DOI :10.1093/occmed/kqad116

Original Paper

AQ1 AQ2 AQ3 AQ4Occupational injuries in workers of a Spanish bank

L. Reinoso-Barbero [1,2,3], L. Pardillos [1], M.-C. Romero-Paredes [4], R. Díaz-Garrido [2], J.-M. Mendiguren [2], A. Gieco [3] and F. Gómez-Gallego [5]

[1]SUMMA112, Medical Emergency Service, Comunidad de Madrid, Madrid, Spain,

[2]Occupational Medicine Service, Grupo Banco Santander, Madrid, Spain,

[3]UNIR Health Science Department, Universidad Internacional de La Rioja, Logroño, Spain,

[4]Maritime Health Service, Instituto Social de la Marina, Madrid, Spain.

[5]Health Science Department, Universidad Rey Juan Carlos, Madrid, Spain.AQ5

Correspondence to: L. Reinoso-Barbero, Occupational Medicine Service, Grupo Banco Santander, C/ Juan Ignacio Luca de Tena 13, 28027 Madrid, Spain. Tel: 650641019; e-mail: luis.reinoso@gruposantander.com

Background: In 2017, 69 108 work-related traffic injuries with medical leave were documented, constituting 12% of all occupational injuries (OI) in Spain.
Aims: The aim of this study was to describe OI within a Spanish bank company during 2017.
Methods: A cross-sectional analysis was conducted using the company's mandatory OI records, presenting data in both absolute (*n*) and relative (%) frequencies. The chi-square test was employed for comparisons.
Results: Among the company's 10 399 employees, 176 OI cases were recorded. Most were minor musculoskeletal incidents, with one severe myocardial infarction and one mild anxiety episode. Lower limb injuries were the most prevalent. Injuries of the trunk ($P < 0.001$), neck ($P < 0.05$), and upper limbs ($P < 0.001$) were linked to workplace factors. Approximately 62% of OI occurred outside the workplace and resulted in more extended medical leave ($P < 0.01$). Traffic-related injuries accounted for 39% of OI cases and caused 49% of days lost due to OI ($P < 0.001$).Female gender ($P < 0.001$) and age over 40 years ($P < 0.05$) were significantly associated with OI.
Conclusions: In our study, musculoskeletal injuries were the most common, with a single cardiovascular event being the most severe. OI occurring outside the workplace was more frequent and led to longer medical leaves. Notably, traffic-related injuries were especially significant, exceeding official statistics 4-fold.

Introduction

Occupational injuries (OI) in Spain are currently defined as 'Any bodily injury suffered by an individual within their workplace or as a result of their work activities as an employee for others' [1].

OI can be categorized based on the location of occurrence: ‘on the workplace premises’, ‘while commuting or on a work-related mission during the workday’, and ‘during the journey to and from work *(in itinere)’.*

Spanish Law 31/95 [2] outlines in Article #23 the responsibilities of companies, which include maintaining a record of OI and occupational illnesses that result in more than one day of work absence and reporting these cases to the Occupational Health authorities.

Article 16.3 states that companies investigate the causes of any situations that pose a risk to workers’ health [2].

Technical note 924, issued by the Occupational Health and Hygiene National Institute [3], outlines the procedures and variables to be recorded. The survey and communication are formally conducted through the ‘delt@’ electronic system, following the guidelines set forth in Order TAS 2926/2002.

The Spanish Ministry of Labour, through its General Social and Occupational Statistics Secretary, provides labour injury rate indicators categorized by productive sectors. In the banking sector for the year 2017, the frequency index was 2.3, severity was 0.08, incidence was 329.7 and the average duration was 35.6 [4]AQ6. Within the broader Spanish labour population, office administrative staff stands out as one of the employee groups most affected by traffic-related OI [5].

In 2017, there were 69 108 work-related traffic injuries resulting in medical leave, constituting 12% of all OI [6]. Similar percentages were observed in Spain in 2013 (11%) and 2010 (10%), aligning closely with the annual average between 1997 and 2006 in France [5–8]. Notably, 73% of these injuries occurred during the commute (50 475), while the remaining 27% (18 633) transpired during work-related travel or missions [6].

This paper aims to describe medical emergencies (traumatological, cardiovascular and psychological) treated as OI among staff at a Spanish bank in 2017. Secondary objectives include categorizing these emergencies by location (workplace, work-related travel and commute), gender and age of the injured individuals, and the resulting impact on medical leave.

Methods

We conducted a descriptive study of medical emergencies treated as OI from 1 January to 31 December 31 2017, within a Spanish banking sector company. The workforce was dynamic, with employees joining and departing during the year. At the study’s outset, the company had 10 009 employees, and an additional 390 were hired throughout the year. All employees were full-time, non-shift workers. Among the 10 390 employees, 57% were male and 43% were female, with a mean age of 40.7 years, aligning with the averages seen in other banking sector companies [4,9,10].

The Data Display Screen (DDS) protocol, part of the Health Ministry’s specific health surveillance, was typically applied to these workers [11]. In 2017, 99% of them shared a similar occupational risk profile. Less than 1% had different characteristics, such as those related to maintenance, drivers,

cooks, waiters or medical roles. Office staff primarily engaged in intellectual tasks, customer service, DDS use and commercial work, both within their branch offices and the headquarters. Commercial tasks conducted outside the workplace occasionally involved the use of personal vehicles.

For our study, we used the 'Medical emergencies for occupational injuries GBP, Version 2.0', an Access database. This database systematically collects and codes all medical emergencies treated as OI within the bank company. It is exclusively maintained, used and managed by the company's Prevention Service. The database includes the following variables: injury count, ID nº, gender, age in years, injury date, communication date, medical leave start date, medical discharge date, injury time, day of the week of the injury, injury location and injury causes (such as cerebrovascular injury, stroke, suffocation, robbery, pedestrian accident, falls from different and same levels, impact with immovable or movable objects, contact, electricity, chemical exposure, collisions, stroke with non-traumatic injuries, improper movements, cutting objects, body posture, psychological issues, relapses, overexertion, twisting, toxic exposure, traffic-related and stumbling).

Additionally, the database records injury severity (mild, severe or fatal). For traffic-related injuries, it captures information about the role (driver, passenger, pedestrian, public transportation), distance from workplace to injury site and distance from injury site to home in meters. Work positions (director, supervisor, branch office administrative, head office administrative, driver, maintenance) are also documented. There's a section for detailing injury conditions and descriptions. The database further contains information on prior preventive analyses, corrective actions taken, observations and remarks from the service members who conducted the investigations. All data are encoded in accordance with the guidelines specified in Order TAS 2926/2002 [12].

The variables included in our study were gender, age (≤40 years and >40 years; we used this category as it is close to the mean age of the studied population), year, medical leave, day of the week and hour. We also considered the location of the injury (during work-related activities or during commuting), as well as the severity and job position (head office and commercial network).

We used the OpenEpi version 3.01 open-access program [13] for epidemiological analysis. The data were stratified by gender and age. We also examined the relationship (chi-squared in dichotomous tables) between the presence or absence of medical leave and the variables. Statistical significance was deemed to be present when the *P*-value was less than 0.05.

To determine the sample size, we used the CDC software (https://www.cdc.gov/epiinfo/esp/es_index.html) with a confidence level of 95%, a margin of error of 0.3%, and an incidence rate of 314.3 per 100 000 workers in the financial services sector [9]. This analysis indicated that a minimum of 1186 employees would be needed from a population of 10 399 to achieve the desired level of precision. Similar calculations were performed for the entire employee population.

These research studies received ethical approval from the Ethics Research Committee at La Rioja International University.

Results

Within this sample, the injury rate indicators were as follows: frequency index: 2.03; severity: 0.05; incidence: 346 and mean duration: 27.42 days. A total of 176 medical emergencies were treated as OI. Among these, 174 had musculoskeletal origins (traumatological) and were classified as mild. One individual experienced a severe stroke while in the office, and one psychological crisis was categorized as mild.

Table 1 presents the distribution of the entire staff by gender and age, as well as the medical emergencies treated as OI based on their origin (traumatological, cardiovascular and psychological), and those that resulted in medical leave within the studied sample.

Table 1. Distribution of the entire staff by gender and age, medical emergencies attended as OI categorized by their origin: traumatological, cardiovascular and psychological, along with those that resulted in medical leave, in the examined sample of employees from a banking sector company in Spain during 2017

	Total, *n*	Men	Women	>40 years	≤40 years
		n (%)	*n* (%)	*n* (%)	*n* (%)
Employees	10 399	5904 (57)	4495 (43)	6391 (61)	4008 (39)
Medical emergencies as OI	176	74 (42)	102 (58)	94 (53)	82 (47)
- Traumatological origin	174	73 (42)	101 (58)	93 (53)	81 (47)
- Cardiovascular origin	1	1 (100)	0 (0)	1 (100)	0 (0)
- Psychological origin	1	0 (0)	1 (100)	0 (0)	1 (100)
Medical emergency as OI with medical leave	83	33 (40)	50 (60)	42 (50)	41 (50)

Regarding the distribution across the days of the week, Monday recorded the highest number of emergencies (25%), followed by Tuesday (24%), Wednesday (18%), Friday (18%) and Thursday (15%).

Out of the 41 cases of medical emergencies attended to as OIOI during displacement and *in itinere*, none were attributed to traffic injuries; instead, they resulted from stumbles, falls, sprains and similar incidents with no involvement of motor vehicles. Among these cases, 17 resulted in medical leave, while 24 did not.

Table 2 presents the medical emergencies attended to as OIOI categorized by the resulting medical leave, gender of the victims, the number of days of work lost and the mean duration of the leave.

Table 2. Medical emergencies attended as OI in a banking sector company in Spain during 2017, categorized by medical leave, the location of occurrence, gender, days of work lost and the mean duration of medical leave AQ7

	n (%)	Men	Women	Days lost	Mean duration (days)
Injuries with medical leave	**83 (47)**	**33**	**50**	**3297**	**39.72**
At the workplace	23 (28)	7	16	739	32.13
In displacement	13 (16)	9	4	248	19.07
In itinere	47 (57)	17	30	2,310	49.14
Injuries without medical leave	**93 (52)**	**41**	**72**		
At the workplace	43 (46)	17	26		
In displacement	16 (17)	7	9		
In itinere	34 (37)	17	17		
Total number of injuries	**176 (100)**	**74**	**102**		
At the workplace	66 (37)	26	40		
In displacement	29 (16)	15	14		
In itinere	81 (46)	33	48		

The distribution of injuries and their frequencies, expressed as absolute figures (*n*), along with the assessment of statistical significance (*p*), for the medical emergencies attended as OI in our sample, based on the affected body part, are summarized in Table 3. No statistically significant correlation was observed between lower limb injuries and the location where the OI occurred. In contrast, a significant association was found between injuries of the head, upper limb and trunk (especially neck pain, $P < 0.05$) and emergencies that took place in the workplace ($P < 0.05$, <0.001, <0.001 respectively).

Table 3. Frequency in absolute numbers (*n*) and statistical significance (*P*) of the medical emergencies attended as OI in a banking sector company in Spain during 2017, categorized by the part of the body affected and its correlation with the location where the medical emergency occurred AQ8

Affected part of the body	At the workplace		Displacement		*In itinere*		Total
	n	*P*	*n*	*P*	*n*	*P*	
Lower limbs	27	0.11	9	0.31	25	0.21	**62**
Upper limbs	26	<0.001***	5	0.33	5	<0.001***	**36**
Trunk	7	<0.001***	12	0.05	31	<0.01**	**50**
Cervical	2	<0.05*	6	0.22	22	<0.05*	**30**
Dorsal and organs[a]	2	0.05	2	0.05	0	0.26	**4**
Lumbar	3	0.26	4	0.17	9	<0.001***	**16**
Head[b]	6	<0.05*	3	0.19	19	<0.01**	**28**

Affected part of the body	At the workplace		Displacement		*In itinere*		Total
	n	*P*	*n*	*P*	*n*	*P*	
Total	**66**		**29**		**81**		**176**

[a] Including one medical emergency due to severe cardiovascular OI (myocardial infarction).

[b] Including one mild medical emergency due to psychological OI. * Stadistically significant. ** Stadistically significant. *** Stadistically significant.

Table 4 displays frequencies in absolute figures (*n*), percentages (%), and the statistical significance (*P*) of OI based on gender and the location where they occurred. A connection was observed between female gender and the overall OI emergencies attended in this sample, with no apparent influence of the location where the emergency occurred.

Table 4. Frequency in absolute number (*n*), percentage (%), and statistical significance (p) of the medical emergencies attended as OI in a banking sector company in Spain during 2017, categorized by gender and the location where the emergency occurred. *** Stadistically significant.AQ9

	Women	Men	Total	
	n 4495 (%)	*n* 5904 (%)	*n* 10 399	*P*
Medical emergency as OI	102 (58)	74 (42)	176	<0.001***
- At the workplace	40 (61)	26 (39)	66	0.29
- In displacement	14 (48)	15 (52)	29	0.12
- *In itinere*	48 (59)	33 (41)	81	0.37

Frequencies in absolute figures (*n*), percentage (%) and statistical significance (*P*) of the attended OI by age and the location where the injury occurred are displayed in Table 5. Remarkably, we discovered a significant relationship ($P < 0.001$) between individuals aged over 40 years and the total number of OI attended. Considering the location of the injury, we also identified a significant association ($P < 0.05$) between individuals under 40 years of age and OI incidents that took place during displacement outside the workplace during the workday.

Table 5. Frequency in absolute number (*n*), percentage (%) and statistical significance (*P*) of the medical emergencies attended as OI in a banking sector company in Spain during 2017, categorized by age and the location where the emergency occurred * Stadistically significant. *** Stadistically significant.AQ10

	≤40 years	>40 years	Total	
	n 4.008 (%)	*n* 6.391 (%)	*n* 10.399	*P*
Medical emergency as OI	30 (17)	146 (83)	176	<0.001***
At the workplace	9 (13)	59 (87)	68	0.34

	≤40 years	>40 years	Total	
	n 4.008 (%)	*n* 6.391 (%)	*n* 10.399	*P*
In displacement	11 (39)	17 (61)	28	<0.05*
In itinere	10 (12)	70 (87)	80	0.08

Table 6 summarizes the frequencies in absolute numbers (*n*), percentages (%), and the statistical significance (*P*) of medical emergencies attended as OI, categorized by the requirement for medical leave and the location where the injury occurred. Notably, a significant relationship ($P < 0.05$) was observed between OI *in itinere* and the need for medical leave. The correlation was even stronger ($P < 0.01$) for all OI incidents occurring outside the workplace (during displacement and *in itinere*) and the occurrence of medical leave. Furthermore, a more significant association ($P < 0.001$) was found between traffic-related OI and the requirement for medical leave.

Table 6. Frequency in absolute number (*n*), percentage (%) and statistical significance (*P*) of the medical emergencies attended as OI in a banking sector company in Spain during 2017, according to the need of medical leave and the location where the emergency occurred. * Stadistically significant. ** Stadistically significant. *** Stadistically significant.

	OI with medical leave	OI without medical leave	Total	
	n (%)	*n (%)*	*N*	*P*
Medical emergency as OI	**83 (47)**	**93 (53)**	**176**	
- At the workplace	23 (35)	43 (65)	66	0.38
- In displacement	13 (45)	16 (55)	29	0.39
-*In itinere*	47 (58)	34 (42)	81	<0.05*
-In displacement + *In itinere*	60 (55)	50 (45)	110	<0.01**
-Traffic OI	43 (62)	26 (38)	69	<0.001***

Discussion

The OI rate in our studied company aligns with the rate within the same productive sector, as reported by the Labour Ministry [4]. Musculoskeletal injuries dominated the medical emergencies treated as OI in our sample, consistent with official records [9]. Notably, there was one psychological emergency related to a clear cause–effect relationship—an anxiety crisis underwent by an employee, resulting from a robbery in the branch office. The sole severe medical emergency recorded during this period was a myocardial infarction that occurred to an employee at his workplace with no apparent job-related triggers. From a medical perspective, we consider that establishing a direct link between working in a bank branch and the development of atherosclerotic plaque over time is not clear. In Spain, myocardial infarctions are legally classified as OI due to the presumption development *iuris tantum*, shifting the burden of proof to the company to demonstrate

that the medical emergency was not work-related [14–16]. Currently, cardiovascular diseases account for 43% of OI-related deaths in Spain [9].

Regarding musculoskeletal injuries, lower limb injuries predominated in our study, likely due to the load-bearing function of the lower limbs. We did not find a significant association between the three locations where OI medical emergencies occurred and lower limb injuries. Conversely, we observed a correlation between head, upper limb, and trunk injuries (especially neck pain) and emergencies that took place within the workplace. These results align with the preventive measures outlined in the DDS protocol [11], which slightly emphasizes addressing trunk injuries, particularly in the neck area, and upper limb injuries (which were significantly elevated in our study).

In terms of the distribution of OI throughout the week, our data align with previously published papers, highlighting Monday as the day with the highest incidence of medical emergencies, tapering off during the rest of the week and increasing again on Friday [9,10]. It's worth noting that all workers in our sample were full-time, non-shift workers.

Regarding gender, our data revealed a correlation between female employees and the overall number of OI emergencies in our sample, irrespective of the location where the incident occurred. These findings are consistent with existing literature [5–7,10].

Interestingly, we observed a relationship between individuals aged over 40 years and the occurrence of OI within this company, which contrasts with the previously published studies [5, 6, 9]. However, when we separated the data based on the three locations where the emergency occurred, we found a significant association ($P < 0.01$) between individuals under 40 years of age and OI during work-related travel and outside the workplace. These results are in line with a previous study within the same population [10] and are consistent with data from other studies [5,6,9].

More than half of the medical emergencies treated as OI in our population occurred outside the workplace. Traffic-related OI were four times more frequent in our study than in the general Spanish labour population [6] and accounted for 50% of the days lost due to OI. These results may be influenced by the low number of OI occurring within bank offices, as these jobs are considered to have a low-risk profile. Thus, the proportionally higher relevance of OI occurring outside the office should be emphasized [10].

Regarding the OI types that resulted in medical leave, it is evident that there is a strong association between OI occurring outside the office and the need for medical leave in this population. This relationship becomes even more pronounced when considering traffic injuries (Table 6), as previously reported [5–7,9]. Companies often focus their efforts on preventing or evaluating injuries within their own workplaces, following the regulations set by RD 486/1997, which establish minimum safety and health conditions in workplaces [17]. However, preventive measures related to injuries occurring outside the workplace, particularly traffic-related injuries, are typically given less attention. Nevertheless, many companies have recognized this bias and have introduced mobility plans to support public organizations in reducing medical emergencies treated as OI outside

the workplace, especially traffic injuries. Traffic-related OI injuries are not outside the purview of Occupational Health Medicine and should be examined thoroughly, just as with other OI, in order to prevent them [5–8].

The main strength of our study is the highly controlled population, as companies are required to report all medical emergencies treated as OI to labour authorities, using a specific coding system that facilitates subsequent epidemiological studies [12]. This system includes all OI occurrences in 2017 within a large company with over 10 000 employees.

However, there are some limitations to our survey. One of the sub-variables, specifically the distance (in meters) from the injury location to the workplace and/or the worker's home, was not properly coded. This limitation hindered the comprehensive assessment of medical emergencies treated as OI that occurred outside the workplace, which were highly prevalent in our population, and their consequences. Another limitation is the lack of data on the time spent commuting or travelling for work. Correcting these deficiencies should be considered in future research.

The findings from this study highlight the pressing need for immediate actions to prevent new medical emergencies, especially those occurring outside the bank's premises. The measures implemented by the company so far, including initial training during onboarding, continuous online training and specific manual instructions after experiencing an OI, along with information on the company's website, appear to have fallen short of addressing the issue effectively.

In both our sample and the general Spanish labour population, traumatological injuries were the most prevalent type of OI, while cardiovascular injuries were the most severe. Lower limb injuries were predominant. However, neck pain and upper limb injuries were associated with the bank branch office. Notably, we observed a significant relationship between female gender and age over 40 years. OI occurring outside the workplace were the most frequent causing more extended medical leave, with traffic-related injuries being particularly prominent, exceeding general labour population figures 4-fold in Spain. This highlights the urgent need for Public Health authorities and Occupational Medicine organizations to develop strategies to control these types of injuries, even though they predominantly occur outside the workplace but are legally considered OI.

Key learning points

What is already known about this subject:

- In Spain, musculoskeletal injuries are the most common occupational injuries, occurring more frequently in females, young individuals and within the workplace.
- Spanish occupational law considers injuries during travel to or from work as occupational.

What this study adds:

- In our sample, occupational injuries occurring outside the workplace was more frequent and led to more extended medical leave, particularly traffic injuries, which exceeded official statistics 4-fold.
- In our sample, we observed a significant relationship between female gender and occupational injuries.
- In our sample, a significant relationship was found between individuals aged over 40 years and occupational injuries.

What impact this may have on practice or policy:

- Public Health authorities and Occupational Medicine organizations must develop strategies to prevent these injuries. Although they occur mostly outside the workplace, they are legally considered occupational injuries.
- Incorporating mobility plans within companies and promoting tax benefits for reducing occupational injuries outside the workplace can be beneficial.

Funding

This work has been funded by the 202334/2024 Grant for Translating Scientific Articles and Open Access Journal Publication Fees from the International University of La Rioja (UNIR).

Competing interests

None declared.

References

1.Texto Refundido de la Ley General de la Seguridad Social. L. Nº 1/1994 (1994). http://www.seg-social.es/wps/portal/wss/internet/Normativa (10 April 2019, date last accessed).

2.Ley de Prevención de Riesgos Laborales. L. Nº 31/1995 (1995). http://www.insht.es/InshtWeb/Contenidos/Normativa/TextosLegales/LeyPrevencion/PDFs/leydeprevencionderiesgoslaborales.pdf (10 April 2019, date last accessed).

3.Technical Note 924 from the Occupational Health and Hygiene National Institute's: Injuries Causes: Codifying and Classification. http://www.insht.es/InshtWeb/Contenidos/Documentacion/NTP/NTP/Ficheros/891a925/924w.pdf (10 April 2019, date last accessed).

4.Frequency, Severity, Incidence, and Mean Duration Indexes in the Banking Sector During 2017 in Spain. The Spanish Labor Ministry, General Social and Occupational Statistics

Secretary. http://www.mitramiss.gob.es/estadisticas/bel/welcome.htm (3 May 2019, date last accessed).

5.de Vicente-Abad MA, Zimmermann-Verdejo M, de la Orden-Rivera MV. El injurye laboral de tráfico. Arch Prev Riesgos Labor 2012;15:5–6.

6.De Vicente Abad MA, Zimmermann Verdejo M, De la Orden Rivera MV. Informe de injuryes laborales de tráfico 2017 [monography in internet]. Madrid: Instituto Nacional de Seguridad e Higiene en el Trabajo; 2017. https://www.insst.es/documents/94886/603437/Informe±de±injuryes±laborales±de±tr%C3%A1fico±2017.pdf/b7918165-a046-48a6-94a6- 82adc5241b99?t=1568985000851 (6 March 2023, date last accessed).

7.López-Ruiz M, Martínez JM, Pérez K, Novoa AM, Tobías A, Benavides FG. Impact of road safety interventions on traffic-related occupational injuries in Spain, 2004-2010. Accid Anal Prev 2014;66:114–119.

8.Charbotel B, Martina JL, Chirona M. Work-related versus non-workrelated road injuries, developments in the last decade in France. Accid Anal Prev 2010;42:604–611.

9.Occupational Injuries in Spain Annual Report, 2017. Occupational Safety and Health National Institute (INSST). https://www.insst.es/documents/94886/785254/Informe±anual±de±injuryes±de±trabajo±en±Espa%C3%B1a±2017.pdf/33c92d6b-54d8-4ebb-95c2-00cd96039784?t=1604673807760#:~:text=4-,1.,suponen%20el%2086%2C3%25 (6 March 2023, date last accessed).

10.Reinoso-Barbero L, Díaz-Garrido R, González-Gómez MF, Fernández-Fernández M, Capapé-Aguilar A, Garrido-Astray MC. Lesiones por injuryes de trabajo ocurridas en los trabajadores de una entidad bancaria (2007-13). Arch Prev Riesgos Labor 2015;18:185–191.

11.Health, Social Services and Equality Ministry. Data Display Screen Specific Health Vigilance Protocol. https://www.mscbs.gob.es/ciudadanos/saludAmbLaboral/docs/datos.pdf (10 April 2019, date last accessed).

12.ORDEN TAS/2926/2002 That Establishes New Models for Occupational Injuries Communication and Enables its Electronic Proceeding (2002).

https://www.boe.es/buscar/act.php?id=BOE-A-2002-22650 (19 November 2002, date last accessed).

13.Dean AG, Sullivan KM, Soe MM. OpenEpi: Open Source Epidemiologic Statistics for Public Health, Versión. www.OpenEpi.com, updated 2015/05/04. http://www.openepi.com/Menu/OE_Menu.htm (10 April 2019, date last accessed).

14.Reinoso-Barbero L. Marcadores biológicos emergentes, síndrome metabólico y predicción del riesgo cardiovascular en medicina del trabajo. Doctoral thesis, Universidad Europea de Madrid; 2008.

15.Reinoso L, Bandres F, Santiago C, Gómez F. Marcadores biológicos emergentes de riesgo cardiovascular en población laboral. Mapfre Medicina 2006;17:25–37.

16.Reinoso-Barbero L, Capapé-Aguilar A, Díaz-Garrido R, Santiago Dorrego C, Gómez-Gallego F, Bandrés Moya F. Fórmulas predictoras de riesgo, proteína C reactiva ultrasensible y síndrome metabólico en la prevención primaria cardiovascular de la Vigilancia de la Salud. Arch Prev Riesgos Labor 2014;17:91–96.

17.RD 486/1997 (April 14th, 1997) That Establishes the Minimum Safety and Health Conditions in the Workplaces. http://www.insht.es/InshtWeb/Contenidos/Normativa/TextosLegales/RD/1997/486_97/PDFs/realdecreto4861997de14deabrilporelqueseestablecenlas.pdf (10 April 2019, date last accessed).

Author Query/Comments

[**AQ1**: Please check the spelling and accuracy of all author names and affiliations, particularly for any co-authors. Also check that author surnames are correctly highlighted. This is to ensure that forenames and surnames are tagged correctly for online indexing. Incorrect names and affiliations may lead to an author not being credited for their work by funders, institutions, or other third parties. Make any changes directly in the text. Note that changes to your authorship list (adding or removing authors, changing designation of corresponding author) require additional approvals. Email jnls.author.support@oup.com if this is required.
Author Response: Yes]

[**AQ2**: If your manuscript has figures or text from other sources, please ensure you have permission from the copyright holder. Also ensure that the copyright owner is properly credited, for instance in the figure legends. Make any changes directly in the text. For any questions about permissions, contact jnls.author.support@oup.com.
Author Response: Yes]

[**AQ3**: Please check that funding is recorded in a separate funding section, if applicable. Use the full official names of any funding bodies and include any grant numbers. Insert any changes to the funding section directly in the text.
Author Response: Yes]
[**AQ4**: Please ensure all “conflicts of interest” (or “disclosures”) have been included for you and your co-authors, and that this section is correct. Edit the text directly if changes are required.
Author Response: Yes]
[**AQ5**: Please provide postal code for all affiliations directly in the text.
Author Response: Yes]
[**AQ6**: Please note that the reference citations in the text have been reordered to be in sequential order. Check and correct where necessary directly in the references.
Author Response: Yes]
[**AQ7**: Please update the notes or table directly to provide the meaning of the bold/italic values in Tables 2, 3, and 6.
Author Response: It can be without bold/italic mode. It thasnt matter to much]
[**AQ8**: Please insert a footnote for the designators ***, **, and * in Table 3 directly in the table.
Author Response: Yes]
[**AQ9**: Please insert a footnote for the designators *** and * in Table 4 directly in the table.
Author Response: Yes]
[**AQ10**: Please insert a footnote for the designators ***, * in Table 5 directly in the table.
Author Response: Sorry, I dont know how to write it in footnote. Sorry. I have wrotten it in upnotes. Thank you]