



Gender and maternity considerations and techniques in occupational health services: The Spanish case

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ABSTRACT

This qualitative paper shows the lack of gender considerations that the Spanish prevention service technicians demonstrate in their evaluations, namely, in the maternity or breast-feeding states of female employees. Likewise, it offers courses of action for the improvement of the activity developed by these services with the aim of improving the preventive practices and, therefore, the work safety and health of vulnerable groups, as is the case of women who are pregnant or breast-feeding.

It is framed within the processes of qualitative research based on a questionnaire sent to occupational health technicians.

This paper is innovative because this gender approach has not been studied empirically. It also makes relevant findings to consider in future developments or organizational policy regarding occupational risks assessment.

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1. Introduction and objectives

Labor risk prevention must be integrated into the overall management system of the company, both in the entirety of its activities and at all the hierarchical levels, just as the different guidelines and norms currently in force determine. In this process of labor risk prevention, it is the employer who assumes all the responsibility. Nonetheless, the norm allows, if the employer lacks the technical means, the use of occupational health services (OHS) external to the organization, which offer the necessary support with the aim of achieving adequate risk prevention in the organizations (EEC Framework Directive 391/89). These services are to provide adequate information to enable the employer to plan and prioritize preventive measures necessary and appropriate to groups of particular sensitivity.

Pregnant women and those in periods of breast-feeding form a part of those groups especially sensitive to the grave consequences that can be suffered facing exposure to specific risks—physical, chemical, biological, or ergonomic—(Ekblad, 1995; Messing, 1997; Lin et al., 1998; Hartenbaum, 1999; Mozurkewich et al., 2000; Kumar, 2004; Saurel-Cubizolles et al., 2004; Espinosa et al., 2005; Nori et al., 2005; Figà-Talamanca, 2006; McDiarmid and Gehle, 2006; Ornoy and Tenenbaum, 2006; Thulstrup and Bonde, 2006; Bakke et al., 2007; Bonzini et al., 2007).

The protection of this group in terms of labor risk is enacted by specific norms, as the EEC 85/92 in Europe, as well as specific laws enacted in each country. In Spain, the Labor Risk Prevention Law (Law 31/1995, adaptation of the EEC 85/92) establishes the necessity of protecting especially those workers most susceptible to harm by different causes, including periods of maternity; likewise, the Organic Law for the Effective Equality of Men and Women (Law 3/2007) also stresses in Law 39/1999 and R.D. 1251/2001 the regulation of economic benefits from the social security system for maternity and risk during pregnancy, and R.D. 5/2000 considers the failure to comply with the specific norms in health and safety protection of workers during periods of pregnancy and breast-feeding a very grave infraction.

Labor legislation matches the importance of risk prevention in these cases. In the preventive process, it is vital to carry out risks evaluation as a fundamental tool for the prevention of harm to the health and safety of workers (OIT, 1981). The objective is to identify the dangers stemming from work conditions in order to promptly eliminate the risk factors that can easily be removed, to evaluate the risks that are not going to be removed immediately, and to plan the adoption of corrective measures. If the evaluation is done by OHS, they must properly inform both the company and the workers of the risks that are run and of the most adequate guidelines to follow for their elimination or reduction (Frick et al., 2000; Gallagher et al., 2003). In the evaluations, not only the aspects of organization, structure, and processes of the job must be kept in mind, but they must also consider the worker who does it and conditions of special exposure to labor risk. It might be the case with

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pregnant or breast-feeding workers (Greenberg, 1980; Rasanen et al., 1993, 1997).

This makes it necessary, then, to know if those that do the risk evaluations have taken gender considerations into account and their impact on the subsequent prevention measures. The existent literature have studied aspects connected to OHS and their influence on labor health (Rasanen et al., 1993, 1997; McCunney, 2001), their duties (Hulshof et al., 1999), the quality and effectiveness of their actions (Hämäläinen, 2001), and the general rules that govern their evaluation methods (Hulshof et al., 1999; Messing et al., 2003). Nonetheless, whether these services focus their attention on specific, vulnerable groups of workers has not yet been dealt with, but Messing and Stellman (2006) and Härestam (2009) highlight the need to do so.

This is, therefore, the objective of this paper: to know how gender considerations are dealt with, especially in situations of pregnancy and breast-feeding, by those who carry out the labor risk evaluations in OHS.

An inductive, qualitative method is used through which—and by means of the study of a particular geographical area (Spain)—guidelines for action and generalized improvement can be established. A qualitative research method is followed given that, when one speaks of perceptions and values, the subjective point of view is an element to be familiar with and consider, especially with those aspects that are not, on occasion, sufficiently developed legally, in those in which there is no knowledge or generalized consensus, or where there is little practical experience. This is the case in gender and maternity considerations in risk prevention in the majority of its facets.

This paper presents a great novelty since this focus on gender and maternity has not been studied empirically and allows for the contribution of relevant conclusions to keep in mind in future developments in norms and organization with respect to labor risk evaluation.

2. Methodology

2.1. Study design

This paper's aim is to explain the approaches that a collective—occupational health technicians—gives to the undertaking of its labor activity. This research has been designed in such a way as to not exclude the methodological rigor it is due. Following Morse et al. (2002), the criteria of credibility is taken for granted given that in order to confirm the findings and review data, we returned to speak with the participants during the gathering and analysis of information. The second criterion of methodological rigor – confirmation or the ability of other researchers to follow the trail of what the original researchers have done (Guba and Lincoln, 1981) is assured by a “logbook”. The third criterion is transferability, which refers to the possibility of extending the results of the study to other populations (Guba and Lincoln, 1981), that depends on the similarity of the contexts. Though the theoretical body is wide, the study is centered, as a subject of analysis, on the group of prevention technicians that undertake their professional work in some of the OHS operating in Spain. Given the high number of responses received (100), we believe the results obtained in this exploratory study can be significant with respect to the opinions and practices of the occupational health professionals regarding gender considerations of risks, and particularly, for maternity. Nonetheless, for now, the results of this study can only be transferable to other areas of Spain, it being the aim of future research to widen the sphere of analysis.

The research methodology followed is based on the carrying out of qualitative interviews administered to the risk prevention

technicians who develop their activity in some of the 271 OHS that operate in Spain. The objective is to know to what extent these technicians keep gender and the special situations of pregnancy and breast-feeding in mind while undertaking their labor risk evaluations.

The interview is based on a questionnaire composed of 19 questions and in which a few of them were dichotomous and the majority in an open format. The design of the questionnaire does not allow for the choice from among previously defined options. That was done consciously in order to avoid responses to a prepared list and, in that way, to motivate each interviewee to relate that which seemed relevant to them. The questionnaire design is based on the methodology of The National Institute of Work Hygiene and Security (INHST, 2007; 2009; 2011) and on the expert judgment of relevance that we consider sufficiently robust through the application of a method Delphi.

We studied 77 aspects centered on five blocks: (1) Profile of respondents: demographics, services and working in the type of work they do. (2) Opinion concerning the prevention of risks to mothers and breastfeeding situations. (3) Specific knowledge about groups of workers in the companies in which they perform their assessments. (4) Practice in planning preventive and assessments regarding the risks for motherhood and the presence or absence of specific risks for women. (5) Review of the state of prevention of occupational risks in relation to maternity and suggestions for improvement, and on the exercise of their profession and how to improve it.

2.2. Technical index of the study

Field of study: Spain.

Universe: Active technical personnel in OHS.

Sample design: there is no sample design. Prevention services contained on a list supplied by the INHST containing 271 OHS and that undertake their work in Spain were invited, from which 175 responded and 101 (37.26%) accepted to participate. Sample size: 175 interviews.

Collection of information: qualitative interview.

Dates of fieldwork: May 30, 2011 to July 29, 2011.

2.3. Analysis

Although multivariate statistical treatment techniques have been applied, no significant results were obtained. It is for this reason descriptive statistics have been used.

3. Results and discussion

3.1. Profile of OHS technicians

The average age of those surveyed is 34 years old. Of those, 32% were men and 68% women. The sample acceptably reflects the youthfulness of the collective. The data represent the reality of the sector if we take into account the recent history of the evolution of that sector. Labor risk prevention as a profession received a major boost in Spain after the Labor Risk Prevention Law (in 1995) and the regulations related to its development.

Ninety-two percentage of the technicians in prevention worked for an outside prevention service, 4% for a joint prevention service, 2% for a prevention society, and the remaining 2% for in-house prevention services in the companies themselves. Furthermore, all of them had studied higher level degrees: 29% engineering degrees, 64% BS degrees, and the remaining 7%, *diplomatura* (a 3-year university study degree).

The majority of the technicians in prevention had studied three specialties: industrial hygiene, ergonomics, and applied psychology and safety in the workplace. We believe this factor is due to the fact that having these three specialties facilitates the obtaining of a job in prevention service.

The majority of the professionals work with more than one company (Table 1). This is explained by the limited development of the services themselves and also by the important weight of the micro-company, which requires outside services as Narocki (1997) also says. 86% of those surveyed work with more than three sectors of activity. 58% responded that they work with all sectors of activity (Table 1).

The high number of companies for which they work entails, in many cases, having to undertake their functions as prevention technicians in very different sectors, which have great differences in terms of productive processes and the complexity of those processes, technologies, products and services, substances and raw materials, machinery, work organization, social and wage conditions, etc. Consequently, this diversity can also manifest in the most frequent kind of labor risks and their different manifestations. In this sense, it supposes for the prevention technician an added difficulty in their professional performance, which is coincident with Narocki (1997) and Arrigo et al. (2011).

3.2. Degree of knowledge of the collective of employees from each company

Women workers are affected to common and specific risks. Knowing the distribution of female workers by age groups is relevant, from the epidemiological and preventative point of view, in order to deal with labor risks specific to women.

Only 59% of those interviewed affirm knowing the approximate number of female workers, only 24% of them affirm knowing the ages of the female employees, while 43% indicate that this information is not solicited, 15% that it is confidential information, and 18% who do not respond.

Respondents (73%) do not know or they do not precise homework, jobs, jobs and categories of women and their weight percentage in each section for the entirety of the templates. The answers reveal important information gaps regarding the composition of the workforce and their distribution by sex, age and employment, although we assume that respondents are familiar with the jobs and the issues to consider if they appear workers sensitive to certain risks.

Though we must suppose that those surveyed know the existent work posts in the companies well, and also the questions to keep in mind in the case there are workers considered sensitive to certain risks.

3.3. Perception, knowledge, and the hierarchical arrangement of risks

Table 2 shows the responses obtained with respect to the effects that some risks can have on maternity. Few responses have

taken into account the totality of the risks for maternity. The women surveyed show a greater perception than their male colleagues with respect to maternity-related labor risks for women, as previously exposed by Torada (2001).

3.4. Specific risks or those with graver effects for women than for men independently of whether the women are pregnant

These questions concerned those risks that have a marked relation with gender, and in the case of not being specific to women, those that could have greater impact or frequency and/or greater effects on the female gender.

It is believed that chemical risk (31%) or risks related to posture and the handling of heavy loads (28%) are specific or have greater effects in the vulnerable group, while 42% of those surveyed affirmed that there are no specific risks or greater effects outside cases of pregnancy. Among the effects that they mark as having greater impact on women, they highlight infertility (30%) and fatigue and stress (28%). This shows that there is not a clear and agreed upon perception regarding the existence of specific risks for women or that said risks have greater negative effects on women than on their male colleagues.

The number of “Don't know/Don't respond” (30%) is very high. This, added to the also very high percentage of those surveyed (42%) who do not believe that there are specific or greater effects for women apart from cases of pregnancy, represents a total of 72% of the sample that does not believe there are significant and specific labor risks for women.

3.5. Identification of risks and consequences on preventive planning

The indicators and methodologies used for the identification of risks and the criteria to carry out preventive planning are not always decided by the professional, at least not in certain, relevant aspects. The prevention service for which the technician interviewed works designs many of the procedures, objectives, instruments, and other particulars. Even so, the professionals do contribute their knowledge, assessments and opinions, shaping the preventive measures to some extent. For that, it is relevant to know their profiles, opinions and priorities as a starting point from which to address prevention issues, which, in part, involves criteria and priorities implemented in the organization. That is, in preventive practices, not only does the professional who undertakes them intervene, but to a great extent the protocols defined by the OHS are influential as well.

They affirm that in 85% of the cases, questions relative to gender are not included in the prevention planning of the companies. In those cases when it is, there is scarce documental evidence of it (45%). 84% of those surveyed affirm that questions related to maternity are not included.

With the aim of knowing what kind of risks those surveyed identified in the companies in which they plan the prevention and, in the case there were risks, if they could suppose a risk during pregnancy, the following open questions were posed: *What risks have you identified in the company or companies you are in charge of? Among those, are there any that could suppose a risk during pregnancy?* Exposure to harmful substances (39%), overexertion (37%), psycho-social risks (36%), falls (32%), exposure to extreme temperatures (22%), collisions (21%), and dermatitis (20%) were identified. All of them believed that they do in fact specifically affect pregnancies, which can suggest that those interviewed responded keeping gender considerations in mind instead of doing it generally. The majority of those surveyed believe that a limited number of risks can have effects on pregnancy.

Table 1
No. enterprises and sectors served.

No. enterprises	%	No. sectors	%
1	6	1	8
2–70	8	2	15
71–80	10	More than 3	86
81–90	13	All sectors	58
91–100	23	Don't know/Don't respond	2
101–110	19		
More than 111	20		
Don't know/Don't respond	1		

Table 2
Risks to maternity and their possible effects.

Risks described (1)	Total % (a)	Women % (b)	Possible effects on maternity (2)	Total % (c)
<i>Ergonomic risks</i>				
Physical load: manual handling of loads	85	75	The handling of heavy loads can delay the growth of a fetus and children are born smaller, premature births and/or lumbago problems	67
Physical load	72	81	The handling of loads and forced postures increase the percentage or the probability of suffering spontaneous abortions and premature births	72
Posture maintenance			Back pain due to the greater distance between the person and the work plane	69
Overexertion	70	82	Doing heavy labor can lead to cases of hypertension in women, associated with pregnancy	70
<i>Psycho-social risks</i>				
Derived from night hours or shift changes	65	85	Women who rest well have bigger children than those who do not rest	65
Derived from confined spaces, heights, depressurization, getting into and out of vehicles	51	76	Risk of accidents, especially when working alone	51
Vibrations or collisions	52	77	Risk of premature birth or low weight of child at birth	52
Noise	61	78	Prolonged exposure to noise can provoke an increase in blood-pressure and fatigue; it can cause premature births and problems for the fetus	61
<i>Biological and/or chemical risks</i>				
Biological agents from groups 2, 3 and 4	71	75	Hepatitis B and C, AIDS, herpes, tuberculosis, syphilis, chickenpox and typhus, German measles, and toxoplasmosis that are transmitted through the placenta, through breastfeeding, or by close physical contact between the mother and the child and that can have harmful effects for the latter	70
Benzene, vinyl chloride, silica dust	77	73	Organic compounds of mercury can have harmful effects on the fetus and on the baby through mother's milk	61
Organic solvents	75	72	Carbon monoxide easily passes through the placenta and can deprive the fetus of oxygen	65
Lead, exposure to asbestos	75	72	Lead and its derivatives are associated with incidents of abortions, fetal death, and can give rise to problems of development of the nervous system and the formation of blood	61
Exposure to dust	66	77	Difficulties during pregnancy, problems for fetus	61
Ionized radiation	51	89	Carries risks for the fetus and for the baby through contamination of the skin and through mother's milk. Risk of abortion	49
<i>Physical risks</i>				
Use of uniform or IPE ^a	23	88	Risks during pregnancy	23
Elevated pressure	9	100	Increase the risk of hypoxia and deep venous thrombosis	9

^a Individual protection equipment.

3.6. Risk evaluation: criteria and practices

The most important and noteworthy aspects of the evaluations that technicians carry out in companies are: chemical, physical, and biological risks (89%); the maintenance and age of work-related equipment, installations and work stations (88%); participation on the part of the company (72%); the training and information received by the workers (71%), the organization of prevention in the company (61%); and the identification of sensitive or vulnerable groups—minors, pregnant women, and disabled (58%).

Ninety percentage do not believe that the number of people assigned to a work post is important or relevant, nor the age of the people that occupy it (89%), nor their gender (88%), nor their general state of health (89%). The only things they keep in mind are whether certain disabilities are compatible with the undertaking of a post, with the aim of not creating an added risk (92%).

Eighty-eight percentage of the people surveyed respond that the risks that women at each post are exposed to are not evaluated. The differentiation is established only for psycho-social risks associated with double shifts and for the handling of heavy loads. 65% of those surveyed affirm that the risk evaluations they carry out take into consideration and document the impact of double shifts on the female collective, the specific impact of muscular–skeletal risks, risks to reproduction, and risks to maternity. 1% says they take into consideration and document mobbing, sexual harassment, and discrimination in the collective of female workers. 17% point out that mobbing and sexual harassment, along with discrimination, are only considered if it is declared by the women affected or by their work representative.

Some of those interviewed make clear that the evaluation of work posts is carried out keeping in mind the “standard” worker present in the workplace, that is, those who do not present partic-

ular sensitivity. In the case of underage, disabled, or pregnant workers, or people who present special sensitivity to any of the work conditions, a specific evaluation is done for that person.

4. Conclusions and improvement proposals

There is a growing perception among prevention technicians concerning the labor risks connected to the reproductive health of women and, in particular, connected to the positive outcome of the pregnancy and pre and post-natal health. There is less perception, since there is less information, concerning the awareness of risks to reproduction for both women and men, even if the causes might be different.

There is still no widespread and agreed upon perception among prevention technicians of the existence of specific risks to women even though they are not pregnant. In the light of the responses from female prevention technicians, they show greater sensitivity to the singular effects of certain risks (be they common or specific) to women than the majority of their male counterparts.

In the light of the data on the number of companies and the variety of sectors attended to by each prevention technician, we can deduce that the processes of prevention planning and the evaluations are routine. This suggests there is danger that in the undertaking of their work other aspects, such as filling out mandatory documentation, predominate, rather than detailed knowledge of the reality of the company with the aim of carrying out adequate, integral, prevention management. At the same time, we can deduce that the time and effort the professionals can dedicate to the task of following up on the execution of the measures recommended to the company, and the results obtained, are very limited, in addition to the degree of dissatisfaction with their work load and with the operative methods used in its undertaking. This is coinci-

dent with another Spaniards studies (Vogel, 1995; Narocki, 1997; Torada, 2001; Arrigo et al., 2011) but it is needed more conclusive and empirical research in order to state the circumstances technicians would be do their work in OHS, for a better preventive action.

In the opinion of the majority, risk prevention for maternity is seen as undermined for three reasons: (1) the procedure currently in force to initiate the adoption of measures can delay those measures, (2) the absence of a preventive culture in many companies, which involves an underestimation of the matter on the part of management, and (3) the absence of coordination, when it comes to recommendations for preventive measures, between family doctors and gynecologists and companies, prevention technicians, and company doctors.

In the hopes of improving labor-related health for the collective of women, in general, and pregnant women and those in periods of breast-feeding, in particular, three areas of future research and action at all levels—state, company, worker, and OHS—are identified.

- (a) Identification of the areas or elements that can be improved in order to more adequately undertake risk prevention as related to maternity.
- (b) Identification of the necessities of any nature (means, time, training, work organization, etc.) to satisfy in order to achieve the improvements suggested by way of risk prevention for maternity.
- (c) Identification of the areas or elements that must be improved so that OHS can better do their tasks in the sectors to which they have been assigned.

References

- Arrigo, G., Casale, G., Fasani, M., 2011. A guide to selected labor inspection systems (with special reference to OSH). In: Working Paper. ILO, Geneva.
- Bakke, J.V., Moen, B.E., Wieslander, G., Norbäck, J., 2007. Gender and the physical and psychosocial work environments are related to indoor air symptoms. *Danish Journal of Occupational and Environmental Medicine* 49 (6), 641–650.
- Bonzini, M., Coggon, D., Palmer, K.T., 2007. Risk of prematurity, low birth weight and pre-eclampsia in relation to working hours and physical activities: a systematic review. *Occupational & Environment Medicine* 64, 228–243.
- EEC Framework Directive 391/89, of 12 June 1989 on the introduction of measures to encourage improvements in the safety and health of workers at work. EEC Framework Directive 85/92, de 19 de octubre de 1992, relativa a la aplicación de medidas para promover la mejora de la seguridad y la salud en el trabajo de la trabajadora embarazada, que haya dado a luz recientemente o en periodo de lactancia (Décima Directiva específica con arreglo al apartado 1 del artículo 16 de la Directiva 89/391/CEE).
- Ekblad, U., 1995. Biological agents and pregnancy. *Journal of Occupational Environment Medicine* 37, 962–965.
- Espinosa, M.T., Partanen, T., Pineros, M., et al., 2005. Determinación de exposiciones en la epidemiología ocupacional. *Revista Panameña de Salud Pública* 18, 187–196.
- Figà-Talamanca, I., 2006. Occupational risk factors and reproductive health of women. *Occupational Medicine (London)* 56, 521–531.
- Frick, K., Jensen, P.L., Quinlan, M., Wilthagen, M. (Eds.), 2000. *Systematic Occupational Health and Safety Management: Perspectives on an International Development*. Pergamon, Amsterdam.
- Gallagher, C., Underhill, E., Rimmer, M., 2003. Occupational safety and health management systems in Australia: barriers to success. *Policy and Practice in Health and Safety* 1, 67–81.
- Greenberg, J., 1980. Implications for primary care providers of occupational health hazards on pregnant women and their infants. *Journal of Nurse-Midwifery* 25 (4), 21–30.
- Guba, E.G., Lincoln, Y.S., 1981. *Effective Evaluation: Improving the Usefulness of Evaluation Results through Responsive and Naturalistic Approaches*. Jossey-Bass, San Francisco.
- Hämäläinen, R.M., 2001. Survey of the quality and effectiveness of occupational health services in the European Union and Norway and Switzerland. Research 45, Helsinki, Finland.
- Härestam, A., 2009. Exploring gender, work and living conditions and health-suggestions for contextual and comprehensive approaches. *Scandinavian Journal of Work, Environment & Health* 35 (2), 127–135.
- Hartenbaum, N.P., 1999. One-eyed science: occupational health and women workers. *Journal of Occupational and Environmental Medicine* 41 (5), 413.
- Hulshof, C.T.J., Verbeek, J., Van Dijk, F., Weide, W., Braam, I., 1999. Evaluation research in occupational health services: general principles and a systematic review of empirical studies. *Occupational Environment Medicine* 56, 361–377.
- INHST, 2007. VI Encuesta Nacional de Condiciones de Trabajo. Objetivos y Diseño Técnico de la Encuesta.
- INHST, 2009. Encuesta nacional de gestión de la seguridad y salud en las Empresas (ENGE 2009) objetivos y diseño técnico.
- INHST, 2011. Objetivos y metodología. VII Encuesta Nacional De Condiciones De Trabajo.
- Kumar, S., 2004. Occupational exposure associated with reproductive dysfunction. *Journal of Occupational Health* 46, 1–19.
- Law 31/1995 de 8 de noviembre, de Prevención de Riesgos Laborales.
- Law 39/1999, de 5 de noviembre, para promover la conciliación de la vida familiar y laboral de las personas trabajadoras.
- Lin, S., Gensburg, L., Marshall, E.G., Roth, G.B., Dlugosz, L., 1998. Effects of maternal work activity during pregnancy on infant malformations. *Journal of Occupational and Environmental Medicine* 40 (9), 829–834.
- McCunney, R.J., 2001. Health and productivity: a role for occupational health professionals. *Journal of Occupational and Environmental Medicine* 43 (1), 30–35.
- McDiarmid, M.A., Gehle, K., 2006. Preconception brief: occupational/environmental exposures. *Maternal and Child Health Journal* 10 (Suppl. 5), 123–128.
- Messing, K., 1997. Women's occupational health: a critical review and discussion of current issues. *Women & Health* 25 (4), 39–68.
- Messing, K., Stellman, J.M., 2006. Sex, gender and women's occupational health: the importance of considering mechanism. *Environmental Research* 101 (2), 149–162.
- Messing, K., Punnett, L., Bond, M., Alexanderson, K., Pyle, J., Zahm, S., Wegman, D., Stock, S.R., de Grosbois, S., 2003. Be the fairest of the mall: challenges and recommendations for the treatment of gender in occupational health research. *American Journal of Industrial Medicine* 43, 618–629.
- Morse, J., Barret, M., Mayan, M., Olson, K., Spiers, J., 2002. Verification strategies for establishing reliability and validity in qualitative research. *International Journal of Qualitative Methods* 5, 1–2, <<http://www.ualberta.ca/~ijqm/english/engframeset.html>> (25.05.11).
- Mozurkewich, E.L., Luke, B., Avni, M., et al., 2000. Working conditions and adverse pregnancy outcome: a meta-analysis. *Obstetrics & Gynecology* 95, 623–635.
- Narocki, C., 1997. La prevención de riesgos laborales en las pequen-as y medianas empresas españolas. *Cuadernos de Relaciones Laborales*.
- Nori, S., Greene, M.A., Schragger, H.M., et al., 2005. Infectious occupational exposures in dermatology – a review of risks and prevention measures. II. The pregnant dermatologist. *Journal of American Academy of Dermatology* 53, 1020–1026.
- OIT. R164, 1981. Recomendación sobre seguridad y salud de los trabajadores.
- Organic Law 3/2007 de 22 de marzo, para la igualdad efectiva de mujeres y hombres.
- Ornoy, A., Tenenbaum, A., 2006. Pregnancy outcome following infections by coxsackie, echo, measles, mumps, hepatitis, polio and encephalitis viruses. *Reproductive Toxicology* 21, 446–457.
- R.D. 5/2000, de 4 de agosto, por el que se aprueba el texto refundido de la Ley sobre Infracciones y Sanciones en el Orden Social.
- R.D. 1251/2001 de 16 de noviembre, por el que se regulan las prestaciones económicas del sistema de la Seguridad Social por maternidad y riesgo durante el embarazo.
- Rasanen, K., Notkola, V., Kankaanpaa, E., Peurala, M., Husman, K., 1993. Role of the occupational-health services as a part of illness-related primary-care in Finland. *Occupational Medicine-Oxford* 43 (1), 23–27.
- Rasanen, K., Notkola, V., Husman, K., 1997. Work-related interventions during office visits to occupational health physicians. *Preventive Medicine* 26 (3), 333–339.
- Saurel-Cubizolles, M.J., Zeitlin, J., Lelong, N., et al., 2004. Employment, working conditions, and pretermbirth: results from the Europop case-control survey. *Journal of Epidemiol Community Health* 58, 395–401.
- Thulstrup, A.M., Bonde, J.P., 2006. Maternal occupational exposure and risk of specific birth defects. *Occupational Medicine (London)* 56, 532–543.
- Torada, R., 2001. Salud laboral y género. In: Durán, M.A., Serra, I., Torada, R. (Eds.), *Mujer y trabajo. Problemática actual*. Valencia, Germaña.
- Vogel, L., 1995. La evaluación de los riesgos en los centros de trabajo y la participación de los trabajadores. *Cuadernos de Relaciones Laborales*.