	395
	Average affiliated workers	11950,42	13802,04	2562,05	3147,87	2035,13	1864,38	2749,35	3794,28	3761	6238,89	1063,87	1151,9	4800,68	6608,46	2729,33	3896,45	16654,52	21595,24	1635,76	2118,84	6019,34	6010,7	14815,19	17812,54	2137,48	2850,03	976,63	1251,16	558,86	884,86	7419,14	9562,67	3943,04	4299,16
> 65	SA/1000 affiliates	7,04	5,51	7,09	6,06	5,86	6,03	7,52	5,45	8,97	6,77	7,28	6,51	5,36	4,65	6,78	5,20	7,50	6,88	5,55	4,64	6,87	5,77	8,03	6,89	8,15	5,99	8,28	6,59	7,16	4,99	6,35	5,11	8,35	7,66
	Total days of SA	102994	86720	22938	20767	14254	15093	19474	21387	42070	54105	9941	8986	33554	36135	30606	23582	137904	164426	14652	13172	60119	49220	115468	116354	28423	19951	7095	8826	5266	4674	63313	59850	38371	34999
	Average duration	102	95	105	90	99	111	78	86	103	106	106	99	108	97	137	97	91	92	134	111	121	118	80	79	135	97	73	89	109	88	112	102	97	88

Table 3. Average duration by diagnosis chapter (ICD-10)

Diagnosis chapter ⁽¹⁾	Average duration (days)	Minimun duration (Autonomous Community)	Maximun duration (Autonomous Community)
I Certain infectious and parasitic diseases	9,65	3,87 (Navarre)	17,39 (Galicia)
II Neoplasms	117,59	87,92 (C. of Madrid)	142,86 (Basque Country)
III Diseases of the blood and blood-forming organs and certain disorders involving the immune mechanism	79,58	40,50 (Navarre)	121,10 (Extremadura)
IV Endocrine, nutritional and metabolic diseases	67,22	43,03 (Navarre)	88,73 (Galicia)
V Mental and behavioural disorders	92,03	56,11 (Balearic Islands)	116,66 (Basque Country)
VI Diseases of the nervous system	67,02	26,40 (Navarre)	95,84 (Galicia)
VII Diseases of the eye and adnexa	40,35	18,80 (Navarre)	56,76 (Extremadura)
VIII Diseases of the ear and mastoid process	28,94	13,85 (Navarre)	47,66 (Extremadura)
IX Diseases of the circulatory system	98,8	76,86 (C. of Madrid)	119,39 (Basque Country)
X Diseases of the respiratory system	12,09	6,40 (Navarre)	19,76 (Extremadura)
XI Diseases of the digestive system	35,48	14,97 (Navarre)	50,51 (Extremadura)
XII Diseases of the skin and subcutaneous tissue	35,55	20,61 (Navarre)	51,91 (Basque Country)
XIII Diseases of the musculoskeletal system and connective tissue	68,5	43,11 (Navarre)	92,61 (Basque Country)
XIV Diseases of the genitourinary system	36,04	15,56 (Navarre)	52,86 (Basque Country)
XV Pregnancy, childbirth and the puerperium	64,37	51,51 (P of Asturias)	81,32 (Canary Islands)
XVII Congenital malformations, deformations and chromosomal abnormalities	81,25	37,76 (La Rioja)	121,65 (Canary Islands)

<i>XVIII Symptoms, signs and abnormal clinical and laboratory findings, not elsewhere classified</i>	32,19	9,05 (Navarre)	51,18 (Region of Murcia)
<i>XIX Injury, poisoning and certain other consequences of external causes</i>	60,96	45,13 (Navarre)	81,27 (Basque Country)

(1) Chapters XX, XXI y XXII are not included because the number of cases is not significant

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Table 4. Sickness absence situations by specific diagnosis (ICD-10)

Autonomous Community of Spain	Code	Specific diagnosis	Sickness absence situations
Andalusia	M54.5	Low back pain	41.884
	K52	Other noninfective gastroenteritis and colitis	30.794
	J00	Acute nasopharyngitis (common cold)	25.633
	J11	Influenza, virus not indentified	25.345
	M54.2	Cervicalgia	17.463
	M54.3	Sciatica	16.141
	J02.9	Acute pharyngitis, unspecified	12.318
	J03.9	Acute tonsillitis, unspecified	11.617
	Aragon	K52.9	Noninfective gastroenteritis and colitis, unspecified
J11		Influenza, virus not indentified	8.383
M54.5		Low back pain	7.565
J02.9		Acute pharyngitis, unspecified	6.373
M25		Other joint disorders, not elsewhere classified	4.952
M54.3		Sciatica	2.743
M54.2		Cervicalgia	2.693
F41		Other anxiety disorders	2.487
Principality of Asturias	K52.9	Noninfective gastroenteritis and colitis, unspecified	4.362
	M54.5	Low back pain	3.485
	F41	Other anxiety disorders	3.369
	J11	Influenza, virus not indentified	2.311
	M54.3	Sciatica	1.937
	M54.2	Cervicalgia	1.706
	J02.9	Acute pharyngitis, unspecified	1.256
	M23	Internal derangement of knee	1.237
Balearic Islands	K52.9	Noninfective gastroenteritis and colitis, unspecified	11.331
	M54.5	Low back pain	7.985
	B97.8	Other viral agents as the cause of diseases classified to other chapters	6.260
	J11	Influenza, virus not indentified	5.697
	F41.9	Anxiety disorder, unspecified	3.787
	J03.9	Acute tonsillitis, unspecified	3.578
	J00	Acute nasopharyngitis (common cold)	2.990
	M54.3	Sciatica	2.949
Canary Islands	M54.5	Low back pain	13.145
	J11	Influenza, virus not indentified	10.897
	K52.9	Noninfective gastroenteritis and colitis, unspecified	9.554
	J00	Acute nasopharyngitis (common cold)	7.704
	J20.9	Acute bronchitis, unspecified	5.579
	F06.4	Organic anxiety disorder	5.330
	M54.3	Sciatica	4.744

	M54.2	Cervicalgia	4.147
Cantabria	K52.9	Noninfective gastroenteritis and colitis, unspecified	4.078
	J11	Influenza, virus not indentified	2.811
	M54.5	Low back pain	2.440
	R45	Symtoms and signs involving emotional state	1.723
	J02.9	Acute pharyngitis, unspecified	1.679
	J06	Accute upper respiratory infections of multiple and unspecified sites	
	M54.3	Sciatica	1.522
	M54.2	Cervicalgia	1.433
Castile and Leon	K52	Other noninfective gastroenteritis and colitis	1.042
	M54.5	Low back pain	13.570
	J11	Influenza, virus not indentified	9.100
	F41.9	Anxiety disorder, unspecified	5.606
	M54.3	Sciatica	5.524
	J98.8	Other specified respiratory disorders	4.259
	J06.9	Acute upper respiratory infection, unspecified	3.877
	J00	Acute nasopharyngitis (common cold)	3.184
Castile La Mancha	M54.5	Low back pain	9.639
	K52.9	Noninfective gastroenteritis and colitis, unspecified	6.248
	J00	Acute nasopharyngitis (common cold)	4.891
	J11	Influenza, virus not indentified	4.162
	K52	Other noninfective gastroenteritis and colitis	3.929
	J03.9	Acute tonsillitis, unspecified	3.363
	M54.2	Cervicalgia	3.049
	M54.3	Sciatica	2.947
Catalonia	K52.9	Noninfective gastroenteritis and colitis, unspecified	11.871
	J00	Acute nasopharyngitis (common cold)	82.707
	M54.5	Low back pain	77.901
	J11	Influenza, virus not indentified	62.867
	F41.9	Anxiety disorder, unspecified	55.710
	B97.8	Other viral agents as the cause of diseases classified to other chapters	41.739
	J03.9	Acute tonsillitis, unspecified	33.821
	M54.2	Cervicalgia	26.867
Extremadura	M54.5	Low back pain	3.009
	J11	Influenza, virus not indentified	1.940
	S93	Dislocation, sprain and strain of joints and ligaments at ankle and foot level	1.105
	M54.2	Cervicalgia	894
	M54.3	Sciatica	804
	F41	Other anxiety disorders	723
	M54.9	Dorsalgia, unspecified	688

	M75	Shoulder lesions	560
Galicia	M54.5	Low back pain	13.555
	J11	Influenza, virus not indentified	10.794
	M54.2	Cervicalgia	5.343
	F41	Other anxiety disorders	5.053
	J20.9	Acute bronchitis, unspecified	4.800
	M54.3	Sciatica	3.402
	J03.9	Acute tonsillitis, unspecified	3.169
	S93	Dislocation, sprain and strain of joints and ligaments at ankle and foot level	2.705
Community of Madrid	K52.9	Noninfective gastroenteritis and colitis, unspecified	56.245
	M54.5	Low back pain	33.522
	F41	Other anxiety disorders	28.118
	J02.9	Acute pharyngitis, unspecified	25.029
	J11	Influenza, virus not indentified	19.656
	M25	Other joint disorders, not elsewhere classified	17.815
	M54.3	Sciatica	16.627
	J06.9	Acute upper respiratory infection, unspecified	15.924
Region of Murcia	K52.9	Noninfective gastroenteritis and colitis, unspecified	7.114
	J11	Influenza, virus not indentified	6.808
	M54.5	Low back pain	6.657
	J02.9	Acute pharyngitis, unspecified	4.808
	M54.3	Sciatica	4.037
	R45	Symtoms and sings involving emotional state	3.637
	M54.2	Cervicalgia	3.253
	J06.9	Acute upper respiratory infection, unspecified	2.438
Chartered Community of Navarre	K52.9	Noninfective gastroenteritis and colitis, unspecified	9.976
	J11	Influenza, virus not indentified	8.159
	M54.5	Low back pain	6.098
	J06.9	Acute upper respiratory infection, unspecified	5.264
	J00	Acute nasopharyngitis (common cold)	4.080
	A08.5	Ofter specified intestinal infections	3.165
	J20.9	Acute bronchitis, unspecified	3.082
	F41.9	Anxiety disorder, unspecified	2.873
La Rioja	K52.9	Noninfective gastroenteritis and colitis, unspecified	3.216
	J00	Acute nasopharyngitis (common cold)	2.073
	J11	Influenza, virus not indentified	1.661
	M54.5	Low back pain	1.613
	M54.3	Sciatica	823
	J06.9	Acute upper respiratory infection,	576

		unspecified	
	M25.5	Pain in joint	529
	R45.0	Nervousness	515
Valencia	M54.5	Low back pain	22.410
	J11	Influenza, virus not indentified	18.243
	F41.9	Anxiety disorder, unspecified	12.054
	K52.9	Noninfective gastroenteritis and colitis, unspecified	11.770
	J00	Acute nasopharyngitis (common cold)	9.739
	M54.2	Cervicalgia	8.411
	M54.3	Sciatica	7.227
	J20.9	Acute bronchitis, unspecified	6.953
Basque Country	M54.5	Low back pain	2.038
	M54.2	Cervicalgia	1.986
	J00	Acute nasopharyngitis (common cold)	948
	K52.9	Noninfective gastroenteritis and colitis, unspecified	759
	J11	Influenza, virus not indentified	662
	F43.2	Ajustment disorders	638
	F41.9	Anxiety disorder, unspecified	625
	R10	Abdominal and pelvic pain	609

Table 5. Sickness absence situations by economic activity (International Standard Industrial Classification of all Economic Activities, ISIC Rev-4)

Autonomous Community	Code	Economic Activities	Sickness absence situations	
Andalusia	8411	General public administration activities	61.457	
	8610	Hospital activities	40.544	
	8121	General cleaning of buildings	23.802	
	5610	Restaurants and mobile food service activities	23.377	
	5630	Beverage serving activities	20.659	
	4100	Construction of buildings	16.608	
	4711	Retail sale in non-specialized stores with food, beverages or tobacco predominating	16.253	
	5510	Hotels and similar accommodation	16.061	
	4630	Wholesale of food, beverage and tobacco	15.010	
	8220	Activities of call centres	14.652	
	Aragon	8411	General public administration activities	9.685
		8610	Hospital activities	8.022
7820		Temporary employment agency activities	7.550	
2930		Manufacture of parts and accessories of motor vehicles	5.874	
8121		General cleaning of buildings	5.464	
4711		Retail sale in non-specialized stores with food, beverages or tobacco predominating	3.773	
5610		Restaurants and mobile food service activities	3.669	
8220		Activities of call centres	3.459	
4923		Freight transport by road	3.214	
5630		Beverage serving activities	3.073	
Principality of Asturias		8610	Hospital activities	6.422
		4711	Retail sale in non-specialized stores with food, beverages or tobacco predominating	5.217
	8411	General public administration activities	4.000	
	5630	Beverage serving activities	2.560	
	2410	Manufacture of basic iron and steel	2.330	
	8121	General cleaning of buildings	2.285	
	5610	Restaurants and mobile food service activities	2.047	
	8730	Residential care activities for the elderly and disabled	1.950	
8122	Other building and industrial cleaning	1.651		

		activities	
	9700	Activities of households as employers of domestic personnel	1.365
Balearic Islands	5510	Hotels and similar accomodation	19.736
	5610	Restaurants and mobile food service activities	9.399
	8610	Hospital activities	8.059
	8411	General public administration activities	6.141
	4100	Construction of buildings	6.129
	4711	Retail sale in non-specialized stores with food, beverages or tobacco predominating	5.078
	5630	Beverage serving activities	4.740
	8121	General cleaning of buildings	4.125
	5520	Short term accommodation activities	3.034
	4751	Retail sale of textiles in specialized stores	2.408
Canary Islands	5510	Hotels and similar accomodation	26.147
	8610	Hospital activities	16.865
	8411	General public administration activities	15.899
	5610	Restaurants and mobile food service activities	11.628
	4711	Retail sale in non-specialized stores with food, beverages or tobacco predominating	10.495
	5520	Short term accommodation activities	7.221
	8121	General cleaning of buildings	7.000
	5630	Beverage serving activities	5.507
	4100	Construction of buildings	5.414
	8521	General secondary education	5.340
Cantabria	8411	General public administration activities	3.851
	7820	Temporary employment agency activities	3.612
	8610	Hospital activities	3.492
	8121	General cleaning of buildings	1.828
	5610	Restaurants and mobile food service activities	1.616
	5630	Beverage serving activities	1.383
	8220	Activities of call centres	1.170
	8521	General secondary education	1.170
	4791	Retail sale via mail order houses or via Internet	1.023
	8620	Medical and dental practice activities	998
Castile and Leon	8411	General public administration activities	9.940
	8610	Hospital activities	9.741
	8220	Activities of call centres	8.920

	8121	General cleaning of buildings	7.489
	4711	Retail sale in non-specialized stores with food, beverages or tobacco predominating	5.953
	8790	Other residential care activities	5.089
	5630	Beverage serving activities	5.023
	7820	Temporary employment agency activities	4.676
	5610	Restaurants and mobile food service activities	4.493
	2910	Manufacture of motor vehicles	4.409
Castile La Mancha	8411	General public administration activities	15.003
	8610	Hospital activities	7.820
	8121	General cleaning of buildings	5.363
	7820	Temporary employment agency activities	5.272
	5210	Warehousing and storage	5.251
	4100	Construction of buildings	4.479
	4711	Retail sale in non-specialized stores with food, beverages or tobacco predominating	4.267
	5610	Restaurants and mobile food service activities	4.092
	4923	Freight transport by road	3.846
	5630	Beverage serving activities	3.526
Catalonia	8610	Hospital activities	75.958
	8411	General public administration activities	70.569
	5610	Restaurants and mobile food service activities	45.084
	8121	General cleaning of buildings	44.117
	7820	Temporary employment agency activities	43.109
	8220	Activities of call centres	37.877
	4711	Retail sale in non-specialized stores with food, beverages or tobacco predominating	30.528
	4751	Retail sale of textiles in specialized stores	24.417
	8812	Social work activities without accommodation for the elderly and disabled	20.007
	8423	Public order and safety activities	19.807
Extremadura	8411	General public administration activities	10.813
	8610	Hospital activities	5.921
	8121	General cleaning of buildings	2.007
	8812	Social work activities without accommodation for the elderly and	1.643

		disabled	
	4100	Construction of buildings	1.610
	5630	Beverage serving activities	1.599
	4711	General public administration activities	1.136
	5610	Restaurants and mobile food service activities	1.044
	4923	Freight transport by road	914
	0150	Mixed farming	902
Galicia	8610	Hospital activities	12.552
	8411	General public administration activities	12.137
	4711	Retail sale in non-specialized stores with food, beverages or tobacco predominating	7.498
	5630	Beverage serving activities	6.532
	8121	General cleaning of buildings	5.775
	7820	Temporary employment agency activities	5.270
	9700	Activities of households as employers of domestic personnel	4.830
	5610	Restaurants and mobile food service activities	4.664
	8220	Activities of call centres	4.558
	4100	Construction of buildings	3.622
Community of Madrid	8610	Hospital activities	44.482
	8121	General cleaning of buildings	42.703
	5610	Restaurants and mobile food service activities	36.939
	4711	General public administration activities	35.475
	8220	Activities of call centres	29.212
	4711	Retail sale in non-specialized stores with food, beverages or tobacco predominating	28.014
	9700	Activities of households as employers of domestic personnel	21.385
	8299	Other business support service activities n.e.c	20.351
	5630	Beverage serving activities	17.608
	4751	Retail sale of textiles in specialized stores	15.735
Region of Murcia	8620	Medical and dental practice activities	11.008
	0113	Growing of vegetables and melons, roots and tubers	7.233
	7820	Temporary employment agency activities	6.037
	4711	General public administration activities	6.003
	8121	General cleaning of buildings	4.915

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14	Chartered Community of Navarre		
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	5610	Restaurants and mobile food service activities	3.672
	5630	Beverage serving activities	3.635
	4630	Wholesale of food, beverage and tobacco	3.514
	4711	Retail sale in non-specialized stores with food, beverages or tobacco predominating	3.228
	4923	Freight transport by road	2,914
	8610	Hospital activities	14.408
	8411	General public administration activities	7.408
	2930	Manufacture of parts and accesories of motor vehicles	5.782
	7820	Temporary employment agency activities	5.558
	8521	General secondary education	3.909
	8121	General cleaning of buildings	3.520
	1030	Processing and preserving of fruit and vegetables	3.256
	2910	Manufacture of motor vehicles	3.195
	8812	Social work activities without acommodation for the edery and disabled	3.151
	9700	Activities of households as employers of domestic personnel	2.382
	8610	Hospital activities	1.698
	8611	General public administration activities	1.612
	1520	Manufacture of footwear	1.463
	8121	General cleaning of buildings	1.290
	1030	Processing and preserving of fruit and vegetables	1.217
	7820	Temporary employment agency activities	1.060
	2930	Manufacture of parts and accesories of motor vehicles	1.006
	5630	Beverage serving activities	973
	1102	Manufacture of wines	962
	0113	Growing of vegetables and melons, roots and tubers	907
	8610	Hospital activities	24.063
	8611	General public administration activities	23.311
	5610	Restaurants and mobile food service activities	16.234
	8121	General cleaning of buildings	12.758
	4711	Retail sale in non-specialized stores with food, beverages or tobacco	11.239

		predominating	
	4630	Wholesale of food, beverage and tobacco	7.300
	5630	Beverage serving activities	8.732
	4923	Freight transport by road	7.300
	7820	Temporary employment agency activities	7.126
	4100	Construction of buildings	6.663
Basque Country	8610	Hospital activities	22.704
	8611	General public administration activities	15.565
	8121	General cleaning of buildings	13.043
	8521	General secondary education	12.519
	8812	Social work activities without accommodation for the elderly and disabled	8.760
	5610	Restaurants and mobile food service activities	8.419
	4711	Retail sale in non-specialized stores with food, beverages or tobacco predominating	6.625
	9700	Activities of households as employers of domestic personnel	6.284
	2591	Forging, pressing, stamping and roll-forming of metal; powder metallurgy	6.086
	5630	Beverage serving activities	5.842

1 STROBE Statement—Checklist of items that should be included in reports of *cohort studies*2
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	Item No	Recommendation	Page No
Title and abstract	1	(a) Indicate the study's design with a commonly used term in the title or the abstract (b) Provide in the abstract an informative and balanced summary of what was done and what was found	1 1
Introduction			
Background/rationale	2	Explain the scientific background and rationale for the investigation being reported	3
Objectives	3	State specific objectives, including any prespecified hypotheses	3
Methods			
Study design	4	Present key elements of study design early in the paper	4
Setting	5	Describe the setting, locations, and relevant dates, including periods of recruitment, exposure, follow-up, and data collection	4
Participants	6	(a) Give the eligibility criteria, and the sources and methods of selection of participants. Describe methods of follow-up (b) For matched studies, give matching criteria and number of exposed and unexposed	4
Variables	7	Clearly define all outcomes, exposures, predictors, potential confounders, and effect modifiers. Give diagnostic criteria, if applicable	4
Data sources/ measurement	8*	For each variable of interest, give sources of data and details of methods of assessment (measurement). Describe comparability of assessment methods if there is more than one group	4
Bias	9	Describe any efforts to address potential sources of bias	4
Study size	10	Explain how the study size was arrived at	4
Quantitative variables	11	Explain how quantitative variables were handled in the analyses. If applicable, describe which groupings were chosen and why	4
Statistical methods	12	(a) Describe all statistical methods, including those used to control for confounding (b) Describe any methods used to examine subgroups and interactions (c) Explain how missing data were addressed (d) If applicable, explain how loss to follow-up was addressed (e) Describe any sensitivity analyses	4 4 4 4 4
Results			
Participants	13*	(a) Report numbers of individuals at each stage of study—eg numbers potentially eligible, examined for eligibility, confirmed eligible, included in the study, completing follow-up, and analysed (b) Give reasons for non-participation at each stage (c) Consider use of a flow diagram	5
Descriptive data	14*	(a) Give characteristics of study participants (eg demographic, clinical, social) and information on exposures and potential confounders (b) Indicate number of participants with missing data for each variable of interest (c) Summarise follow-up time (eg, average and total amount)	5 5
Outcome data	15*	Report numbers of outcome events or summary measures over time	5

1	Main results	16	(a) Give unadjusted estimates and, if applicable, confounder-adjusted estimates and their precision (eg, 95% confidence interval). Make clear which confounders were adjusted for and why they were included	5-6
2			(b) Report category boundaries when continuous variables were categorized	
3			(c) If relevant, consider translating estimates of relative risk into absolute risk for a meaningful time period	
4	Other analyses	17	Report other analyses done—eg analyses of subgroups and interactions, and sensitivity analyses	5-6
5	Discussion			
6	Key results	18	Summarise key results with reference to study objectives	7-8
7	Limitations	19	Discuss limitations of the study, taking into account sources of potential bias or imprecision. Discuss both direction and magnitude of any potential bias	8
8	Interpretation	20	Give a cautious overall interpretation of results considering objectives, limitations, multiplicity of analyses, results from similar studies, and other relevant evidence	8
9	Generalisability	21	Discuss the generalisability (external validity) of the study results	8
10	Other information			
11	Funding	22	Give the source of funding and the role of the funders for the present study and, if applicable, for the original study on which the present article is based	8

*Give information separately for exposed and unexposed groups.

Note: An Explanation and Elaboration article discusses each checklist item and gives methodological background and published examples of transparent reporting. The STROBE checklist is best used in conjunction with this article (freely available on the Web sites of PLoS Medicine at <http://www.plosmedicine.org/>, Annals of Internal Medicine at <http://www.annals.org/>, and Epidemiology at <http://www.epidem.com/>). Information on the STROBE Initiative is available at <http://www.strobe-statement.org>.

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DESCRIPTIVE STUDY OF SICKNESS ABSENCE IN SPAIN IN 2018

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1
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3 **TITLE PAGE**

4
5 **TITLE:** DESCRIPTIVE STUDY OF SICKNESS ABSENCE IN SPAIN IN 2018

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TITLE: DESCRIPTIVE STUDY OF SICKNESS ABSENCE IN SPAIN IN 2018

ABSTRACT

Objectives: To provide a wide and thorough description of SA in Spain, focusing on the different regions of the country and the main characteristics, thus generating a global view of this benefit.

Methods: A study of the SA spells managed by the medical units of the Spanish Institute of Social Security in 2018. The geographical scope of this observational study is the Autonomous Community. Incidence, prevalence, and average duration in employees and self-employed are described. In age and sex variables, we describe the incidence and the average duration. We have analysed the average duration by Diagnostic Chapters (ICD-10) and the highest number of SA spells by occupational activity and diagnosis.

Results: We analysed a total of 540,045 SA spells by non-work-related SA and 63,441 by work-related SA. The national average prevalence in non-work-related SA spells is 32.98/1000 for employees and 30.48/1000 for self-employed workers; in work-related SA spells it is 3.99/1000. The national incidence in non-work-related SA spells is 24.8/1000 for employees and 9.51/1000 for self-employed workers; in work-related SA spells it is 3.55/1000. The average duration is 58.67 days, with the longest duration being neoplasms and the shortest corresponds to infectious disease. "Influenza" is the diagnosis that generate the largest number of SA spells. "Activities of call centres" and "Temporary employment agency activities" with the highest number of SA spells. The Chartered Community of Navarra shows the greatest differences with the rest. The Community of Madrid shows the lowest prevalence, incidence, and average duration in work-related SA.

Conclusions: SA is one of the benefits of the Social Security system whose economic cost was 11,554,711.16 euros in 2019, 8.89% of the general Social Security budget for that year. For a better SA management, it is necessary to know the epidemiological differences that are in the different Autonomous Communities of Spain.

STRENGTHS AND LIMITATIONS OF THIS STUDY

- The greatest strength of this study is the broad representativeness and thoroughness of its data.
- The data used are at a national level, which allows a great perspective of SA in Spain.
- It has not always been possible to compare the data between employed and self-employed workers.
- It has not always been possible to distinguish between non-work-related SA and work-related SA
- It did not allow concluding causality or relationships between the different variables

For peer review only

1 INTRODUCTION

2 Sickness absence (SA) is one of the benefits of Social Security, included in article 169
3 of the Consolidated Text of the General Law of Social Security, RDL 8/2015 of October
4 30th. It is defined as “*a situation due to common disease (non-work-related) or
5 professional illness, accident, whether occupational or not, in which the worker
6 requires and receives medical assistance and is unable to work*”. It comprises benefits
7 in kind (medical assistance) and monetary compensations (benefits for SA). In Spain,
8 we distinguish between non-work-related sickness absence (common disease and non-
9 occupational accident) and work-related sickness absence (professional illness and
10 occupational accident). The differences between one group and the other can be seen
11 both in the economic amount of the benefits due to sick leave and in the social security
12 contributions. To be entitled to this subsidy, there must be the medical examination and
13 the sick leave is certified by the family practitioner from the State Health Services, in
14 case of the common disease and non-occupational accident. If it is caused by
15 occupational accidents or professional illness, this sick leave is certified by the
16 physicians ascribed to the Insurance Companies linked to the Social Security system.
17 The maximum duration of sick leave is 365 days, which can be extended for another
18 180 days if the recovery and return of the worker to the workplace are expected at that
19 time. If the duration of sickness benefits has expired and the person's state of health has
20 not improved enough to return to work, the worker may receive a disability pension.
21 The maximum duration of SA benefits is similar to other countries nearby such as
22 Germany, Belgium, or Austria. However, there are considerable differences in all EU
23 countries in terms of the amount of the payment and the requirements for receiving
24 these benefits¹.

25 In Spain, our system of social security is contributory. To this end, both the worker and
26 the company contribute to the system every month a sum of money (contribution) so
27 that the worker can obtain benefits in case of illness or accident. If the worker is self-
28 employed, it is himself who makes these economic contributions exclusively for non-
29 work-related SA. This self-employed person also can pay voluntarily an extra amount
30 for work-related SA to obtain benefits if he or she has a professional illness or an
31 occupational accident.

32 Concerning the rest of the countries of the Organisation for Economic Co-operation and
33 Development (OECD), Spain is in an intermediate position regarding the SA days per
34 worker/year. Mexico is in the highest position with 27.7 days, whereas Chile, in the
35 lowest position, has 7.3 days. Spain has an average of 10.3 days, which is similar to the
36 level of Austria and the Netherlands (10 days)
37 (<https://stats.oecd.org/index.aspx?queryid=30123>)

38 Like most European countries, Spain's public sickness insurance scheme is a major
39 component of its social security system¹. The total financial cost of SA in the
40 consolidated Social Security budgets for 2019 in Spain reached 11,554,711.16 euros,
41 which is 8.89% of the general Social Security budget². Besides, the importance of SA
42 caused by disease or accident is not only determined by the social and financial costs
43 that each State dedicates to it³, but also by the resources that employers assign to it⁴, as
44 well as the productivity losses⁵ and the deterioration of these workers' health⁶. It has

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3 1 been reported that work absenteeism due to illness is, in itself, a risk factor to fall sick,
4 2 new periods of SA, unemployment, permanent disability pension⁶⁻⁸, social exclusion⁹
5 3 and death^{10, 11-13}. Long SA periods generate both an early retirement from the job
6 4 market, a slower salary increase, and an impoverishment of household wealth^{6,7-9}.

8
9 5 Spain is composed of 17 Autonomous Communities (regions). The 2018 Labour Force
10 6 Survey shows significant differences between workers (employed and unemployed), the
11 7 main occupational activities, gross domestic product (GDP), per capita income, and
12 8 demographic characteristics. There are also differences in health resources and health
13 9 expenditure by región. However, there are no significant differences in the prevalence
14 10 and incidence of diseases (<https://www.msrebs.gob.es/>).

17 11 Considering these differences between the different regions, we want to see if there are
18 12 also differences in SA spells, in order to be able to make better management and control
19 13 of this public service.

21 14 Despite its relevance to public policies, there are few studies at the national level that
22 15 describe the current situation of such benefits in our country; to date, the studies found
23 16 in the literature related to this topic describe it partially¹⁴, in some provinces or specific
24 17 areas¹⁵, about some specific diseases¹⁶ or specific groups of workers¹⁷. The data we use
25 18 are national, representing the whole of the workers in Spain. It is a comprehensive and
26 19 representative study of the total of SA spells in our country, in 2018.

29 20 The general objective of this study is to provide a wide and thorough description of SA
30 21 in Spain, focusing on the different regions of the country and stressing on the main
31 22 characteristics and differences, thus generating a global view of this benefit.

33 23 The specific objectives would be the description of the incidence, prevalence, and
34 24 average duration of SA. We also want to describe the average duration and incidence
35 25 rate about age and sex, as well as the average duration of SA by Diagnostic Chapters
36 26 following the ICD-10. We want to know the main occupational activities in which
37 27 there are more workers with SA spells and the main diseases that cause more SA spells.

42 29 MATERIAL AND METHODS

44 30 This study was carried out using the statistical databases provided by the Spanish Institute of
45 31 Social Security (INSS), which are published on the website of this organisation (www.seg-social.es/wps/portal/wss/internet/EstadisticasPresupuestosEstudios/), and databases obtained
46 32 from specific programs used by the Medical Units.

49 34 The reference population was formed by all the workers in Spain covered by the Social Security
50 35 system in the year 2018. The study excluded the SA cases of civil workers, Armed Forces
51 36 personnel, and workers of the General Judicial Benefit Society, whose control and management
52 37 were not an object of study. SA spells with a duration of fewer than 4 days are not included,
53 38 because they do not obtain economic benefits from the Social Security system in Spain.

56 39 In general, unemployed do not receive financial benefit for SA, but if a worker starts a SA spell
57 40 while employed and then becomes unemployed, it is not possible to differentiate this in our
58 41 database. The worker keeps receiving SA benefits, although the amount is lower.

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3 1 Sample: we have used the 2018 total SA records of the Spanish National Institute of Social
4 2 Security (INSS), which coincide with the total population studied.

5
6 3 The variables used were: age (in ranges), sex, average SA duration, diagnosis and diagnostic
7 4 group (International Classification of Diseases, ICD-10), employee or self-employed, non-
8 5 work-related SA (common disease non-occupational accident) or work-related SA (occupational
9 6 accident and professional illness), and occupations with higher SA ranking according to the
10 7 International Standard Industrial Classification of all Economic Activities (ISIC Rev-4).

11
12 8 The geographical scope of the study was the Autonomous Community.

13
14 9 It is an observational study. The statistical calculations used to refer to all the people affiliated
15 10 with the system, who were entitled to receive the SA benefit (AFI), calculated according to the
16 11 data provided by the Public Employment Service, the General Treasury of Social Security,
17 12 INSS and the Social Institute of the Navy.

18
19 13 Incidence: the ratio that calculates the number of SA (MP2R) per 1000 affiliates. To compute
20 14 the SA, we used the number of real registrations for the benefit (MP2R). Monthly datum:
21 15 $MP2R * 1000 / AFI$. Accumulated datum: $average (MP2R) * 1000 / AFI$

22
23 16 Prevalence: the ratio that calculates the number of SA processes in force per 1000 affiliates. To
24 17 compute the processes in force, we used the number of perceivers at the end of the period
25 18 (MP4). Monthly datum: $MP4 * 1000 / AFI$. Accumulated datum: $average (MP4) * 1000 / AFI$

26
27 19 The mean general duration is the average of all durations per year. The mean duration per age
28 20 range and sex were calculated by dividing the number of days in SA by the number of workers
29 21 in SA in that range. We also described the number of workers in SA per 1000 affiliates. We
30 22 calculated the median for the average duration per diagnostic chapter, using the statistics
31 23 software Excel®.

32 33 34 24 **Patient and public involvement**

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36 25 Anonymised patient data were used in this study. Patients and members of the public were not
37 26 involved in the conducting of the study.

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39 27

40 41 28 **RESULTS**

42
43 29 We analysed a total of 540,045 non-work-related SA spells and 63,441 work-related SA spells,
44 30 which were those controlled by the Medical Units of the Spanish National Institute of Social
45 31 Security. There is a total of 16,373,239 workers affiliated to social security.

46
47 32 The age of the study participants is 16 to 70 years old, both men and women. All are included in
48 33 all the variables studies (non-work-related, work-related, employed, self-employed, sex, age,
49 34 diagnosis and occupational activities). Follow-up time is one year (2018).

50
51 35 Our database doesn't distinguish between employed and self-employed workers in the case of
52 36 work-related SA because not all self-employed workers pay this extra amount of money as
53 37 explained in the introduction. However, in non-work-related SA such division is made (Table 1)

54 55 38 ***SA Prevalence***

56
57 39 In the case of non-work-related SA, the prevalence is 32,68/1000, in you are an employed
58 40 person and 30,48/1000 if you are self-employed. In work-related, the national prevalence is
59 41 3,99/1000. In the non-work-related, it ranges between 27,3 in La Rioja and 40,45 in the Canary
60 42 Islands in employed persons. In self-employed, it ranges between 21,5 in the Balearic Islands

and 40,63 in the Region of Murcia. In work-related SA, it ranges from 2.73 in the Community of Madrid to 5.51 in Galicia (Table 1).

SA incidence

In the case of non-work-related SA the national incidence is 24.87/1000 in you are an employed person and 9.51 in self-employed. In work-related SA, it is 3.55. Its values range between 12.76 in Extremadura and 36.7 in Catalonia (non-work-related, employed person); for self-employed it ranges between 7.71 in Community of Madrid and 16.46 in Chartered Community of Navarre (non-work-related SA). In work-related SA, it ranges from 2.89 in Madrid to 5.15 in the Balearic Islands (Table 1).

Average SA duration

The average duration is 58.67 days (in non-work-related SA from 38.81 days in employed to 91.38 days in self-employed) with a median of 48.53 days. In non-work-related SA for employees, it ranges between 24.64 days in Chartered Community of Navarre to 67.53 in Extremadura. For self-employed, it varies between 55.15 days in Navarra to 112.86 days in Extremadura. In work-related SA, it ranges from 30.94 days in the Balearic Islands to 50.14 in Cantabria (Table 1).

SA spells and average duration (age ranges and sex).

In table 2 the total number of workers on sick leave by age and sex was analyzed. We distinguish between the absolute number of workers on SA and the number of workers on SA per 1000 affiliated per age group and gender because in Spain, in almost all age groups there are more men than women affiliated to social security. This may result in more absolute numbers of sickness absence for men, although the number of SA is higher for women according to the number of affiliates.

Therefore, the total number of workers in SA by age and sex is higher in men than in women (Table 2). According to age range and sex, the number of affiliates in SA is higher in women, except in Castilla-León, Chartered Community of Navarre and the Basque Country between 16 and 25 years of age, Principality of Asturias and La Rioja between 26 and 35 years and La Rioja in 36-45 and 46-55 years.

The average duration is also higher in women than in men in all the age ranges, except in the Community of Madrid and La Rioja for 16-25 years, and Principality of Asturias, Balearic Islands, Canary Islands, Catalonia and Chartered Community of Navarre in workers over 65 years of age.

In women, the average duration is 58.5 days (minimum 12, maximum 137), with a median of 52 days. In men, the average is 53.08 days (minimum 13, maximum 118), with a median of 44.

Average SA duration (diagnostic chapter)

The average SA duration, in general, is 56.82 days, with a median of 52.80 days. In all the Autonomous Communities, the longest duration corresponds to neoplasms, followed by heart diseases and mental disorders. The shortest duration corresponds to infectious diseases (Table 3).

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3 1 ***SA spells by International Classification Diseases 10 (ICD-10) diagnosis***
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5 2 Table 4 describes the main diagnoses that generate the largest numbers of SA spells (ranking of
6 3 the leading 8 diagnoses). The most frequent diagnoses are: "*Influenza, virus not identified*",
7 4 "*Lower back pain*" and "*Noninfective gastroenteritis and colitis, unspecified*".
8

9 5 ***SA spells by International Standard Industrial Classification of all Economic Activities (ISIC***
10 6 ***Rev-4)***
11

12 7 There is an outstanding number of SA spell in "General public administration activities",
13 8 "*Hospital activities*", "*Retail sale in non-specialized stores with food, beverages or tobacco*
14 9 *predominating*" and "General cleaning of buildings" (Table 5).
15

16 10 However, when we analyze these cases by the number of affiliates in each occupational
17 11 activities, those occupations in which we find the most SA spells are "Activities of call centres",
18 12 "Temporary employment agency activities" and "General public administration activities"
19

20 13

21
22 14 **DISCUSSION**
23

24 15 The obtained results confirm many of the findings described by other authors at both the
25 16 national¹⁸ and international levels¹⁹.
26

27 17 If we analyse the SA prevalence in each Region, we observe that there are few Regions
28 18 below the national average (Aragon and Community of Madrid). If we break down into
29 19 non-work-related SA, the regions that are below the average are Andalusia, Aragon, the
30 20 Balearic Islands, Community of Madrid, La Rioja and Valencian Community, while in
31 21 work-related SA, Aragon, Catalonia, the Basque Country, the Canary Islands and
32 22 Community of Madrid stand out below the average. It is difficult to know the reasons
33 23 for these differences, as health systems and SA management mechanisms in each region
34 24 are similar. To analyse the possible causes of these differences, it would be necessary to
35 25 carry out other sorts of studies.
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39 26 There are also important differences concerning incidence, with these differences being
40 27 very marked in some regions. Only Castile and Leon does not reach the national
41 28 average. In the case of non-work-related SA, Andalusia, Castile and Leon, Extremadura
42 29 and Valencian Community are below the national average. In work-related SA, values
43 30 are very approximate in all regions. The highest value is in the Balearic Islands.
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46 31 The incidence and prevalence are much higher in non-work-related SA than in work-
47 32 related SA, which is logical, since work-related SA only include the accidents occurred
48 33 in the workplace, as well as the professional diseases described in the Royal Decree
49 34 1299/2006 of November 10th, and not all diseases, accidents, and injuries that any
50 35 worker can suffer.
51

52 36 There is a significant difference between the incidence of employees and that of self-
53 37 employed workers, which is much higher in the former. This is in line with the results
54 38 obtained in other studies conducted in Spain⁴ and at an international level^{7,20,21}.
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56

57 39 Concerning average duration, the most noteworthy fact is that the number of days on
58 40 sick leave for self-employed workers is double that of the rest of the workers in all of
59 41 Spain's regions. In our experience, this may be caused by the fact that self-employed
60

workers do not usually start a process of short-term SA, because cash benefits for SA are paid 30 days after the start of SA and they do not receive cash benefits in short-term SA. The average duration is shorter in all regions in the case of work-related SA because these SA are managed directly by associated Insurance Companies, whose network of doctors and hospital beds are exclusively for workers who have suffered occupational accidents or professional illness. In the case of non-work-related SA, health care is provided by the Public Health System, where other patients are also treated (children, elderly, non-working patients, etc.), so waiting lists are longer and treatments for these patients may be delayed further. Besides, the longest duration is for oncological diseases and mental disorders, the origin of which is usually unrelated to work. This finding is in line with that of other studies at the national⁴ and European²⁰ level. Non-work-related SA shows a longer duration to work-related SA which has remained like this for years¹⁵. The region that shows the shortest duration as a whole is Navarre, where the health expenditure per inhabitant is also the highest in Spain. Healthcare expenditure is also higher in the Basque Country, however, the duration of the IT is one of the longest in many diagnostic chapters.

The differences observed in the number of employees regarding age and sex are in line with the patterns obtained in other studies, with higher incidence¹⁹ and longer duration²¹ in women. This occurs in all age ranges except for very young workers (men and women) and those over 65 years old. In young people, it could be explained by the fact that they often have low-skilled jobs (they haven't yet finished their education). They are often temporary and unstable jobs, and many young people work and study at the same time. This causes a double workload that could contribute to worsening your health. As we can see, they are short-term SA, which may indicate a low severity of the pathologies that produce them. In the over-65s the prevalence is very low, in all regions. One possible explanation is that the retirement age in Spain is around 65 and the worker who decides to continue working instead of retiring is in good health. However, the duration of these sick leaves is very long, because at this age there is a greater prevalence of serious pathologies (neoplasms, ictus, etc.).

There is a sex breach in some European countries (Spain, Ireland, France, Belgium, and United Kingdom) compared to others (Netherlands, Portugal, and Italy)^{22,23}. The incidence increases with age, which is in agreement with most studies at the national^{4,24} and international^{7,19,22,23-25} level, with higher intensity according to the number of affiliates per sex and age range (Table 2). Among the multiple explanations for this fact, it is worth highlighting the following: the double work women usually carry out, i.e., paid work and domestic work, with greater responsibilities for the family (traditional gender role)^{23,25}, the different behavior of women toward disease²³, their greater morbidity related to maternity²⁶ and more fragile health²⁷, as well as their lower commitment to work²³. Other authors highlight the occupational differences, which could explain more than half of the gender differences²⁵, as well as the stress level²⁵. However, this gender breach is not constant in the long term in all the European countries^{23,21}; in fact, some studies question its existence based on the occupational level²⁸ and the stress level²⁹.

The longest duration by diagnostic group is in oncological diseases, cardiovascular diseases, and mental disorders, which is in line with other studies³⁰⁻³². Moreover, this

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3 1 fact poses a serious problem of public health, given the accelerated increase of chronic
4 2 diseases in all the countries around Spain³³, with the consequent increase in the
5 3 incidence and duration of SA and the cost that it implies^{4,30}.

7 4 The diagnosis that generates the largest number of SA cases, after the flu, is “*lower*
8 5 *back pain*”. This finding is in line with numerous studies, being, globally, the main
9 6 diagnosis of sick leave due to its high incidence and recurrence rate³⁴, as well as to the
10 7 duration^{24,35,36} and economic costs of such sick leaves³⁶. This is due to the great
11 8 prevalence of such pathology, regardless of whether or not it generates SA cases^{34,37},
12 9 among other factors.

15 10 The frequency of SA, as a function of the occupational activities, carried out by the
16 11 worker, shows a clear disagreement with other studies, since workers of the Public
17 12 Administration are in the 1st, 2nd and 3rd positions in the described ranking in almost all
18 13 the Autonomous Communities. This could be explained by the difference between
19 14 workers of the public sector, who represent a greater number of SA cases than
20 15 employees in the private sector, as in other countries^{20,38,39}. However, in previous
21 16 studies carried out in Spain, the Public Administration did not represent or occupied
22 17 such an important place in terms of SA frequency, being greatly surpassed by the
23 18 industrial and construction sectors^{17,40}.

27 19 When we analyze the SA spells by the number of affiliated workers in each
28 20 occupational activities, we find a higher number of them in workers in call centres and
29 21 temporary employment agencies. These activities have a high level of job instability,
30 22 with a high worker turnover and very short term contracts. This could explain the high
31 23 rate of absence in them.

34 24 One of the occupational activities with the highest number of SA spells is "Retail sale
35 25 in non-specialized stores with food, beverages or tobacco predominating", but if we
36 26 analyze it by the number of affiliates, this number of SA spells is one of the lowest of
37 27 all occupational activities. One possible explanation is that many of these workers are
38 28 self-employed and, as mentioned before, in these workers the SA incidence is very low.

43 30 **Conclusion**

45 31 This study shows the important characteristics of SA in Spain. The most important
46 32 differences are found in SA incidence and average duration between the different
47 33 Autonomous Communities and non-work-related and work-related SA spells. There are
48 34 also important differences in the number of SA spells between the different
49 35 occupational activities.

52 36 The regions that show the most difference are the Chartered Community of Navarre and
53 37 the Community of Madrid. It would be interesting to carry out further studies that
54 38 analyse the main factors that influence SA in Spain.

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Patient consent for publication Not required

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www.seg-social.es/wps/portal/wss/internet/EstadisticasPresupuestosEstudios/

KEY MESSAGES

What is already known about this subject?

- Sickness absence (SA) is one of the main causes of work absenteeism, loss of productivity and workers' health, permanent disability, and greater risk of disease, unemployment, and death in Spain and nearby countries.
- Increasing efforts are being made to control SA and early reincorporation of workers who have suffered a period of SA due to disease or accident.

What are the new findings?

- There is a much higher incidence in Spain among employees than among self-employed workers, whereas the average duration is much higher in the latter.
- There is a high frequency of SA spells among workers of the Public Administration in Spain, workers of call centers and workers of temporary employment agencies
- The Chartered Community of Navarre has the highest incidence and the shortest duration of SA spells
- The Community of Madrid has the lowest prevalence, incidence and average duration in work-related SA spells

How could this affect clinical policies or practices in a predictable future?

- This implies the need to increase the effort to know the main factors that influence SA in Spain, the characteristics of the workers, and the activity they carry out.
- It is essential to implement a strict control of the diseases with greater incidence and prevalence, studying the age ranges, sex and the characteristics of the job in which they are produced, in order to reduce the negative effects on healthcare, social and economic costs.

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Table legends

- 24 Table 1: Prevalence, incidence and average duration of sickness absence in Spain (2018)
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Table 1: Prevalence, incidence and average duration of sickness absence in Spain (2018)

	PREVALENCE			INCIDENCE			AVERAGE DURATION		
	NON-WORK-RELATED SA		WORK-RELATED	NON-WORK-RELATED SA		WORK-RELATED	NON-WORK-RELATED SA		WORK-RELATED
	EMPLOYED	SELF-EMPLOYED		EMPLOYED	SELF-EMPLOYED		EMPLOYED	SELF-EMPLOYED	
ANDALUSIA	29,41	31,43	4,26	19,72	9,28	3,98	44,79	98,35	37,24
ARAGON	32,52	30,48	3,94	25,95	11,15	3,39	36,47	75,45	41,45
PRINCIPALITY of ASTURIAS	36	38,96	5,01	18,73	10,85	3,53	58,55	105,03	47,08
BALEARIC ISLANDS	31,29	21,7	4,72	27,02	6,46	5,15	33,02	84,01	30,94
CANARY ISLANDS	40,45	26,45	3,85	25,23	7,96	3,51	48,53	100,87	38,17
CANTABRIA	39,77	38,68	4,84	23,38	10,92	3,18	51,39	108,36	50,14
CASTILE and LEON	32,68	31,71	4,35	19,46	9,15	3,44	47,95	95,36	42,07
CASTILE LA MANCHA	32,4	35,57	4,48	19,91	9,93	3,96	46,02	98,54	38,08
CATALONIA	35,14	28,76	3,8	36,37	10,17	3,6	28,54	83,48	36,06
EXTREMADURA	31,59	38,9	4,64	12,76	8,94	3,68	67,53	112,86	41,42
GALICIA	39,79	44,29	5,51	18,52	10,54	3,57	61,39	111,82	49,83
COMMUNITY of MADRID	29,17	20,79	2,73	25,54	7,71	2,89	33,89	77,75	33,11
MURCIA	35,55	40,63	4,12	20,21	11,33	3,39	48,39	98,49	40,2
CHARTERED COMMUNITY of NAVARRA	35,73	30,72	4,28	43,87	16,46	3,88	24,64	55,15	37,86
LA RIOJA	27,3	25,65	4,41	25,28	10,91	3,91	34,53	69,95	38,87

VALENCIA	30,68	29,28	4,4	18,06	8,79	3,34	49,29	96,3	42,34
BASQUE COUNTRY	39,58	28,3	3,84	31,15	10,52	3,96	38,16	79,6	36,55
NATIONAL TOTAL	32,98	30,48	3,99	24,98	9,51	3,55	38,81	91,38	38,23

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Table 2. Sickness absence spells by age and sex

	ANDALUSIA		ARAGON		P. OF ASTURIAS		BALEARIC ISLANDS		CANARY ISLANDS		CANTABRIA		CASTILE AND LEON		CASTILE LA MANCHA		CATALONIA		EXTREMADURA		GALICIA		COMMUNITY OF MADRID		REGION OF MURCIA		C. C. OF NAVARRE		LA RIOJA		VALENCIA		BASQUE COUNTRY		
	Woman	Man	Woman	Man	Woman	Man	Woman	Man	Woman	Man	Woman	Man	Woman	Man	Woman	Man	Woman	Man	Woman	Man	Woman	Man	Woman	Man	Woman	Man	Woman	Man	Woman	Man	Woman	Man	Woman	Man	
16-25	Total workforce	28.519	30.319	7.211	9.576	1.836	2.100	11.010	10.470	11.404	9.813	2.235	2.292	6.859	9.934	7.294	10.106	92.204	83.921	2.064	2.793	6.082	7.549	43.592	42.510	5.649	7.818	5.488	7.886	1.457	2.034	15.154	18.327	8.401	12.209
	Average affiliated workers	6852.40	89.788.42	12715.03	17.792.34	5368.35	6.294.17	16392.26	19.260.69	19549.26	23.478.52	3792.28	4.565.60	16025.01	22.400.00	13405.17	21.951.23	112945.81	122.308.48	7057.99	11.732.44	17279.67	21.582.01	81635.82	97.705.09	13971.74	19.847.78	6659.14	8.653.16	2699.60	2.696.28	46147.56	56.875.39	17735.00	22.613.08
	SA/1000 affiliates	34.67	28.14	47.26	44.85	28.5	27.8	55.97	45.29	48.61	34.82	49.11	41.83	35.67	36.96	45.34	38.36	68.02	57.17	24.37	19.83	29.33	29.14	44.5	36.25	33.69	32.82	68.67	75.94	44.97	45.85	27.36	26.85	39.47	44.99
	Total days of SA	834.572	846.610	131.509	167.205	50.471	56.482	185.291	178.221	309.354	231.868	48.036	48.391	167.468	222.267	309.354	242.410	1.358.613	1.249.511	94.375	105.025	231.248	264.978	659.008	707.760	189.971	225.126	70.415	105.159	26.249	38.326	434.028	500.328	170.994	232.766
Average duration	29	27	18	17	27	26	16	17	27	23	21	21	24	22	42	23	14	14	45	37	38	35	15	16	33	28	12	13	18	18	28	27	20	19	
26-35	Total workforce	100.686	86.518	20.411	20.921	7.876	8.438	22.333	19.262	32.182	25.520	7.126	6.214	23.829	23.851	22.958	23.179	195.844	166.163	8.168	6.905	25.440	23.811	126.980	102.745	19.347	18.506	5.488	7.886	1.457	2.034	15.154	18.327	8.401	12.209
	Average affiliated workers	300.358.69	330.969.33	48.943.45	55.044.50	29.131.98	30.748.08	51.679.23	54.743.11	80.321.79	82.314.91	18.686.60	19.468.05	73.916.47	83.188.54	59.795.11	75.578.35	310.001.82	347.500.15	36.076.74	41.472.33	88.778.42	92.930.24	334.003.39	351.427.98	53.485.35	64.162.37	23.761.08	27.464.21	11.184.28	11.558.26	169.672.13	189.654.50	72.276.88	83.898.41
	SA/1000 affiliates	27.93	21.78	34.75	31.67	22.53	22.87	36.01	29.32	33.39	25.84	31.78	26.60	26.86	23.89	32.00	25.55	52.65	39.85	18.87	13.87	23.88	21.35	31.68	24.36	30.14	24.04	52.48	51.62	33.13	36.82	24.45	19.81	37.83	34.70
	Total days of SA	4.002.601	2.741.036	613.970	475.288	326.129	321.994	596.265	434.597	1.290.175	833.828	282.294	203.621	918.856	733.947	927.034	686.484	4.915.171	3.405.555	475.765	307.251	1.289.570	1.018.756	3.636.681	2.344.947	882.767	621.458	325.739	275.255	127.536	108.671	2.207.518	1.512.322	1.228.249	847.290
Average duration	39	31	30	22	41	38	26	22	40	32	39	32	38	30	40	29	25	20	58	44	50	42	28	22	45	33	21	16	28	21	44	33	35	24	
36-45	Total workforce	118.614	117.512	25.565	26.492	13.494	14.020	23.709	22.637	40.199	35.601	10.016	9.757	31.594	32.035	26.742	29.050	221.680	205.633	9.621	9.250	38.674	35.964	151.187	125.041	23.103	24.813	20.685	22.630	5.864	6.555	63.233	65.615	51.452	55.641
	Average affiliated workers	416.547.17	493.349.53	73.820.89	88.587.25	53.033.04	57.508.87	72.634.45	79.189.07	113.319.60	124.332.39	31.436.56	34.354.87	116.512.04	134.105.28	85.921.38	117.415.38	467.172.39	538.140.86	51.846.68	57.864.40	154.779.30	159.073.44	448.746.41	492.003.79	74.900.72	103.493.33	37.428.06	44.894.12	18.530.51	19.654.64	256.013.07	308.714.88	131.005.73	147.561.07
	SA/1000 affiliates	23.73	19.85	28.86	24.92	21.20	20.32	27.20	23.82	29.56	23.86	26.55	23.67	22.60	19.91	25.94	20.62	39.54	31.96	15.46	13.32	20.82	18.84	28.08	21.18	25.70	19.98	46.06	42.02	26.37	27.79	20.58	17.71	32.73	31.42
	Total days of SA	5485098	4853604	1017787	884342	729537	710147	871595	690262	1984219	1537765	522327	427368	1601141	1341221	1320806	1180792	7299940	5952905	684002	523399	2405243	1925240	5625202	4022176	1271496	1132594	584891	515533	216891	196201	3345778	2905621	2137768	1898819
Average duration	46	41	39	33	54	50	36	30	49	43	52	43	50	41	49	40	32	28	71	56	62	53	37	32	55	45	28	22	36	29	52	44	41	34	
46-55	Total workforce	93419	97446	20531	21134	12107	11379	19560	18340	33484	32340	7739	7993	27137	28786	20740	24528	161373	145283	9133	9654	32304	30656	116428	97152	17870	19928	17679	17432	4652	5523	52477	56490	44669	47083
	Average affiliated workers	376667.85	452781.53	72642.41	86832.17	50430.1	54182.72	59519.62	70647.25	103329.08	124900.1	27966.17	32274.09	121691.32	144244.47	78676.23	113500.26	420095.39	483766.12	48959.11	61304.89	155675.61	146483	392653.45	435113.09	63760.45	88653.91	36669.67	43790.26	16865.87	19151.91	227708.97	286020.66	132334.79	149918.57
	SA/1000 affiliates	20.67	17.93	23.55	20.28	20.01	17.50	27.39	21.63	27.00	21.58	23.06	20.64	18.58	16.63	21.97	18.01	32.01	25.03	15.55	13.12	17.29	17.44	24.71	18.61	23.36	18.73	40.18	33.17	22.99	24.03	19.20	16.46	28.13	26.17
	Total days of SA	5669205	5761219	1161473	1064204	892531	800712	986970	817858	2095638	1869968	514677	492931	1843156	1685686	1339820	1442138	7170290	6146120	756791	756088	2592300	2196003	5597323	4348939	1266827	1234944	690509	631366	226762	248332	3621543	3415316	2402084	2300411
Average duration	60	59	56	50	73	70	50	44	62	57	66	61	67	58	64	58	44	42	82	78	80	71	48	44	70	61	39	36	48	44	69	60	53	48	
56-65	Total workforce	54794	55337	13132	12022	9140	7504	11512	9850	16303	15530	5491	5206	18430	19782	11693	14709	85972	74294	6060	6574	22907	19711	67732	53708	11580	11798	9312	8423	2931	3133	33820	33628	28812	26181
	Average affiliated workers	225629.08	261355.04	45478.18	56875.03	34528.21	37293.19	34180.32	40291.24	48415.01	64110.82	18313.97	22216.8	81337.65	106472.69	44685.46	72066.5	237960.81	279504.05	30888.53	42159.4	87344.91	92663.59	217723.25	240497.55	35155.93	48115.93	21505.51	26507.11	10467.84	13056.28	128808.03	166094.89	82120.99	95280.63
	SA/1000 affiliates	20.24	17.64	24.06	17.61	22.06	16.77	28.07	20.37	28.06	20.19	24.99	19.53	18.88	15.48	21.81	17.01	30.11	22.15	16.35	12.99	21.85	17.73	25.93	18.61	27.45	20.43	36.08	26.48	23.33	20.00	21.88	16.87	29.24	22.90

Total days of SA	4016323	4392212	954029	886164	799503	654003	722340	644055	1270661	1239034	458470	446106	1611454	1563351	971777	1205977	5269955	4690436	567570	631405	2297445	1810405	4144067	3305759	1026123	969808	478852	457600	200637	200286	2884959	2773183	2023474	1882291
Average duration	73	79	72	73	87	87	62	65	77	79	83	85	87	79	83	81	61	63	95	96	100	91	61	61	88	82	51	54	68	63	85	82	70	71

Total workforce	1009	912	218	229	143	135	248	248	405	507	93	90	309	369	222	243	1499	1783	109	118	496	416	1427	1472	209	205	97	99	48	53	565	586	395	395
Average affiliated workers	11950.42	13802.04	2562.05	3147.87	2035.13	1864.38	2749.35	3794.28	3761	6238.89	1063.87	1151.9	4800.68	6608.46	2729.33	3896.45	16654.52	21595.24	1635.76	2118.84	6019.34	6010.7	14815.19	17812.54	2137.48	2850.03	976.63	1251.16	558.86	884.86	7419.14	9562.67	3943.04	4299.16
SA/1000 affiliates	7.04	5.51	7.09	6.06	5.86	6.03	7.52	5.45	8.97	6.77	7.28	6.51	5.36	4.65	6.78	5.20	7.50	6.88	5.55	4.64	6.87	5.77	8.03	6.89	8.15	5.99	8.28	6.59	7.16	4.99	6.35	5.11	8.35	7.66
Total days of SA	102994	86720	22938	20767	14254	15093	19474	21387	42070	54105	9941	8986	33554	36135	30606	23582	137904	164426	14652	13172	60119	49220	115468	116354	28423	19951	7095	8826	5266	4674	63313	59850	38371	34999
Average duration	102	95	105	90	99	111	78	86	103	106	106	99	108	97	137	97	91	92	134	111	121	118	80	79	135	97	73	89	109	88	112	102	97	88

Table 3. Average duration by diagnosis chapter (ICD-10)

DIAGNOSIS CHAPTER (I)	ANDALUSIA	ARAGON	P. OF ASTURIAS	BALEARIC ISLANDS	CANARY ISLANDS	CANTABRIA	CASTILE LEON	CASTILE LA MANCHA	CATALONIA	EXTREMADURA	GALICIA	COMMUNITY OF MADRID	REGION OF MURCIA	C. C. OF NAVARRRE	LA RIOJA	VALENCIA	BASQUE COUNTRY
<i>I Certain infectious and parasitic diseases</i>	14,91	7,87	9,33	5,50	9,13	6,40	14,69	14,89	5,09	16,92	17,39	6,58	8,03	3,87	4,69	9,50	9,19
<i>II Neoplasms</i>	109,78	120,16	131,05	123,93	102,69	113,30	124,41	131,66	99,47	136,05	134,20	87,92	109,89	105,09	104,53	121,97	142,86
<i>III Diseases of the blood and blood-forming organs and certain disorders involving the immune mechanism</i>	91,98	97,53	76,71	61,03	83,72	57,30	76,59	83,38	63,33	121,10	94,43	63,74	89,23	40,54	58,16	85,98	108,07
<i>IV Endocrine, nutritional and metabolic diseases</i>	72,54	67,72	66,06	50,60	64,70	81,62	57,53	72,88	59,03	78,47	88,73	56,96	81,66	43,03	48,54	71,53	81,06
<i>V Mental and behavioural disorders</i>	95,17	90,37	99,28	56,11	83,26	111,34	95,30	94,54	72,03	114,42	110,52	78,88	111,86	65,66	70,64	98,46	116,66
<i>VI Diseases of the nervous system</i>	79,81	61,81	85,12	49,46	70,50	65,51	78,55	74,37	44,98	80,11	95,84	54,49	78,03	26,40	44,64	79,21	70,51
<i>VII Diseases of the eye and adnexa</i>	44,13	42,99	47,85	28,72	40,94	45,41	45,05	44,12	29,17	56,76	48,63	29,62	46,43	18,80	29,77	41,70	45,77
<i>VIII Diseases of the ear and mastoid process</i>	33,04	26,90	33,55	18,33	31,33	29,05	27,30	26,82	18,89	47,66	42,55	21,63	35,98	13,85	18,54	29,13	37,40
<i>IX Diseases of the circulatory system</i>	103,40	107,05	102,25	85,73	90,19	108,21	99,35	104,24	79,86	106,57	111,53	76,86	112,64	80,66	90,12	101,52	119,39
<i>X Diseases of the respiratory system</i>	11,98	10,67	14,22	9,05	12,46	11,07	13,02	13,47	8,27	19,76	16,42	9,70	12,34	6,40	7,68	11,87	17,11
<i>XI Diseases of the digestive system</i>	30,65	35,44	44,16	28,59	39,97	43,95	21,86	35,59	27,19	50,51	47,53	32,56	41,01	14,97	30,98	40,84	37,32
<i>XII Diseases of the skin and subcutaneous tissue</i>	36,37	29,84	46,22	24,18	35,30	42,96	37,86	37,34	25,36	39,37	47,80	28,91	39,30	20,61	27,26	33,74	51,91

<i>XIII Diseases of the musculoskeletal system and connective tissue</i>	70,24	66,93	79,55	50,35	65,45	75,67	70,00	71,17	54,13	85,89	85,54	56,26	73,79	43,11	52,76	71,05	92,61
<i>XIV Diseases of the genitourinary system</i>	40,71	31,78	44,27	25,30	35,36	34,11	35,01	33,76	27,97	46,14	45,16	31,83	43,51	15,56	32,25	37,08	52,86
<i>XV Pregnancy, childbirth and the puerperium</i>	76,91	53,45	51,51	53,46	81,32	61,09	59,29	72,56	63,73	70,08	68,09	51,74	73,30	60,24	57,10	73,43	67,00
<i>XVII Congenital malformations, deformations and chromosomal abnormalities</i>	86,30	69,19	56,00	73,00	86,22	121,65	80,30	107,03	61,09	94,00	99,25	41,00	75,00	50,00	37,76	71,33	90,33
<i>XVIII Symptoms, signs and abnormal clinical and laboratory findings, not elsewhere classified</i>	36,13	29,88	38,00	23,00	26,00	42,50	33,23	36,11	20,82	38,50	37,25	28,00	51,00	9,00	28,45	31,67	37,67
<i>XIX Injury, poisoning and certain other consequences of external causes</i>	59,88	59,12	72,00	45,00	59,00	69,17	66,63	52,48	53,12	70,00	71,75	55,00	65,00	45,00	53,45	58,67	81,00

(1) Chapters XX, XXI y XXII are not included because the number of cases is not significant

Table 4. Sickness absence spells by specific diagnosis (ICD-10)

Autonomous Community of Spain	Code	Specific diagnosis	Sickness absence spells/per year
Andalusia	M54.5	Low back pain	41.884
	K52	Other noninfective gastroenteritis and colitis	30.794
	J00	Acute nasopharyngitis (common cold)	25.633
	J11	Influenza, virus not identified	25.345
	M54.2	Cervicalgia	17.463
	M54.3	Sciatica	16.141
	J02.9	Acute pharyngitis, unspecified	12.318
	J03.9	Acute tonsillitis, unspecified	11.617
	Aragon	K52.9	Noninfective gastroenteritis and colitis, unspecified
J11		Influenza, virus not identified	8.383
M54.5		Low back pain	7.565
J02.9		Acute pharyngitis, unspecified	6.373
M25		Other joint disorders, not elsewhere classified	4.952
M54.3		Sciatica	2.743
M54.2		Cervicalgia	2.693
F41		Other anxiety disorders	2.487
Principality of Asturias		K52.9	Noninfective gastroenteritis and colitis, unspecified
	M54.5	Low back pain	3.485
	F41	Other anxiety disorders	3.369
	J11	Influenza, virus not identified	2.311
	M54.3	Sciatica	1.937
	M54.2	Cervicalgia	1.706
	J02.9	Acute pharyngitis, unspecified	1.256
	M23	Internal derangement of knee	1.237
	Balearic Islands	K52.9	Noninfective gastroenteritis and colitis, unspecified
M54.5		Low back pain	7.985
B97.8		Other viral agents as the cause of diseases classified to other chapters	6.260
J11		Influenza, virus not identified	5.697
F41.9		Anxiety disorder, unspecified	3.787
J03.9		Acute tonsillitis, unspecified	3.578
J00		Acute nasopharyngitis (common cold)	2.990
M54.3		Sciatica	2.949
Canary Islands		M54.5	Low back pain
	J11	Influenza, virus not identified	10.897
	K52.9	Noninfective gastroenteritis and colitis, unspecified	9.554
	J00	Acute nasopharyngitis (common cold)	7.704
	J20.9	Acute bronchitis, unspecified	5.579
	F06.4	Organic anxiety disorder	5.330
	M54.3	Sciatica	4.744

	M54.2	Cervicalgia	4.147
Cantabria	K52.9	Noninfective gastroenteritis and colitis, unspecified	4.078
	J11	Influenza, virus not identified	2.811
	M54.5	Low back pain	2.440
	R45	Symptoms and signs involving emotional state	1.723
	J02.9	Acute pharyngitis, unspecified	1.679
	J06	Acute upper respiratory infections of multiple and unspecified sites	
	M54.3	Sciatica	1.522
	M54.2	Cervicalgia	1.433
Castile and Leon	K52	Other noninfective gastroenteritis and colitis	1.042
	M54.5	Low back pain	13.570
	J11	Influenza, virus not identified	9.100
	F41.9	Anxiety disorder, unspecified	5.606
	M54.3	Sciatica	5.524
	J98.8	Other specified respiratory disorders	4.259
	J06.9	Acute upper respiratory infection, unspecified	3.877
	J00	Acute nasopharyngitis (common cold)	3.184
Castile La Mancha	M54.5	Low back pain	9.639
	K52.9	Noninfective gastroenteritis and colitis, unspecified	6.248
	J00	Acute nasopharyngitis (common cold)	4.891
	J11	Influenza, virus not identified	4.162
	K52	Other noninfective gastroenteritis and colitis	3.929
	J03.9	Acute tonsillitis, unspecified	3.363
	M54.2	Cervicalgia	3.049
	M54.3	Sciatica	2.947
Catalonia	K52.9	Noninfective gastroenteritis and colitis, unspecified	11.871
	J00	Acute nasopharyngitis (common cold)	82.707
	M54.5	Low back pain	77.901
	J11	Influenza, virus not identified	62.867
	F41.9	Anxiety disorder, unspecified	55.710
	B97.8	Other viral agents as the cause of diseases classified to other chapters	41.739
	J03.9	Acute tonsillitis, unspecified	33.821
	M54.2	Cervicalgia	26.867
Extremadura	M54.5	Low back pain	3.009
	J11	Influenza, virus not identified	1.940
	S93	Dislocation, sprain and strain of joints and ligaments at ankle and foot level	1.105
	M54.2	Cervicalgia	894
	M54.3	Sciatica	804
	F41	Other anxiety disorders	723
	M54.9	Dorsalgia, unspecified	688

	M75	Shoulder lesions	560
Galicia	M54.5	Low back pain	13.555
	J11	Influenza, virus not identified	10.794
	M54.2	Cervicalgia	5.343
	F41	Other anxiety disorders	5.053
	J20.9	Acute bronchitis, unspecified	4.800
	M54.3	Sciatica	3.402
	J03.9	Acute tonsillitis, unspecified	3.169
	S93	Dislocation, sprain and strain of joints and ligaments at ankle and foot level	2.705
Community of Madrid	K52.9	Noninfective gastroenteritis and colitis, unspecified	56.245
	M54.5	Low back pain	33.522
	F41	Other anxiety disorders	28.118
	J02.9	Acute pharyngitis, unspecified	25.029
	J11	Influenza, virus not identified	19.656
	M25	Other joint disorders, not elsewhere classified	17.815
	M54.3	Sciatica	16.627
	J06.9	Acute upper respiratory infection, unspecified	15.924
Region of Murcia	K52.9	Noninfective gastroenteritis and colitis, unspecified	7.114
	J11	Influenza, virus not identified	6.808
	M54.5	Low back pain	6.657
	J02.9	Acute pharyngitis, unspecified	4.808
	M54.3	Sciatica	4.037
	R45	Symptoms and signs involving emotional state	3.637
	M54.2	Cervicalgia	3.253
	J06.9	Acute upper respiratory infection, unspecified	2.438
Chartered Community of Navarre	K52.9	Noninfective gastroenteritis and colitis, unspecified	9.976
	J11	Influenza, virus not identified	8.159
	M54.5	Low back pain	6.098
	J06.9	Acute upper respiratory infection, unspecified	5.264
	J00	Acute nasopharyngitis (common cold)	4.080
	A08.5	Other specified intestinal infections	3.165
	J20.9	Acute bronchitis, unspecified	3.082
	F41.9	Anxiety disorder, unspecified	2.873
La Rioja	K52.9	Noninfective gastroenteritis and colitis, unspecified	3.216
	J00	Acute nasopharyngitis (common cold)	2.073
	J11	Influenza, virus not identified	1.661
	M54.5	Low back pain	1.613
	M54.3	Sciatica	823
	J06.9	Acute upper respiratory infection,	576

		unspecified	
	M25.5	Pain in joint	529
	R45.0	Nervousness	515
Valencia	M54.5	Low back pain	22.410
	J11	Influenza, virus not identified	18.243
	F41.9	Anxiety disorder, unspecified	12.054
	K52.9	Noninfective gastroenteritis and colitis, unspecified	11.770
	J00	Acute nasopharyngitis (common cold)	9.739
	M54.2	Cervicalgia	8.411
	M54.3	Sciatica	7.227
	J20.9	Acute bronchitis, unspecified	6.953
Basque Country	M54.5	Low back pain	2.038
	M54.2	Cervicalgia	1.986
	J00	Acute nasopharyngitis (common cold)	948
	K52.9	Noninfective gastroenteritis and colitis, unspecified	759
	J11	Influenza, virus not identified	662
	F43.2	Adjustment disorders	638
	F41.9	Anxiety disorder, unspecified	625
	R10	Abdominal and pelvic pain	609

Table 5. Sickness absence situations by occupational activities (International Standard Industrial Classification of all Economic Activities, ISIC Rev-4)

Autonomous Community	Code	Occupational Activities	SA spells/per year	SA spell (per 1000 affiliates/per month)	
Andalusia	8411	General public administration activities	61.457	30,84	
	8610	Hospital activities	40.544	20,30	
	8121	General cleaning of buildings	23.802	18,89	
	5610	Restaurants and mobile food service activities	23.377	28,5	
	5630	Beverage serving activities	20.659	10,74	
	4100	Construction of buildings	16.608	10,22	
	4711	Retail sale in non-specialized stores with food, beverages or tobacco predominating	16.253	9	
	5510	Hotels and similar accommodation	16.061	20,05	
	4630	Wholesale of food, beverage and tobacco	15.010	9,72	
	8220	Activities of call centres	14.652	69,07	
	Aragon	8411	General public administration activities	9.685	23,30
		8610	Hospital activities	8.022	16,61
		7820	Temporary employment agency activities	7.550	73,50
2930		Manufacture of parts and accessories of motor vehicles	5.874	11,70	
8121		General cleaning of buildings	5.464	21,78	
4711		Retail sale in non-specialized stores with food, beverages or tobacco predominating	3.773	5,3	
5610		Restaurants and mobile food service activities	3.669	28,5	
8220		Activities of call centres	3.459	43	
4923		Freight transport by road	3.214	15,57	
5630		Beverage serving activities	3.073	10,95	
Principality of Asturias		8610	Hospital activities	6.422	20,65
	4711	Retail sale in non-specialized stores with food, beverages or tobacco predominating	5.217	9,56	
	8411	General public administration activities	4.000	19,21	
	5630	Beverage serving activities	2.560	10,46	
	2410	Manufacture of basic iron and steel	2.330	12,08	
	8121	General cleaning of buildings	2.285	13,6	
	5610	Restaurants and mobile food	2.047	22,45	

		service activities		
	8730	Residential care activities for the elderly and disabled	1.950	20,82
	8122	Other building and industrial cleaning activities	1.651	18
	9700	Activities of households as employers of domestic personnel	1.365	8,51
Balearic Islands	5510	Hotels and similar accommodation	19.736	30,31
	5610	Restaurants and mobile food service activities	9.399	13,6
	8610	Hospital activities	8.059	26,49
	8411	General public administration activities	6.141	27,19
	4100	Construction of buildings	6.129	13
	4711	Retail sale in non-specialized stores with food, beverages or tobacco predominating	5.078	8,44
	5630	Beverage serving activities	4.740	8,32
	8121	General cleaning of buildings	4.125	16,70
	5520	Short term accommodation activities	3.034	12,56
	4751	Retail sale of textiles in specialized stores	2.408	21,6
Canary Islands	5510	Hotels and similar accommodation	26.147	43,13
	8610	Hospital activities	16.865	30,7
	8411	General public administration activities	15.899	31,59
	5610	Restaurants and mobile food service activities	11.628	18,32
	4711	Retail sale in non-specialized stores with food, beverages or tobacco predominating	10.495	7,9
	5520	Short term accommodation activities	7.221	32,30
	8121	General cleaning of buildings	7.000	18,7
	5630	Beverage serving activities	5.507	8,36
	4100	Construction of buildings	5.414	11,70
	8521	General secondary education	5.340	12,13
Cantabria	8411	General public administration activities	3.851	28,5
	7820	Temporary employment agency activities	3.612	76,53
	8610	Hospital activities	3.492	20,09
	8121	General cleaning of buildings	1.828	17,11
	5610	Restaurants and mobile food service activities	1.616	22,5
	5630	Beverage serving activities	1.383	10,97

	8220	Activities of call centres	1.170	60
	8521	General secondary education	1.170	8,38
	4791	Retail sale via mail order houses or via Internet	1.023	16,8
	8620	Medical and dental practice activities	998	32
Castile and Leon	8411	General public administration activities	9.940	16,89
	8610	Hospital activities	9.741	12,04
	8220	Activities of call centres	8.920	85,14
	8121	General cleaning of buildings	7.489	17,87
	4711	Retail sale in non-specialized stores with food, beverages or tobacco predominating	5.953	7,94
	8790	Other residential care activities	5.089	21,95
	5630	Beverage serving activities	5.023	14,59
	7820	Temporary employment agency activities	4.676	45,75
	5610	Restaurants and mobile food service activities	4.493	24,90
	2910	Manufacture of motor vehicles	4.409	10,35
Castile La Mancha	8411	General public administration activities	15.003	22,17
	8610	Hospital activities	7.820	14,89
	8121	General cleaning of buildings	5.363	19,98
	7820	Temporary employment agency activities	5.272	56,70
	5210	Warehousing and storage	5.251	60
	4100	Construction of buildings	4.479	8,94
	4711	Retail sale in non-specialized stores with food, beverages or tobacco predominating	4.267	5,06
	5610	Restaurants and mobile food service activities	4.092	32,54
	4923	Freight transport by road	3.846	14,08
	5630	Beverage serving activities	3.526	10,62
Catalonia	8610	Hospital activities	75.958	32,68
	8411	General public administration activities	70.569	32,11
	5610	Restaurants and mobile food service activities	45.084	47
	8121	General cleaning of buildings	44.117	22,8
	7820	Temporary employment agency activities	43.109	73,56
	8220	Activities of call centres	37.877	74,91
	4711	Retail sale in non-specialized stores with food, beverages or tobacco predominating	30.528	12,95

	4751	Retail sale of textiles in specialized stores	24.417	10,36
	8812	Social work activities without accommodation for the elderly and disabled	20.007	43,56
	8423	Public order and safety activities	19.807	65
Extremadura	8411	General public administration activities	10.813	23,68
	8610	Hospital activities	5.921	17,95
	8121	General cleaning of buildings	2.007	19,56
	8812	Social work activities without accommodation for the elderly and disabled	1.643	18
	4100	Construction of buildings	1.610	7,48
	5630	Beverage serving activities	1.599	10,55
	4711	Retail sale in non-specialized stores with food, beverages or tobacco predominating	1.136	3,98
	5610	Restaurants and mobile food service activities	1.044	13,64
	4923	Freight transport by road	914	12,89
	0150	Mixed farming	902	8,79
Galicia	8610	Hospital activities	12.552	16,6
	8411	General public administration activities	12.137	19,12
	4711	Retail sale in non-specialized stores with food, beverages or tobacco predominating	7.498	6,4
	5630	Beverage serving activities	6.532	12
	8121	General cleaning of buildings	5.775	
	7820	Temporary employment agency activities	5.270	40,61
	9700	Activities of households as employers of domestic personnel	4.830	11,45
	5610	Restaurants and mobile food service activities	4.664	17,6
	8220	Activities of call centres	4.558	47,19
	4100	Construction of buildings	3.622	5,27
Community of Madrid	8610	Hospital activities	44.482	17,65
	8121	General cleaning of buildings	42.703	20,63
	5610	Restaurants and mobile food service activities	36.939	28,54
	4711	General public administration activities	35.475	21,94
	8220	Activities of call centres	29.212	67,3
	4711	Retail sale in non-specialized stores with food, beverages or tobacco predominating	28.014	7,57

	9700	Activities of households as employers of domestic personnel	21.385	20,93
	8299	Other business support service activities n.e.c	20.351	13
	5630	Beverage serving activities	17.608	12,05
	4751	Retail sale of textiles in specialized stores	15.735	15,31
Region of Murcia	8620	Medical and dental practice activities	11.008	34,8
	0113	Growing of vegetables and melons, roots and tubers	7.233	28,29
	7820	Temporary employment agency activities	6.037	23,35
	4711	General public administration activities	6.003	24,41
	8121	General cleaning of buildings	4.915	25,01
	5610	Restaurants and mobile food service activities	3.672	34,02
	5630	Beverage serving activities	3.635	21,63
	4630	Wholesale of food, beverage and tobacco	3.514	13,62
	4711	Retail sale in non-specialized stores with food, beverages or tobacco predominating	3.228	8,96
	4923	Freight transport by road	2.914	14,28
Chartered Community of Navarre	8610	Hospital activities	14.408	46,16
	8411	General public administration activities	7.408	57,01
	2930	Manufacture of parts and accessories of motor vehicles	5.782	18,2
	7820	Temporary employment agency activities	5.558	94,19
	8521	General secondary education	3.909	19,86
	8121	General cleaning of buildings	3.520	31,17
	1030	Processing and preserving of fruit and vegetables	3.256	38,37
	2910	Manufacture of motor vehicles	3.195	17,07
	8812	Social work activities without accommodation for the elderly and disabled	3.151	76,35
	9700	Activities of households as employers of domestic personnel	2.382	23,71
La Rioja	8610	Hospital activities	1.698	18,25
	8611	General public administration activities	1.612	22,76
	1520	Manufacture of footwear	1.463	38,2

	8121	General cleaning of buildings	1.290	29,05
	1030	Processing and preserving of fruit and vegetables	1.217	27,4
	7820	Temporary employment agency activities	1.060	71,12
	2930	Manufacture of parts and accessories of motor vehicles	1.006	12,1
	5630	Beverage serving activities	973	14,3
	1102	Manufacture of wines	962	13,09
	0113	Growing of vegetables and melons, roots and tubers	907	21,5
Valencia	8610	Hospital activities	24.063	21,57
	8611	General public administration activities	23.311	24,51
	5610	Restaurants and mobile food service activities	16.234	20,93
	8121	General cleaning of buildings	12.758	16,04
	4711	Retail sale in non-specialized stores with food, beverages or tobacco predominating	11.239	6,14
	4630	Wholesale of food, beverage and tobacco	7.300	8,81
	5630	Beverage serving activities	8.732	6,49
	4923	Freight transport by road	7.300	11,49
	7820	Temporary employment agency activities	7.126	29,24
	4100	Construction of buildings	6.663	6,21
Basque Country	8610	Hospital activities	22.704	30,48
	8611	General public administration activities	15.565	27,16
	8121	General cleaning of buildings	13.043	29,20
	8521	General secondary education	12.519	14,51
	8812	Social work activities without accommodation for the elderly and disabled	8.760	14,75
	5610	Restaurants and mobile food service activities	8.419	29,01
	4711	Retail sale in non-specialized stores with food, beverages or tobacco predominating	6.625	6,6
	9700	Activities of households as employers of domestic personnel	6.284	18,55
	2591	Forging, pressing, stamping and roll-forming of metal; powder metallurgy	6.086	10,29
	5630	Beverage serving activities	5.842	18,02

STROBE Statement—Checklist of items that should be included in reports of *cohort studies*

	Item No	Recommendation	Page No
Title and abstract	1	(a) Indicate the study's design with a commonly used term in the title or the abstract (b) Provide in the abstract an informative and balanced summary of what was done and what was found	1 1
Introduction			
Background/rationale	2	Explain the scientific background and rationale for the investigation being reported	3
Objectives	3	State specific objectives, including any prespecified hypotheses	4
Methods			
Study design	4	Present key elements of study design early in the paper	4
Setting	5	Describe the setting, locations, and relevant dates, including periods of recruitment, exposure, follow-up, and data collection	4
Participants	6	(a) Give the eligibility criteria, and the sources and methods of selection of participants. Describe methods of follow-up (b) For matched studies, give matching criteria and number of exposed and unexposed	4
Variables	7	Clearly define all outcomes, exposures, predictors, potential confounders, and effect modifiers. Give diagnostic criteria, if applicable	5
Data sources/ measurement	8*	For each variable of interest, give sources of data and details of methods of assessment (measurement). Describe comparability of assessment methods if there is more than one group	5
Bias	9	Describe any efforts to address potential sources of bias	5
Study size	10	Explain how the study size was arrived at	5
Quantitative variables	11	Explain how quantitative variables were handled in the analyses. If applicable, describe which groupings were chosen and why	5
Statistical methods	12	(a) Describe all statistical methods, including those used to control for confounding (b) Describe any methods used to examine subgroups and interactions (c) Explain how missing data were addressed (d) If applicable, explain how loss to follow-up was addressed (e) Describe any sensitivity analyses	5 5 5 5 5
Results			
Participants	13*	(a) Report numbers of individuals at each stage of study—eg numbers potentially eligible, examined for eligibility, confirmed eligible, included in the study, completing follow-up, and analysed (b) Give reasons for non-participation at each stage (c) Consider use of a flow diagram	5 5 -
Descriptive data	14*	(a) Give characteristics of study participants (eg demographic, clinical, social) and information on exposures and potential confounders (b) Indicate number of participants with missing data for each variable of interest (c) Summarise follow-up time (eg, average and total amount)	5 5 5
Outcome data	15*	Report numbers of outcome events or summary measures over time	6

1	Main results	16	(a) Give unadjusted estimates and, if applicable, confounder-adjusted estimates and their precision (eg, 95% confidence interval). Make clear which confounders were adjusted for and why they were included	6-7
2		(b) Report category boundaries when continuous variables were categorized		
3		(c) If relevant, consider translating estimates of relative risk into absolute risk for a meaningful time period		
4	Other analyses	17	Report other analyses done—eg analyses of subgroups and interactions, and sensitivity analyses	6-7
5	Discussion			
6	Key results	18	Summarise key results with reference to study objectives	7
7	Limitations	19	Discuss limitations of the study, taking into account sources of potential bias or imprecision. Discuss both direction and magnitude of any potential bias	2
8	Interpretation	20	Give a cautious overall interpretation of results considering objectives, limitations, multiplicity of analyses, results from similar studies, and other relevant evidence	8-9
9	Generalisability	21	Discuss the generalisability (external validity) of the study results	8-9
10	Other information			
11	Funding	22	Give the source of funding and the role of the funders for the present study and, if applicable, for the original study on which the present article is based	10

*Give information separately for exposed and unexposed groups.

Note: An Explanation and Elaboration article discusses each checklist item and gives methodological background and published examples of transparent reporting. The STROBE checklist is best used in conjunction with this article (freely available on the Web sites of PLoS Medicine at <http://www.plosmedicine.org/>, Annals of Internal Medicine at <http://www.annals.org/>, and Epidemiology at <http://www.epidem.com/>). Information on the STROBE Initiative is available at <http://www.strobe-statement.org>.

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DESCRIPTIVE STUDY OF SICKNESS ABSENCE IN SPAIN REGIONS IN 2018

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3 **1 TITLE PAGE**

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7 **3 DESCRIPTIVE STUDY OF SICKNESS ABSENCE IN SPAIN REGIONS IN 2018**

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1 DESCRIPTIVE STUDY OF SICKNESS ABSENCE IN SPAIN REGIONS IN 2018

ABSTRACT

Objectives: To provide a wide and thorough description of sickness absence (SA) in Spain, focusing on the different regions of the country and the main characteristics.

Methods: A study of the SA spells in Spain, managed by the medical units of the National Institute of Social Security in 2018. The geographical scope of this observational study is the Autonomous Community. Incidence, prevalence, and average duration in employees and self-employed are described. The study also describes the differences between non-work-related SA and work-related SA. In age and sex variables, we describe the incidence and the average duration. We have analysed the average duration by Diagnostic Chapters (ICD-10) and the highest number of SA spells by occupational activity and diagnosis.

Results: We analyse a total of 540,045 SA spells by non-work-related SA and 63,441 by work-related SA. The national average prevalence in non-work-related SA spells was 32.98/1000 among employed and 30.48/1000 among self-employed; in work-related SA spells it was 3.99/1000. The national incidence in non-work-related SA spells was 24.8/1000 for employees and 9.51/1000 for self-employed workers; in work-related SA spells it was 3.55/1000. The average duration is 58.67 days, with the longest duration being neoplasms and the shortest corresponds to infectious disease. The Community of Madrid shows the lowest prevalence, incidence, and average duration in work-related SA. "Influenza" was the diagnosis that generates the largest number of SA spells. "Activities of call centres" and "Temporary employment agency activities" were the ones they had the highest number of SA spells.

Conclusions: The biggest differences we find in the incidence, average duration, and between the non-work-related SA spells and work-related SA. If we know those characteristics of the SA in which a region is more in deficit, we will be able to do better management of the SA.

STRENGTHS AND LIMITATIONS OF THIS STUDY

- The greatest strength of this study is the broad representativeness of its data.
- The data used are at a national level, which allows a great perspective of SA in Spain.
- This study has not always been possible to compare the data between employed and self-employed workers.
- It has not always been possible to distinguish in this study between non-work-related and work-related in all SA spells
- In this study we have not been able to analyze the factors involved in the SA in Spain

INTRODUCTION

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Sickness absence (SA) is one of the benefits of Social Security, included in article 169 of the Consolidated Text of the General Law of Social Security, RDL 8/2015 of October 30th. It comprises benefits in kind (medical assistance) and monetary compensations (benefits for SA). In Spain, we distinguish between non-work-related sickness absence (common disease and non-occupational accident) and work-related sickness absence (professional illness and occupational accident). The differences between one group and the other can be seen both in the economic amount of the benefits due to sick leave and in the social security contributions. To be entitled to this subsidy, there must be the medical examination and SA is certified by the family practitioner from the State Health Services, in case of common disease and non-occupational accident. If it is caused by occupational accidents or professional illness, this sick leave is certified by physicians ascribed to Insurance Companies linked to the Social Security system. Maximum duration of sick leave is 365 days, which can be extended for another 180 days if recovery and return of the worker to workplace are expected at that time. If the duration of sickness benefits has expired and the person's state of health has not improved enough to return to work, the worker may receive a disability pension. The maximum duration of SA benefits is similar to other countries nearby such as Germany, Belgium, or Austria. However, there are considerable differences in all EU countries in terms of the amount of the payment and the requirements for receiving these benefits¹.

Concerning the rest of the countries of the Organisation for Economic Co-operation and Development (OECD), Spain is in an intermediate position regarding the SA days per worker/year. Mexico is in the highest position with 27.7 days, whereas Chile, in the lowest position, has 7.3 days. Spain has an average of 10.3 days, which is similar to the level of Austria and the Netherlands (10 days) (<https://stats.oecd.org/index.aspx?queryid=30123>)

Like most European countries, Spain's public sickness insurance spending is a major component of its social security system¹. The total financial cost of SA in consolidated Social Security budgets for 2019 in Spain reached 11,554,711.16 euros, which is 8.89% of the general Social Security budget². Besides, the importance of SA caused by disease or accident is not only determined by the social and financial costs that each State dedicates to it³, but also by the resources that employers assign to it⁴, as well as the productivity losses⁵ and the deterioration of these workers' health⁶. It has been reported that work absenteeism due to illness is, in itself, a risk factor to fall sick, new periods of SA, unemployment, permanent disability pension⁶⁻⁸, social exclusion⁹ and death^{10,11,12}. Long SA periods generate both an early retirement from the job market, a slower salary increase, and an impoverishment of household wealth^{6,7-9}.

Spain is divided into 17 regions (Autonomous Communities). In each region there are significant differences in education, economic situation, unemployment rate, and public health system. By sex, the percentage of men and women is balanced. The number of women is slightly higher, although the number of working men is still higher. By age, the regions with the youngest population are mainly those on the Mediterranean coast and also Castile la Mancha, Extremadura, and the Community of Madrid. The northwestern regions are more aged.

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3 1 In 2017 the working population rate in Spain was 59.41%. The regions with the highest
4 2 rates of active population were the Canary Islands, the Balearic Islands, the Community
5 3 of Madrid and Catalonia, and those with the lowest rates were the Cantabrian, Western
6 4 and Central regions. Service sector was the majority of the workforce (76%) in the
7 5 islands, the Community of Madrid and Andalusia. Industry was the predominant sector
8 6 in Navarre, the Basque Country and La Rioja; construction in Castile La Mancha; and
9 7 agriculture and farming in Murcia (<http://uvadoc.uva.es/handle/10324/26416>)

12 8 These factors affect the behaviour of SAs and their management in very different ways.
13 9 It is important to know the differences to act according.

15 10 Despite its relevance to public policies, there are few studies at the national level that
16 11 describe the current situation of such benefits in our country; to date, the studies found
17 12 in the literature related to this topic describe it partially¹³, in some provinces or specific
18 13 areas¹⁴, about some specific diseases¹⁵ or specific groups of workers¹⁶. The data we use
19 14 are national, representing the whole of the workers in Spain. It is a comprehensive and
20 15 representative study of the total of SA spells in our country, in 2018.

23 16 The general objective of this study is to provide a wide description of SA in Spain,
24 17 focusing on the different regions of the country and according to the main
25 18 characteristics and differences.

27 19 The specific objectives would be the description of the incidence, prevalence, and
28 20 average duration of SA. Describe the average duration and incidence rate about age and
29 21 sex, as well as the average duration of SA by Diagnostic Chapters following the ICD-
30 22 10. The main occupational activities in which there are more workers with SA spells
31 23 and the main diseases that cause more SA spells.

34 24 **MATERIAL AND METHODS**

35 25 This study was carried out using the statistical databases provided by the Spanish Institute of
36 26 Social Security (INSS), which are published on the website of this organisation (www.seg-social.es/wps/portal/wss/internet/EstadisticasPresupuestosEstudios/), and databases obtained
37 27 from specific programs used by the Medical Units.
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39 29 The reference population was formed by all the workers in Spain covered by the Social Security
40 30 system in the year 2018. The study excluded the SA cases of civil workers, Armed Forces
41 31 personnel, and workers of the General Judicial Benefit Society, whose control and management
42 32 were not an object of study. SA spells with a duration of fewer than 4 days are not included,
43 33 because they do not obtain economic benefits from the Social Security system in Spain. Our
44 34 study does not include unemployed workers, because they do not receive SA benefits

46 35 In Spain, our system of social security is contributory. To this end, both the worker and
47 36 the company contribute to the system every month a sum of money (contribution) so
48 37 that the worker can obtain benefits in case of illness or accident. If the worker is self-
49 38 employed, it is himself who makes these economic contributions exclusively for non-
50 39 work-related SA. This self-employed person also can pay voluntarily an extra amount
51 40 for work-related SA to obtain benefits if he or she has a professional illness or an
52 41 occupational accident.

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3 1 Our database doesn't distinguish between employed and self-employed workers in the
4 2 case of work-related SA. However, in non-work-related SA such division is made
5 3 (Table 1)

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7 4 Sample: we used the 2018 total SA records of the Spanish National Institute of Social Security
8 5 (INSS), which coincide with the total population studied.

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10 6 The variables used were: age (in ranges), sex, average SA duration, diagnosis and diagnostic
11 7 group (International Classification of Diseases, ICD-10), employee or self-employed, non-
12 8 work-related SA (common disease non-occupational accident) or work-related SA (occupational
13 9 accident and professional illness), and occupations with higher SA ranking according to the
14 10 International Standard Industrial Classification of all Economic Activities (ISIC Rev-4).

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17 11 The geographical scope of the study was the Autonomous Community.

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19 12 This is an observational study. The statistical calculations used to refer to all the people
20 13 affiliated with the system, who were entitled to receive the SA benefit (AFI), calculated
21 14 according to the data provided by the Public Employment Service, the General Treasury of
22 15 Social Security, INSS and the Social Institute of the Navy.

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24 16 Incidence: the ratio that calculates the number of SA (MP2R) per 1000 affiliates. To compute
25 17 the SA, we used the number of real registrations for the benefit (MP2R). Monthly datum:
26 18 $MP2R * 1000 / AFI$. Accumulated datum: average (MP2R) * 1000 / AFI

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28 19 Prevalence: the ratio that calculates the number of SA processes in force per 1000 affiliates. To
29 20 compute the processes in force, we used the number of perceivers at the end of the period
30 21 (MP4). Monthly datum: $MP4 * 1000 / AFI$. Accumulated datum: average (MP4) * 1000 / AFI

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32 22 The mean general duration is the average of all durations per year. The mean duration per age
33 23 range and sex were calculated by dividing the number of days in SA by the number of workers
34 24 in SA in that range. We also described the number of workers in SA per 1000 affiliates. We
35 25 calculated the median for the average duration per diagnostic chapter, using the statistics
36 26 software Excel®.

37 27 **Patient and public involvement**

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39 28 Anonymised patient data were used in this study. Patients and members of the public were not
40 29 involved in the conducting of the study.

41 30 **RESULTS**

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44 31 We analyze a total of 540,045 non-work-related SA spells and 63,441 work-related SA spells,
45 32 which were those controlled by the Medical Units of the Spanish National Institute of Social
46 33 Security. There was a total of 16,373,239 workers affiliated to social security.

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49 34 The age of the study participants was 16 to 70 years old, both men and women. All are included
50 35 in all the variables studied (non-work-related, work-related, employed, self-employed, sex, age,
51 36 diagnosis, and occupational activities). Follow-up time was one year (2018).

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53 37 Our results were:

54 38 ***SA Prevalence***

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57 39 The prevalence of non-work-related SA was is 32,68/1000, among employed and 30,48/1000
58 40 among self-employed. Prevalence of work-related was 3,99/1000. In the non-work-related, it
59 41 ranges between 27,3 in La Rioja and 40,45 in the Canary Islands in employed persons. In self-

employed, it ranges between 21,5 in the Balearic Islands and 40,63 in the Region of Murcia. In work-related SA, it ranges from 2.73 in the Community of Madrid to 5.51 in Galicia (Table 1).

SA incidence

Incidence of non-work-related was is 24.87/1000 among employed and 9.51/1000 among self-employed. The incidence of work-related was 3.55/1000. Its values range between 12.76 in Extremadura and 36.7 in Catalonia (non-work-related, employed person); for self-employed it ranges between 7.71 in Community of Madrid and 16.46 in Chartered Community of Navarre (non-work-related SA). In work-related SA, it ranges from 2.89 in Madrid to 5.15 in the Balearic Islands (Table 1).

Average SA duration

The average duration is was 58.67 days (in non-work-related SA from 38.81 days among employed to 91.38 days among self-employed) with a median of 48.53 days. In non-work-related SA for employees, it ranges between 24.64 days in Chartered Community of Navarre to 67.53 in Extremadura. For self-employed, it varies between 55.15 days in Navarra to 112.86 days in Extremadura. In work-related SA, it ranges from 30.94 days in the Balearic Islands to 50.14 in Cantabria (Table 1).

SA spells and average duration (age ranges and sex).

In table 2 the total number of workers on sick leave by age and sex was analyzed. We distinguish between the absolute number of workers on SA and the number of workers on SA per 1000 affiliated per age group and gender because in Spain, in almost all age groups there are more men than women affiliated to social security. This may result in more absolute numbers of sickness absence for men, although the number of SA is higher for women according to the number of affiliates.

Therefore, the total number of workers in SA by age and sex is higher in men than in women (Table 2). According to age range and sex, the number of affiliates in SA is higher in women, except in Castilla-León, Chartered Community of Navarre and the Basque Country between 16 and 25 years of age, Principality of Asturias and La Rioja between 26 and 35 years and La Rioja in 36-45 and 46-55 years.

The average duration is also higher in women than in men in all the age ranges, except in the Community of Madrid and La Rioja for 16-25 years, and Principality of Asturias, Balearic Islands, Canary Islands, Catalonia and Chartered Community of Navarre in workers over 65 years of age.

In women, the average duration is 58.5 days (minimum 12, maximum 137), with a median of 52 days. In men, the average is 53.08 days (minimum 13, maximum 118), with a median of 44.

Average SA duration (diagnostic chapter)

The average SA duration, in general, is 56.82 days, with a median of 52.80 days. In all the Autonomous Communities, the longest duration corresponds to neoplasms, followed by heart diseases and mental disorders. The shortest duration corresponds to infectious diseases (Table 3).

SA spells by International Classification Diseases 10 (ICD-10) diagnosis

Table 4 describes the main diagnoses that generate the highest numbers of SA spells/1000 affiliates/per month. The diagnoses with the highest number of SA were: "Influenza, virus not identified", "Lower back pain" and "Noninfective gastroenteritis and colitis, unspecified".

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3 1 They highlighted the multiple SA spells per diagnosis “Noninfective gastroenteritis and colitis,
4 2 unspecified” on Catalonia, Balearic Islands and Community of Navarre.

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6 3 **SA spells by International Standard Industrial Classification of all Economic Activities**
7 4 **(ISIC Rev-4)**

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9 5 There is an outstanding number of SA spell in “General public administration activities”,
10 6 “Hospital activities”, “Retail sale in non-specialized stores with food, beverages or tobacco
11 7 predominating” and “General cleaning of buildings” (Table 5).

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13 8 However, when we analyze these cases by the number of affiliates in each occupational
14 9 activities, those occupations in which we find the most SA spells are "Activities of call centres",
15 10 "Temporary employment agency activities" and "General public administration activities"

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17 11 **DISCUSSION**

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19 12 The obtained results confirm many of the findings described by other authors at both the
20 13 national¹⁷ and international levels¹⁸.

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22 14 The prevalence and incidence were much higher in non-work-related SA than in work-
23 15 related SA, which was logical, since work-related SA only included the accidents
24 16 occurred in the workplace, as well as the professional diseases described in the Royal
25 17 Decree 1299/2006 of November 10th, and not all diseases, accidents, and injuries that
26 18 any worker can suffer.

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28 19 When we analysed the SA prevalence in each Region, we observed that there were few
29 20 Regions as Aragon and the Community of Madrid below the national average. By
30 21 breaking down into non-work-related SA, the regions that were below the average were
31 22 Andalusia, Aragon, the Balearic Island, Community of Madrid, La Rioja and Valencian
32 23 Community, while in work-related SA, Aragon, Catalonia, the Basque Country, the
33 24 Canary Islands and Community of Madrid stood out below the average. It is difficult to
34 25 know the reasons for these differences. To analyse the possible causes of these
35 26 differences, it would be necessary to carry out other sorts of studies.

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37 27 There were also important differences concerning incidence, with these differences
38 28 being very marked in some regions. Only Castile and Leon did not reach the national
39 29 average. In the case of non-work-related SA, Andalusia, Castile, and Leon, Extremadura
40 30 and Valencian Community were below the national average. In work-related SA, values
41 31 were very approximate in all regions. The highest value was in the Balearic Islands.

42
43 32 There was a significant difference in the incidence of SA between the employed and
44 33 self-employed which was much higher in the former. This was in line with the results
45 34 obtained in other studies conducted in Spain⁴ and at an international level^{7,19,20}.

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47 35 The average duration was shorter in all regions in the case of work-related SA because
48 36 these SA were managed directly by associated Insurance Companies, whose network of
49 37 doctors and hospital beds were exclusively for workers who had suffered occupational
50 38 accidents or professional illness. In the case of non-work-related SA, health care was
51 39 provided by the Public Health System, where other patients were also treated (children,
52 40 elderly, non-working patients, etc.), so waiting lists were longer and treatments for these
53 41 patients could be delayed further. Besides, the longest duration was for oncological
54 42 diseases and mental disorders, the origin of which is usually unrelated to work. This

1 finding was in line with that of other studies at the national⁴ and European¹⁹ level. Non-
2 work-related SA showed a longer duration to work-related SA which has remained like
3 this for years¹⁴. The region that showed the shortest duration as a whole was Navarre,
4 where the health expenditure per inhabitant was also the highest in Spain. Healthcare
5 expenditure was also higher in the Basque Country, however, the duration of the IT was
6 one of the longest in many diagnostic chapters.

7 We would like to emphasize that the most noteworthy fact was that the number of days
8 on SA for self-employed workers was double that employees in all of Spain's regions.
9 In our experience, this could be caused by the fact that self-employed workers do not
10 usually start a process of short-term SA, because cash benefits for SA are paid 30 days
11 after the start of SA and they do not receive cash benefits in short-term SA

12 The incidence, prevalence, and average duration increased with age. This occurred in all
13 age ranges except for very young workers (men and women) and those over 65 years
14 old. In young people, it could be explained by the fact that they often have low-skilled
15 jobs (they haven't yet finished their education). They are often temporary and unstable
16 jobs, and many young people work and study at the same time. This causes a double
17 workload that could contribute to worsening their health. As we can see, they were
18 short-term SA, which could indicate a low severity of the pathologies that produced
19 them. In the over-65s the prevalence was very low, in all regions. One possible
20 explanation is that the retirement age in Spain is around 65 and the worker who decides
21 to continue working instead of retiring is in good health. However, the duration of these
22 SA was very long, because at this age there was a greater prevalence of serious
23 pathologies (neoplasms, ictus, etc.).

24 The differences observed in the number of employees regarding sex were in line with
25 the patterns obtained in other studies, with higher incidence¹⁹ and longer duration²¹ in
26 women. There was a sex breach in some European countries (Spain, Ireland, France,
27 Belgium, and United Kingdom) compared to others (Netherlands, Portugal, and
28 Italy)^{21,22}. The incidence increased with age, which was in agreement with most studies
29 at the national^{4,23} and international^{7,18,21,22-24} level, with higher intensity according to the
30 number of affiliates per sex and age range (Table 2). Among the multiple explanations
31 for this fact, it is worth highlighting the following: the double work women usually
32 carry out, i.e., paid work and domestic work, with greater responsibilities for the family
33 (traditional gender role)^{22,24}, the different behavior of women toward disease²², their
34 greater morbidity related to maternity²⁵ and more fragile health²⁶, as well as their lower
35 commitment to work²². Other authors highlight the occupational differences, which
36 could explain more than half of the gender differences²⁴, as well as the stress level²⁴.
37 However, this gender breach was not constant in the long term in all the European
38 countries^{22,21}; in fact, some studies question its existence based on the occupational
39 level²⁷ and the stress level²⁸.

40 The longest duration by diagnostic chapter was oncological diseases, cardiovascular
41 diseases, and mental disorders, which was in line with other studies²⁹⁻³¹. Moreover, this
42 fact poses a serious problem of public health, given the accelerated increase of chronic
43 diseases in all the countries around Spain³², with the consequent increase in the
44 incidence and duration of SA and the cost that it implies^{4,29}.

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3 1 The diagnosis that generated the largest number of SA cases, after the flu, is “lower
4 2 back pain”. This finding was in line with numerous studies, being, nationally, the main
5 3 diagnosis of sick leave due to its high incidence and recurrence rate³³, as well as to the
6 4 duration^{23,34,35} and economic costs of such SA³⁵. This was due to the great prevalence of
7 5 such pathology, regardless of whether or not it generates SA cases^{33,36}, among other
8 6 factors.

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11 7 The Public Administration was in the 1st, 2nd and 3rd positions in the described ranking
12 8 in almost all the Autonomous Communities. This could be explained by the difference
13 9 between workers of the public sector, who represent a greater number of SA cases than
14 10 employees in the private sector, as in other countries^{19,37,38}. However, in previous
15 11 studies carried out in Spain, the Public Administration did not represent or occupied
16 12 such an important place in SA spells, being greatly surpassed by the industrial and
17 13 construction sectors^{16,39}.

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19 14 When we analysed the SA spells by the number of affiliated workers in each
20 15 occupational activities, we found a higher number of them in workers in call centres and
21 16 temporary employment agencies. These activities have a high level of job instability,
22 17 with a high worker turnover and very short term contracts. This could explain the high
23 18 rate of absence in them.

24
25 19 One of the occupational activities with the highest number of SA spells was "Retail sale
26 20 in non-specialized stores with food, beverages or tobacco predominating", but when it
27 21 was analyzed by the number of affiliates, this number of SA spells was one of the
28 22 lowest of all occupational activities. One possible explanation is that many of these
29 23 workers were self-employed and, as mentioned before, in these workers the SA
30 24 incidence was very low.

31 25 **Conclusion**

32 26 This study shows the important characteristics of SA in Spain. The most important
33 27 differences are found in SA incidence and average duration between the different
34 28 Autonomous Communities and non-work-related and work-related SA spells. There are
35 29 also important differences in the number of SA spells between different occupational
36 30 activities.

37
38 31 The regions that show the most difference are the Chartered Community of Navarre and
39 32 the Community of Madrid. It would be interesting to carry out further studies that
40 33 analyse the main factors that influence SA in Spain.

41
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45 37 original proposal and drafted the original manuscript. MLAJ, MJAB, NMM, and RMV
46 38 contributed to the development and refinement and statistical analysis of the protocol.
47 39 All authors critically appraised the drafted manuscript and made important intellectual
48 40 contributions to the writing. All authors have read and approved the final submitted
49 41 manuscript.

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3 **Patient consent for publication** Not required

4 **Data sharing statement:** All data relevant to the study are included in the article. Data
5 are available in a public, open-access repository:

6 www.seg-social.es/wps/portal/wss/internet/EstadisticasPresupuestosEstudios/

7 **KEY MESSAGES**

8 **What is already known about this subject?**

- 9 ➤ Sickness absence (SA) is one of the main causes of work absenteeism, loss of
10 productivity and workers' health, permanent disability, and greater risk of disease,
11 unemployment, and death in Spain and nearby countries.
- 12 ➤ Increasing efforts are being made to control SA and early reincorporation of workers
13 who have suffered a period of SA due to disease or accident.

14 **What are the new findings?**

- 15 ➤ To our knowledge, it is the first research about SA spells a national analysis in Spain
- 16 ➤ There is a much higher incidence of SA in Spain among employees than among self-
17 employed workers, whereas the average duration is much higher in the latter.
- 18 ➤ There are high numbers of SA spells among workers of the Public Administration in
19 Spain, workers of call centers and workers of temporary employment agencies
- 20 ➤ The Chartered Community of Navarre has the highest incidence and the shortest
21 duration of SA spells
- 22 ➤ The Community of Madrid has the lowest prevalence, incidence and average duration in
23 work-related SA spells

24 **How could this affect clinical policies or practices in a predictable future?**

- 25 ➤ This implies the need to increase the effort to know the main factors that influence SA
26 in Spain, the characteristics of the workers, and the activity they carry out.
- 27 ➤ It is essential to implement a strict control of the diseases with greater incidence and
28 prevalence, studying the age ranges, sex and the characteristics of the job in which they
29 are produced, in order to reduce the negative effects on healthcare, social and economic
30 costs.

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19 Table legends

- 21 Table 1: Prevalence, incidence and average duration of sickness absence in Spain (2018)
- 22 Table 2. Sickness absence and average duration, by age and sex
- 23 Table 3. Average duration by diagnosis chapter (ICD-10)
- 24 Table 4. Sickness absence spells by diagnosis (ICD-10)
- 25 Table 5. Sickness absence spells by occupational activities (International Standard Industrial
26 Classification of all Economic Activities, ISIC Rev-4)

Table 1: Prevalence, incidence and average duration of sickness absence in Spain (2018)

	PREVALENCE			INCIDENCE			AVERAGE DURATION		
	NON-WORK-RELATED SA		WORK-RELATED	NON-WORK-RELATED SA		WORK-RELATED	NON-WORK-RELATED SA		WORK-RELATED
	EMPLOYED	SELF-EMPLOYED		EMPLOYED	SELF-EMPLOYED		EMPLOYED	SELF-EMPLOYED	
ANDALUSIA	29,41	31,43	4,26	19,72	9,28	3,98	44,79	98,35	37,24
ARAGON	32,52	30,48	3,94	25,95	11,15	3,39	36,47	75,45	41,45
PRINCIPALITY of ASTURIAS	36	38,96	5,01	18,73	10,85	3,53	58,55	105,03	47,08
BALEARIC ISLANDS	31,29	21,7	4,72	27,02	6,46	5,15	33,02	84,01	30,94
CANARY ISLANDS	40,45	26,45	3,85	25,23	7,96	3,51	48,53	100,87	38,17
CANTABRIA	39,77	38,68	4,84	23,38	10,92	3,18	51,39	108,36	50,14
CASTILE and LEON	32,68	31,71	4,35	19,46	9,15	3,44	47,95	95,36	42,07
CASTILE LA MANCHA	32,4	35,57	4,48	19,91	9,93	3,96	46,02	98,54	38,08
CATALONIA	35,14	28,76	3,8	36,37	10,17	3,6	28,54	83,48	36,06
EXTREMADURA	31,59	38,9	4,64	12,76	8,94	3,68	67,53	112,86	41,42
GALICIA	39,79	44,29	5,51	18,52	10,54	3,57	61,39	111,82	49,83
COMMUNITY of MADRID	29,17	20,79	2,73	25,54	7,71	2,89	33,89	77,75	33,11
MURCIA	35,55	40,63	4,12	20,21	11,33	3,39	48,39	98,49	40,2
CHARTERED COMMUNITY of NAVARRA	35,73	30,72	4,28	43,87	16,46	3,88	24,64	55,15	37,86
LA RIOJA	27,3	25,65	4,41	25,28	10,91	3,91	34,53	69,95	38,87

VALENCIA	30,68	29,28	4,4	18,06	8,79	3,34	49,29	96,3	42,34
BASQUE COUNTRY	39,58	28,3	3,84	31,15	10,52	3,96	38,16	79,6	36,55
NATIONAL TOTAL	32,98	30,48	3,99	24,98	9,51	3,55	38,81	91,38	38,23

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Table 2. Sickness absence spells by age and sex

	ANDALUSIA		ARAGON		P. OF ASTURIAS		BALEARIC ISLANDS		CANARY ISLANDS		CANTABRIA		CASTILE AND LEON		CASTILE LA MANCHA		CATALONIA		EXTREMADURA		GALICIA		COMMUNITY OF MADRID		REGION OF MURCIA		C. C. OF NAVARRE		LA RIOJA		VALENCIA		BASQUE COUNTRY		
	Woman	Man	Woman	Man	Woman	Man	Woman	Man	Woman	Man	Woman	Man	Woman	Man	Woman	Man	Woman	Man	Woman	Man	Woman	Man	Woman	Man	Woman	Man	Woman	Man	Woman	Man	Woman	Man	Woman	Man	
16-25	Total workforce	28.519	30.319	7.211	9.576	1.836	2.100	11.010	10.470	11.404	9.813	2.235	2.292	6.859	9.934	7.294	10.106	92.204	83.921	2.064	2.793	6.082	7.549	43.592	42.510	5.649	7.818	5.488	7.886	1.457	2.034	15.154	18.327	8.401	12.209
	Average affiliated workers	6852.40	89.788.42	12715.03	17.792.34	5368.35	6.294.17	16392.26	19.260.69	19549.26	23.478.52	3792.28	4.565.60	16025.01	22.400.00	13405.17	21.951.23	112945.81	122.308.48	7057.99	11.732.44	17279.67	21.582.01	81635.82	97.705.09	13971.74	19.847.78	6659.14	8.653.16	2699.60	2.696.28	46147.56	56.875.39	17735.00	22.613.08
	SA/1000 affiliates	34.67	28.14	47.26	44.85	28.5	27.8	55.97	45.29	48.61	34.82	49.11	41.83	35.67	36.96	45.34	38.36	68.02	57.17	24.37	19.83	29.33	29.14	44.5	36.25	33.69	32.82	68.67	75.94	44.97	45.85	27.36	26.85	39.47	44.99
	Total days of SA	834.572	846.610	131.509	167.205	50.471	56.482	185.291	178.221	309.354	231.868	48.036	48.391	167.468	222.267	309.354	242.410	1.358.613	1.249.511	94.375	105.025	231.248	264.978	659.008	707.760	189.971	225.126	70.415	105.159	26.249	38.326	434.028	500.328	170.994	232.766
Average duration	29	27	18	17	27	26	16	17	27	23	21	21	24	22	42	23	14	14	45	37	38	35	15	16	33	28	12	13	18	18	28	27	20	19	
26-35	Total workforce	100.686	86.518	20.411	20.921	7.876	8.438	22.333	19.262	32.182	25.520	7.126	6.214	23.829	23.851	22.958	23.179	195.844	166.163	8.168	6.905	25.440	23.811	126.980	102.745	19.347	18.506	5.488	7.886	1.457	2.034	15.154	18.327	8.401	12.209
	Average affiliated workers	300.358.69	330.969.33	48.943.45	55.044.50	29.131.98	30.748.08	51.679.23	54.743.11	80.321.79	82.314.91	18.686.80	19.468.05	73.916.47	83.188.54	59.795.11	75.578.35	310.001.82	347.500.15	36.076.74	41.472.33	88.778.42	92.930.24	334.003.39	351.427.98	53.485.35	64.162.37	23.761.08	27.464.21	11.184.28	11.558.26	169.672.13	189.654.50	72.276.88	83.898.41
	SA/1000 affiliates	27.93	21.78	34.75	31.67	22.53	22.87	36.01	29.32	33.39	25.84	31.78	26.60	26.86	23.89	32.00	25.55	52.65	39.85	18.87	13.87	23.88	21.35	31.68	24.36	30.14	24.04	52.48	51.62	33.13	36.82	24.45	19.81	37.83	34.70
	Total days of SA	4.002.601	2.741.036	613.970	475.288	326.129	321.994	596.265	434.597	1.290.175	833.828	282.294	203.621	918.856	733.947	927.034	686.484	4.915.171	3.405.555	475.765	307.251	1.289.570	1.018.756	3.636.681	2.344.947	882.767	621.458	325.739	275.255	127.536	108.671	2.207.518	1.512.322	1.228.249	847.290
Average duration	39	31	30	22	41	38	26	22	40	32	39	32	38	30	40	29	25	20	58	44	50	42	28	22	45	33	21	16	28	21	44	33	35	24	
36-45	Total workforce	118.614	117.512	25.565	26.492	13.494	14.020	23.709	22.637	40.199	35.601	10.016	9.757	31.594	32.035	26.742	29.050	221.680	205.633	9.621	9.250	38.674	35.964	151.187	125.041	23.103	24.813	20.685	22.630	5.864	6.555	63.233	65.615	51.452	55.641
	Average affiliated workers	416.547.17	493.349.53	73.820.89	88.587.25	53.033.04	57.508.87	72.634.45	79.189.07	113.319.60	124.332.39	31.436.56	34.354.87	116.512.04	134.105.28	85.921.38	117.415.38	467.172.39	538.140.86	51.846.68	57.864.40	154.779.30	159.073.44	448.746.41	492.003.79	74.900.72	103.493.33	37.428.06	44.894.12	18.530.51	19.654.64	256.013.07	308.714.88	131.005.73	147.561.07
	SA/1000 affiliates	23.73	19.85	28.86	24.92	21.20	20.32	27.20	23.82	29.56	23.86	26.55	23.67	22.60	19.91	25.94	20.62	39.54	31.96	15.46	13.32	20.82	18.84	28.08	21.18	25.70	19.98	46.06	42.02	26.37	27.79	20.58	17.71	32.73	31.42
	Total days of SA	5485098	4853604	1017787	884342	729537	710147	871595	690262	1984219	1537765	522327	427368	1601141	1341221	1320806	1180792	7299940	5952905	684002	523399	2405243	1925240	5625202	4022176	1271496	1132594	584891	515533	216891	196201	3345778	2905621	2137768	1898819
Average duration	46	41	39	33	54	50	36	30	49	43	52	43	50	41	49	40	32	28	71	56	62	53	37	32	55	45	28	22	36	29	52	44	41	34	
46-55	Total workforce	93419	97446	20531	21134	12107	11379	19560	18340	33484	32340	7739	7993	27137	28786	20740	24528	161373	145283	9133	9654	32304	30656	116428	97152	17870	19928	17679	17432	4652	5523	52477	56490	44669	47083
	Average affiliated workers	376667.85	452781.53	72642.41	86832.17	50430.1	54182.72	59519.62	70647.25	103329.08	124900.1	27966.17	32274.09	121691.32	144244.47	78676.23	113500.26	420095.39	483766.12	48959.11	61304.89	155675.61	146483	392653.45	435113.09	63760.45	88653.91	36669.67	43790.26	16865.87	19151.91	227708.97	286020.66	132334.79	149918.57
	SA/1000 affiliates	20.67	17.93	23.55	20.28	20.01	17.50	27.39	21.63	27.00	21.58	23.06	20.64	18.58	16.63	21.97	18.01	32.01	25.03	15.55	13.12	17.29	17.44	24.71	18.61	23.36	18.73	40.18	33.17	22.99	24.03	19.20	16.46	28.13	26.17
	Total days of SA	5669205	5761219	1161473	1064204	892531	800712	986970	817858	2095638	1869968	514677	492931	1843156	1685686	1339820	1442138	7170290	6146120	756791	756088	2592300	2196003	5597323	4348939	1266827	1234944	690509	631366	226762	248332	3621543	3415316	2402084	2300411
Average duration	60	59	56	50	73	70	50	44	62	57	66	61	67	58	64	58	44	42	82	78	80	71	48	44	70	61	39	36	48	44	69	60	53	48	
56-65	Total workforce	54794	55337	13132	12022	9140	7504	11512	9850	16303	15530	5491	5206	18430	19782	11693	14709	85972	74294	6060	6574	22907	19711	67732	53708	11580	11798	9312	8423	2931	3133	33820	33628	28812	26181
	Average affiliated workers	225629.08	261355.04	45478.18	56875.03	34528.21	37293.19	34180.32	40291.24	48415.01	64110.82	18313.97	22216.8	81337.65	106472.69	44685.46	72066.5	237960.81	279504.05	30888.53	42159.4	87344.91	92663.59	217723.25	240497.55	35155.93	48115.93	21505.51	26507.11	10467.84	13056.28	128808.03	166094.89	82120.99	95280.63
	SA/1000 affiliates	20.24	17.64	24.06	17.61	22.06	16.77	28.07	20.37	28.06	20.19	24.99	19.53	18.88	15.48	21.81	17.01	30.11	22.15	16.35	12.99	21.85	17.73	25.93	18.61	27.45	20.43	36.08	26.48	23.33	20.00	21.88	16.87	29.24	22.90
	Total days of SA	5669205	5761219	1161473	1064204	892531	800712	986970	817858	2095638	1869968	514677	492931	1843156	1685686	1339820	1442138	7170290	6146120	756791	756088	2592300	2196003	5597323	4348939	1266827	1234944	690509	631366	226762	248332	3621543	3415316	2402084	2300411
Average duration	60	59	56	50	73	70	50	44	62	57	66	61	67	58	64	58	44	42	82	78	80	71	48	44	70	61	39	36	48	44	69	60	53	48	

Total days of SA	4016323	4392212	954029	886164	799503	654003	722340	644055	1270661	1239034	458470	446106	1611454	1563351	971777	1205977	5269955	4690436	567570	631405	2297445	1810405	4144067	3305759	1026123	969808	478852	457600	200637	200286	2884959	2773183	2023474	1882291
Average duration	73	79	72	73	87	87	62	65	77	79	83	85	87	79	83	81	61	63	95	96	100	91	61	61	88	82	51	54	68	63	85	82	70	71

Total workforce	1009	912	218	229	143	135	248	248	405	507	93	90	309	369	222	243	1499	1783	109	118	496	416	1427	1472	209	205	97	99	48	53	565	586	395	395
Average affiliated workers	11950.42	13802.04	2562.05	3147.87	2035.13	1864.38	2749.35	3794.28	3761	6238.89	1063.87	1151.9	4800.68	6608.46	2729.33	3896.45	16654.52	21595.24	1635.76	2118.84	6019.34	6010.7	14815.19	17812.54	2137.48	2850.03	976.63	1251.16	558.86	884.86	7419.14	9562.67	3943.04	4299.16
SA/1000 affiliates	7.04	5.51	7.09	6.06	5.86	6.03	7.52	5.45	8.97	6.77	7.28	6.51	5.36	4.65	6.78	5.20	7.50	6.88	5.55	4.64	6.87	5.77	8.03	6.89	8.15	5.99	8.28	6.59	7.16	4.99	6.35	5.11	8.35	7.66
Total days of SA	102994	86720	22938	20767	14254	15093	19474	21387	42070	54105	9941	8986	33554	36135	30606	23582	137904	164426	14652	13172	60119	49220	115468	116354	28423	19951	7095	8826	5266	4674	63313	59850	38371	34999
Average duration	102	95	105	90	99	111	78	86	103	106	106	99	108	97	137	97	91	92	134	111	121	118	80	79	135	97	73	89	109	88	112	102	97	88

Table 3. Average duration by diagnostic chapter (ICD-10)

DIAGNOSIS CHAPTER (I)	ANDALUSIA	ARAGON	P. OF ASTURIAS	BALEARIC ISLANDS	CANARY ISLANDS	CANTABRIA	CASTILE LEON	CASTILE LA MANCHA	CATALONIA	EXTREMADURA	GALICIA	COMMUNITY OF MADRID	REGION OF MURCIA	C. C. OF NAVARRRE	LA RIOJA	VALENCIA	BASQUE COUNTRY
<i>I Certain infectious and parasitic diseases</i>	14,91	7,87	9,33	5,50	9,13	6,40	14,69	14,89	5,09	16,92	17,39	6,58	8,03	3,87	4,69	9,50	9,19
<i>II Neoplasms</i>	109,78	120,16	131,05	123,93	102,69	113,30	124,41	131,66	99,47	136,05	134,20	87,92	109,89	105,09	104,53	121,97	142,86
<i>III Diseases of the blood and blood-forming organs and certain disorders involving the immune mechanism</i>	91,98	97,53	76,71	61,03	83,72	57,30	76,59	83,38	63,33	121,10	94,43	63,74	89,23	40,54	58,16	85,98	108,07
<i>IV Endocrine, nutritional and metabolic diseases</i>	72,54	67,72	66,06	50,60	64,70	81,62	57,53	72,88	59,03	78,47	88,73	56,96	81,66	43,03	48,54	71,53	81,06
<i>V Mental and behavioural disorders</i>	95,17	90,37	99,28	56,11	83,26	111,34	95,30	94,54	72,03	114,42	110,52	78,88	111,86	65,66	70,64	98,46	116,66
<i>VI Diseases of the nervous system</i>	79,81	61,81	85,12	49,46	70,50	65,51	78,55	74,37	44,98	80,11	95,84	54,49	78,03	26,40	44,64	79,21	70,51
<i>VII Diseases of the eye and adnexa</i>	44,13	42,99	47,85	28,72	40,94	45,41	45,05	44,12	29,17	56,76	48,63	29,62	46,43	18,80	29,77	41,70	45,77
<i>VIII Diseases of the ear and mastoid process</i>	33,04	26,90	33,55	18,33	31,33	29,05	27,30	26,82	18,89	47,66	42,55	21,63	35,98	13,85	18,54	29,13	37,40
<i>IX Diseases of the circulatory system</i>	103,40	107,05	102,25	85,73	90,19	108,21	99,35	104,24	79,86	106,57	111,53	76,86	112,64	80,66	90,12	101,52	119,39
<i>X Diseases of the respiratory system</i>	11,98	10,67	14,22	9,05	12,46	11,07	13,02	13,47	8,27	19,76	16,42	9,70	12,34	6,40	7,68	11,87	17,11
<i>XI Diseases of the digestive system</i>	30,65	35,44	44,16	28,59	39,97	43,95	21,86	35,59	27,19	50,51	47,53	32,56	41,01	14,97	30,98	40,84	37,32
<i>XII Diseases of the skin and subcutaneous tissue</i>	36,37	29,84	46,22	24,18	35,30	42,96	37,86	37,34	25,36	39,37	47,80	28,91	39,30	20,61	27,26	33,74	51,91

<i>XIII Diseases of the musculoskeletal system and connective tissue</i>	70,24	66,93	79,55	50,35	65,45	75,67	70,00	71,17	54,13	85,89	85,54	56,26	73,79	43,11	52,76	71,05	92,61
<i>XIV Diseases of the genitourinary system</i>	40,71	31,78	44,27	25,30	35,36	34,11	35,01	33,76	27,97	46,14	45,16	31,83	43,51	15,56	32,25	37,08	52,86
<i>XV Pregnancy, childbirth and the puerperium</i>	76,91	53,45	51,51	53,46	81,32	61,09	59,29	72,56	63,73	70,08	68,09	51,74	73,30	60,24	57,10	73,43	67,00
<i>XVII Congenital malformations, deformations and chromosomal abnormalities</i>	86,30	69,19	56,00	73,00	86,22	121,65	80,30	107,03	61,09	94,00	99,25	41,00	75,00	50,00	37,76	71,33	90,33
<i>XVIII Symptoms, signs and abnormal clinical and laboratory findings, not elsewhere classified</i>	36,13	29,88	38,00	23,00	26,00	42,50	33,23	36,11	20,82	38,50	37,25	28,00	51,00	9,00	28,45	31,67	37,67
<i>XIX Injury, poisoning and certain other consequences of external causes</i>	59,88	59,12	72,00	45,00	59,00	69,17	66,63	52,48	53,12	70,00	71,75	55,00	65,00	45,00	53,45	58,67	81,00

(1) Chapters XX, XXI y XXII are not included because the number of cases is not significant

Table 4. Sickness absence spells by diagnosis (ICD-10)

Autonomous Community of Spain	Code	Diagnosis	SA / 1000 affiliates/per month	
Andalusia	M54.5	Low back pain	1,36	
	K52	Other noninfective gastroenteritis and colitis	1,00	
	J00	Acute nasopharyngitis (common cold)	0,83	
	J11	Influenza, virus not identified	0,82	
	M54.2	Cervicalgia	0,57	
	M54.3	Sciatica	0,52	
	J02.9	Acute pharyngitis, unspecified	0,40	
	J03.9	Acute tonsillitis, unspecified	0,38	
	Aragon	K52.9	Noninfective gastroenteritis and colitis, unspecified	1,94
		J11	Influenza, virus not identified	1,28
M54.5		Low back pain	1,16	
J02.9		Acute pharyngitis, unspecified	0,97	
M25		Other joint disorders, not elsewhere classified	0,76	
M54.3		Sciatica	0,42	
M54.2		Cervicalgia	0,41	
F41		Other anxiety disorders	0,38	
Principality of Asturias	K52.9	Noninfective gastroenteritis and colitis, unspecified	1,03	
	M54.5	Low back pain	0,83	
	F41	Other anxiety disorders	0,80	
	J11	Influenza, virus not identified	0,55	
	M54.3	Sciatica	0,46	
	M54.2	Cervicalgia	0,40	
	J02.9	Acute pharyngitis, unspecified	0,30	
	M23	Internal derangement of knee	0,29	
	Balearic Islands	K52.9	Noninfective gastroenteritis and colitis, unspecified	2,29
M54.5		Low back pain	1,61	
B97.8		Other viral agents as the cause of diseases classified to other chapters	1,26	
J11		Influenza, virus not identified	1,15	
F41.9		Anxiety disorder, unspecified	0,77	
J03.9		Acute tonsillitis, unspecified	0,72	
J00		Acute nasopharyngitis (common cold)	0,60	
M54.3		Sciatica	0,60	
Canary Islands		M54.5	Low back pain	1,40
	J11	Influenza, virus not identified	1,16	
	K52.9	Noninfective gastroenteritis and colitis, unspecified	1,02	
	J00	Acute nasopharyngitis (common cold)	0,82	
	J20.9	Acute bronchitis, unspecified	0,59	
	F06.4	Organic anxiety disorder	0,57	

	M54.3	Sciatica	0,51
	M54.2	Cervicalgia	0,44
Cantabria	K52.9	Noninfective gastroenteritis and colitis, unspecified	1,64
	J11	Influenza, virus not identified	1,13
	M54.5	Low back pain	0,98
	R45	Symptoms and signs involving emotional state	0,69
	J02.9	Acute pharyngitis, unspecified	0,67
	J06	Acute upper respiratory infections of multiple and unspecified sites	0,66
	M54.3	Sciatica	0,61
	M54.2	Cervicalgia	0,57
Castile and Leon	M54.5	Low back pain	1,28
	J11	Influenza, virus not identified	0,86
	F41.9	Anxiety disorder, unspecified	0,53
	M54.3	Sciatica	0,52
	J98.8	Other specified respiratory disorders	0,40
	J06.9	Acute upper respiratory infection, unspecified	0,37
	J00	Acute nasopharyngitis (common cold)	0,30
	K52	Other noninfective gastroenteritis and colitis	0,10
Castile La Mancha	M54.5	Low back pain	1,22
	K52.9	Noninfective gastroenteritis and colitis, unspecified	0,79
	J00	Acute nasopharyngitis (common cold)	0,62
	J11	Influenza, virus not identified	0,53
	K52	Other noninfective gastroenteritis and colitis	0,50
	J03.9	Acute tonsillitis, unspecified	0,43
	M54.2	Cervicalgia	0,39
	M54.3	Sciatica	0,37
Catalonia	K52.9	Noninfective gastroenteritis and colitis, unspecified	2,82
	J00	Acute nasopharyngitis (common cold)	2,09
	M54.5	Low back pain	1,96
	J11	Influenza, virus not identified	1,58
	F41.9	Anxiety disorder, unspecified	1,40
	B97.8	Other viral agents as the cause of diseases classified to other chapters	1,05
	J03.9	Acute tonsillitis, unspecified	0,85
	M54.2	Cervicalgia	0,68
Extremadura	M54.5	Low back pain	0,76
	J11	Influenza, virus not identified	0,49
	S93	Dislocation, sprain and strain of joints and ligaments at ankle and foot level	0,28
	M54.2	Cervicalgia	0,23
	M54.3	Sciatica	0,20
	F41	Other anxiety disorders	0,18

	M54.9	Dorsalgia, unspecified	0,17
	M75	Shoulder lesions	0,14
Galicia	M54.5	Low back pain	1,19
	J11	Influenza, virus not identified	0,94
	M54.2	Cervicalgia	0,47
	F41	Other anxiety disorders	0,44
	J20.9	Acute bronchitis, unspecified	0,42
	M54.3	Sciatica	0,30
	J03.9	Acute tonsillitis, unspecified	0,28
	S93	Dislocation, sprain and strain of joints and ligaments at ankle and foot level	0,24
Community of Madrid	K52.9	Noninfective gastroenteritis and colitis, unspecified	1,51
	M54.5	Low back pain	0,90
	F41	Other anxiety disorders	0,76
	J02.9	Acute pharyngitis, unspecified	0,67
	J11	Influenza, virus not identified	0,53
	M25	Other joint disorders, not elsewhere classified	0,48
	M54.3	Sciatica	0,45
	J06.9	Acute upper respiratory infection, unspecified	0,43
Region of Murcia	K52.9	Noninfective gastroenteritis and colitis, unspecified	1,21
	J11	Influenza, virus not identified	1,16
	M54.5	Low back pain	1,13
	J02.9	Acute pharyngitis, unspecified	0,82
	M54.3	Sciatica	0,69
	R45	Symptoms and signs involving emotional state	0,62
	M54.2	Cervicalgia	0,55
	J06.9	Acute upper respiratory infection, unspecified	0,41
Chartered Community of Navarre	K52.9	Noninfective gastroenteritis and colitis, unspecified	3,08
	J11	Influenza, virus not identified	2,52
	M54.5	Low back pain	1,88
	J06.9	Acute upper respiratory infection, unspecified	1,62
	J00	Acute nasopharyngitis (common cold)	1,26
	A08.5	Other specified intestinal infections	0,98
	J20.9	Acute bronchitis, unspecified	0,95
	F41.9	Anxiety disorder, unspecified	0,89
La Rioja	K52.9	Noninfective gastroenteritis and colitis, unspecified	2,20
	J00	Acute nasopharyngitis (common cold)	1,42
	J11	Influenza, virus not identified	1,14
	M54.5	Low back pain	1,10
	M54.3	Sciatica	0,56

	J06.9	Acute upper respiratory infection, unspecified	0,39
	M25.5	Pain in joint	0,36
	R45.0	Nervousness	0,35
Valencia	M54.5	Low back pain	1,04
	J11	Influenza, virus not identified	0,85
	F41.9	Anxiety disorder, unspecified	0,56
	K52.9	Noninfective gastroenteritis and colitis, unspecified	0,55
	J00	Acute nasopharyngitis (common cold)	0,45
	M54.2	Cervicalgia	0,39
	M54.3	Sciatica	0,33
	J20.9	Acute bronchitis, unspecified	0,32
Basque Country	M54.5	Low back pain	1,83
	M54.2	Cervicalgia	1,68
	J00	Acute nasopharyngitis (common cold)	0,91
	K52.9	Noninfective gastroenteritis and colitis, unspecified	0,75
	J11	Influenza, virus not identified	0,63
	F43.2	Adjustment disorders	0,56
	F41.9	Anxiety disorder, unspecified	0,49
	R10	Abdominal and pelvic pain	0,35

Table 5. Sickness absence situations by occupational activities (International Standard Industrial Classification of all Economic Activities, ISIC Rev-4)

Autonomous Community	Code	Occupational Activities	SA spells	SA / 1000 affiliates
Andalusia	8411	General public administration activities	61.457	30,84
	8610	Hospital activities	40.544	20,30
	8121	General cleaning of buildings	23.802	18,89
	5610	Restaurants and mobile food service activities	23.377	28,5
	5630	Beverage serving activities	20.659	10,74
	4100	Construction of buildings	16.608	10,22
	4711	Retail sale in non-specialized stores with food, beverages or tobacco predominating	16.253	9
	5510	Hotels and similar accommodation	16.061	20,05
	4630	Wholesale of food, beverage and tobacco	15.010	9,72
	8220	Activities of call centres	14.652	69,07
Aragon	8411	General public administration activities	9.685	23,30

	8610	Hospital activities	8.022	16,61
	7820	Temporary employment agency activities	7.550	73,50
	2930	Manufacture of parts and accessories of motor vehicles	5.874	11,70
	8121	General cleaning of buildings	5.464	21,78
	4711	Retail sale in non-specialized stores with food, beverages or tobacco predominating	3.773	5,3
	5610	Restaurants and mobile food service activities	3.669	28,5
	8220	Activities of call centres	3.459	43
	4923	Freight transport by road	3.214	15,57
	5630	Beverage serving activities	3.073	10,95
Principality of Asturias	8610	Hospital activities	6.422	20,65
	4711	Retail sale in non-specialized stores with food, beverages or tobacco predominating	5.217	9,56
	8411	General public administration activities	4.000	19,21
	5630	Beverage serving activities	2.560	10,46
	2410	Manufacture of basic iron and steel	2.330	12,08
	8121	General cleaning of buildings	2.285	13,6
	5610	Restaurants and mobile food service activities	2.047	22,45
	8730	Residential care activities for the elderly and disabled	1.950	20,82
	8122	Other building and industrial cleaning activities	1.651	18
	9700	Activities of households as employers of domestic personnel	1.365	8,51
Balearic Islands	5510	Hotels and similar accommodation	19.736	30,31
	5610	Restaurants and mobile food service activities	9.399	13,6
	8610	Hospital activities	8.059	26,49
	8411	General public administration activities	6.141	27,19
	4100	Construction of buildings	6.129	13
	4711	Retail sale in non-specialized stores with	5.078	8,44

		food, beverages or tobacco predominating		
	5630	Beverage serving activities	4.740	8,32
	8121	General cleaning of buildings	4.125	16,70
	5520	Short term accommodation activities	3.034	12,56
	4751	Retail sale of textiles in specialized stores	2.408	21,6
Canary Islands	5510	Hotels and similar accommodation	26.147	43,13
	8610	Hospital activities	16.865	30,7
	8411	General public administration activities	15.899	31,59
	5610	Restaurants and mobile food service activities	11.628	18,32
	4711	Retail sale in non-specialized stores with food, beverages or tobacco predominating	10.495	7,9
	5520	Short term accommodation activities	7.221	32,30
	8121	General cleaning of buildings	7.000	18,7
	5630	Beverage serving activities	5.507	8,36
	4100	Construction of buildings	5.414	11,70
	8521	General secondary education	5.340	12,13
Cantabria	8411	General public administration activities	3.851	28,5
	7820	Temporary employment agency activities	3.612	76,53
	8610	Hospital activities	3.492	20,09
	8121	General cleaning of buildings	1.828	17,11
	5610	Restaurants and mobile food service activities	1.616	22,5
	5630	Beverage serving activities	1.383	10,97
	8220	Activities of call centres	1.170	60
	8521	General secondary education	1.170	8,38
	4791	Retail sale via mail order houses or via Internet	1.023	16,8
	8620	Medical and dental practice activities	998	32
Castile and Leon	8411	General public administration activities	9.940	16,89
	8610	Hospital activities	9.741	12,04
	8220	Activities of call centres	8.920	85,14
	8121	General cleaning of buildings	7.489	17,87

	4711	Retail sale in non-specialized stores with food, beverages or tobacco predominating	5.953	7,94
	8790	Other residential care activities	5.089	21,95
	5630	Beverage serving activities	5.023	14,59
	7820	Temporary employment agency activities	4.676	45,75
	5610	Restaurants and mobile food service activities	4.493	24,90
	2910	Manufacture of motor vehicles	4.409	10,35
Castile La Mancha	8411	General public administration activities	15.003	22,17
	8610	Hospital activities	7.820	14,89
	8121	General cleaning of buildings	5.363	19,98
	7820	Temporary employment agency activities	5.272	56,70
	5210	Warehousing and storage	5.251	60
	4100	Construction of buildings	4.479	8,94
	4711	Retail sale in non-specialized stores with food, beverages or tobacco predominating	4.267	5,06
	5610	Restaurants and mobile food service activities	4.092	32,54
	4923	Freight transport by road	3.846	14,08
	5630	Beverage serving activities	3.526	10,62
Catalonia	8610	Hospital activities	75.958	32,68
	8411	General public administration activities	70.569	32,11
	5610	Restaurants and mobile food service activities	45.084	47
	8121	General cleaning of buildings	44.117	22,8
	7820	Temporary employment agency activities	43.109	73,56
	8220	Activities of call centres	37.877	74,91
	4711	Retail sale in non-specialized stores with food, beverages or tobacco predominating	30.528	12,95
	4751	Retail sale of textiles in specialized stores	24.417	10,36
	8812	Social work activities without accommodation for the elderly and disabled	20.007	43,56
	8423	Public order and safety	19.807	65

		activities		
Extremadura	8411	General public administration activities	10.813	23,68
	8610	Hospital activities	5.921	17,95
	8121	General cleaning of buildings	2.007	19,56
	8812	Social work activities without accommodation for the elderly and disabled	1.643	18
	4100	Construction of buildings	1.610	7,48
	5630	Beverage serving activities	1.599	10,55
	4711	Retail sale in non-specialized stores with food, beverages or tobacco predominating	1.136	3,98
	5610	Restaurants and mobile food service activities	1.044	13,64
	4923	Freight transport by road	914	12,89
	0150	Mixed farming	902	8,79
Galicia	8610	Hospital activities	12.552	16,6
	8411	General public administration activities	12.137	19,12
	4711	Retail sale in non-specialized stores with food, beverages or tobacco predominating	7.498	6,4
	5630	Beverage serving activities	6.532	12
	8121	General cleaning of buildings	5.775	
	7820	Temporary employment agency activities	5.270	40,61
	9700	Activities of households as employers of domestic personnel	4.830	11,45
	5610	Restaurants and mobile food service activities	4.664	17,6
	8220	Activities of call centres	4.558	47,19
	4100	Construction of buildings	3.622	5,27
Community of Madrid	8610	Hospital activities	44.482	17,65
	8121	General cleaning of buildings	42.703	20,63
	5610	Restaurants and mobile food service activities	36.939	28,54
	4711	General public administration activities	35.475	21,94
	8220	Activities of call centres	29.212	67,3
	4711	Retail sale in non-specialized stores with food, beverages or	28.014	7,57

		tobacco predominating		
	9700	Activities of households as employers of domestic personnel	21.385	20,93
	8299	Other business support service activities n.e.c	20.351	13
	5630	Beverage serving activities	17.608	12,05
	4751	Retail sale of textiles in specialized stores	15.735	15,31
Region of Murcia	8620	Medical and dental practice activities	11.008	34,8
	0113	Growing of vegetables and melons, roots and tubers	7.233	28,29
	7820	Temporary employment agency activities	6.037	23,35
	4711	General public administration activities	6.003	24,41
	8121	General cleaning of buildings	4.915	25,01
	5610	Restaurants and mobile food service activities	3.672	34,02
	5630	Beverage serving activities	3.635	21,63
	4630	Wholesale of food, beverage and tobacco	3.514	13,62
	4711	Retail sale in non-specialized stores with food, beverages or tobacco predominating	3.228	8,96
	4923	Freight transport by road	2,914	14,28
Chartered Community of Navarre	8610	Hospital activities	14.408	46,16
	8411	General public administration activities	7.408	57,01
	2930	Manufacture of parts and accessories of motor vehicles	5.782	18,2
	7820	Temporary employment agency activities	5.558	94,19
	8521	General secondary education	3.909	19,86
	8121	General cleaning of buildings	3.520	31,17
	1030	Processing and preserving of fruit and vegetables	3.256	38,37
	2910	Manufacture of motor vehicles	3.195	17,07
	8812	Social work activities without accommodation for the elderly and	3.151	76,35

		disabled		
	9700	Activities of households as employers of domestic personnel	2.382	23,71
La Rioja	8610	Hospital activities	1.698	18,25
	8611	General public administration activities	1.612	22,76
	1520	Manufacture of footwear	1.463	38,2
	8121	General cleaning of buildings	1.290	29,05
	1030	Processing and preserving of fruit and vegetables	1.217	27,4
	7820	Temporary employment agency activities	1.060	71,12
	2930	Manufacture of parts and accessories of motor vehicles	1.006	12,1
	5630	Beverage serving activities	973	14,3
	1102	Manufacture of wines	962	13,09
	0113	Growing of vegetables and melons, roots and tubers	907	21,5
Valencia	8610	Hospital activities	24.063	21,57
	8611	General public administration activities	23.311	24,51
	5610	Restaurants and mobile food service activities	16.234	20,93
	8121	General cleaning of buildings	12.758	16,04
	4711	Retail sale in non-specialized stores with food, beverages or tobacco predominating	11.239	6,14
	4630	Wholesale of food, beverage and tobacco	7.300	8,81
	5630	Beverage serving activities	8.732	6,49
	4923	Freight transport by road	7.300	11,49
	7820	Temporary employment agency activities	7.126	29,24
	4100	Construction of buildings	6.663	6,21
Basque Country	8610	Hospital activities	22.704	30,48
	8611	General public administration activities	15.565	27,16
	8121	General cleaning of buildings	13.043	29,20
	8521	General secondary education	12.519	14,51
	8812	Social work activities without accommodation for the elderly and	8.760	14,75

		disabled		
	5610	Restaurants and mobile food service activities	8.419	29,01
	4711	Retail sale in non-specialized stores with food, beverages or tobacco predominating	6.625	6,6
	9700	Activities of households as employers of domestic personnel	6.284	18,55
	2591	Forging, pressing, stamping and roll-forming of metal; powder metallurgy	6.086	10,29
	5630	Beverage serving activities	5.842	18,02

STROBE Statement—Checklist of items that should be included in reports of *cohort studies*

	Item No	Recommendation	Page No
Title and abstract	1	(a) Indicate the study's design with a commonly used term in the title or the abstract	1
		(b) Provide in the abstract an informative and balanced summary of what was done and what was found	1
Introduction			
Background/rationale	2	Explain the scientific background and rationale for the investigation being reported	3
Objectives	3	State specific objectives, including any prespecified hypotheses	4
Methods			
Study design	4	Present key elements of study design early in the paper	4
Setting	5	Describe the setting, locations, and relevant dates, including periods of recruitment, exposure, follow-up, and data collection	4-5
Participants	6	(a) Give the eligibility criteria, and the sources and methods of selection of participants. Describe methods of follow-up	4-5
		(b) For matched studies, give matching criteria and number of exposed and unexposed	5
Variables	7	Clearly define all outcomes, exposures, predictors, potential confounders, and effect modifiers. Give diagnostic criteria, if applicable	5
Data sources/ measurement	8*	For each variable of interest, give sources of data and details of methods of assessment (measurement). Describe comparability of assessment methods if there is more than one group	5
Bias	9	Describe any efforts to address potential sources of bias	5
Study size	10	Explain how the study size was arrived at	5
Quantitative variables	11	Explain how quantitative variables were handled in the analyses. If applicable, describe which groupings were chosen and why	5
Statistical methods	12	(a) Describe all statistical methods, including those used to control for confounding	5
		(b) Describe any methods used to examine subgroups and interactions	5
		(c) Explain how missing data were addressed	5
		(d) If applicable, explain how loss to follow-up was addressed	5
		(e) Describe any sensitivity analyses	5
Results			
Participants	13*	(a) Report numbers of individuals at each stage of study—eg numbers potentially eligible, examined for eligibility, confirmed eligible, included in the study, completing follow-up, and analysed	5
		(b) Give reasons for non-participation at each stage	5
		(c) Consider use of a flow diagram	-
Descriptive data	14*	(a) Give characteristics of study participants (eg demographic, clinical, social) and information on exposures and potential confounders	5
		(b) Indicate number of participants with missing data for each variable of interest	5
		(c) Summarise follow-up time (eg, average and total amount)	5
Outcome data	15*	Report numbers of outcome events or summary measures over time	6

1	Main results	16	(a) Give unadjusted estimates and, if applicable, confounder-adjusted estimates and their precision (eg, 95% confidence interval). Make clear which confounders were adjusted for and why they were included	6-7
2			(b) Report category boundaries when continuous variables were categorized	
3			(c) If relevant, consider translating estimates of relative risk into absolute risk for a meaningful time period	
4	Other analyses	17	Report other analyses done—eg analyses of subgroups and interactions, and sensitivity analyses	6-7
5	Discussion			
6	Key results	18	Summarise key results with reference to study objectives	7
7	Limitations	19	Discuss limitations of the study, taking into account sources of potential bias or imprecision. Discuss both direction and magnitude of any potential bias	2
8	Interpretation	20	Give a cautious overall interpretation of results considering objectives, limitations, multiplicity of analyses, results from similar studies, and other relevant evidence	7-9
9	Generalisability	21	Discuss the generalisability (external validity) of the study results	7-9
10	Other information			
11	Funding	22	Give the source of funding and the role of the funders for the present study and, if applicable, for the original study on which the present article is based	10

*Give information separately for exposed and unexposed groups.

Note: An Explanation and Elaboration article discusses each checklist item and gives methodological background and published examples of transparent reporting. The STROBE checklist is best used in conjunction with this article (freely available on the Web sites of PLoS Medicine at <http://www.plosmedicine.org/>, Annals of Internal Medicine at <http://www.annals.org/>, and Epidemiology at <http://www.epidem.com/>). Information on the STROBE Initiative is available at <http://www.strobe-statement.org>.

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3 **TITLE PAGE**

4
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6 2018

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3 1 **TITLE: DESCRIPTIVE STUDY OF SICKNESS ABSENCE IN SPAIN REGIONS IN**
4 2 **2018**

5
6 3 **ABSTRACT**

7
8 4 **Objectives:** To provide a wide and thorough description of sickness absence (SA) in
9 5 Spain, focusing on the different regions of the country and the main characteristics of
10 6 SA.

11
12 7 **Methods:** A study of the SA spells in Spain, managed by the medical units of the
13 8 National Institute of Social Security in 2018. The geographical scope of this
14 9 observational study is the Autonomous Community. Incidence, prevalence, and average
15 10 duration SA in employees and self-employed are described. The study also describes the
16 11 differences between non-work-related SA and work-related SA. In age and sex
17 12 variables, the incidence and the average duration are described. The average duration by
18 13 Diagnostic Chapters (ICD-10) and the highest number of SA spells by occupational
19 14 activity and diagnosis are analysed.

20
21
22 15 **Results:** A total of 540,045 SA spells are analysed by non-work-related SA and 63,441
23 16 by work-related SA. The national average prevalence in non-work-related SA spells is
24 17 32.98/1000 among employed and 30.48/1000 among self-employed; in work-related SA
25 18 spells, the prevalence is 3.99/1000. The national incidence in non-work-related SA
26 19 spells is 24.8/1000 for employees and 9.51/1000 for self-employed workers; in work-
27 20 related SA spells the incidence is 3.55/1000. The average duration is 58.67 days, with
28 21 the longest duration being neoplasms and the shortest corresponding to infectious
29 22 disease. The Community of Madrid shows the lowest prevalence, incidence, and
30 23 average duration in work-related SA. Influenza is the diagnosis that generates the
31 24 largest number of SA spells. Activities of call centres and Temporary employment
32 25 agency activities are the occupations that have the highest number of SA spells.

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34
35 26 **Conclusions:** The biggest differences are found in the incidence and average duration,
36 27 between the non-work-related SA spells and work-related SA. If those characteristics of
37 28 the SA in which a region is more in deficit are known, it will be possible to do better
38 29 management of the SA.

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STRENGTHS AND LIMITATIONS OF THIS STUDY

- The greatest strength of this study is the broad representativeness of its data.
- The data used are at a national level, which allows a great perspective of SA in Spain.
- In this study, it has not always been possible to compare the data between employed and self-employed workers.
- It has not always been possible to distinguish in this study between non-work-related and work-related in all SA spells
- SA spells lasting less than 4 days has not been included in this study.

For peer review only

1 INTRODUCTION

2 Sickness absence (SA) is one of the benefits of Social Security, included in article 169
3 of the Consolidated Text of the General Law of Social Security, RDL 8/2015 of October
4 30th. It comprises benefits in kind (medical assistance) and monetary compensations
5 (benefits for SA). In Spain, there is a distinction between non-work-related sickness
6 absence (common disease and non-occupational accident) and work-related sickness
7 absence (professional illness and occupational accident). The differences between one
8 group and the other can be seen both in the economic amount of the benefits due to sick
9 leave and in the social security contributions. To be entitled to this subsidy, there must
10 be the medical examination and SA is certified by the family practitioner from the State
11 Health Services, in case of common disease and non-occupational accident. If it is
12 caused by occupational accidents or professional illness, this sick leave is certified by
13 physicians ascribed to Insurance Companies linked to the Social Security system.
14 Maximum duration of sick leave is 365 days, which can be extended for another 180
15 days if recovery and return of the worker to workplace are expected at that time. If the
16 duration of sickness benefits has expired and the person's state of health has not
17 improved enough to return to work, the worker may receive a disability pension. The
18 maximum duration of SA benefits is similar to other countries nearby such as Germany,
19 Belgium, or Austria. However, there are considerable differences in all EU countries in
20 terms of the amount of the payment and the requirements for receiving these benefits¹.

21 Concerning the rest of the countries of the Organisation for Economic Co-operation and
22 Development (OECD), Spain is in an intermediate position regarding the SA days per
23 worker/year. Mexico is in the highest position with 27.7 days, whereas Chile, in the
24 lowest position, has 7.3 days. Spain has an average of 10.3 days, which is similar to the
25 level of Austria and the Netherlands (10 days)
26 (<https://stats.oecd.org/index.aspx?queryid=30123>)

27 Like most European countries, Spain's public sickness insurance spending is a major
28 component of its social security system¹. The total financial cost of SA in consolidated
29 Social Security budgets for 2019 in Spain reached 11,554,711.16 euros, which is 8.89%
30 of the general Social Security budget². Besides, the importance of SA caused by disease
31 or accident is not only determined by the social and financial costs that each State
32 dedicates to it³, but also by the resources that employers assign to it⁴, as well as the
33 productivity losses⁵ and the deterioration of these workers' health⁶. It has been reported
34 that work absenteeism due to illness is, in itself, a risk factor to fall sick, new periods of
35 SA, unemployment, permanent disability pension⁶⁻⁸, social exclusion⁹ and death^{10,11,12}.
36 Long SA periods generate both an early retirement from the job market, a slower salary
37 increase, and an impoverishment of household wealth^{6,7-9}.

38 Spain is divided into 17 regions. In each region there are significant differences in
39 education, economic situation, unemployment rate, and public health system. By sex,
40 the percentage of men and women is balanced. The number of women is slightly higher,
41 although the number of working men is still higher. By age, the regions with the
42 youngest population are mainly those on the Mediterranean coast and also Castile la
43 Mancha, Extremadura, and the Community of Madrid. The northwestern regions are
44 more aged.

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3 1 In 2017 the working population rate in Spain was 59.41%. The regions with the highest
4 2 rates of active population were the Canary Islands, the Balearic Islands, the Community
5 3 of Madrid and Catalonia, and those with the lowest rates were the Cantabrian, Western
6 4 and Central regions. Service sector was the majority of the workforce (76%) in the
7 5 islands, the Community of Madrid and Andalusia. Industry was the predominant sector
8 6 in Navarre, the Basque Country and La Rioja; construction in Castile La Mancha; and
9 7 agriculture and farming in Murcia (<http://uvadoc.uva.es/handle/10324/26416>)

12 8 These factors affect the behaviour of SA and their management in very different ways.
13 9 It is important to know the differences to act accordingly.

15 10 Despite its relevance to public policies, there are few studies at the national level that
16 11 describe the current situation of such benefits in our country; to date, the studies found
17 12 in the literature related to this topic describe it partially¹³, in some provinces or specific
18 13 areas¹⁴, about some specific diseases¹⁵ or specific groups of workers¹⁶. The used data
19 14 are national, representing the whole of the workers in Spain. It is a comprehensive and
20 15 representative study of the total of SA spells in our country in 2018.

23 16 The general objective of this study is to provide a wide description of SA in Spain,
24 17 focusing on the different regions of the country and according to the main
25 18 characteristics of SA and differences between regions.

27 19 The specific objectives would be the description of the incidence, prevalence, and
28 20 average duration of SA; the description of the average duration and incidence rate about
29 21 age and sex, as well as the average duration of SA by Diagnostic Chapters following the
30 22 ICD-10. The main occupational activities in which there are more workers with SA
31 23 spells and the main diseases that cause more SA spells.

34 24 **MATERIAL AND METHODS**

35 25 This study is carried out using the statistical databases provided by the Spanish Institute of
36 26 Social Security (INSS), which are published on the website of this organisation (www.seg-social.es/wps/portal/wss/internet/EstadisticasPresupuestosEstudios/), and databases obtained
37 27 from specific programs used by the Medical Units.
38 28

39 29 The reference population is formed by all the workers in Spain covered by the Social Security
40 30 system in the year 2018. The study excludes the SA cases of civil workers, Armed Forces
41 31 personnel, and workers of the General Judicial Benefit Society, whose control and management
42 32 are not an object of study. SA spells with a duration of fewer than 4 days are not included,
43 33 because they do not obtain economic benefits from the Social Security system in Spain. Our
44 34 study does not include unemployed workers, because they do not receive SA benefits

45 35 In Spain, our system of social security is contributory. To this end, both the worker and
46 36 the company contribute to the system every month a sum of money (contribution) so
47 37 that the worker can obtain benefits in case of illness or accident. If the worker is self-
48 38 employed, it is himself who makes these economic contributions exclusively for non-
49 39 work-related SA. This self-employed person also can pay voluntarily an extra amount
50 40 for work-related SA to obtain benefits if he or she has a professional illness or an
51 41 occupational accident.

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3 1 Our database does not distinguish between employed and self-employed workers in the
4 2 case of work-related SA. However, in non-work-related SA such division is made
5 3 (Table 1)

6
7 4 Sample: the 2018 total SA records of the Spanish National Institute of Social Security (INSS) is
8 5 used, which coincide with the total population studied.

9
10 6 The variables used were: age (in ranges), sex, average SA duration, diagnosis and diagnostic
11 7 group (International Classification of Diseases, ICD-10), employee or self-employed, non-
12 8 work-related SA (common disease non-occupational accident) or work-related SA (occupational
13 9 accident and professional illness), and occupations with higher SA ranking according to the
14 10 International Standard Industrial Classification of all Economic Activities (ISIC Rev-4).

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16
17 11 The geographical scope of the study is the regions of Spain.

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19 12 This is an observational study. The statistical calculations used to refer to all the people
20 13 affiliated with the system who are entitled to receive the SA benefit (AFI), calculated according
21 14 to the data provided by the Public Employment Service, the General Treasury of Social
22 15 Security, INSS and the Social Institute of the Navy.

23
24 16 Incidence: the ratio that calculates the number of SA (MP2R) per 1000 affiliates. To compute
25 17 the SA, the number of real registrations for the benefit (MP2R) is used. Monthly datum:
26 18 $MP2R * 1000 / AFI$. Accumulated datum: average $(MP2R) * 1000 / AFI$

27
28 19 Prevalence: the ratio that calculates the number of SA processes in force per 1000 affiliates. To
29 20 compute the processes in force, the number of perceivers at the end of the period (MP4) is used.
30 21 Monthly datum: $MP4 * 1000 / AFI$. Accumulated datum: average $(MP4) * 1000 / AFI$

31
32 22 The mean general duration is the average of all durations per year. The mean duration per age
33 23 range and sex were calculated by dividing the number of days in SA by the number of workers
34 24 in SA in that range. It is also described the number of workers in SA per 1000 affiliates. The
35 25 median for the average duration per diagnostic chapter is calculated, using the statistics software
36 26 Excel®.

37 27 **Patient and public involvement**

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39 28 Anonymised patient data are used in this study. Patients and members of the public are not
40 29 involved in the conducting of the study.

41 30 **RESULTS**

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44 31 A total of 540,045 non-work-related SA spells and 63,441 work-related SA spells is analysed,
45 32 which are those controlled by the Medical Units of the Spanish National Institute of Social
46 33 Security. There is a total of 16,373,239 workers affiliated to social security.

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49 34 The age of the study participants is 16 to 70 years old, both men and women. All are included in
50 35 all the variables studied (non-work-related, work-related, employed, self-employed, sex, age,
51 36 diagnosis, and occupational activities). Follow-up time is one year (2018).

52
53 37 Our results are:

54 38 ***SA Prevalence***

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56
57 39 The prevalence of non-work-related SA is 32,68/1000, among employed and 30,48/1000
58 40 among self-employed. Prevalence of work-related is 3,99/1000. In the non-work-related, it
59 41 ranges between 27,3 in La Rioja and 40,45 in the Canary Islands in employed persons. In self-

employed, it ranges between 21,5 in the Balearic Islands and 40,63 in the Region of Murcia. In work-related SA, it ranges from 2.73 in the Community of Madrid to 5.51 in Galicia (Table 1).

SA incidence

Incidence of non-work-related was 24.87/1000 among employed and 9.51/1000 among self-employed. The incidence of work-related was 3.55/1000. Its values ranged between 12.76 in Extremadura and 36.7 in Catalonia (non-work-related, employed person); for self-employed it ranged between 7.71 in Community of Madrid and 16.46 in Chartered Community of Navarre (non-work-related SA). In work-related SA, it ranged from 2.89 in Madrid to 5.15 in the Balearic Islands (Table 1).

Average SA duration

The average duration of SA was 58.67 days (in non-work-related SA from 38.81 days among employed to 91.38 days among self-employed) with a median of 48.53 days. In non-work-related SA for employees, it ranged between 24.64 days in Chartered Community of Navarre to 67.53 in Extremadura. For self-employed, it varied between 55.15 days in Navarra to 112.86 days in Extremadura. In work-related SA, it ranged from 30.94 days in the Balearic Islands to 50.14 in Cantabria (Table 1).

SA spells and average duration (age ranges and sex).

In table 2 the total number of workers on sick leave by age and sex is analyzed. There is a distinction between the absolute number of workers on SA and the number of workers on SA per 1000 affiliated per age group and gender because in Spain, in almost all age groups there are more men than women affiliated to social security. This may result in more absolute numbers of sickness absence for men, although the number of SA is higher for women according to the number of affiliates.

Therefore, the total number of workers in SA by age and sex is higher in men than in women (Table 2). According to age range and sex, the number of affiliates in SA is higher in women, except in Castilla-León, Chartered Community of Navarre and the Basque Country between 16 and 25 years of age, Principality of Asturias and La Rioja between 26 and 35 years and La Rioja in 36-45 and 46-55 years.

The average duration of SA is also higher in women than in men in all the age ranges, except in the Community of Madrid and La Rioja for 16-25 years, and Principality of Asturias, Balearic Islands, Canary Islands, Catalonia and Chartered Community of Navarre in workers over 65 years of age.

In women, the average duration of SA is 58.5 days (minimum 12, maximum 137), with a median of 52 days. In men, the average is 53.08 days (minimum 13, maximum 118), with a median of 44.

Average SA duration (diagnostic chapter)

The average SA duration, in general, is 56.82 days, with a median of 52.80 days. In all the Autonomous Communities, the longest duration corresponds to neoplasms, followed by heart diseases and mental disorders. The shortest duration corresponds to infectious diseases (Table 3).

SA spells by International Classification Diseases 10 (ICD-10) diagnosis

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3 1 Table 4 describes the main diagnoses that generate the highest numbers of SA spells/1000
4 2 affiliates/per month. The diagnoses with the highest number of SA were: Influenza, virus not
5 3 identified, Lower back pain and Non-infective gastroenteritis and colitis, unspecified.

7 4 They highlighted the multiple SA spells per Non-infective gastroenteritis and colitis diagnosis,
8 5 unspecific on Catalonia, Balearic Islands and Community of Navarre.

6 **SA spells by International Standard Industrial Classification of all Economic Activities** 7 **(ISIC Rev-4)**

13 8 There is an outstanding number of SA spell in General public administration activities, Hospital
14 9 activities, Retail sale in non-specialized stores with food, beverages or tobacco predominating
15 10 and General cleaning of buildings (Table 5).

17 11 However, when these cases are analysed by the number of affiliates in each occupational
18 12 activities, those occupations in which the most SA spells is found are Activities of call centres,
19 13 Temporary employment agency activities and General public administration activities

21 **DISCUSSION**

23 15 The obtained results confirm many of the findings described by other authors at both the
24 16 national¹⁷ and international levels¹⁸.

26 17 The prevalence and incidence are much higher in non-work-related SA than in work-
27 18 related SA, which is logical, since work-related SA only included the accidents occurred
28 19 in the workplace, as well as the professional diseases described in the Royal Decree
29 20 1299/2006 of November 10th, and not all diseases, accidents, and injuries that any
30 21 worker can suffer from. Conversely, in the case of non-work-related SA all illness and
31 22 accidents are included.

34 23 When the SA prevalence in each region is analysed, it is observed that there are few
35 24 regions, such as Aragon and the Community of Madrid, below the national average. By
36 25 breaking it down into non-work-related SA, the regions that are below the average were
37 26 Andalusia, Aragon, the Balearic Island, Community of Madrid, La Rioja and Valencian
38 27 Community, while in work-related SA, Aragon, Catalonia, the Basque Country, the
39 28 Canary Islands and Community of Madrid stand out below the average. It is difficult to
40 29 know the reasons for these differences in the prevalence SA. To analyse the possible
41 30 causes of these differences, it would be necessary to carry out other sorts of studies.

45 31 There are also important differences concerning incidence, with these differences being
46 32 very marked in some regions. Only Castile and Leon does not reach the national
47 33 average. In the case of non-work-related SA, Andalusia, Castile, and Leon, Extremadura
48 34 and Valencian Community are below the national average. In work-related SA, values
49 35 are very approximate in all regions. The highest value is in the Balearic Islands.

52 36 There is a significant difference in the incidence of SA between the employed and self-
53 37 employed which was much higher in the former. This is in line with the results obtained
54 38 in other studies conducted in Spain⁴ and at an international level^{7,19,20}. The self-
55 39 employed are only charging for the work they have done. On the other hand, if they are
56 40 in SA's position, the amount they receive is lower, because it depends on their
57 41 contributions to the social security system.

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3 1 The average duration is shorter in all regions in the case of work-related SA because
4 2 these SA are managed directly by associated Insurance Companies, whose network of
5 3 doctors and hospital beds are exclusively for workers who had suffered occupational
6 4 accidents or professional illness. In the case of non-work-related SA, health care is
7 5 provided by the Public Health System, where other patients are also treated (children,
8 6 elderly, non-working patients, etc.) and, therefore, waiting lists were longer and
9 7 treatments for these patients could be delayed further. Besides, the longest duration is
10 8 for oncological diseases and mental disorders, the origin of which is usually unrelated to
11 9 work. This finding is in line with that of other studies at the national⁴ and European¹⁹
12 10 level. Non-work-related SA showed a longer duration to work-related SA which has
13 11 remained like this for years¹⁴. The region that showed the shortest duration as a whole is
14 12 Navarre, where the health expenditure per inhabitant is also the highest in Spain.
15 13 Healthcare expenditure is also higher in the Basque Country, however, the duration of
16 14 the IT is one of the longest in many diagnostic chapters.

17 15 The most noteworthy fact is that the number of days on SA for self-employed workers
18 16 is twice as much as for employees in all of Spain's regions. In our experience, this can
19 17 be caused by the fact that self-employed workers do not usually start a process of short-
20 18 term SA, because cash benefits for SA are paid 30 days after the start of SA and they do
21 19 not receive cash benefits in short-term SA

22 20 The incidence, prevalence, and average duration increase with age. This occurs in all
23 21 age ranges except for very young workers (men and women) and those over 65 years
24 22 old. In young people it can be explained by the fact that they often have low-skilled jobs
25 23 (they have not yet finished their education). They are often temporary and unstable jobs,
26 24 and many young people work and study at the same time. This causes a double
27 25 workload that could contribute to worsening their health. As it can be seen, they are
28 26 short-term SA, which could indicate a low severity of the pathologies that produce
29 27 them. In the over-65s the prevalence is very low in all regions. One possible explanation
30 28 is that the retirement age in Spain is around 65 and the worker who decides to continue
31 29 working instead of retiring is in good health. However, the duration of these SA is very
32 30 long, because at this age there is a greater prevalence of serious pathologies (neoplasms,
33 31 ictus, etc.).

34 32 The differences observed in the number of employees regarding sex are in line with the
35 33 patterns obtained in other studies, with higher incidence¹⁹ and longer duration²¹ in
36 34 women. There is a sex breach in some European countries (Spain, Ireland, France,
37 35 Belgium, and United Kingdom) compared to others (Netherlands, Portugal, and
38 36 Italy)^{21,22}. The incidence increases with age, which is in agreement with most studies at
39 37 the national^{4,23} and international^{7,18,21,22-24} level, with higher intensity according to the
40 38 number of affiliates per sex and age range (Table 2). Among the multiple explanations
41 39 for this fact, it is worth highlighting the following: the double work women usually
42 40 carry out, i.e., paid work and domestic work, with greater responsibilities for the family
43 41 (traditional gender role)^{22,24}, the different behavior of women toward disease²², their
44 42 greater morbidity related to maternity²⁵ and more fragile health²⁶, as well as their lower
45 43 commitment to work²². Other authors highlight the occupational differences, which
46 44 could explain more than half of the gender differences²⁴, as well as the stress level²⁴.
47 45 However, this gender breach is not constant in the long term in all the European

1 countries^{22,21}; in fact, some studies question its existence based on the occupational
2 level²⁷ and the stress level²⁸.

3 The longest duration by diagnostic chapter is oncological diseases, cardiovascular
4 diseases, and mental disorders, which is in line with other studies²⁹⁻³¹. Moreover, this
5 fact poses a serious problem of public health, given the accelerated increase of chronic
6 diseases in all the countries around Spain³², with the consequent increase in the
7 incidence and duration of SA and the cost that it implies^{4,29}.

8 The diagnosis that generated the largest number of SA cases, after the flu, is lower back
9 pain. This finding is in line with numerous studies, being, nationally, the main diagnosis
10 of sick leave due to its high incidence and recurrence rate³³, as well as the
11 duration^{23,34,35} and economic costs of such SA³⁵. This is due to the great prevalence of
12 such pathology, regardless of whether or not it generates SA cases^{33,36}, among other
13 factors.

14 The Public Administration is in the 1st, 2nd and 3rd positions in the described ranking in
15 almost all the regions. This can be explained by the difference between workers of the
16 public sector, who represent a greater number of SA cases than employees in the private
17 sector, as in other countries^{19,37,38}. However, in previous studies carried out in Spain,
18 the Public Administration did not represent or occupied such an important place in SA
19 spells, being greatly surpassed by the industrial and construction sectors^{16,39}.

20 When the SA spells are analysed by the number of affiliated workers in each
21 occupational activities, a higher number of them is found in workers in call centres and
22 temporary employment agencies. These activities have a high level of job instability,
23 with a high worker turnover and very short-term contracts⁴⁰. This could explain the high
24 rate of absence in them.

25 One of the occupational activities with the highest number of SA spells is Retail sale in
26 non-specialized stores with food, beverages or tobacco predominating, but when it is
27 analyzed by the number of affiliates, this number of SA spells is one of the lowest of all
28 occupational activities. One possible explanation is that many of these workers are
29 self-employed and, as mentioned before, in these workers the SA incidence is very low.

30 **Conclusion**

31 This study shows the important characteristics of SA in Spain. The most important
32 differences are found in SA incidence and average duration between the different
33 regions and non-work-related and work-related SA spells. There are also important
34 differences in the number of SA spells between different occupational activities.

35 The regions that show the most difference SA are the Chartered Community of Navarre
36 and the Community of Madrid. It would be interesting to carry out further studies that
37 analyse the main factors that influence SA in Spain.

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41 original proposal and drafted the original manuscript. MLAJ, MJAB, NMM, and RMV
42 contributed to the development and refinement and statistical analysis of the protocol.

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10 www.seg-social.es/wps/portal/wss/internet/EstadisticasPresupuestosEstudios/

11 **KEY MESSAGES**

12 **What is already known about this subject?**

- 13 ➤ Sickness absence (SA) is one of the main causes of work absenteeism, loss of
14 productivity and workers' health, permanent disability, and increased the risk of disease,
15 unemployment, and death in Spain and nearby countries.
- 16 ➤ Increasing efforts are being made to control SA and early reincorporation of workers
17 who have suffered a period of SA due to disease or accident.

18 **What are the new findings?**

- 19 ➤ To our knowledge, it is the first research about SA spells a national analysis in Spain.
- 20 ➤ There is a much higher incidence of SA in Spain among employees than among self-
21 employed workers, whereas the average duration is much higher in the latter.
- 22 ➤ There are high numbers of SA spells among workers of the Public Administration in
23 Spain, workers of call centers and workers of temporary employment agencies.
- 24 ➤ The Chartered Community of Navarre has the highest incidence and the shortest
25 duration of SA spells.
- 26 ➤ The Community of Madrid has the lowest prevalence, incidence and average duration in
27 work-related SA spells.

28 **How could this affect clinical policies or practices in a predictable future?**

- 29 ➤ This implies the need to increase the effort to know the main factors that influence SA
30 in Spain, the characteristics of the workers, and the activity they carry out.
- 31 ➤ It is essential to implement a strict control of the diseases with greater incidence and
32 prevalence, studying the age ranges, sex and the characteristics of the job in which they
33 are produced, in order to reduce the negative effects on healthcare, social and economic
34 costs.

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21 Table legends

- 22
- 23 Table 1: Prevalence, incidence and average duration of sickness absence in Spain (2018)
- 24 Table 2. Sickness absence and average duration (days), by age and sex
- 25 Table 3. Average duration (days) by diagnostic chapter (ICD-10)
- 26 Table 4. Sickness absence spells by diagnosis (ICD-10)
- 27 Table 5. Sickness absence situations by occupational activities (International Standard Industrial
28 Classification of all Economic Activities, ISIC Rev-4)

Table 1: Prevalence, incidence and average duration of sickness absence in Spain (2018)

	PREVALENCE			INCIDENCE			AVERAGE DURATION (days)		
	NON-WORK-RELATED SA		WORK-RELATED SA	NON-WORK-RELATED SA		WORK-RELATED SA	NON-WORK-RELATED SA		WORK-RELATED SA
	EMPLOYED	SELF-EMPLOYED		EMPLOYED	SELF-EMPLOYED		EMPLOYED	SELF-EMPLOYED	
ANDALUSIA	29,41	31,43	4,26	19,72	9,28	3,98	44,79	98,35	37,24
ARAGON	32,52	30,48	3,94	25,95	11,15	3,39	36,47	75,45	41,45
PRINCIPALITY of ASTURIAS	36	38,96	5,01	18,73	10,85	3,53	58,55	105,03	47,08
BALEARIC ISLANDS	31,29	21,7	4,72	27,02	6,46	5,15	33,02	84,01	30,94
CANARY ISLANDS	40,45	26,45	3,85	25,23	7,96	3,51	48,53	100,87	38,17
CANTABRIA	39,77	38,68	4,84	23,38	10,92	3,18	51,39	108,36	50,14
CASTILE and LEON	32,68	31,71	4,35	19,46	9,15	3,44	47,95	95,36	42,07
CASTILE LA MANCHA	32,4	35,57	4,48	19,91	9,93	3,96	46,02	98,54	38,08
CATALONIA	35,14	28,76	3,8	36,37	10,17	3,6	28,54	83,48	36,06
EXTREMADURA	31,59	38,9	4,64	12,76	8,94	3,68	67,53	112,86	41,42
GALICIA	39,79	44,29	5,51	18,52	10,54	3,57	61,39	111,82	49,83
COMMUNITY of MADRID	29,17	20,79	2,73	25,54	7,71	2,89	33,89	77,75	33,11
MURCIA	35,55	40,63	4,12	20,21	11,33	3,39	48,39	98,49	40,2
CHARTERED COMMUNITY of NAVARRA	35,73	30,72	4,28	43,87	16,46	3,88	24,64	55,15	37,86
LA RIOJA	27,3	25,65	4,41	25,28	10,91	3,91	34,53	69,95	38,87

VALENCIA	30,68	29,28	4,4	18,06	8,79	3,34	49,29	96,3	42,34
BASQUE COUNTRY	39,58	28,3	3,84	31,15	10,52	3,96	38,16	79,6	36,55
NATIONAL TOTAL	32,98	30,48	3,99	24,98	9,51	3,55	38,81	91,38	38,23

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Table 2. Sickness absence and average duration (days), by age and sex

	ANDALUSIA		ARAGON		P. OF ASTURIAS		BALEARIC ISLANDS		CANARY ISLANDS		CANTABRIA		CASTILE AND LEON		CASTILE LA MANCHA		CATALONIA		EXTREMADURA		GALICIA		COMMUNITY OF MADRID		REGION OF MURCIA		C. C. OF NAVARRE		LA RIOJA		VALENCIA		BASQUE COUNTRY		
	Woman	Man	Woman	Man	Woman	Man	Woman	Man	Woman	Man	Woman	Man	Woman	Man	Woman	Man	Woman	Man	Woman	Man	Woman	Man	Woman	Man	Woman	Man	Woman	Man	Woman	Man	Woman	Man	Woman	Man	
16-25	Total workforce	28.519	30.319	7.211	9.576	1.836	2.100	11.010	10.470	11.404	9.813	2.235	2.292	6.859	9.934	7.294	10.106	92.204	83.921	2.064	2.793	6.082	7.549	43.592	42.510	5.649	7.818	5.488	7.886	1.457	2.034	15.154	18.327	8.401	12.209
	Average affiliated workers	68552.40	89.788.42	12715.03	17.792.34	5368.35	6.294.17	16392.26	19.260.69	19549.26	23.478.52	3792.28	4.565.60	16025.01	22.400.00	13405.17	21.951.23	112945.61	122.308.48	7057.99	11.732.44	17279.67	21.582.01	61635.82	97.705.09	13971.74	19.847.78	6659.14	8.653.16	2699.60	2.696.28	46147.56	56.875.39	17735.00	22.613.08
	SA/1000 affiliates	34.67	28.14	47.26	44.85	28.5	27.8	55.97	45.29	48.61	34.82	49.11	41.83	35.67	36.96	45.34	38.36	68.02	57.17	24.37	19.83	29.33	29.14	44.5	36.25	33.89	32.82	68.67	75.94	44.97	45.85	27.36	26.85	39.47	44.99
	Total days of SA	834.572	846.610	131.509	167.205	50.471	56.482	185.291	178.221	309.354	231.868	48.036	48.391	167.468	222.267	309.354	242.410	1.358.613	1.249.511	94.375	105.025	231.248	264.978	659.008	707.760	189.971	225.126	70.415	105.159	26.249	38.326	434.028	500.328	170.994	232.766
Average duration	29	27	18	17	27	26	16	17	27	23	21	21	24	22	42	23	14	14	45	37	38	35	15	16	33	28	12	13	18	18	28	27	20	19	
26-35	Total workforce	100.686	86.518	20.411	20.921	7.876	8.438	22.333	19.262	32.182	25.520	7.126	6.214	23.829	23.851	22.958	23.179	195.844	166.163	8.168	6.905	25.440	23.811	126.980	102.745	19.347	18.506	5.488	7.886	1.457	2.034	15.154	18.327	8.401	12.209
	Average affiliated workers	300.358.69	330.969.33	48.943.45	55.044.50	29.131.98	30.748.08	51.679.23	54.743.11	80.321.79	82.314.91	18.686.80	19.468.05	73.916.47	83.188.54	59.795.11	75.578.35	310.001.82	347.500.15	36.076.74	41.472.33	88.778.42	92.930.24	334.003.39	351.427.98	53.485.35	64.162.37	23.761.08	27.464.21	11.184.28	11.558.26	169.672.13	189.654.50	72.276.88	83.896.41
	SA/1000 affiliates	27.93	21.78	34.75	31.67	22.53	22.87	36.01	29.32	33.39	25.84	31.78	26.60	26.86	23.89	32.00	25.55	52.65	39.85	18.87	13.87	23.88	21.35	31.68	24.36	30.14	24.04	52.48	51.62	33.13	36.82	24.45	19.81	37.83	34.70
	Total days of SA	4.002.601	2.741.036	613.970	475.288	326.129	321.994	596.265	434.597	1.290.175	833.828	282.294	203.621	918.856	733.947	927.034	686.484	4.915.171	3.405.555	475.765	307.251	1.289.570	1.018.756	3.636.681	2.344.947	882.767	621.458	325.739	275.255	127.536	108.671	2.207.518	1.512.322	1.228.249	647.290
Average duration	39	31	30	22	41	38	26	22	40	32	39	32	38	30	40	29	25	20	58	44	50	42	28	22	45	33	21	16	28	21	44	33	35	24	
36-45	Total workforce	118.614	117.512	25.565	26.492	13.494	14.020	23.709	22.637	40.199	35.601	10.016	9.757	31.594	32.035	26.742	29.050	221.680	205.633	9.621	9.250	38.674	35.964	151.187	125.041	23.103	24.813	20.685	22.630	5.864	6.555	63.233	65.615	51.452	55.641
	Average affiliated workers	416.547.17	493.349.53	73.820.89	88.587.25	53.033.04	57.508.87	72.634.45	79.189.07	113.319.60	124.332.39	31.436.56	34.354.87	116.512.04	134.105.28	85.921.38	117.415.38	467.172.39	536.140.86	51.846.68	57.864.40	154.779.30	159.073.44	448.746.41	492.003.79	74.900.72	103.493.33	37.428.06	44.884.12	18.530.51	19.654.64	256.013.07	308.714.88	131.005.73	147.561.07
	SA/1000 affiliates	23.73	19.85	28.86	24.92	21.20	20.32	27.20	23.82	29.56	23.86	26.55	23.67	22.60	19.91	25.94	20.82	39.54	31.96	15.46	13.32	20.82	18.84	28.08	21.18	25.70	19.98	46.06	42.02	26.37	27.79	20.58	17.71	32.73	31.42
	Total days of SA	5485098	4853604	1017787	884342	729537	710147	871595	690262	1984219	1537765	522327	427368	1601141	1341221	1320806	1180792	7299940	5952905	684002	523399	2405243	1925240	5625202	4022176	1271496	1132594	584891	515533	216891	196201	3345778	2905621	2137768	1898819
Average duration	46	41	39	33	54	50	36	30	49	43	52	43	50	41	49	40	32	28	71	56	62	53	37	32	55	45	28	22	36	29	52	44	41	34	
46-55	Total workforce	93419	97446	20531	21134	12107	11379	19560	18340	33484	32340	7739	7993	27137	28786	20740	24528	161373	145283	9133	9654	32304	30656	116428	97152	17870	19928	17679	17432	4652	5523	52477	56490	44669	47083
	Average affiliated workers	376667.85	452781.53	72642.41	86832.17	50430.1	54182.72	59519.62	70647.25	103329.08	124900.1	27966.17	32274.09	121691.32	144244.47	78676.23	113500.26	420095.39	483766.12	48995.11	61304.89	155675.61	146483	392653.45	435113.09	63760.45	88653.91	36669.67	43790.26	16865.87	19151.91	227708.97	286020.66	132334.79	149918.57
	SA/1000 affiliates	20.67	17.93	23.55	20.28	20.01	17.50	27.39	21.63	27.00	21.58	23.06	20.64	18.58	16.63	21.97	18.01	32.01	25.03	15.55	13.12	17.29	17.44	24.71	18.61	23.36	18.73	40.18	33.17	22.99	24.03	19.20	16.46	28.13	26.17
	Total days of SA	5669205	5761219	1161473	1084204	892531	800712	986970	817858	2095638	1869968	514677	492931	1843156	1685686	1339820	1442138	7170290	6146120	756791	756088	2592300	2196003	5597323	4348939	1266827	1234944	690509	631566	226762	248332	3621543	3415316	2402084	2300411
Average duration	60	59	56	50	73	70	50	44	62	57	66	61	67	58	64	58	44	42	82	78	80	71	48	44	70	61	39	36	48	44	69	60	53	48	
56-65	Total workforce	54794	55337	13132	12022	9140	7504	11512	9850	16303	15530	5491	5206	18430	19782	11693	14709	85972	74294	6060	6574	22907	19711	67732	53708	11580	11798	9312	8423	2931	3133	33820	33628	28812	26181
	Average affiliated workers	225629.08	261355.04	45478.18	56875.03	34528.21	37293.19	34180.32	40291.24	48415.01	64110.82	18313.97	22216.8	81337.65	106472.69	44685.46	72066.5	237960.81	279504.05	30888.53	42159.4	87344.91	92663.59	217723.25	240497.55	35155.93	48115.93	21505.51	26507.11	10467.84	13056.28	128808.03	166094.89	82120.99	95280.63
	SA/1000 affiliates	20.24	17.64	24.06	17.61	22.06	16.77	28.07	20.37	28.06	20.19	24.99	19.53	18.88	15.48	21.81	17.01	30.11	22.15	16.35	12.99	21.85	17.73	25.93	18.61	27.45	20.43	36.08	26.48	23.33	20.00	21.88	16.87	29.24	22.90
	Total days of SA	4016323	4392212	954029	886164	799503	654003	722340	644055	1270661	1239034	458470	446106	1611454	1563351	971777	1205977	5269955	4690436	567570	631405	2297445	1810405	4144067	3305759	1026123	969808	478852	457600	200637	200286	2884959	2773183	2023474	1882291
Average duration	73	79	72	73	87	87	62	65	77	79	83	85	87	79	83	81	61	63	95	96	100	91	61	61	88	82	51	54	68	63	85	82	70	71	

Total workforce	1009	912	218	229	143	135	248	248	405	507	93	90	309	369	222	243	1499	1783	109	118	496	416	1427	1472	209	205	97	99	48	53	565	586	395	395
Average affiliated workers	11950.42	13802.04	2562.05	3147.87	2035.13	1864.38	2749.35	3794.28	3761	6238.89	1063.87	1151.9	4800.68	6608.46	2729.33	3896.45	16654.52	21595.24	1635.76	2118.84	6019.34	6010.7	14815.19	17812.54	2137.48	2850.03	976.63	1251.16	558.86	884.86	7419.14	9562.67	3943.04	4299.16
SA/1000 affiliates	7.04	5.51	7.09	6.06	5.86	6.03	7.52	5.45	8.97	6.77	7.28	6.51	5.36	4.65	6.78	5.20	7.50	6.88	5.55	4.64	6.87	5.77	8.03	6.89	8.15	5.99	8.28	6.59	7.16	4.99	6.35	5.11	8.35	7.66
Total days of SA	102994	86720	22938	20767	14254	15093	19474	21387	42070	54105	9941	8986	33554	36135	30606	23582	137904	164426	14652	13172	60119	49220	115468	116354	28423	19951	7095	8826	5266	4674	63313	59850	38371	34999
Average duration	102	95	105	90	99	111	78	86	103	106	106	99	108	97	137	97	91	92	134	111	121	118	80	79	135	97	73	89	109	88	112	102	97	88

Table 3. Average duration (days) by diagnostic chapter (ICD-10)

DIAGNOSIS CHAPTER (I)	ANDALUSIA	ARAGON	P. OF ASTURIAS	BALEARIC ISLANDS	CANARY ISLANDS	CANTABRIA	CASTILE LEON	CASTILE LA MANCHA	CATALONIA	EXTREMADURA	GALICIA	COMMUNITY OF MADRID	REGION OF MURCIA	C. C. OF NAVARRRE	LA RIOJA	VALENCIA	BASQUE COUNTRY
<i>I Certain infectious and parasitic diseases</i>	14,91	7,87	9,33	5,50	9,13	6,40	14,69	14,89	5,09	16,92	17,39	6,58	8,03	3,87	4,69	9,50	9,19
<i>II Neoplasms</i>	109,78	120,16	131,05	123,93	102,69	113,30	124,41	131,66	99,47	136,05	134,20	87,92	109,89	105,09	104,53	121,97	142,86
<i>III Diseases of the blood and blood-forming organs and certain disorders involving the immune mechanism</i>	91,98	97,53	76,71	61,03	83,72	57,30	76,59	83,38	63,33	121,10	94,43	63,74	89,23	40,54	58,16	85,98	108,07
<i>IV Endocrine, nutritional and metabolic diseases</i>	72,54	67,72	66,06	50,60	64,70	81,62	57,53	72,88	59,03	78,47	88,73	56,96	81,66	43,03	48,54	71,53	81,06
<i>V Mental and behavioural disorders</i>	95,17	90,37	99,28	56,11	83,26	111,34	95,30	94,54	72,03	114,42	110,52	78,88	111,86	65,66	70,64	98,46	116,66
<i>VI Diseases of the nervous system</i>	79,81	61,81	85,12	49,46	70,50	65,51	78,55	74,37	44,98	80,11	95,84	54,49	78,03	26,40	44,64	79,21	70,51
<i>VII Diseases of the eye and adnexa</i>	44,13	42,99	47,85	28,72	40,94	45,41	45,05	44,12	29,17	56,76	48,63	29,62	46,43	18,80	29,77	41,70	45,77
<i>VIII Diseases of the ear and mastoid process</i>	33,04	26,90	33,55	18,33	31,33	29,05	27,30	26,82	18,89	47,66	42,55	21,63	35,98	13,85	18,54	29,13	37,40
<i>IX Diseases of the circulatory system</i>	103,40	107,05	102,25	85,73	90,19	108,21	99,35	104,24	79,86	106,57	111,53	76,86	112,64	80,66	90,12	101,52	119,39
<i>X Diseases of the respiratory system</i>	11,98	10,67	14,22	9,05	12,46	11,07	13,02	13,47	8,27	19,76	16,42	9,70	12,34	6,40	7,68	11,87	17,11
<i>XI Diseases of the digestive system</i>	30,65	35,44	44,16	28,59	39,97	43,95	21,86	35,59	27,19	50,51	47,53	32,56	41,01	14,97	30,98	40,84	37,32
<i>XII Diseases of the skin and subcutaneous tissue</i>	36,37	29,84	46,22	24,18	35,30	42,96	37,86	37,34	25,36	39,37	47,80	28,91	39,30	20,61	27,26	33,74	51,91
<i>XIII Diseases of the musculoskeletal system</i>	70,24	66,93	79,55	50,35	65,45	75,67	70,00	71,17	54,13	85,89	85,54	56,26	73,79	43,11	52,76	71,05	92,61

<i>and connective tissue</i>																	
<i>XIV Diseases of the genitourinary system</i>	40,71	31,78	44,27	25,30	35,36	34,11	35,01	33,76	27,97	46,14	45,16	31,83	43,51	15,56	32,25	37,08	52,86
<i>XV Pregnancy, childbirth and the puerperium</i>	76,91	53,45	51,51	53,46	81,32	61,09	59,29	72,56	63,73	70,08	68,09	51,74	73,30	60,24	57,10	73,43	67,00
<i>XVII Congenital malformations, deformations and chromosomal abnormalities</i>	86,30	69,19	56,00	73,00	86,22	121,65	80,30	107,03	61,09	94,00	99,25	41,00	75,00	50,00	37,76	71,33	90,33
<i>XVIII Symptoms, signs and abnormal clinical and laboratory findings, not elsewhere classified</i>	36,13	29,88	38,00	23,00	26,00	42,50	33,23	36,11	20,82	38,50	37,25	28,00	51,00	9,00	28,45	31,67	37,67
<i>XIX Injury, poisoning and certain other consequences of external causes</i>	59,88	59,12	72,00	45,00	59,00	69,17	66,63	52,48	53,12	70,00	71,75	55,00	65,00	45,00	53,45	58,67	81,00

(1) Chapters XX, XXI y XXII are not included because the number of cases is not significant

Table 4. Sickness absence spells by diagnosis (ICD-10)

Autonomous Community of Spain	Code	Diagnosis	SA / 1000 affiliates/per month	
Andalusia	M54.5	Low back pain	1,36	
	K52	Other noninfective gastroenteritis and colitis	1,00	
	J00	Acute nasopharyngitis (common cold)	0,83	
	J11	Influenza, virus not identified	0,82	
	M54.2	Cervicalgia	0,57	
	M54.3	Sciatica	0,52	
	J02.9	Acute pharyngitis, unspecified	0,40	
	J03.9	Acute tonsillitis, unspecified	0,38	
	Aragon	K52.9	Noninfective gastroenteritis and colitis, unspecified	1,94
		J11	Influenza, virus not identified	1,28
M54.5		Low back pain	1,16	
J02.9		Acute pharyngitis, unspecified	0,97	
M25		Other joint disorders, not elsewhere classified	0,76	
M54.3		Sciatica	0,42	
M54.2		Cervicalgia	0,41	
F41		Other anxiety disorders	0,38	
Principality of Asturias	K52.9	Noninfective gastroenteritis and colitis, unspecified	1,03	
	M54.5	Low back pain	0,83	
	F41	Other anxiety disorders	0,80	
	J11	Influenza, virus not identified	0,55	
	M54.3	Sciatica	0,46	
	M54.2	Cervicalgia	0,40	
	J02.9	Acute pharyngitis, unspecified	0,30	
	M23	Internal derangement of knee	0,29	
	Balearic Islands	K52.9	Noninfective gastroenteritis and colitis, unspecified	2,29
M54.5		Low back pain	1,61	
B97.8		Other viral agents as the cause of diseases classified to other chapters	1,26	
J11		Influenza, virus not identified	1,15	
F41.9		Anxiety disorder, unspecified	0,77	
J03.9		Acute tonsillitis, unspecified	0,72	
J00		Acute nasopharyngitis (common cold)	0,60	
M54.3		Sciatica	0,60	
Canary Islands		M54.5	Low back pain	1,40
	J11	Influenza, virus not identified	1,16	
	K52.9	Noninfective gastroenteritis and colitis, unspecified	1,02	
	J00	Acute nasopharyngitis (common cold)	0,82	
	J20.9	Acute bronchitis, unspecified	0,59	
	F06.4	Organic anxiety disorder	0,57	

	M54.3	Sciatica	0,51
	M54.2	Cervicalgia	0,44
Cantabria	K52.9	Noninfective gastroenteritis and colitis, unspecified	1,64
	J11	Influenza, virus not identified	1,13
	M54.5	Low back pain	0,98
	R45	Symptoms and signs involving emotional state	0,69
	J02.9	Acute pharyngitis, unspecified	0,67
	J06	Acute upper respiratory infections of multiple and unspecified sites	0,66
	M54.3	Sciatica	0,61
	M54.2	Cervicalgia	0,57
Castile and Leon	M54.5	Low back pain	1,28
	J11	Influenza, virus not identified	0,86
	F41.9	Anxiety disorder, unspecified	0,53
	M54.3	Sciatica	0,52
	J98.8	Other specified respiratory disorders	0,40
	J06.9	Acute upper respiratory infection, unspecified	0,37
	J00	Acute nasopharyngitis (common cold)	0,30
	K52	Other noninfective gastroenteritis and colitis	0,10
Castile La Mancha	M54.5	Low back pain	1,22
	K52.9	Noninfective gastroenteritis and colitis, unspecified	0,79
	J00	Acute nasopharyngitis (common cold)	0,62
	J11	Influenza, virus not identified	0,53
	K52	Other noninfective gastroenteritis and colitis	0,50
	J03.9	Acute tonsillitis, unspecified	0,43
	M54.2	Cervicalgia	0,39
	M54.3	Sciatica	0,37
Catalonia	K52.9	Noninfective gastroenteritis and colitis, unspecified	2,82
	J00	Acute nasopharyngitis (common cold)	2,09
	M54.5	Low back pain	1,96
	J11	Influenza, virus not identified	1,58
	F41.9	Anxiety disorder, unspecified	1,40
	B97.8	Other viral agents as the cause of diseases classified to other chapters	1,05
	J03.9	Acute tonsillitis, unspecified	0,85
	M54.2	Cervicalgia	0,68
Extremadura	M54.5	Low back pain	0,76
	J11	Influenza, virus not identified	0,49
	S93	Dislocation, sprain and strain of joints and ligaments at ankle and foot level	0,28
	M54.2	Cervicalgia	0,23
	M54.3	Sciatica	0,20
	F41	Other anxiety disorders	0,18

	M54.9	Dorsalgia, unspecified	0,17
	M75	Shoulder lesions	0,14
Galicia	M54.5	Low back pain	1,19
	J11	Influenza, virus not identified	0,94
	M54.2	Cervicalgia	0,47
	F41	Other anxiety disorders	0,44
	J20.9	Acute bronchitis, unspecified	0,42
	M54.3	Sciatica	0,30
	J03.9	Acute tonsillitis, unspecified	0,28
	S93	Dislocation, sprain and strain of joints and ligaments at ankle and foot level	0,24
Community of Madrid	K52.9	Noninfective gastroenteritis and colitis, unspecified	1,51
	M54.5	Low back pain	0,90
	F41	Other anxiety disorders	0,76
	J02.9	Acute pharyngitis, unspecified	0,67
	J11	Influenza, virus not identified	0,53
	M25	Other joint disorders, not elsewhere classified	0,48
	M54.3	Sciatica	0,45
	J06.9	Acute upper respiratory infection, unspecified	0,43
Region of Murcia	K52.9	Noninfective gastroenteritis and colitis, unspecified	1,21
	J11	Influenza, virus not identified	1,16
	M54.5	Low back pain	1,13
	J02.9	Acute pharyngitis, unspecified	0,82
	M54.3	Sciatica	0,69
	R45	Symptoms and signs involving emotional state	0,62
	M54.2	Cervicalgia	0,55
	J06.9	Acute upper respiratory infection, unspecified	0,41
Chartered Community of Navarre	K52.9	Noninfective gastroenteritis and colitis, unspecified	3,08
	J11	Influenza, virus not identified	2,52
	M54.5	Low back pain	1,88
	J06.9	Acute upper respiratory infection, unspecified	1,62
	J00	Acute nasopharyngitis (common cold)	1,26
	A08.5	Other specified intestinal infections	0,98
	J20.9	Acute bronchitis, unspecified	0,95
	F41.9	Anxiety disorder, unspecified	0,89
La Rioja	K52.9	Noninfective gastroenteritis and colitis, unspecified	2,20
	J00	Acute nasopharyngitis (common cold)	1,42
	J11	Influenza, virus not identified	1,14
	M54.5	Low back pain	1,10
	M54.3	Sciatica	0,56

	J06.9	Acute upper respiratory infection, unspecified	0,39
	M25.5	Pain in joint	0,36
	R45.0	Nervousness	0,35
Valencia	M54.5	Low back pain	1,04
	J11	Influenza, virus not identified	0,85
	F41.9	Anxiety disorder, unspecified	0,56
	K52.9	Noninfective gastroenteritis and colitis, unspecified	0,55
	J00	Acute nasopharyngitis (common cold)	0,45
	M54.2	Cervicalgia	0,39
	M54.3	Sciatica	0,33
	J20.9	Acute bronchitis, unspecified	0,32
Basque Country	M54.5	Low back pain	1,83
	M54.2	Cervicalgia	1,68
	J00	Acute nasopharyngitis (common cold)	0,91
	K52.9	Noninfective gastroenteritis and colitis, unspecified	0,75
	J11	Influenza, virus not identified	0,63
	F43.2	Adjustment disorders	0,56
	F41.9	Anxiety disorder, unspecified	0,49
	R10	Abdominal and pelvic pain	0,35

Table 5. Sickness absence situations by occupational activities (International Standard Industrial Classification of all Economic Activities, ISIC Rev-4)

Autonomous Community	Code	Occupational Activities	SA spells	SA / 1000 affiliates
Andalusia	8411	General public administration activities	61.457	30,84
	8610	Hospital activities	40.544	20,30
	8121	General cleaning of buildings	23.802	18,89
	5610	Restaurants and mobile food service activities	23.377	28,5
	5630	Beverage serving activities	20.659	10,74
	4100	Construction of buildings	16.608	10,22
	4711	Retail sale in non-specialized stores with food, beverages or tobacco predominating	16.253	9
	5510	Hotels and similar accommodation	16.061	20,05
	4630	Wholesale of food, beverage and tobacco	15.010	9,72
	8220	Activities of call centres	14.652	69,07
Aragon	8411	General public administration activities	9.685	23,30

	8610	Hospital activities	8.022	16,61
	7820	Temporary employment agency activities	7.550	73,50
	2930	Manufacture of parts and accessories of motor vehicles	5.874	11,70
	8121	General cleaning of buildings	5.464	21,78
	4711	Retail sale in non-specialized stores with food, beverages or tobacco predominating	3.773	5,3
	5610	Restaurants and mobile food service activities	3.669	28,5
	8220	Activities of call centres	3.459	43
	4923	Freight transport by road	3.214	15,57
	5630	Beverage serving activities	3.073	10,95
Principality of Asturias	8610	Hospital activities	6.422	20,65
	4711	Retail sale in non-specialized stores with food, beverages or tobacco predominating	5.217	9,56
	8411	General public administration activities	4.000	19,21
	5630	Beverage serving activities	2.560	10,46
	2410	Manufacture of basic iron and steel	2.330	12,08
	8121	General cleaning of buildings	2.285	13,6
	5610	Restaurants and mobile food service activities	2.047	22,45
	8730	Residential care activities for the elderly and disabled	1.950	20,82
	8122	Other building and industrial cleaning activities	1.651	18
	9700	Activities of households as employers of domestic personnel	1.365	8,51
Balearic Islands	5510	Hotels and similar accommodation	19.736	30,31
	5610	Restaurants and mobile food service activities	9.399	13,6
	8610	Hospital activities	8.059	26,49
	8411	General public administration activities	6.141	27,19
	4100	Construction of buildings	6.129	13
	4711	Retail sale in non-specialized stores with	5.078	8,44

		food, beverages or tobacco predominating		
	5630	Beverage serving activities	4.740	8,32
	8121	General cleaning of buildings	4.125	16,70
	5520	Short term accommodation activities	3.034	12,56
	4751	Retail sale of textiles in specialized stores	2.408	21,6
Canary Islands	5510	Hotels and similar accommodation	26.147	43,13
	8610	Hospital activities	16.865	30,7
	8411	General public administration activities	15.899	31,59
	5610	Restaurants and mobile food service activities	11.628	18,32
	4711	Retail sale in non-specialized stores with food, beverages or tobacco predominating	10.495	7,9
	5520	Short term accommodation activities	7.221	32,30
	8121	General cleaning of buildings	7.000	18,7
	5630	Beverage serving activities	5.507	8,36
	4100	Construction of buildings	5.414	11,70
	8521	General secondary education	5.340	12,13
Cantabria	8411	General public administration activities	3.851	28,5
	7820	Temporary employment agency activities	3.612	76,53
	8610	Hospital activities	3.492	20,09
	8121	General cleaning of buildings	1.828	17,11
	5610	Restaurants and mobile food service activities	1.616	22,5
	5630	Beverage serving activities	1.383	10,97
	8220	Activities of call centres	1.170	60
	8521	General secondary education	1.170	8,38
	4791	Retail sale via mail order houses or via Internet	1.023	16,8
	8620	Medical and dental practice activities	998	32
Castile and Leon	8411	General public administration activities	9.940	16,89
	8610	Hospital activities	9.741	12,04
	8220	Activities of call centres	8.920	85,14
	8121	General cleaning of buildings	7.489	17,87

	4711	Retail sale in non-specialized stores with food, beverages or tobacco predominating	5.953	7,94
	8790	Other residential care activities	5.089	21,95
	5630	Beverage serving activities	5.023	14,59
	7820	Temporary employment agency activities	4.676	45,75
	5610	Restaurants and mobile food service activities	4.493	24,90
	2910	Manufacture of motor vehicles	4.409	10,35
Castile La Mancha	8411	General public administration activities	15.003	22,17
	8610	Hospital activities	7.820	14,89
	8121	General cleaning of buildings	5.363	19,98
	7820	Temporary employment agency activities	5.272	56,70
	5210	Warehousing and storage	5.251	60
	4100	Construction of buildings	4.479	8,94
	4711	Retail sale in non-specialized stores with food, beverages or tobacco predominating	4.267	5,06
	5610	Restaurants and mobile food service activities	4.092	32,54
	4923	Freight transport by road	3.846	14,08
	5630	Beverage serving activities	3.526	10,62
Catalonia	8610	Hospital activities	75.958	32,68
	8411	General public administration activities	70.569	32,11
	5610	Restaurants and mobile food service activities	45.084	47
	8121	General cleaning of buildings	44.117	22,8
	7820	Temporary employment agency activities	43.109	73,56
	8220	Activities of call centres	37.877	74,91
	4711	Retail sale in non-specialized stores with food, beverages or tobacco predominating	30.528	12,95
	4751	Retail sale of textiles in specialized stores	24.417	10,36
	8812	Social work activities without accommodation for the elderly and disabled	20.007	43,56
	8423	Public order and safety	19.807	65

		activities		
Extremadura	8411	General public administration activities	10.813	23,68
	8610	Hospital activities	5.921	17,95
	8121	General cleaning of buildings	2.007	19,56
	8812	Social work activities without accommodation for the elderly and disabled	1.643	18
	4100	Construction of buildings	1.610	7,48
	5630	Beverage serving activities	1.599	10,55
	4711	Retail sale in non-specialized stores with food, beverages or tobacco predominating	1.136	3,98
	5610	Restaurants and mobile food service activities	1.044	13,64
	4923	Freight transport by road	914	12,89
	0150	Mixed farming	902	8,79
Galicia	8610	Hospital activities	12.552	16,6
	8411	General public administration activities	12.137	19,12
	4711	Retail sale in non-specialized stores with food, beverages or tobacco predominating	7.498	6,4
	5630	Beverage serving activities	6.532	12
	8121	General cleaning of buildings	5.775	
	7820	Temporary employment agency activities	5.270	40,61
	9700	Activities of households as employers of domestic personnel	4.830	11,45
	5610	Restaurants and mobile food service activities	4.664	17,6
	8220	Activities of call centres	4.558	47,19
	4100	Construction of buildings	3.622	5,27
Community of Madrid	8610	Hospital activities	44.482	17,65
	8121	General cleaning of buildings	42.703	20,63
	5610	Restaurants and mobile food service activities	36.939	28,54
	4711	General public administration activities	35.475	21,94
	8220	Activities of call centres	29.212	67,3
	4711	Retail sale in non-specialized stores with food, beverages or	28.014	7,57

		tobacco predominating		
	9700	Activities of households as employers of domestic personnel	21.385	20,93
	8299	Other business support service activities n.e.c	20.351	13
	5630	Beverage serving activities	17.608	12,05
	4751	Retail sale of textiles in specialized stores	15.735	15,31
Region of Murcia	8620	Medical and dental practice activities	11.008	34,8
	0113	Growing of vegetables and melons, roots and tubers	7.233	28,29
	7820	Temporary employment agency activities	6.037	23,35
	4711	General public administration activities	6.003	24,41
	8121	General cleaning of buildings	4.915	25,01
	5610	Restaurants and mobile food service activities	3.672	34,02
	5630	Beverage serving activities	3.635	21,63
	4630	Wholesale of food, beverage and tobacco	3.514	13,62
	4711	Retail sale in non-specialized stores with food, beverages or tobacco predominating	3.228	8,96
	4923	Freight transport by road	2,914	14,28
Chartered Community of Navarre	8610	Hospital activities	14.408	46,16
	8411	General public administration activities	7.408	57,01
	2930	Manufacture of parts and accessories of motor vehicles	5.782	18,2
	7820	Temporary employment agency activities	5.558	94,19
	8521	General secondary education	3.909	19,86
	8121	General cleaning of buildings	3.520	31,17
	1030	Processing and preserving of fruit and vegetables	3.256	38,37
	2910	Manufacture of motor vehicles	3.195	17,07
	8812	Social work activities without accommodation for the elderly and	3.151	76,35

		disabled		
	9700	Activities of households as employers of domestic personnel	2.382	23,71
La Rioja	8610	Hospital activities	1.698	18,25
	8611	General public administration activities	1.612	22,76
	1520	Manufacture of footwear	1.463	38,2
	8121	General cleaning of buildings	1.290	29,05
	1030	Processing and preserving of fruit and vegetables	1.217	27,4
	7820	Temporary employment agency activities	1.060	71,12
	2930	Manufacture of parts and accessories of motor vehicles	1.006	12,1
	5630	Beverage serving activities	973	14,3
	1102	Manufacture of wines	962	13,09
	0113	Growing of vegetables and melons, roots and tubers	907	21,5
Valencia	8610	Hospital activities	24.063	21,57
	8611	General public administration activities	23.311	24,51
	5610	Restaurants and mobile food service activities	16.234	20,93
	8121	General cleaning of buildings	12.758	16,04
	4711	Retail sale in non-specialized stores with food, beverages or tobacco predominating	11.239	6,14
	4630	Wholesale of food, beverage and tobacco	7.300	8,81
	5630	Beverage serving activities	8.732	6,49
	4923	Freight transport by road	7.300	11,49
	7820	Temporary employment agency activities	7.126	29,24
	4100	Construction of buildings	6.663	6,21
Basque Country	8610	Hospital activities	22.704	30,48
	8611	General public administration activities	15.565	27,16
	8121	General cleaning of buildings	13.043	29,20
	8521	General secondary education	12.519	14,51
	8812	Social work activities without accommodation for the elderly and	8.760	14,75

		disabled		
	5610	Restaurants and mobile food service activities	8.419	29,01
	4711	Retail sale in non-specialized stores with food, beverages or tobacco predominating	6.625	6,6
	9700	Activities of households as employers of domestic personnel	6.284	18,55
	2591	Forging, pressing, stamping and roll-forming of metal; powder metallurgy	6.086	10,29
	5630	Beverage serving activities	5.842	18,02

STROBE Statement—Checklist of items that should be included in reports of *cohort studies*

	Item No	Recommendation	Page No
Title and abstract	1	(a) Indicate the study's design with a commonly used term in the title or the abstract (b) Provide in the abstract an informative and balanced summary of what was done and what was found	1 1
Introduction			
Background/rationale	2	Explain the scientific background and rationale for the investigation being reported	3
Objectives	3	State specific objectives, including any prespecified hypotheses	4
Methods			
Study design	4	Present key elements of study design early in the paper	4
Setting	5	Describe the setting, locations, and relevant dates, including periods of recruitment, exposure, follow-up, and data collection	4-5
Participants	6	(a) Give the eligibility criteria, and the sources and methods of selection of participants. Describe methods of follow-up (b) For matched studies, give matching criteria and number of exposed and unexposed	4-5 5
Variables	7	Clearly define all outcomes, exposures, predictors, potential confounders, and effect modifiers. Give diagnostic criteria, if applicable	5
Data sources/ measurement	8*	For each variable of interest, give sources of data and details of methods of assessment (measurement). Describe comparability of assessment methods if there is more than one group	5
Bias	9	Describe any efforts to address potential sources of bias	5
Study size	10	Explain how the study size was arrived at	5
Quantitative variables	11	Explain how quantitative variables were handled in the analyses. If applicable, describe which groupings were chosen and why	5
Statistical methods	12	(a) Describe all statistical methods, including those used to control for confounding (b) Describe any methods used to examine subgroups and interactions (c) Explain how missing data were addressed (d) If applicable, explain how loss to follow-up was addressed (e) Describe any sensitivity analyses	5 5 5 5 5
Results			
Participants	13*	(a) Report numbers of individuals at each stage of study—eg numbers potentially eligible, examined for eligibility, confirmed eligible, included in the study, completing follow-up, and analysed (b) Give reasons for non-participation at each stage (c) Consider use of a flow diagram	5 5 -
Descriptive data	14*	(a) Give characteristics of study participants (eg demographic, clinical, social) and information on exposures and potential confounders (b) Indicate number of participants with missing data for each variable of interest (c) Summarise follow-up time (eg, average and total amount)	5 5 5
Outcome data	15*	Report numbers of outcome events or summary measures over time	6

1	Main results	16	(a) Give unadjusted estimates and, if applicable, confounder-adjusted estimates and their precision (eg, 95% confidence interval). Make clear which confounders were adjusted for and why they were included	6-7
2				
3			(b) Report category boundaries when continuous variables were categorized	
4			(c) If relevant, consider translating estimates of relative risk into absolute risk for a meaningful time period	
5	Other analyses	17	Report other analyses done—eg analyses of subgroups and interactions, and sensitivity analyses	6-7
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11	Discussion			
12	Key results	18	Summarise key results with reference to study objectives	7
13	Limitations	19	Discuss limitations of the study, taking into account sources of potential bias or imprecision. Discuss both direction and magnitude of any potential bias	2
14				
15	Interpretation	20	Give a cautious overall interpretation of results considering objectives, limitations, multiplicity of analyses, results from similar studies, and other relevant evidence	7-9
16				
17	Generalisability	21	Discuss the generalisability (external validity) of the study results	7-9
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21	Other information			
22	Funding	22	Give the source of funding and the role of the funders for the present study and, if applicable, for the original study on which the present article is based	10
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26 *Give information separately for exposed and unexposed groups.

27
28 **Note:** An Explanation and Elaboration article discusses each checklist item and gives methodological background and
29 published examples of transparent reporting. The STROBE checklist is best used in conjunction with this article (freely
30 available on the Web sites of PLoS Medicine at <http://www.plosmedicine.org/>, Annals of Internal Medicine at
31 <http://www.annals.org/>, and Epidemiology at <http://www.epidem.com/>). Information on the STROBE Initiative is
32 available at <http://www.strobe-statement.org>.
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