Data in Brief 20 (2018) 1004–1017

Contents lists available at ScienceDirect

Data in Brief

journal homepage: www.elsevier.com/locate/dib

Data Article

Data on the main working conditions with influence on the development of hearing loss amongst the occupational population in Spain

Jesús P. Barrero [a], S. García-Herrero [a], M.A. Mariscal [a,*], J.M. Gutiérrez [b]

[a] University of Burgos, Spain
[b] University of Cantabria, Spain

ARTICLE INFO

Article history:
Received 23 July 2018
Received in revised form
14 August 2018
Accepted 21 August 2018
Available online 5 September 2018

ABSTRACT

Obtaining reliable and objective data on certain working conditions is necessary to analyse the causes and variables that can influence the development of hearing loss amongst the working population. Objective occupational data have been collected from a heterogeneous sample of 1418 workers in Spain, see "How activity type, time on the job and noise level on the job affect the hearing of the working population. Using Bayesian networks to predict the development of hipoacusia" (Barrero et al., 2018) [1]. Among the main factors analysed are the noise levels to which these workers are exposed, measured at their respective workstations, and the assessment of their hearing status, evaluated by audiometric medical tests. These factors provide information to predict the development of hypoacusia.

Specifications Table

Subject area	Population health
Specific subject area	Occupational health and safety

DOI of original article: https://doi.org/10.1016/j.ssci.2018.07.011
* Corresponding author.
E-mail address: mariscal@ubu.es (M.A. Mariscal).

https://doi.org/10.1016/j.dib.2018.08.054

Type of data	Tables, figures
How data were acquired	Sound level meters, noise dosimeters and audiometric medical testing
Data format	Filtered, processed
Experimental factors	Occupational conditions from 1418 workers.
Experimental features	Noise levels exposure and audiometric medical tests
Data location	Spain
Data accessibility	Data is with this article.
Related research article	Jesús P.Barrero, Susana García-Herrero, Miguel A. Mariscal and J.M. Gutierrez, How activity type, time on the job and noise level on the job affect the hearing of the working population. Using Bayesian networks to predict the development of hypoacusia. Safety Science, Volume 110, Part A, December 2018, pp. 1–12. https://doi.org/10.1016/j.ssci.2018.07.011.

Value of data

- The dataset shows the average noise levels to which workers from different sectors of activity are exposed and can be used to match data from other countries or sectors of activity.
- The dataset can be used to show different aspects of occupational exposure to noise, such as daily noise exposure (hours), number of years in the workplace, noise exposure in previous employment, noise protection system based on hearing protection or time limitation.
- The dataset can be useful for researchers to see the results of the audiometric studies carried out on workers. The workers hearing health has been compared to international indices of auditory assessment.
- The dataset provides information for future health and safety at work studies, with special interest for Health and Safety Technical Experts and medical professionals.

1. Data

Medical and occupational environment data were collected over a period of approximately two years from a sample of 1418 workers from different activity sectors, ages and nationalities, who were working in the provinces of Burgos and Valladolid, Spain. Ingemédica S.L., an occupational health and safety consultancy, has collaborated with the University of Burgos to collect the data.

The dataset was designed to answer the basic questions of how and why some workers develop hypoacusia. The variables are classified as demographic and personal factors (meaning those that characterise a specific population) occupational factors (those related to the working conditions in different companies) and non-occupational factors (those that are manifested outside the work environment) [1].

Data from 1418 workers have been obtained including demographic/personal data (age, gender, height, weight, nationality, blood pressure, etc), data on occupational factors (the type of sector or activity of the company where these people work, job title, noise levels, daily exposure, number of years at work, the use or not of hearing protection, whether or not there is any limitation of temporary exposure to noise, occupational exposure to noise in previous employment, exposure to ototoxic agents) and data on non occupational factors (pre-existing auditive diseases, and the use of medicines that may have otic side effects).

All the data were anonymised and collected with the consent of the companies and individuals involved.

See Tables 1–32 and Figs. 1 and 2.

2. Experimental design, materials and methods

The necessary data has been achieved through two main lines of work. The first, focused on obtaining the data referring to the noise levels at the workstations, has been carried out using sound level meters and noise dosimeters. These measurements have been made by qualified occupational hygienists. The second line of work was consisted of carrying out medical tests which included audiometries and questionnaires. The questionnaire, based on Occupational Health Surveillance Protocols, was developed by the Department of Health and Welfare of the Junta de Castilla y León and authorised by the Ministry of Health and Consumer Affairs of Spain [2]. In compliance with the Health Surveillance Protocols and the current Spanish regulations on Health and Safety at work [3,4] the audiometric tests were carried out by specialised personnel (occupational physicians and nurses) using audiometers and soundproofed cabins.

This section considers the frequencies and categories associated with the main occupational factors selected as influential in the development of hearing loss:

2.1. Noise level

2.1.1. Noise level of the sample

The results of the noise levels were divided into four groups, in keeping with Spanish Royal Decree 286/2006. The groups are: Low (LAeq.d $<$ 80 dB and LPeak $<$ 135 dB), Moderate (LAeq.d $\geq$ 80 dB $<$ 85 dB and LPeak $\geq$ 135 dB $<$ 137 dB), High (LAeq.d $\geq$ 85 dB $<$ 87 dB and LPeak $\geq$ 137 dB $<$ 140 dB) and Very High (LAeq.d $\geq$ 87 dB and LPeak $\geq$ 140 dB). The percentage frequency of each would be 30.68%, 46.54%, 7,69% and 15.09%, respectively.

2.1.2. Noise level by activity sector

The sample has been divided into the traditional economic sectors which are: Construction, Agriculture/Livestock, Industry and Services. The percentage frequency of each would be 54.16%, 0.35%, 22.85% and 22.64%, respectively.

- **Sector: Construction.**

The noise level distribution for the sample related to the construction sector can be seen in Table 1.

Table 1
Noise level distribution in the construction sector. Source: Compiled by authors.

Group	Noise level sector: construction (dB)	# of cases	Frequency %
1. Low	$L_{Aeq,d} < 80$ and $L_{Peak} < 135$	99	12.89
2. Moderate	$L_{Aeq,d} \geq 80 < 85$ and $L_{Peak} \geq 135 < 137$	484	63.02
3. High	$L_{Aeq,d} \geq 85 < 87$ and $L_{Peak} \geq 137 < 140$	51	17.45
4. Very high	$L_{Aeq,d} \geq 87$ and $L_{Peak} \geq 140$	134	6.64
	Total	768	100

- **Sector: Agriculture/Livestock**

Table 2 shows the noise level distribution related to the sector of Agriculture/Livestock.

Table 2
Noise level distribution in Agriculture/Livestock sector. Source: Compiled by authors.

Group	Noise level sector: agriculture/livestock (dB)	# of cases	Frequency %
1. Low	$L_{Aeq.d} < 80$ and $L_{Peak} < 135$	5	100
2. Moderate	$L_{Aeq.d} \geq 80 < 85$ and $L_{Peak} \geq 135 < 137$	0	0.00
3. High	$L_{Aeq.d} \geq 85 < 87$ and $L_{Peak} \geq 137 < 140$	0	0.00
4. Very high	$L_{Aeq.d} \geq 87$ and $L_{Peak} \geq 140$	0	0.00
	Total	5	100

- **Sector: Industry**

Noise level distribution for the industry related sample can be seen in Table 3.

Table 3
Noise level distribution in the industry sector. Source: Compiled by authors.

Group	Noise level sector: industry (dB)	# of cases	Frequency %
1. Low	$L_{Aeq.d} < 80$ and $L_{Peak} < 135$	119	36.76
2. Moderate	$L_{Aeq.d} \geq 80 < 85$ and $L_{Peak} \geq 135 < 137$	98	30.25
3. High	$L_{Aeq.d} \geq 85 < 87$ and $L_{Peak} \geq 137 < 140$	55	16.98
4. Very high	$L_{Aeq.d} \geq 87$ and $L_{Peak} \geq 140$	52	16.05
	Total	324	100

- **Sector: Services**

Noise level distribution for the sample related to the Services sector can be seen in Table 4.

Table 4
Noise level distribution in the services sector. Source: Compiled by authors.

Group	Noise level sector: services (dB)	# of cases	Frequency %
1. Low	$L_{Aeq.d} < 80$ and $L_{Peak} < 135$	212	66.04
2. Moderate	$L_{Aeq.d} \geq 80 < 85$ and $L_{Peak} \geq 135 < 137$	78	24.30
3. High	$L_{Aeq.d} \geq 85 < 87$ and $L_{Peak} \geq 137 < 140$	3	0.93
4. Very high	$L_{Aeq.d} \geq 87$ and $L_{Peak} \geq 140$	28	8.72
	Total	321	100

2.1.3. Noise level by job title

Table 5 shows how the sample is distributed according to the different jobs analysed.

Table 5
Distribution by job title. Source: Compiled by authors.

Group	Job title	# of cases	Frequency %
1	Administration	106	7.48
2	Warehouse operative	18	1.27
3	Carpenter	18	1.27
4	Sales representative	27	1.90
5	Driver (vehicles, construction machinery, forklift)	209	14.74
6	Shop assistant/Recepcionist	29	2.05
7	Nurse/Assistant nurse	5	0.35
8	Electrician/Technician/Installer	46	3.24
9	Section Manager/Site manager	76	5.36
10	Plumber	33	2.33
11	Livestock farmer	3	0.21
12	General Manager/Director	14	0.99
13	Engineer/Architect	72	5.08
14	Gardener	42	2.96
15	Cleaner	7	0.49
16	Maintenance worker	14	0.99
17	Machine operator (lathe, milling machine)	23	1.62
18	Mechanic	60	4.23
19	Assembler	11	0.78
20	Services (Waiter, hairdresser…)	30	2.12
21	Construction worker	304	21.44
22	Industry worker	2	0.14
23	Food production worker	23	1.62
24	Concrete Production worker	23	1.62
25	Manufacturing industry worker	20	1.41
26	Paper production worker	23	1.62
27	Chemical production worker	92	6.49
28	Delivery driver	10	0.71
29	Welder	75	5.29
30	Security guard	3	0.21
	Total	1418	100

- **Job title: Administration**

Table 6 shows the noise level distribution for the administration personnel.

Table 6
Noise level distribution for the administration personnel. Source: Compiled by authors.

Group	Noise level workstation administration (dB)	# of cases	Frequency %
1. Low	$L_{Aeq.d} < 80$ and $L_{Peak} < 135$	106	100
2. Moderate	$L_{Aeq.d} \geq 80 < 85$ and $L_{Peak} \geq 135 < 137$	0	0.00
3. High	$L_{Aeq.d} \geq 85 < 87$ and $L_{Peak} \geq 137 < 140$	0	0.00
4. Very high	$L_{Aeq.d} \geq 87$ and $L_{Peak} \geq 140$	0	0.00
	Total	106	100

- **Job title: Warehouse operative**

The noise level distribution for warehouse operatives is presented in Table 7.

Table 7
Noise level distribution for the warehouse operatives .Source: Compiled by authors.

Group	Noise level workstation warehouse in dB	# of cases	Frequency %
1. Low	$L_{Aeq,d} < 80$ and $L_{Peak} < 135$	18	100
2. Moderate	$L_{Aeq,d} \geq 80 < 85$ and $L_{Peak} \geq 135 < 137$	0	0.00
3. High	$L_{Aeq,d} \geq 85 < 87$ and $L_{Peak} \geq 137 < 140$	0	0,00
4. Very high	$L_{Aeq,d} \geq 87$ and $L_{Peak} \geq 140$	0	0,00
	Total	18	100

- **Job title: Carpenter**

Table 8 shows the noise level distribution for the carpenter's workstation.

Table 8
Noise level distribution for the carpenter's workstation. Source: Compiled by authors.

Group	Noise level carpenter's workstation (dB)	# of cases	Frequency %
1. Low	$L_{Aeq,d} < 80$ and $L_{Peak} < 135$	0	0.00
2. Moderate	$L_{Aeq,d} \geq 80 < 85$ and $L_{Peak} \geq 135 < 137$	4	22.22
3. High	$L_{Aeq,d} \geq 85 < 87$ and $L_{Peak} \geq 137 < 140$	0	0,00
4. Very high	$L_{Aeq,d} \geq 87$ and $L_{Peak} \geq 140$	14	72.78
	Total	18	100

- **Job title: Sales representative**

The noise level distribution for the sales representative position can be seen in Table 9.

Table 9
Noise level distribution for the sales manager position. Source: Compiled by authors.

Group	Noise level workstation sales representative in dB	# of cases	Frequency %
1. Low	$L_{Aeq,d} < 80$ and $L_{Peak} < 135$	25	92,59
2. Moderate	$L_{Aeq,d} \geq 80 < 85$ and $L_{Peak} \geq 135 < 137$	1	3,70
3. High	$L_{Aeq,d} \geq 85 < 87$ and $L_{Peak} \geq 137 < 140$	0	0,00
4. Very high	$L_{Aeq,d} \geq 87$ and $L_{Peak} \geq 140$	1	3,70
	Total	27	100

- **Job title: Driver**

Table 10 shows the noise levels for the driver position.

Table 10
Noise level distribution for the driver position. Source: Compiled by authors.

Group	Noise level driver (vehicles, construction machinery, etc) in dB	# of cases	Frequency %
1. Low	$L_{Aeq,d} < 80$ and $L_{Peak} < 135$	10	4.78
2. Moderate	$L_{Aeq,d} \geq 80 < 85$ and $L_{Peak} \geq 135 < 137$	52	24.88
3. High	$L_{Aeq,d} \geq 85 < 87$ and $L_{Peak} \geq 137 < 140$	19	9.09
4. Very high	$L_{Aeq,d} \geq 87$ and $L_{Peak} \geq 140$	128	61.24
	Total	209	100

- **Job title: Shop assistant/receptionist**

The noise level distribution for the shop assistant/receptionist is shown in Table 11.

Table 11
Noise level distribution for the shop assistant/receptionist. Source: Compiled by authors.

Group	Noise level shop assistant/recepcionist (dB)	# of cases	Frequency %
1. Low	$L_{Aeq.d} < 80$ and $L_{Peak} < 135$	25	86.21
2. Moderate	$L_{Aeq.d} \geq 80 < 85$ and $L_{Peak} \geq 135 < 137$	4	13.79
3. High	$L_{Aeq.d} \geq 85 < 87$ and $L_{Peak} \geq 137 < 140$	0	0.00
4. Very high	$L_{Aeq.d} \geq 87$ and $L_{Peak} \geq 140$	0	0.00
	Total	29	100

- **Job title: Nurse/Assistant nurse**

Table 12 shows the noise level distribution for nurse/assistant nurse position.

Table 12
Noise level distribution for nurse/assistant nurse position. Source: Compiled by authors.

Group	Noise level workstation nurse/assistant nurse (dB)	# of cases	Frequency %
1. Low	$L_{Aeq.d} < 80$ and $L_{Peak} < 135$	5	100
2. Moderate	$L_{Aeq.d} \geq 80 < 85$ and $L_{Peak} \geq 135 < 137$	0	0.00
3. High	$L_{Aeq.d} \geq 85 < 87$ and $L_{Peak} \geq 137 < 140$	0	0.00
4. Very high	$L_{Aeq.d} \geq 87$ and $L_{Peak} \geq 140$	0	0.00
	Total	5	100

- **Job title: Electrician/Technician/Installer**

The noise level distribution for the electrician, technician and installer workstations is shown in Table 13.

Table 13
Noise level distribution for the Electrician/Technician/Installer workstations. Source: Compiled by authors.

Group	Noise level workstation Electrician/Technician/Iinstaller in dB	# of cases	Frequency %
1. Low	$L_{Aeq.d} < 80$ and $L_{Peak} < 135$	29	63.04
2. Moderate	$L_{Aeq.d} \geq 80 < 85$ and $L_{Peak} \geq 135 < 137$	17	36.96
3. High	$L_{Aeq.d} \geq 85 < 87$ and $L_{Peak} \geq 137 < 140$	0	0.00
4. Very high	$L_{Aeq.d} \geq 87$ and $L_{Peak} \geq 140$	0	0.00
	Total	46	100

- **Job title: Section Manager/Site manager**

Table 14 shows the noise level distribution for the workstation: Manager/Site manager.

Table 14
Noise level distribution for the Manager/Site manager workstation. Source: Compiled by authors.

Group	Noise level workstation Manager/Site manager (dB)	# of cases	Frequency %
1. Low	$L_{Aeq,d} < 80$ and $L_{Peak} < 135$	5	6.58
2. Moderate	$L_{Aeq,d} \geq 80 < 85$ and $L_{Peak} \geq 135 < 137$	50	65.79
3. High	$L_{Aeq,d} \geq 85 < 87$ and $L_{Peak} \geq 137 < 140$	6	7.89
4. Very high	$L_{Aeq,d} \geq 87$ and $L_{Peak} \geq 140$	15	19.74
	Total	76	100

- **Job title: Plumber**

The noise level distribution for the plumber's workstation can be seen in Table 15.

Table 15
Noise level distribution for plumber workstation. Source: Compiled by authors.

Group	Noise level workstation plumber in dB	# of cases	Frequency %
1. Low	$L_{Aeq,d} < 80$ and $L_{Peak} < 135$	19	57.58
2. Moderate	$L_{Aeq,d} \geq 80 < 85$ and $L_{Peak} \geq 135 < 137$	14	42.42
3. High	$L_{Aeq,d} \geq 85 < 87$ and $L_{Peak} \geq 137 < 140$	0	0.00
4. Very high	$L_{Aeq,d} \geq 87$ and $L_{Peak} \geq 140$	0	0.00
	Total	33	100

- **Job title: General Manager/Director**

The noise level distribution for the General Manager/Director is shown in Table 16.

Table 16
Noise level distribution for General Manager/Director. Source: Compiled by authors.

Group	Noise level workstation General Manager/Director (dB)	# of cases	Frequency %
1. Low	$L_{Aeq,d} < 80$ and $L_{Peak} < 135$	11	78.57
2. Moderate	$L_{Aeq,d} \geq 80 < 85$ and $L_{Peak} \geq 135 < 137$	2	14.29
3. High	$L_{Aeq,d} \geq 85 < 87$ and $L_{Peak} \geq 137 < 140$	1	7.14
4. Very high	$L_{Aeq,d} \geq 87$ and $L_{Peak} \geq 140$	0	0.00
	Total	14	100

- **Job title: Engineer/Architect**

Table 17 shows the noise level distribution for the Engineer/Architect position.

Table 17
Noise level distribution for Engineer/Architect position. Source: Compiled by authors.

Group	Noise level workstation Engineer/Architect (dB)	# of cases	Frequency %
1. Low	$L_{Aeq,d} < 80$ and $L_{Peak} < 135$	66	91.67
2. Moderate	$L_{Aeq,d} \geq 80 < 85$ and $L_{Peak} \geq 135 < 137$	6	8.33
3. High	$L_{Aeq,d} \geq 85 < 87$ and $L_{Peak} \geq 137 < 140$	0	0.00
4. Very high	$L_{Aeq,d} \geq 87$ and $L_{Peak} \geq 140$	0	0.00
	Total	72	100

- **Job title: Gardener**

The noise level distribution for the gardener position is shown in Table 18.

Table 18
Noise level distribution for gardener position. Source: Compiled by authors.

Group	Noise level gardener (dB)	# of cases	Frequency %
1. Low	$L_{Aeq.d} < 80$ and $L_{Peak} < 135$	0	0.00
2. Moderate	$L_{Aeq.d} \geq 80 < 85$ and $L_{Peak} \geq 135 < 137$	42	100
3. High	$L_{Aeq.d} \geq 85 < 87$ and $L_{Peak} \geq 137 < 140$	0	0.00
4. Very high	$L_{Aeq.d} \geq 87$ and $L_{Peak} \geq 140$	0	0.00
	Total	42	100

- **Job title: Cleaner**

Table 19 shows the noise level distribution for the cleaners.

Table 19
Noise level distribution for the cleaners position. Source: Compiled by authors.

Group	Noise level cleaner (dB)	# of cases	Frequency %
1. Low	$L_{Aeq.d} < 80$ and $L_{Peak} < 135$	4	57.14
2. Moderate	$L_{Aeq.d} \geq 80 < 85$ and $L_{Peak} \geq 135 < 137$	3	42.86
3. High	$L_{Aeq.d} \geq 85 < 87$ and $L_{Peak} \geq 137 < 140$	0	0.00
4. Very high	$L_{Aeq.d} \geq 87$ and $L_{Peak} \geq 140$	0	0.00
	Total	7	100

- **Job title: Production operator**

The job title “production operator” includes several job titles, e.g. construction worker, industry worker, food production worker, concrete production worker, manufacturing industry worker, paper production worker and chemical production worker. Table 20 shows the noise level distribution for the production operator.

Table 20
Noise level distribution for production operator. Source: Compiled by authors.

Group	Noise level production operator (dB)	# of cases	Frequency %
1	$L_{Aeq.d} < 80$ and $L_{Peak} < 135$	94	15.04
2	$L_{Aeq.d} \geq 80 < 85$ and $L_{Peak} \geq 135 < 137$	394	63.04
3	$L_{Aeq.d} \geq 85 < 87$ and $L_{Peak} \geq 137 < 140$	83	13.28
4	$L_{Aeq.d} \geq 87$ and $L_{Peak} \geq 140$	54	8.64
	Total	625	100

- **Job title: Delivery driver**

Table 21 shows the noise level distribution for the delivery driver position.

Table 21
Noise level distribution for the delivery driver position. Source: Compiled by authors.

Group	Noise level workstation delivery driver in dB	# of cases	Frequency %
1	$L_{Aeq.d} < 80$ and $L_{Peak} < 135$	10	100
2	$L_{Aeq.d} \geq 80 < 85$ and $L_{Peak} \geq 135 < 137$	0	0.00
3	$L_{Aeq.d} \geq 85 < 87$ and $L_{Peak} \geq 137 < 140$	0	0.00
4	$L_{Aeq.d} \geq 87$ and $L_{Peak} \geq 140$	0	0.00
	Total	10	100

- **Job title: Welder**

Table 22 shows the noise level distribution for the welder workstation.

Table 22
Noise level distribution for welder operator position. Source: Compiled by authors.

Group	Noise level welder (dB)	# of cases	Frequency %
1. Low	$L_{Aeq.d} < 80$ and $L_{Peak} < 135$	0	0.00
2. Moderate	$L_{Aeq.d} \geq 80 < 85$ and $L_{Peak} \geq 135 < 137$	73	97.33
3. High	$L_{Aeq.d} \geq 85 < 87$ and $L_{Peak} \geq 137 < 140$	0	0.00
4. Very high	$L_{Aeq.d} \geq 87$ and $L_{Peak} \geq 140$	2	2.67
	Total	75	100

- **Job title: Security guard**

Table 23 shows the noise level distribution for the security guard position.

Table 23
Noise level distribution for the security guard position. Source: Compiled by authors.

Group	Noise level security guard (dB)	# of cases	Frequency %
1. Low	$L_{Aeq.d} < 80$ and $L_{Peak} < 135$	3	100
2. Moderate	$L_{Aeq.d} \geq 80 < 85$ and $L_{Peak} \geq 135 < 137$	0	0.00
3. High	$L_{Aeq.d} \geq 85 < 87$ and $L_{Peak} \geq 137 < 140$	0	0.00
4. Very high	$L_{Aeq.d} \geq 87$ and $L_{Peak} \geq 140$	0	0.00
	Total	3	100

2.2. Exposure

2.2.1. Daily noise exposure (hours)

Table 24 shows the daily noise exposure in hours.

Table 24
Daily noise exposure (hours). Source: Compiled by authors.

Group	Daily noise exposure (h)	# of cases	Frequency %
1	< 8	52	3.67
2	8	1129	79.62
3	> 8	237	16.71
	Total	1418	100

2.2.2. Years on the job

Fig. 1 shows the distribution of the sample according to the number of years the employees have been at their work locations. The average is 10.2 years, with a minimum value of 0 years and a maximum of 49 years.

This variable has been discretized as shown in Table 25.

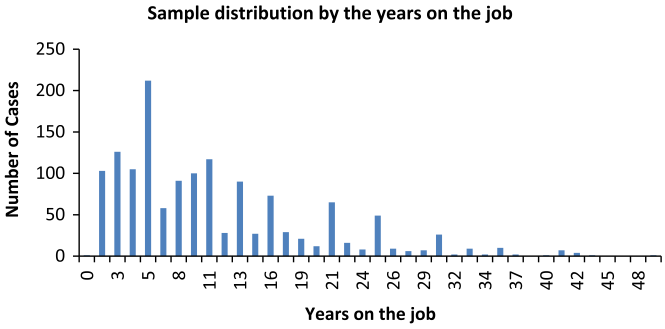

Fig. 1. Sample distribution by the years on the job. *Source*: Compiled by authors.

Table 25
Sample distribution by years on the job. Source: Compiled by authors.

Group	Years on the job	# of cases	Frequency %
1	< 3	230	16.22
2	$\geq 3 < 6$	317	22.36
3	$\geq 6 < 10$	249	17.56
4	$\geq 10 < 16$	335	23.62
5	≥ 16	287	20.00
	Total	1418	100

2.2.3. Number of years of noise exposure in previous jobs

Fig. 2 shows the sample distribution according to the number of years of noise exposure in previous employment. The average is in 5.2 years, with a minimum value of 0 years and a maximum of 46 years.

Table 26 shows the sample distribution according to the number of years in previous employment.

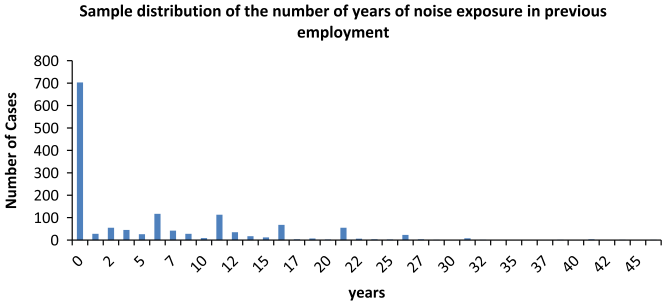

Fig. 2. Sample distribution of the number of years of noise exposure in previous employment. *Source*: Compiled by authors.

Table 26
Sample distribution of the number of years of noise exposure in previous employment. Source: Compiled by authors.

Group	Number of years of noise exposure in previous employment	# of cases	Frequency %
1	0	703	49.58
2	$\geq 0 < 3$	83	5.85
3	$\geq 3 < 6$	159	11.21
4	$\geq 6 < 10$	108	7.62
5	≥ 10	365	26.00
	Total	1418	100

2.2.4. Noise protection system based on hearing protection

The sample is divided into two unique groups, depending on whether or not the worker uses hearing protection as a noise protection system. The results of the distribution can be seen in Table 27.

Table 27
Distribution of the sample by the use of hearing protection. Source: Compiled by authors.

Group	Use of hearing protection	# of cases	Frequency %
1	No	986	69.53
2	Yes	432	30.47
	Total	1418	100

2.2.5. Noise protection system based on time limits

Table 28 shows the sample distribution by noise protection based on time limits.

Table 28
Noise protection system based on time limits. Source: Compiled by authors.

Group	Noise protection system based on time limits	# of cases	Frequency %
1	No	1261	88.93
2	Yes	157	11.07
	Total	1418	100

2.2.6. Occupational exposure to ototoxic agents

The sample has been divided into two groups, depending on whether the worker has been exposed to ototoxic agents or not, such as: carbon monoxide, lead, benzene and mercury. The results of their distribution in the two groups can be seen in Table 29.

Table 29
Sample distribution by exposure to ototoxic agents. Source: Compiled by authors.

Group	Occupational exposure to ototoxic agents	# of cases	Frequency %
1	No	1338	94.36
2	Yes	80	5.64
	Total	1418	100

2.3. The sample's auditory health. Results of the audiometric study

Below are the overall results of the hearing tests performed. Sal, ELI and Global Hearing Loss Percentages have been used to analyse these results.

2.3.1. SAL index

The SAL index (Speech Average Loss), evaluates the conversation frequencies in 500 Hz, 1000 Hz and 2000 Hz to then perform the arithmetic mean of the hearing loss in decibels of those frequencies. The SAL index classifies the results from A to G depending on the worsening of hearing; SAL-A meaning both ears are within normal limits and SAL-G total deafness [2]. Table 30 shows the distribution of the sample in accordance with the SAL index.

Table 30
Sample distribution according to SAL index. Source: Compiled by authors.

Group	SAL index	# of cases	Frequency %
1	A. Normal hearing	972	68.55
2	B. Nearly normal hearing	419	29.55
3	C. Slight deterioration	24	1.69
4	D. Serious deterioration	1	0.04
5	E. Severe deterioration	2	0.07
6	F. Heavy deterioration	0	0
7	G. Total deafness in both ears	0	0
	Total	1418	100

2.3.2. ELI index

The ELI index (Early Loss Index) is calculated by subtracting a correction value for presbycusis from the loss in the frequency of 4000 Hz (weighting the loss by age and by gender). The frequency of 4000 Hz is evaluated and the acoustic traumas are classified according to an increasing scale A-B-C-D-E, from higher to lower auditory capacity, assessing the two ears individually [2].

Table 31 shows the sample distribution according to the ELI Index.

Table 31
Sample distribution according to ELI Index. Source: Compiled by authors.

Group	ELI index	Right ear		Left ear	
		# of cases	Frequency %	# of cases	Frequency %
1	A. Normal excellent	590	41.61	477	33.64
2	B. Normal good	271	19.11	285	20.10
3	C. Normal	221	15.59	240	16.93
4	D. Suspected deafness	116	8.18	148	10.44
5	E. Clear indication of deafness	220	15.00	268	19.00
	Total	1418	100	1418	100

2.3.3. Percentage of Global Hearing Loss

This variable has been classified by establishing groups in Percentage of Hearing Loss intervals. This index considers each ear individually (monaaural) and both ears collectively (binaural) [2].

With respect to the Hearing Loss Percentage Index for the Right Ear, the average is a hearing loss of 1.45%, with a minimum value of 0% and a maximum value of 88.13%. In reference to the Hearing Loss Percentage Index for the Left Ear, the average is 1.66%, with a minimum value of 0% and a maximum

value of 91.12%. Once it has been discretized and divided into groups. Finally, with respect to the Binaural Percentage Index, the average is 1%, with a minimum value of 0% and a maximum of 67%. Table 32 shows the results obtained.

Table 32
Sample distribution according to Hearing Loss Percentage Index. Source: Compiled by authors.

Group	% Hearing loss	Right ear		Left ear		Binaural	
		# of cases	Frequency %	# of cases	Frequency %	# of cases	Frequency %
1	0	1299	91.61	1256	88.58	1221	86.11
2	$\geq 0 < 15$	70	4.94	103	7.26	163	11.50
3	$\geq 15 < 30$	32	2.26	35	2.47	28	1.97
4	$\geq 30 < 45$	6	0.42	16	1.13	4	0.28
5	≥ 45	11	1	8	1.00	2	0.00
	Total	1418	100	1418	100	1418	100

Transparency document. Supporting information

Transparency data associated with this article can be found in the online version at http://dx.doi.org/10.1016/j.dib.2018.08.054.

References

[1] Barrero, et al., How activity type, time on the job and noise level on the job affect the hearing of the working population. Using Bayesian networks to predict the development of hypoacusia, Saf. Sci. 110 (Part A) (2018) 1–12. https://doi.org/10.1016/j.ssci.2018.07.011.
[2] M. Uña, E. García, A. Betegón, Protocolo de vigilancia sanitaria específica para los/las trabajadores/as expuestos al ruido, Centro de Publicaciones de la Secretaría Técnica del Ministerio de Sanidad y Consumo, Madrid (2000) 1–77.
[3] Ley31/1995, Ley de Prevención Riesgos Laborales, 31/1995, de 8 de noviembre, 1995.
[4] RD 286, RD REAL DECRETO 286/2006, de 10 de marzo, sobre la protección de la salud y la seguridad de los trabajadores contra los riesgos relacionados con la exposición al ruido, 2006.