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Occupational safety and health in Spain

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Abstract

Occupational Health and Safety in Spain has improved considerably over the last decade, most likely due to a new concept where an overall concept of safety culture is defined. Important changes in industrial safety, hygiene, and psychosocial factors present an optimistic panorama for the future of Spain. Despite this general improvement, according to the European Convergence Program, Spanish statistics still offer far from good safety results. In fact, according to 1997 official statistics, Spain had the highest incidence rate for nonfatal occupational accidents of all European Union (EU) countries, and occupied third place for fatal accidents. This paper summarizes the organizational structure of the Spanish National System of Health & Safety at Work, its effective health and safety laws, and statistics on the Spanish work environment obtained from III Spanish National Survey on Work Conditions (1997). The researchers hope that the findings of this work will have an impact on Spanish industry that will subsequently bring about improvements in work conditions and develop assessment and intervention models in occupational health and safety, from a theoretical position integrating environmental, human, and organizational factors.

Keywords: Occupational safety; Working conditions; Safety management; Safety research; Spain

1. Introduction

Spain, a member of the European Union (EU), is situated between 36° and 43°N latitude, with a surface area of 195,350 miles. It has a population of 40 million inhabitants, with a per capita income that exceeds 14,500 USD a year. Over the past
30 years, Spain has undergone a positive transformation that has resulted in its placement in a group of the most advanced western economies. This transformation included important structural changes as well as a movement from a highly agrarian country toward more private sector services. Its current status has made it possible to compare the Spanish productive system to other European countries in a process of sustainable development. At present, the percentage of agriculture in Spain is 4.4%, 30.2% industry, 7.5% construction, and 57.9% services sector.

Since its entry into the EU in 1986, the Spanish production system has modernized quickly in order to remain competitive, which subsequently generated employment. Despite a period of economic recession between 1990 and 1996, Spain has maintained economic growth and full employment since 1997. In 2001, with a population of 16,898,700, there were 2,192,100 unemployed persons (13%). Compared to the other EU countries, Spain generates the highest rate of employment: the average growth in employment over the last 4 years is 3.48%, as opposed to 0.9% for the EU.

This economic scenario, accompanied by growing political and social stability, has enabled Spain to fulfill the proposals laid down in the European Treaty of Maastricht, and to come closer to a real convergence with the most advanced countries in the EU. In fact, the per capita income at the present time has reached levels close to 80% of the EU average. Inside the convergence process, it was absolutely necessary to approach the improvement of safety conditions and health at work, beginning with an overhaul of the legislation in effect.

Spain has a model of social protection (Social Insurance Institution), where all Spaniards have the guarantee of health care and access to social services; these benefits cover unemployment, illness, family protection, and a public system of pensions. The financial resources of the Social Insurance Institution (SII) come from two fundamental sources: the rates and the state contribution. Both employees and employers pay their rates in proportion to their wage. The state supplements the financing of the Social Security system through contributions allocated in the budget. The total number active workers in the SII in June of 2001 was up to 15,827,451.

An old Law of Work Accidents in Spain (January 30, 1900) was the first of its kind and made companies indemnify their workers who were injured as a consequence of their work. To assure that this obligation was fulfilled, employers established the first Mutual of Work Accidents (MWA). Insurance for work accidents became obligatory with the 1932 Law of Work Accidents. This law mandated that insurance for occupational disease, accidents, and death became the employer’s obligation; employers could use an insurance company to cover this obligation. MWA, in competition with the Mercantile Companies of private insurance, carried out the management of this work accident insurance. At the moment, there are 30 MWAs registered in the database of the Spanish Ministry of Labor and Social Affairs.

The Base Law of the Spanish Social Security (December 28, 1963) established a unique system of social protection incorporating work accident insurance in the public administration. This law prohibited companies to function without insurance. However, the collaboration of MWA entities of a private but nonprofit making nature is allowed because they have purposes that are compatible to those established by the Spanish Social Insurance Institution. The collaboration of MWA with the SII allows the employers to
cover professional risks and, where appropriate, to cover the economic benefit of temporary disability for common contingencies from these entities or entity agents of the Social Insurance Institution.

Mutual of Work Accidents, from their onset at the beginning of the century, has served to develop a great part of prevention of risks at work and has been a convincing entity in proving the beneficial effects in covering professional risks, which is their main activity. MWA’s present labor risk prevention efforts, which they will have to keep differentiated, include: (a) those involved in covering work accidents and occupational diseases of the SII; the content and companies must be included in the Plan of Preventive Activities that each enterprise presents annually in agreement with the directives of the Department of Labor and Social Affairs; and (b) those included in the functions as External Services of Prevention. At the present time, all MWAs are credited to act as External Services of Prevention, on the basis of the same criteria as the rest of the private specialized companies. The Spanish Social Insurance Institution and Mutual of Work Accidents work together for the continuous improvement of labor conditions and the prevention of accidents and occupational diseases.

From the governmental side, the National Institute of Safety and Hygiene at Work (INSHT), which depends on the Spanish Ministry of Labor and Social Affairs, is the scientific and technical organ of the General Administration of the State with the mission of analyzing and studying the conditions of health and safety at work, as well as promoting and supporting their improvement. However, they must collaborate and cooperate with the local governing bodies of the 17 Spanish Autonomous Communities in this matter. In order to fulfill this mission, the INSHT carries out different functions that are framed traditionally in the following action lines: (a) technical attendance, (b) research, (c) training, (d) promotion, information, popularization, (e) development of regulations, (f) certification of protection equipment and machines, (g) technical cooperation, and (h) the Secretariat of the National Commission of Health and Safety at Work.

All Spanish health and safety organizations, both public and private, are involved in an important crusade to reduce the number of accidents and generate a true safety culture. Beginning with the analysis of the current conditions of workplaces and accident and occupational disease statistics, as is shown in this article, all efforts seem, as yet, to be insufficient. However, despite the existing gaps in health and safety, safety laws and actions of the institutions can be optimized in the medium or short-term.

2. Current organization

The Spanish legal framework is based on the Law of Prevention of Labor Risks (November 31, 1995), as a result of the process of harmonizing the health and safety laws in countries belonging to the European Union (Directive 89/391/UE). As opposed to the traditional reactive point of view toward safety prevention, this legal framework proposes a proactive approach that is not based solely on accident statistics. Traditionally, prevention has consisted of applying a quick fix immediately after the occurrence of an accident. This classical kind of pseudo-preventive intervention is always an action taking
place after the accident occurs, which only serves to mask the risk conditions but does not avoid their recurrence in the very near future.

The Spanish Law of Prevention of Labor Risks sets out to encourage an authentic preventive culture by promoting safety and health education at all levels. This undertaking involves society as a whole and constitutes one of its basic objectives. In this sense, the protection of workers against risks requires a performance at the workplace that goes beyond the mere formal fulfillment of a set of duties and obligations by the employer. The basic elements of the new approach of the Spanish Safety Law involve planning prevention from the very moment the enterprise project is designed; evaluating the risks inherent at the workplace, with a periodic update as circumstances alter; the arrangement of a coherent, overall group of correcting measures adapted to the nature of the risks detected; and feedback as to the effectiveness of these measures.

From this new approach, the principles of preventive action included in the Spanish Law of Prevention of Labor Risks (1995) are to: (a) avoid risks; (b) evaluate the risks that cannot be avoided; (c) fight the risks at their origin; (d) adapt the work to the person; (e) consider the evolution of techniques; (f) replace dangerous conditions for ones that involve little or no danger; (g) plan prevention, by looking for a coherent assembly that integrates technique, conditions and organization of work, social relations, and the influence of environmental factors at work; (h) put into progress the measures that place group protection before the individual; and (i) give all safety instructions to the workers.

Consequently, the Spanish Law establishes the general principles for the prevention of occupational risks for the protection of health and safety, the elimination or decrease of risks at work, as well as workers' information, consultations, participation, and training in preventive questions.

The Spanish National System of Health & Safety at Work has an important and complex organizational structure, as is shown in Fig. 1. The Labor Administration (1) develops norms and legislation; promotes health and safety at work; trains and informs about risks; promotes research into safety; watches over the application of Spanish Safety Laws; applies sanctions; and processes official statistics on occupational accidents and diseases. These tasks are developed at a national and regional level. The Health Administration (2) focuses on health matters as design tools and systems of health pursuit at work, or trains sanitary personnel in health and safety in close collaboration with the Labor Administration. Social Interlocutors (3) such as the Employers Federation and Trade Unions, participate in the system as fundamental elements for negotiation and subscription of union agreements on health and safety matters. Obligatory Insurance Organization (4) includes the Spanish Social Insurance Institute, which generally covers diseases, and Mutual of Work Accidents, which covers temporary disability. This way, a Mutual of Work Accidents chosen by the employer insures all employees for occupational accidents and diseases, jointly with the Social Insurance Institute. The insurance companies have established among themselves a federation that provides joint statistics and proposes technical guidance and documentation. These four elements of the flowchart compose the Spanish National Commission of Health and Safety at Work, which coordinates and organizes the actions on health and safety at all levels. Finally, according to the law and as a function of their size, companies (5) should create appropriate structures of health and safety such as Designated Workers, Prevention Delegates, a
Health & Safety Committee, or Preventive Service (own or external), which really make prevention work well.

The Labor Inspection Service and Social Insurance Institution perform the monitoring function, control prevention norms on occupational risks, and organize existing companies’ preventive structures, all included in Spanish Law. They also advise and inform companies and workers on the best way of fulfilling these obligations. They inform the Labor Authority on fatal accidents as well as very serious or serious occupational diseases and then, if appropriate, halt the tasks immediately if there is serious or imminent risk for the safety or health of workers. In Spain, it is compulsory to declare occupational accidents and disease cases, and there are Inspection Agents who examine all accidents in order to establish the causes and consequences, and to initiate prosecution in the case of criminal negligence. According to the data from 1997, in Spain, there were 696 Work Inspectors, 5.45 Inspectors for every 100,000 workers. This rate appears to be insufficient and, in fact, more Inspectors have been incorporated to the Labor Inspection staff over the past years, reaching 828 Inspectors in 2001 (18.96% growth).

3. Working environment

Although the improvements in health and safety at Spanish workplaces are very important, the results are far from acceptable. Statistics show some important problems for risk management (prevention and control). In Spain, the official statistics on health and
safety are based on the information picked up in the Work Accident Reports and in the Occupational Diseases Reports. The General Sub-Bureau of Social and Labor Statistics of the Ministry of Labor and Social Affairs is in charge of the maintenance and quality of this information which, with an approximate 1-year delay, is made available to the National Institute of Safety and Hygiene at Work in order for more specific studies to be carried out. The following data belong to the III National Survey of Work Conditions (Almodóvar & Maqueda, 1999), whose objective is to contribute to the knowledge of the work environment factors that can influence workers’ health, by characterizing and going further into the most frequent risk exposures, as well as the damage to health that can be derived from these factors.

The National Institute of Safety and Hygiene at Work, the MWA, and the health and safety services of the 17 Spanish Autonomous Communities collaborated in the National Survey on Work Conditions. In this survey, 3,445 employers and supervisors and 3,804 workers were interviewed. The sample is representative both for sectors and for company size. Results of this survey follow.

3.1. Physical exposures

Exposure to noise at or above 80dB(A) is important because 8.5% of all employees is continuously exposed to this during the 8-h shift. Manufacturing industries and mining (18.8%), construction (7.9%), communication and transport (7.6%), electric power and gas production (6.5%), and several public services (5.3%) are the sectors with the highest levels of noise. The survey points out that even with a general decrease in the levels of noise in the workplaces, additional preventive measures are necessary: (a) development of systems and procedures to reduce noise at its source of origin; (b) isolation; (c) workers’ training and information; (d) increase in technical control of the facilities and the equipment and appropriate maintenance. Since the early 1990s, there has been a significant decrease observed in workplace levels of noise. As a health issue, Spanish legislation includes professional deafness as an occupational disease.

In regards to the issue of arm/hand or whole body vibrations, 7.8% of all employees are exposed in these sectors: transport and communications (18.7%), and extractive industries and manufacturers (11.5%; of which petroleum refineries, metallurgy, and recycling companies stand out). The number of workers exposed has remained stable from 1993 to 1997. Survey results indicate the need to develop preventive measurements such as: (a) installation and technical control of equipment, (b) development of mechanisms of absorption and damping, and (c) workers’ training and information.

On exposure to thermal stress, the survey does not offer quantitative data, although the sectors most exposed to heat are: metallurgy, food and drinks manufacturers, manufacturers of metallic and nonmetallic mineral products, agriculture, and construction. Sectors exposed to cold are: fishing, food and drinks manufacturers, agriculture, construction, and activities of the extraction and mining industry. The main preventive measurements to apply are: (a) use of suitable systems of air ventilation; (b) isolation of heat and cold sources; (c) improving comfort of protective equipment; and (d) application of procedures of rotation and rests.
3.2. Postures and movements

Lifting and handling heavy objects in the workplace seems to have increased since 1993 in Spain. In this survey, 28.8% of all workers responded that their work-shifts include repeated lifting and handling using physical force. Conditions are worse in small firms and in the younger population (<25 years old). The main sectors exposed are: construction, metallurgy, mining, machines and industrial equipment builders, wood and cork, and in general, storage tasks and transport of goods. Adequate prevention requires workers’ training and information, mechanization of tasks and automation of processes, legislation to establish limits for lifting/handling loads, and an appropriate design for these loads.

The Spanish survey indicates that repetitive movements have increased at workplaces, probably because of the expansion of various service professions (e.g. supermarket cashiers, office work). This phenomenon is similar in other European countries. Of all workers, 49.3% experiences repetitive movements for more than one quarter of the shift. The six sectors with the highest levels of exposure are computer activities, production of tobacco, wood and cork industry, different service activities, terrestrial transport and storage, and production of vehicles. Preventive measures to apply are: the control of pauses and rotation at work, the enrichment and improvement of the content of the tasks, and the automation of processes and application of new technologies.

Pain or fatigue-causing postures are indicated by over 35% of Spanish workers, and this percentage seems to have increased since the last survey carried out in 1993. Typical situations include construction, several service activities, postal services and telecommunications, production and distribution of electric power and gas, and production of tobacco. The main preventive measures to be developed are: the ergonomic design of workplaces, workers’ training and information, and the application of procedures of rotation and redesign of tasks.

3.3. Exposure to chemical substances

When asked, “do you manipulate noxious or toxic substances or products in your work?” 15% of the total number of workers answered “yes.” The main sectors exposed to chemical substances are: the chemical industry, oil refinery and treatment of nuclear fuels, fuel sales, different personal services activities, manufacturers of furniture, and other manufacturing industries. The survey suggests, as a preventive strategy: the workers’ training and information of a specific nature, the production and utilization of comfortable equipment for individual protection, automation and technical control of installations, and a rigorous application of the law in this matter.

3.4. Exposure to carcinogens

The Spanish National Survey includes six carcinogenic substances considered the most risky for the population of workers. The order in which they appear in the text does not indicate their degree of importance, as there is no quantitative data about them. These considerations were developed by experts in health and safety. The use of asbestos remains
in the following sectors: construction, production of motor vehicles, tows and semi-tows, repair of vehicles, production of nonmetallic mineral products, and the textile industry. Crystalline silica exposure is very usual in construction. Other important occupational carcinogens include hardwood dust particles (furniture builders, wood and cork industries, and forestry), Chromium (VI) compounds (tobacco and metallic products), Formaldehyde (veterinary and sanitary activities, agriculture, wood and cork, furniture), and ionizing radiation (mainly X-rays in health services), and UV irradiation (in outdoor jobs such as construction or agriculture). The main preventive measures to be applied are: substitution of substances, localized extractions, the specific design of icons for labeling, and training and information for the workers.

3.5. Exposure to neurotoxic chemicals

In Spain, the exposure to neurotoxic substances is quite important, although there are no rigorous data as to the volume of workers exposed. There is an important sector of footwear and furniture processing that uses organic dissolvent and N-Hexane, to which a great number of workers are exposed. At the end of the 1990s, the use of N-Hexane under inadequate conditions (lack of ventilation) produced paralysis in some workers. This fact is well known in Spain and was known as “footwear paralysis.” Other neurotoxicants are trichloroethylene and lead, and pesticides for agriculture. Severe intoxications are infrequent, but it is necessary to maintain prevention programs for the handling of these substances, as well as to look for alternatives that allow their gradual elimination from workplaces. In fact, some pesticides have been replaced by strategies of “biological war” (e.g. insects), obtaining successful results. In general, there is an ignorance of the risk associated to neurotoxic substances for many exposed workers and this is why training campaigns are a priority.

3.6. Infectious biological agents

In Spain, exposure to infectious biological agents such as the B-hepatitis virus, brucellosis, tuberculosis, anthrax, or HIV mainly affects hospital and social services workers, veterinarians, agriculturists and cattle dealers, food and drinks manufacturers, and public cleaners. Medical monitoring, vaccination campaigns, and training and information for the workers are important in order to diminish the incidence of these kinds of occupational diseases.

3.7. Psychosocial factors

The survey showed that 37.6% of all workers need to maintain a high rate of work for more than half the shifts in places such as hotels and restaurants, computer science, financial intermediation, insuring, and associative activities. The previous percentage increases to 48.8% if the work rate is dictated by external demands and, in this case, exposed workers belong to hotels and restaurants, gas stations, service companies, postal service and telecommunications, and financial activities. Machines determine the task rate of 8.3% of all workers in sectors such as textile companies, rubber and plastics, metallurgy,
and manufacture of vehicles. The main preventive measures to be applied are: the establishment of pauses and task rotation, analysis and regulation of the workload, formation for dealing with the public, and control of conflicts and interference.

Violence at work is experienced by 16.1% of all workers, in occupations such as health personnel and social services, sales, transport, and bank employees. Regarding mobbing in Spain, in the CisnerosII Report (Piñuel, 2001), one out of three workers declare to have been a victim of psychological abuse during their labor experience, and more than 16% (2.38 million workers) of the total working population (14.88 million workers) declares to have been the object of psychological violence in their work weekly during the last 6 months. The most frequent sources of violence are the heads or supervisors (70.39%), fellow workers (26.06%), and subordinates (3.55%). One of the most important results is that two out of three victims of mobbing are not aware of being affected by the problem, and 81% of affected workers have a vague knowledge of the phenomenon. In Spain, mobbing is an emergent problem but perhaps an old well-known situation, although specific legislation still does not exist on the matter. Recently, some legislative proposals about it are being debated. Piñuel (2001) indicates the four main forms of mobbing: (a) to assign tasks without value or utility (9.29%); (b) to assign workers tasks that are below their professional capacity or competence (9.12%); (c) to exert against the person an illegal or arbitrary pressure to carry out the work (8.71%); and (d) to evaluate the work in an unjust or biased way (8.64%).

Regarding the effects of mobbing (Piñuel, 2001), more than half of the victims (52%) said they suffered consequences of the harassment on their health, such as back pain (63%), muscular pain (55%), irritability (54%), depression (48%), headache and neck pain (48%), insomnia (47%), apathy (37%), and many other health problems. Almost half of the victims of mobbing present greater values of post-traumatic stress, absenteeism, depression levels, and burnout. Mobbing in Spain affects men and women in the same way, although there is a greater risk for females (53.88%). Sixty-four percent of victims are less than 30 years old and only one out of three victims assertively confronts the harassment (37%), whereas 46.63% maintain a passive attitude. Only 18.02% of the fellow workers supports the victim of mobbing against their harassers, and 77% of the victims indicates a total lack of support in their organizations.

According to the victims, the six main perceived causes of mobbing are: (a) envy or jealousy due to skills or capacities (27.53%); (b) being a threat for other people (professional progression; 23.34%); (c) being different from the rest in some way or another (culture, race, education, sexual orientation; 17.07%); (d) success in their professional life or having enviable personal situations (12.54%); (e) vulnerability (10.10%); and (f) having deserved congratulations or recognition (9.41%). In general, workplaces favoring strong competition between workers, with authoritarian management, facilitate the appearance of mobbing (Piñuel, 2001). At the moment, mobbing in Spain is a new phenomenon from the legislative point of view, and there is an urgent need for prevention and intervention in order to reduce it.

Monotonous work is still very common and extended among Spanish workers. Of all workers, 36.6% report this complaint, which is even more prevalent in 44% blue collar workers, 41.1% office workers, 38.3% machine operators (production line), and 32.6% commercial salesmen and other services. It can be diminished by means of task enrich-
ment, position rotation, and application of new ways of work organization (teamwork methods).

3.8. Accidents

There were 608,081 accidents that caused absence from work for more than 3 days in Spain during 1997. The main causes include over-efforts (24.3%); blows or cuts with objects or tools (18.8%); falls at the same level (10.4%); falls at a different level (9.1%); and being trapped by objects (6.7%). In 1997, 1,058 fatal accidents happened in Spain, 25.4% of them in manufacturing and extractive industries, 24.6% in construction, 15.7% in transport and communications, and 10.1% in agriculture. Workers aged 55 or more have a rate of 12.5 fatal accidents (per 100,000 workers), while males are victims in 97.4% of all cases. Leading causes for fatal accidents were blows or shocks with vehicles (24.3%), falls (16.4%), being trapped by an overturned car (5.9%), falls of objects due to collapse or sliding (5.3%), and nontraumatic causes (27.1%).

Regarding other EU countries, Spain occupies one of the highest positions in the incidence rate rankings. Table 1 shows estimated nonfatal and fatal accidents at work, and the incidence rate for EU State Members. As shown in Table 1, Spain had the greatest incidence rates for nonfatal accidents (7,073 per 100,000 persons in employment) and the third for fatal accidents (5.5 per 100,000 persons in employment), behind Portugal (7.7) and Ireland (5.9), in 1998 (Dupré, 2001).

According to the official statistics of the Spanish Ministry of Labor and Social Affairs (2000), the incidence rate (both general and for sectors) has experienced a moderate but constant growth from 1991 (6688) to 2000 (7558), despite the fact that the Spanish Law of

<table>
<thead>
<tr>
<th>State member</th>
<th>Estimated nonfatal accidents number</th>
<th>Nonfatal incidence rate (number per 100,000 persons in employment)</th>
<th>Estimated fatal accidents number (excluding road traffic and transport)</th>
<th>Fatal incidence rate (number per 100,000 persons in employment)</th>
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<tbody>
<tr>
<td>Belgium</td>
<td>91,339</td>
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<td><strong>7,073</strong></td>
<td>420</td>
<td><strong>5.5</strong></td>
</tr>
<tr>
<td>France</td>
<td>571,078</td>
<td>4,920</td>
<td>415</td>
<td>4.0</td>
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<td>Netherlands</td>
<td>153,613</td>
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<td>265,828</td>
<td>1,512</td>
<td>212</td>
<td>1.6</td>
</tr>
</tbody>
</table>

*Eurostat does not offer incidence rate because Netherlands only counts immediate deaths.
Labor Risks was put into effect in 1995. Nevertheless, one positive aspect is the reduction of the average number of workdays absent. It is also important to emphasize a significant reduction in the number of fatal accidents in the construction sector, due to intense prevention campaigns carried out over the last few years.

3.9. Occupational diseases

Data indicate that 9,640 occupational diseases with and without lost workdays were reported during 1997 in Spain. Coal extraction and agglomeration account for 16.76% of all diseases, 10.39% to food, drink and tobacco production, 8.41% to manufacture of automobiles, 7.21% to construction, 6.31% to metallic product manufacture, and 5.68% to health care, veterinary activities and social services. Official statistics establish six main groups of occupational diseases. The first group includes occupational diseases produced by chemical agents (210, 2.18%) such as phosphorus (26), chromium (24), lead (22), nickel (16) and chlorine (11). The second group includes occupational skin diseases produced by substances and chemical agents (1,287, 13.35%), with only one case of skin cancer. The third includes occupational diseases produced by inhalation of substances (314, 3.25%) such as asthma (241), asbestos (29), irritation of the upper respiratory tract (26), pulmonary and bronchial affections due to dust (9), silica (7), and pneumoconiosis (2). The fourth group is composed of infectious and parasitic occupational diseases (482, 5.0%) such as brucellosis (203), associated to the personnel taking care of patients and carrying out research (198); viral hepatitis (38), by contact with animals (16); and malaria (15). The fifth includes occupational diseases produced by physical agents (7,344, 76.18%) such as diseases caused by tendon weave fatigue (5,394), paralysis of nerves by pressure (575), bursitis (565), injuries of the meniscus (382), musculoskeletal diseases produced by mechanical vibrations (270), and loss of hearing (120). The sixth and final group covers systematic diseases (3, 0.03%), and includes carcinoma of bronchus or lung (1), neoplasia of bladder, pelvis or ureter (1), and carcinoma produced by chromium (1).

In general, the risk for occupational disease has increased in Spain due, fundamentally, to the manipulation of chemical agents in an indiscriminate way, to poor workplaces without protection devices, and to a lack of safety training for workers. Another important outcome is repetitive strain injuries, which continues to be a problem despite the introduction of ergonomic preventive measures. In this context, the Institute of Biomechanics of Valencia (IBV) proposed an important project aimed at developing and improving new and existing Musculoskeletal Injury Reduction Tools for Health and safety (MIRTH), to improve their effectiveness. The project will ensure ergonomic suitability and added value for three main purposes: (a) improved health and safety of workers and product users, (b) improved design and development processes of new products and workplaces/work systems, and (c) support of training of engineers, health and safety personnel, and ergonomists. IBV has developed special software called Ergo/IBV (Garcia, Chirivelha, Page, Moraga, & Jorquera, 1997) for the evaluation of occupational risks related to physical load, repetitive tasks, and tasks with forced postures. This method generates recommendations in order to redesign tasks or workplaces. The Spanish National Institute of Safety and Hygiene at Work is also working on powerful campaigns for training workers in handling/lifting loads, in agreement with safety laws.
4. Discussion

The economic growth of Spain in the frame of the European Union during the last decade has generated an important improvement in the quality and competitiveness of its enterprises. These workplace quality improvements include positive advancements in health and safety conditions. Spain promulgated, in 1995, the Law of Prevention of Labor Risks, countermanding the Decree of Safety and Hygiene at Work (1971), to facilitate and to preserve the society against accidents in a safer way. Spanish Safety Laws defend a conception of nonreactive prevention, which is aimed at promoting the generation of a true safety culture (Carroll, 1998; Clarke, 1999; Petersen, 1993), by means of the commitment of managers, workers, and other social agents. These shared beliefs must place health and safety as a value, and not as a legal norm to be fulfilled, because prevention can work successfully only in that way (O’Toole, 1999).

The Spanish Ministry of Labor and Social Affairs (by means of the National Institute of Safety and Hygiene at Work, the Spanish Autonomous Communities, Mutual of Accidents at Work, and other institutions involved in accident prevention) is developing an important initiative for the fulfillment of effective laws and their principles for action. However, the results obtained from the National Work Conditions Surveys show that these efforts are not sufficient. In fact, European statistics show Spain in an adverse position in health and safety matters (Dupré, 2001).

One possible reason for this undesirable situation is that prevention in Spain is still mainly focused on the risks, exclusively from an engineering point of view, and not on interaction of human, environmental, and organizational factors (Sese, 2002). Despite the idea of a “Safety Culture” promoted in Spanish Safety Law, the inclusion of organizational or psychosocial factors in research into theoretical safety models is still nonexistent. As Sese (2002) points out, “A work scenario with zero risk level, technically, seems to be utopian, mainly for economic reasons and because it is obvious that there are tasks that will hardly be able to change from dangerous towards totally innocuous.” For this reason, accident prevention should not only be centered on technical management of risks, but also on the interaction processes where safety behavior and organizational factors are present. Safety behavior is explained by environment, person, and organization confluence and, consequently, intervention programs should be prepared to enhance safety behavior (Chhokar & Wallin, 1984; DePasquale & Geller, 1999; Lingard & Rowlinson, 1997; McAfee & Winn, 1989; Peters, 1991; Saarela, 1990).

Behavior Based Safety (BBS) Programs for enhancing safety behavior (DePasquale & Geller, 1999) are practically nonexistent in Spanish workplaces for two main reasons. First of all, there is an important prevalence of punitive-orientation based on law fulfillment that focuses on determining legal responsibilities for accidents. Thus, this search for guilt masks, on many occasions, a better explanation of the facts and, therefore, the possibility to avoid recurrence. There is no real reinforcement of safe behavior, but rather the persecution of unsafe behavior. Second, because preventive programs are generally designed to diminish risks at the workplace, intervention is dedicated to improving the physical environment and not “human factors.” This situation is comprehensible if it believed that, at present, safety and hygiene are lacking in Spanish physical work environments. As the
work conditions are improved, the role of behavior will be considered with more intensity as it pertains to the occurrence of accidents and occupational diseases. The intense appearance of mobbing or burnout at Spanish workplaces at this moment is a correlation of this structural improvement. When exposure to mechanical or chemical risks is under reasonable control, other psychosocial problems come to the forefront although, in fact, they have always been there.

Nieto (2002) found that there is a positive attitude toward the law which, however, contrasts with an insufficient use of it at workplaces, particularly in small- and medium-sized companies. This study outlines the necessity of a bigger commitment of managers in prevention, and highlights three ways to make it possible: (a) to increase institutional pressure, (b) to improve the security culture, and (c) to energize the participation of the workers. Nieto (2002) also describes a training panorama on health and safety characterized by an important deficit in many companies, which is more serious in small workplaces. Training for managers should include preventive administration, and training for safety officers should develop the dynamics of company staff and union representative participation, and, finally, training designed for workers should incorporate the identification of risks and confrontation methods in health and safety. To remedy these insufficiencies, the Spanish National Commission on Health & Safety at Work recently developed “The Performance Plan on Work Fatalities,” which includes a National Plan on Health & Safety Formation, with regional and local government participation.

Spanish prevention should stem from safety explanatory models, which offer the opportunity to obtain a good diagnosis of the state of health and safety at workplaces. Only by starting from a theoretical explanation of the process of accident occurrence—integrating environment, organization and people—is it possible to predict and consequently to control (DeJoy, 1985, 1994, 1996; Gatfield, 1999; Hayes, Perander, Smecko, & Trask, 1998; Thompson, Hilton, & Witt, 1998). The new generation of Spanish occupational health and safety researchers, technicians, and professionals defends a nonreactive preventive approach, from a multidisciplinary point of view, where human behavior plays the most important role (Hoyos, 1992; Sesé, 2002). This incorporation of new safety professionals could mean Spain will not head the list of European countries with the worst rate of labor accidents and occupational diseases in the medium term.

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The Spanish Safety and Hygiene National Institute server can be found at the internet address: http://www.mtas.es/insht/index.htm.

References


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