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EVIDENCE-BASED PUBLIC HEALTH POLICY AND PRACTICE

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Objective: To describe the activities of safety representatives in workplaces in Spain.
Methods: A specific questionnaire was applied to a representative sample of safety representatives. Activities developed during the past year, presented in a closed ended list, were categorised into three groups: information and advising; participation in occupational health management; and pressure on or negotiation with employers. Personal phone interviews were conducted from September to December 2004. A sample of 1201 interviews was attained. Crude and multivariate analyses were carried out.
Results: Spanish safety representatives were mostly men (76%), aged 26 to 45 years (62%), with fixed contracts (94%), and more than 10 years in their company (57%). On a comparable 0–10 scale, the mean (95% confidence interval (CI)) number of activities relating to information, management, and negotiation developed during the previous year were, respectively, 6.8 (6.7 to 6.9), 4.5 (4.4 to 4.7), and 4.0 (3.8 to 4.1). In multivariate analysis, workplace size (>30 workers), industrial sector, training, and support from the labour inspectorate were the factors most consistently associated with safety representatives' activity. Additionally, support from the employer was associated with participation in occupational health management (odds ratio = 2.38 (95% CI, 1.73 to 3.29)).
Conclusions: Safety representatives in Spain have a variety of activities, mostly in the category of information and advising. These are necessary but not sufficient for real participation of workers in decisions concerning their health and safety. More participation of safety representatives in occupational health management at workplaces seems to be needed, and factors associated with this participation reinforced.

Participation of workers' and their representatives in workplace safety, health management, and health decisions has no equivalent in other settings affecting people's health and welfare. Requirements on such participation exist in all EU jurisdictions, as well as in other advanced market economies in the world. Legal rights for worker's safety representatives are well defined in Spanish legislation, including the right to be adequately informed by the employer on current and future hazards and to be consulted over health and safety arrangements at the workplace.[1]

Surprisingly, the study of the determinants of effective workers' representation relating to occupational health has only rarely been included in national occupational health research agendas.[2] However, there are empirical data supporting the effectiveness of safety representatives and other arrangements for workers' participation.[3–7] A recent review of available international evidence[7] concluded that joint arrangements through which workers are represented and consulted on their health and safety are likely to have better outcomes for health and safety at work than arrangements in which management acts without consultation. Reduction in occupational poisoning deaths, lost time injuries, and sickness absence have been described in workplaces with developed worker's participation schedules.[7 8] Additionally, trade union strength in OECD countries has been inversely associated to work related injuries.[9]

Factors influencing the effectiveness of safety representatives have been one of the areas of research.[4 7 10–12] These factors include strong legislative steering, effective external inspection and control, senior management commitment to both occupational health and a participational approach, competent hazard/risk evaluation and control, effective autonomous worker representation in the workplace, external trade union support, and consultation and communication between worker representatives and their constituencies. Adequate information and training of workers and safety representatives—including knowledge of the legislative duties of all key parties, competence in dealing with complex occupational health issues, and skills in negotiating with management—have also been highlighted as relevant influences.[4] Effective training for workers and their representatives is far more than just technical training in health and safety.[7 13] It has been described as ''empowerment based health and safety training''.[14] Participatory training programmes have recently been developed in some countries in Asia, with proven usefulness in providing practical problem solving measures and including traditionally hard-to-reach settings such as small enterprises or informal sectors.[6 15]

Although consistent evidence is available on the effectiveness of worker representation in improving health and safety in workplaces, there is still a place for research in this area. There is a need to establish the extent to which existing strategies for participation have been effective.[7] In addition, disparities in the determinants of effective participation among different countries are expected to be associated with different social, labour market, and industrial relations contexts, or formal schedules for representation, and precautions over simple extrapolations of results among countries should be considered.[12 16 17] On the other hand, analysis of the situation in different countries with different contexts can provide new insights into knowledge in this area. Until now, most of the research has been done in the USA, Australia, Britain, and the Scandinavian countries.

In Spain occupational health regulations have changed substantially during the last decade. Law 31/1995, for the prevention of occupational risks—derived from the EU

Abbreviations: CC.OO, Comisiones Obreras; EU, European Union; ISTAS, Instituto Sindical de Trabajo, Ambiente y Salud; OECD, Organisation for Economic Co-operation and Development

Table 1 The distribution of Spanish safety representatives by personal and occupational characteristics

Variable	n (%)
Sex	
Men	912 (75.9)
Women	289 (24.1)
Age (years)	
16–25	25 (2.1)
26–35	304 (25.3)
36–45	445 (37.0)
46–55	354 (29.5)
56–70	73 (6.1)
Contract	
Temporary	73 (6.1)
Fixed	1128 (93.9)
Time in the company (years)	
⩽5	229 (19.1)
6–10	287 (23.9)
11–15	213 (17.7)
16–20	170 (14.1)
>20	300 (25.0)
Unknown	2 (0.2)
Time as safety representative (years)	
0–1	347 (28.9)
2–3	387 (32.2)
4–6	270 (22.5)
>6	192 (16.0)
Unknown	5 (0.4)

Survey of Spanish safety representatives (n = 1201), 2004.

Framework Directive 89/391—requires employers, for the first time in our country, to manage health and safety in a systematic, informed, and participational way. Workplaces with six or more workers should have safety representatives elected by the workforce or appointed by trade unions. However, in 2003 the Vth Spanish National Survey on Working Conditions found that 45% of the companies with six or more workers did not have a safety representative designated.[18] This problem affected small and medium sized enterprises particularly. On the other hand, Spain has rates of occupational injury that are among the highest in Europe, and there has been no significant change in the situation since the passage of Law 31/1995.[19]

This paper presents results from the first national systematic study on safety representatives in Spain. The main objectives of the investigation, which was promoted by a trade union work research institute (ISTAS, Instituto Sindical de Trabajo, Ambiente y Salud, www.ccoo.es/istas), were to investigate the following: the personal and occupational characteristics of safety representatives in Spain; the activities of the representatives in carrying out their duties; the occupational risks perceived by the representatives in their workplaces; their perceptions regarding health and safety management in their workplaces; the constraints and support perceived by the representatives in carrying out their duties; the expectations of the representatives about the information and training they should receive in order to carry out their duties; and their perceptions regarding the trade union resources available for the development of their duties. This paper focuses on a portion of the survey results, mostly analysing factors influencing the activities of the safety representatives.

METHODS

To accomplish these objectives, a specific questionnaire was designed. The questionnaire was partially based on one previously used with Spanish workers representatives.[1] It was revised by technicians from ISTAS and CC.OO (Comisiones Obreras, a major Spanish trade union) and was evaluated in a small pilot study (n = 9). Several different versions of the questionnaire were developed before the final one used in the research. The questionnaire was structured in five sections covering personal data, activities, health and safety conditions and management at the workplace, information and training, and resources and support. Most of the items were answered through closed ended responses (yes/no, and three point scales for (1) agreement: a great deal / somewhat / only a little or not at all; (2) intensity: high / moderate / low or nil; and (3) frequency: almost always / sometimes / almost never or never. The Spanish original version and an English translation of the questionnaire can be requested from the authors.

The analysis presented here mainly focuses on the levels of activity developed by safety representatives. In the questionnaire, interviewees were asked to indicate, from a closed list of 24 activities related to their rights and functions as safety representatives at the workplace, the activities they had carried out during the past year. For the analysis of factors associated with activity, these 24 activities were categorised into three groups: information and advisory (n = 9), participation in occupational health management (n = 9), and negotiation and pressure activities (n = 6). The mean number of activities in each group developed by interviewees was analysed according to the interviewees' different personal characteristics and occupational contexts. When comparing the level of activity between groups (information, management, and negotiation), the ranges for number of activities (respectively, 0–9, 0–9, and 0–6) were transformed into 0–10 ranges. By this transformation, developing one third of the activities in the information group (three activities in a range of 0–9, equivalent to 3.33 on a 0–10 scale) has a numerical value equal to developing one third of the activities in the negotiation group (two activities in a range of 0–6, equivalent to 3.33 on a 0–10 scale). Logistic regression analysis (dichotomising the outcome variable—number of activities in each group—below and above the median) was also carried out, taking into account all the explanatory variables.

In Spain there is no national level census of safety representatives. The only available source to locate such representatives for interview was a trade union register (CC.OO), giving the results of the election of safety representatives in every Spanish workplace with trade union representation. This register includes contact data for elected representatives. It was decided to obtain a total sample size of 1200 interviewees (0.8% of total of the safety representatives in Spain). The sampling process was designed to reflect the distribution of safety representatives among the largest trade unions in the country (CC.OO and UGT), and to include an equal representation of representatives from the main activity sectors (20% from each of agriculture, industry, construction, services, and public administration) and from different workplace sizes (25% from each of the following sizes: ⩽30, 31–50, 51–100, and >100 workers).

Personal phone interviews were carried out using the CATI (computer assisted telephone interview) technique. Interviewees were located through available phone numbers in the register, mostly their personal phone numbers. Interviews were conducted from September to December 2004. The mean time required for each interview was 24 minutes. By the end, 1201 safety representatives had been interviewed. These accounted for 44% of the effective contacts; 26% and 30% of effective contacts were, respectively, interrupted interviews and refusals. All the interviewees participated on a fully voluntary basis after giving their informed consent.

Table 2 Activities developed by safety representatives during the year before the interview

Variable	n (%)
Information and advising	
Answering workers' consultations	1084 (90.3)
Visiting workplaces	954 (79.4)
Examining available documentation on OH in the company	895 (74.5)
Workers' information and/or training	888 (73.9)
Asking workers for information on OH problems	839 (69.9)
Meetings and conversations with workers	769 (64.0)
Meetings or consultations with own trade union	766 (63.8)*
Consultations with occupational health service	747 (62.2)
Joint activities on OH issues with other unions	285 (23.7)
Participation in occupational OH management in the company	
Participating in risk assessment	787 (65.5)
Participating in prevention planning	730 (60.8)
Accompanying prevention technicians for risk assessments	707 (58.9)
Answering requirements from employers on OH issues	664 (55.3)
Participating in preventive activities related to temporary workers	473 (39.4)
Participating in accident investigation	441 (36.7)
Accompanying labour inspectors during their visits	409 (34.1)
Answering requirements from employers on environmental issues	336 (28.0)
Participating in preventive activities related to external workers	334 (27.8)
Negotiation and pressure actions	
Reporting OH problems to supervisors/managers	917 (76.4)
Attending Health and Safety Committee meetings	729 (60.7)†
Participating in collective agreements	679 (56.6)
Submitting a proposal to stop unsafe work activities	220 (18.3)
Reporting OH violations in the company to the labour inspectorate	171 (14.2)
Protest or complain actions (demonstrations, etc) with workers	133 (11.1)

Survey of Spanish safety representatives (n = 1201), 2004.
*Some safety representatives in the sample (n = 127, 11% of the total sample) were not affiliated to a trade union; however, some of them also refereed meetings and consultations with trade unions. Numbers and percentages include these non-unionised safety representatives.
†In Spain only workplaces with 50 or more workers are obliged to form Health and Safety Committees.
OH, occupational health.

RESULTS

The Spanish safety representatives tended to be men (76%), to be aged 26 to 45 years (62%), to have fixed contracts (94%), and to have worked for more than 10 years in their companies (57%) (table 1). On a three degree scale (high, moderate, low/none), they mostly reported a high degree of interest in occupational and safety issues (72%), a moderate level of training (68%), a moderate level of experience (57%), and a

Table 3 Mean number of activities (grouped for information and advising, occupational health management, and negotiation and pressure actions, see Table 2) on a scale 0–10 carried out by safety representatives according to personal and occupational characteristics

Variable	Information	Management	Pressure
Sex			
Male	6.8	4.7	4.0
Female	6.7	4.0	3.7
	p = 0.345	p = 0.001	p = 0.009
Age (years)			
⩽40	6.7	4.4	3.9
>40	6.9	4.7	4.0
	p = 0.165	p = 0.055	p = 0.298
Time as safety rep (years)			
⩽3	6.6	4.1	3.9
>3	7.1	5.2	4.1
	p<0.001	p<0.001	p = 0.091
Sector			
Agriculture	6.5	4.7	3.4
Construction	6.3	5.0	3.7
Industry	7.2	5.2	4.5
Services	6.6	4.2	3.9
Public administration	6.9	3.7	3.8
	p<0.001	p<0.001	p<0.001
Workplace size (No of workers)			
⩽30	6.0	3.8	3.0
31–50	6.7	4.7	3.9
51–100	7.0	4.8	4.3
>100	7.9	5.2	5.3
	p<0.001	p<0.001	p<0.001

Survey of Spanish safety representatives (n = 1201), 2004.

Table 4 Mean number of activities* on a scale 0–10 carried out by safety representatives according to their perceived level of support from different agencies

Item	Information	Management	Pressure
"The management is willing to discuss or negotiate OH issues with me"			
Always/very often	6.9	4.9	3.9
Sometimes/never	6.4	3.2	4.1
	p=0.011	p<0.001	p=0.103
"Supervisors facilitate the performance of my duties"			
Yes	6.8	5.1	3.8
No	6.7	3.8	4.1
	p=0.250	p<0.001	p=0.035
"The occupational health service facilitates the performance of my duties"			
Yes	7.0	5.3	3.8
No	6.6	3.8	4.1
	p=0.010	p<0.001	p=0.013
"I feel adequately supported and represented by my trade union"			
Fully agree	7.0	4.6	4.2
Not fully agree	6.2	4.3	3.5
	p<0.001	p=0.123	p<0.001
"Workers facilitate the performance of my duties"			
Yes	7.0	4.7	4.1
No	6.3	4.1	3.7
	p<0.001	p<0.001	p=0.008
"The labour inspectorate facilitates the performance of my duties"			
Yes	7.6	6.0	4.8
No	6.5	4.1	3.7
	p<0.001	p<0.001	p<0.001

Survey of Spanish safety representatives (n=1201), 2004.
*Grouped into "information and advice", "occupational health management", and "negotiation and pressure actions", see table 2.
OH, occupational health.

moderate level of satisfaction with the development of their duties (55%). The reported level of interest increased with workplace size (p<0.001). Safety representatives from agriculture and construction reported the highest satisfaction with the development of their duties, while representatives from public administration reported the lowest satisfaction (p = 0.030). Satisfaction increased with the number of years served as a safety representative (p = 0.014).

In table 2, activities developed by safety representatives during the year before the interview are presented. For the total sample, the mean number of activities relating to the provision of information and advice was 6.0 (SD 2.1) (minimum 0, maximum 9), with 1% of the interviewees having not developed any activity in this group. The mean number of activities relating to participation in occupational health management was 4.1 (SD 2.6) (minimum 0, maximum 9), with 11% of the interviewees having not developed any activity in this group. The mean number of activities relating to pressure and negotiation was 2.4 (SD 1.3) (minimum 0, maximum 6), with 9% of the interviewees having not developed any activity in this group. After transformation into the 0–10 ranged scale, the means (95% confidence interval) for information, management, and pressure actions were, respectively, 6.8 (6.7 to 6.9), 4.5 (4.4 to 4.7), and 4.0 (3.8 to 4.1).

In table 3 the mean of activities for each group are compared according to the characteristics of the interviewees. Some groups of activities were more common in male, older, and more experienced representatives. However, greater differences were seen in relation to economic sector and workplace size.

Table 4 shows the same analysis done on items in the questionnaire measuring perceived level of support from different agents. In general, the mean number of activities was significantly greater when support from these different agents was perceived positively, except for negotiation and pressure actions which increased when support from management, supervisors, or occupational health services was perceived as negative or unfavourable. Support from a trade union was particularly relevant for information/advisory and negotiation/pressure actions, but less significant for participation in occupational health management.

Training was also clearly related to the safety representatives' activities. The mean frequency (on the 0–10 scale) of activities in each group (information, management, pressure) was 7.2, 4.9, and 4.3, respectively, for trained representatives, and 5.3, 3.0, and 2.8 for representatives who had not been trained (p<0.001 for each category). The source of training was also analysed in relation to the frequency of activities (data not shown). Among trained representatives, those trained by the trade union showed mean frequencies for groups of activities of 7.5, 4.8, and 4.6, while those trained by other agents (mostly the employer) showed mean frequencies of 6.7, 5.1, and 3.8 (p<0.001 for each category). There was a trend to a greater participation in management activities among representatives trained by the company (5.1 *v* 4.8, p = 0.095).

A logistic regression model was constructed to evaluate the joint influence of all the explanatory variables on the number of activities carried out by safety representatives. For this objective, the dependent variables (groups of activities) were dichotomised into two categories (number of activities above or below the median). The results are presented in table 5. The only four factors that significantly influenced the level of activity (above the median) in all groups of activities (information, management, and pressure) were workplace size, industrial sector, training, and perceived support from the labour inspectorate. Regarding workplace size, it should be noted that, although the number of activities for each group was significantly greater in workplaces with more than 30 workers compared with those with smaller numbers, a gradient in relation to workplace size was only observed for activities in the information and negotiation groups. Participation of safety representatives in occupational health management did not seem to increase with increasing size of workplace above the reference level (⩽30 workers).

Safety representatives' age and support from supervisors were not significant influences in any cases. Gender showed a significant association in favour of women in relation to

Table 5 Multivariate analysis (logistic regression) of factors associated with activities carried out by the safety representatives* (dependent variable: number of activities above median – yes/no)

Explanatory variable (reference category)	Information aOR (95% CI)	Management aOR (95% CI)	Pressure aOR (95% CI)
Age (⩽40 years)			
>40 years	0.93 (0.72 to 1.21)	0.98 (0.75 to 1.28)	0.96 (0.74 to 1.26)
Sex (male)			
Female	1.21 (0.89 to 1.64)	1.12 (0.81 to 1.54)	1.83 (1.34 to 2.52)
Sector (services)			
Public administration	1.27 (0.89 to 1.82)	0.81 (0.56 to 1.17)	0.84 (0.58 to 1.21)
Agriculture	1.04 (0.89 to 1.82)	1.99 (1.22 to 3.24)	0.83 (0.51 to 1.34)
Construction	0.86 (0.58 to 1.29)	1.56 (1.02 to 2.38)	0.78 (0.52 to 1.17)
Industry	1.46 (1.02 to 2.09)	1.58 (1.09 to 2.29)	1.48 (1.03 to 2.12)
Workplace size (⩽30 workers)			
31–50 workers	1.79 (1.28 to 2.51)	1.74 (1.21 to 2.49)	1.92 (1.36 to 2.71)
51–100 workers	1.97 (1.39 to 2.78)	1.64 (1.13 to 2.38)	2.71 (1.91 to 3.84)
>100 workers	4.19 (2.94 to 5.97)	1.78 (1.24 to 2.56)	5.28 (3.69 to 7.57)
Time as safety rep (⩽3 years)			
>3 years	1.18 (0.90 to 1.55)	2.14 (1.61 to 2.85)	0.90 (0.68 to 1.18)
Training (No)			
Yes	2.60 (1.87 to 3.62)	2.40 (1.73 to 3.33)	2.51 (1.79 to 3.52)
Support from employer (No)†			
Yes	1.39 (1.01 to 1.92)	2.38 (1.73 to 3.29)	0.88 (0.64 to 1.21)
Support from supervisors (No)†			
Yes	0.83 (0.62 to 1.13)	1.25 (0.92 to 1.69)	0.97 (0.71 to 1.31)
Support from OH services (No)†			
Yes	1.20 (0.91 to 1.58)	1.89 (1.43 to 2.51)	0.84 (0.64 to 1.12)
Support from trade union (No)†			
Yes	1.39 (1.05 to 1.84)	1.22 (0.91 to 1.64)	1.36 (1.02 to 1.81)
Support from workers (No)†			
Yes	1.47 (1.11 to 1.98)	1.03 (0.76 to 1.39)	1.23 (0.92 to 1.66)
Support from labour inspectorate (No)†			
Yes	1.54 (1.14 to 2.09)	2.43 (1.74 to 3.39)	1.70 (1.25 to 2.31)

Survey of Spanish safety representatives (n = 1201), 2004.
*Information and advice, occupational health management, and negotiation and pressure actions (see table 2).
†Questions and answers as shown in table 4.
CI, confidence interval; OH, occupational health; aOR, odds ratios adjusted for all the remaining variables in the table.

pressure actions. The effect of the other factors varied depending on the group of activities considered. For example, perceived support from trade union and workers was associated with significantly increased information and pressure actions, but not with participation in occupational health management activities. However, support from the employer was highly related to management, as was support from occupational health services. Regarding economic sectors, participation in occupational health management of safety representatives in services was significantly lower than in the remaining sectors, except for public administration where there were no significant differences.

DISCUSSION

Safety representatives in Spain develop a significant number of activities related to workers' health and safety protection and promotion at the workplace. Higher levels of activity are related to information and advisory actions, mostly through a direct relationship with the workers (answering workers' consultations, visiting workplaces, or supporting workers' information and training). Activities related to direct participation in occupational health management in the company or negotiation and pressure actions are in general less frequent.

The rationale for participation of workers and their representatives in the management of occupational health is dual[12]: on the one hand, workers and representatives are able to collaborate with employers and their managers to identify and prioritise occupational health problems and to develop and implement preventive measures. On the other hand, there is a conflict of interest between workers (primarily demanding healthy workplaces) and employers (primarily looking for cost-efficient production). This conflict demands interaction and consensus among workers and employers, and should be supported by legislation and supervised and reinforced by public authorities.

Regarding the occupational health activities developed by safety representatives, information and advising activities (see table 2) are necessary but not sufficient actions for real participation of workers in decisions concerning their health and safety. Activities related to participation in occupational health management (see table 2) are more likely to reflect a genuine involvement by the safety representatives in relevant occupational health decisions. In our sample, the level of activity related to participation in management was lower than that related to informing and advising. The main support for activities related to management participation was perceived to come from employers, occupational health services, and the labour inspectorate (see table 5). Empirical data have shown that a perceived commitment by the employer to occupational health in the company improves workers' participation and behaviour towards health and safety.[20 21] In our data, we also found a positive association between the safety representatives' participation in occupational health management and perceived support from the occupational health services. Safety representatives in a Polish study considered that safety and health managers employed in the enterprise were the most influential group in developing proper occupational health management, at a level slightly above representatives of the top company management, and far above the safety representatives themselves.[22] The requirement for employers to use competent preventive services and to involve worker's representatives in decisions over their use has been emphasised.[8] In a Delphi study intended to obtain information from different agencies about the necessary skills of occupational physicians, the need to clarify whether these professionals represented the employer or the employee was also raised.[23]

Negotiation and pressure activities were those least developed by our interviewees. It has been stated that workers tend to use arguments and resources for occupational health in a cooperative rather than a conflict oriented way when interacting with management.[12] For example, the right to stop dangerous work is only used as a last resort, although it has been claimed to be a necessary symbolic power to strengthen the safety representatives' influence.[8] Eighteen per cent of our interviewees reported that they had submitted proposals to stop unsafe work (see table 2), a right established for safety representatives in Spanish legislation.

Workplace size, training, and support from the labour inspectorate are consistent factors associated with activities developed in the three categories considered for analysis. In small enterprises with 30 or fewer workers, the number of activities carried out by safety representatives was significantly smaller than in larger companies. In Spain, in workplaces of between 6 and 30 workers, workers' representatives should carry out the functions of safety representatives in addition to their other representation duties (in larger workplaces, safety representatives are elected exclusively to undertake duties relating to occupational health; smaller workplaces do not have safety representatives). This particular formula for occupational health representation in small enterprises (6–30 workers) can jeopardise the activities of safety representatives. In our data the level of activity of safety representatives showed a trend to increase with increasing workplace size (see table 5), with the exception of activities related to participation in occupational health management. We do not have a clear explanation for this finding but apparently in Spain participation in management activities is equally difficult for safety representatives in workplaces with more than 30 workers, suggesting similar attitudes of management in this regard, independent of the size of the company above that limit.

It has been shown that in small enterprises the risks are greater and the ability to control risk is lower. Fatal and serious accidents and exposure to physical and chemical hazards have been found to be more frequent, as have lower levels of inspection and enforcement.[24 25] In Spain, small and medium enterprises (fewer than 30 workers) account for 95% of the total number of workplaces, employing around 40% of the workforce in the country.[1] Alternative models of workers' participation in small enterprises have been proposed in Spain as well as in other countries, such as roving sectorial or regional safety representatives.[10 25]

Our results show that trained safety representatives are more active than untrained ones, a finding confirmed by other researchers.[4] Our data also suggest that trade union training is more effective than training from other sources. When including source of training (trade unions *v* other) in the saturated multivariate model (data not shown), this variable was significantly associated with information and advisory activities (adjusted odds ratio (aOR) = 1.75 (95% confidence interval, 1.29 to 2.38)) and with negotiation and pressure activities (aOR = 1.94 (1.43 to 2.64)). On the other hand, crude analysis showed a slightly increased participation of safety representatives in occupational health management activities when their training was not provided by the trade union (in these cases, training is mostly provided by the employer)—a finding that suggests a different relationship: employers with positive attitudes to workers' participation are more likely to provide training resources for safety representatives and also to facilitate the participation of safety representatives in occupational health management activities at the company.

Perceived labour inspection support was shown to be a positive reinforcement for every group of activities. Safety representatives are claiming for greater support from public authorities. However, labour inspectors are generally not engaged in ensuring the proper operation of worker representation in workplaces.[7 12]

This research is constrained by some limitations. First, the response rate was low (44%), although only 30% of the interviewees contacted directly refused to participate in the survey. Participation of interviewees was fully voluntary, and our sample probably included a greater proportion of safety representatives interested in and committed to their representation functions. Additionally, as interviewees were deliberately included according to previously established strata of main activity sectors and workplace sizes, our sample is not representative of the actual distribution of safety representatives in Spain, but we think it is good enough to explore factors related to the activities developed by safety representatives. In addition, the cross sectional nature of the study should be taken into account when interpreting the meaning of the relationships found; for example, are trained interviewees more active, or do more active safety representatives look for training more frequently? Our data are compatible with both explanations. In the future, longitudinal studies should help to clarify these relationships. In the same sense, qualitative case studies have already provided interesting insights.[7 26] It should also be noted that we measured the characteristics and factors associated with the activities of safety representatives, but not the effectiveness of this activity. Determinants of effective actions for the protection and improvement of workers' health and safety may be different. Our analysis is based on the perceptions of the representatives themselves. Their opinions regarding received support from the different agents (employers, workers, trade union) may differ from the actual support given by these agencies. However, self perceptions are equally relevant for people's attitudes and actions.[20] Finally, in the results obtained from multivariate models colinearity among some variables (for example, perceived support from the employer and from occupational health services) cannot be ruled out. Potential interactions were not considered either.

Occupational health is deeply related to the original development of public health.[27] Organising collective representation to protect workers' health and safety was one of the original reasons for the formation of trade unions.[8] However, nowadays public health policies are not often focused in workplaces, and trade unions do not always prioritise occupational health in their agendas and agreements. The system of workers' participation in occupational health through safety representatives is an excellent opportunity to involve workers directly in decisions affecting their health and wellbeing. Safety representatives operate in a particularly hostile setting, as they face economic interests fiercely protected by private companies, and often by public authorities as well. This research has provided some insights into the characteristics and activities of safety

What is already known

- It has been argued that safety representatives are necessary for effective protection of occupational health in the workplace. However, most of the research in this area has been done in a limited number of countries, and doubts remain about determinants of safety representatives' effectiveness in different social and labour contexts.
- In Spain regulation for the provision of safety representatives in the workplace was established in 1995, but no systematic research about their characteristics and activities has been carried out before.

What this paper adds

- This research shows that Spanish safety representatives are quite active, although their participation in activities related to occupational health management is in general low.
- Workplace size, industrial sector, safety representatives' training, and perceived support from the labour inspectorate are the most consistent and strongest factors associated with safety representatives' activities. For activities related to participation in occupational health management, perceived support from employers and from occupational health services also showed significant associations.

Policy implications

Collaboration from employers and occupational health services is needed in order to guarantee participation of workers in decisions affecting their health and safety in the workplace. Support from the labour inspectorate and training are also relevant factors associated with health and safety activities in the workplace.

representatives in Spain. These are mostly committed and active people. According to available international evidence and to our results, safety representatives need adequate training and trade union support. However, without a genuine commitment of employers towards worker participation in occupational health, and without the necessary reinforcement of public authorities to mediate in the defence of workers' rights, they will rarely have an impact on the reduction of occupational accidents and diseases.

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