



Original Article

Work-Related Stress Risk Assessment in Italy: A Methodological Proposal Adapted to Regulatory Guidelines

Benedetta Persechino*, Antonio Valenti, Matteo Ronchetti, Bruna Maria Rondinone, Cristina Di Tecco, Sara Vitali, Sergio Iavicoli

Italian Workers' Compensation Authority Research Area, Department of Occupational Medicine, Rome, Italy

ARTICLE INFO

Article history:

Received 29 November 2012

Received in revised form

10 April 2013

Accepted 9 May 2013

Keywords:

eHealth

health policy

occupational health

risk assessment

ABSTRACT

Background: Work-related stress is one of the major causes of occupational ill health. In line with the regulatory framework on occupational health and safety (OSH), adequate models for assessing and managing risk need to be identified so as to minimize the impact of this stress not only on workers' health, but also on productivity.

Methods: After close analysis of the Italian and European reference regulatory framework and work-related stress assessment and management models used in some European countries, we adopted the UK Health and Safety Executive's (HSE) Management Standards (MS) approach, adapting it to the Italian context in order to provide a suitable methodological proposal for Italy.

Results: We have developed a work-related stress risk assessment strategy, meeting regulatory requirements, now available on a specific web platform that includes software, tutorials, and other tools to assist companies in their assessments.

Conclusion: This methodological proposal is new on the Italian work-related stress risk assessment scene. Besides providing an evaluation approach using scientifically validated instruments, it ensures the active participation of occupational health professionals in each company. The assessment tools provided enable companies not only to comply with the law, but also to contribute to a database for monitoring and assessment and give access to a reserved area for data analysis and comparisons.

© 2013, Occupational Safety and Health Research Institute. Published by Elsevier. All rights reserved.

1. Introduction

Stress is the second most frequently reported work-related health problem after musculoskeletal diseases, affecting 22% of workers in the European Union (EU). It accounts for 50–60% of all lost working days. In 2002, the annual cost of work-related stress in the EU-15 was estimated at €20 billion [1].

According to the EU Framework Directive 89/391/EEC, employers have the obligation “to ensure the safety and health of workers in every aspect related to work” and “to adapt the work to the individual”. However, no specific measures to protect against work-related stress were set out among European countries.

Therefore, the European Commission called upon trade unions and employers to develop strategies to tackle this emerging risk. This debate resulted in the European Framework Agreement of October 8, 2004 [2], which identified some causes of work-related stress but did not identify any particular model for assessing it.

The Italian regulatory framework for health and safety in the workplace established by Legislative Decree 81/2008 highlighted the obligation to assess work-related stress in companies. Therefore, the Permanent Consultative Committee¹ for Health and Safety at Work, referred to later as the Consultative Committee, provided guidelines for evaluation, ensuring the active participation of occupational health professionals.

* Corresponding author. Italian Workers' Compensation Authority (INAIL) Research Area, Department of Occupational Medicine, via Fontana Candida 1, 00040 Monte Porzio Catone, Rome, Italy.

E-mail address: b.persechino@inail.it (B. Persechino).

¹ The Permanent Consultative Committee for Health and Safety at Work is composed of an equal number of representatives of public administrations and regions and of social partners.

This is an Open Access article distributed under the terms of the Creative Commons Attribution Non-Commercial License (<http://creativecommons.org/licenses/by-nc/3.0>) which permits unrestricted non-commercial use, distribution, and reproduction in any medium, provided the original work is properly cited.

The aim of this study was to develop a methodological path for assessing work-related stress, based on a scientific experimental method and on benchmarking analysis of other EU countries' experiences, conforming to current Italian legislation. To ensure its applicability, the method should actively involve company occupational safety and health (OSH) professionals.

A multidisciplinary working group was established, including occupational physicians, psychologists, statisticians from the Department of Occupational Medicine of the Italian Workers' Compensation Authority (INAIL), and experts from the Interregional Technical Coordination for Prevention in the Workplace and the National Network for the Prevention of Work-related Psychosocial Disorders, with academics from Italian universities. This group started to develop useful, validated tools for assessing work-related stress risk that allowed for the active participation of OSH professionals and workers.

2. Materials and methods

The first step was to examine the Italian regulatory legislation on occupational health and safety and the main models employed in different European countries to manage and assess work-related stress. Then, we proceeded to adapt to the Italian context and validate the UK Health and Safety Executive's (HSE) Management Standards (MS) approach and drafted a checklist to help companies in the assessment phase.

2.1. Assessment of work-related stress: Italian regulations

In Italy, the key role played by OSH professionals and employees in this field was highlighted by the implementation of EU Directive 89/391/EEC. The current normative framework, namely Italian Legislative Decree 81/08 and its amendments and integrations, creates an obligation for employers to assess all risks for workers' health and safety, including risks associated with work-related stress, as specified in the European Agreement of October 8, 2004. In addition, the adoption of the World Health Organization's definition of health as "a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity" has certainly helped place the focus on work-related stress risk issues within the Italian legislative framework [3].

To support companies adequately in assessing work-related stress risks, the Consultative Committee has developed methodological guidelines. These are based on the following criteria: (1) brevity and simplicity; (2) a method that should work for all types of organization; (3) application to groups of workers homogeneously exposed² to work-related stress; (4) enhancement of responsibilities and faculties of OSH professionals and workers [4].

Work-related stress risks should be assessed by employers, in collaboration with the OSH professionals and also with employees or their representatives. It is worth noting that the assessment focuses not on individuals but on homogeneous groups of workers. The Committee's method was divided into:

(A) Preliminary assessment: analysis of objective risk indicators related to work-related stress, under three headings: (1)

sentinel events; (2) work content factors; (3) work context factors. At this stage, OSH professionals can use checklists, calling on some employees and their representatives. If no work-related stress risk factors are found in this preliminary assessment, results are entered on the risk evaluation report and a monitoring plan is developed. If some risk factors have emerged from the preliminary assessment, appropriate corrective interventions are to be planned and adopted; if these prove inadequate, the second phase, the "deeper assessment", should start.

(B) Deeper assessment: this phase involves an in-depth assessment that focuses on the homogeneous groups of workers found in the preliminary assessment to have been exposed to work-related stress risks. In this phase, the workers' perceptions of work content and work context factors are assessed. Tools that might be used for assessing workers' perceptions include questionnaires, focus groups, and semi-structured interviews. However, in small companies (up to 5 workers), the employer can use assessment methods such as meetings at which employees can identify solutions and assess their effectiveness.

2.2. Benchmarking of the European experience

Bearing in mind the cultural, social, and regulatory differences among EU Member States, a broad comparison has identified strengths and starting points for a joint model using evidence-based approaches that also take account of differences in the specific organizational contexts. The working group took part in the European research project PRIMA-EF (Psychosocial Risk Management-European Framework) [5–8] providing guidelines for the development of an integrated model for monitoring psychosocial risks. This experience formed the basis for examining the models used in various European countries [9].

All the models analyzed [i.e., MS, United Kingdom; Screening, Observation, Analysis, Expertise (SOBANE), Belgium; START, Germany] take a global, holistic, collaborative, and shared approach. They all acknowledge the active cooperation of workers, whose direct involvement within the organization means they can provide important information about the local context and suggest corrective strategies or action plans [9].

After a detailed benchmarking analysis [9] on work-related stress management in different EU countries—also on the basis of the implementation of the European Framework Agreement of October 8, 2004 [2]—we adopted a methodological path inspired by the UK HSE MS model, chosen for two main reasons: (1) the HSE approach and Indicator Tool have already been validated in the UK and Ireland on more than 26,000 employees; (2) specific software has been prepared for data analysis [10–12].

2.3. Adaptation to the Italian context and validation of the HSE MS approach

The HSE MS approach was adapted to the Italian context through the following process. First, we adapted and validated the HSE Indicator Tool for Italy [12]. After a back-translation, we conducted a pilot study, gathering data through the questionnaire from a small sample of 389 workers from Italian companies. A focus group was formed, with about 15 national OSH experts from Italian universities and healthcare institutions, to collect suggestions and comments to make the questions easier to understand and improve the questionnaire [13,14]. With the collaboration of several organizations, universities, and Italian National Health Service (NHS) agencies, the version of the Indicator Tool arising from the pilot

² According to the Italian Consultative Committee's methodological guidelines, to be adequate an assessment should be directed to "homogeneous groups" of workers. These are defined as groups of workers identified by the employer on the basis of similar characteristics, such as their sex, age, nationality, type of contract, or any other criteria (e.g., workshift, special jobs, etc.), which identify specific and common risk factor(s) for employees.

study was administered to 6,378 Italian workers from 75 companies in various economic and productive macro-sectors throughout the country. After the data collection phase, the Italian version of the Indicator Tool was tested and validated by confirmatory factor analysis (CFA) on the 35-item seven-factor model. The present report did not specifically focus on the findings of the Italian validation of the Indicator Tool, which have been reported elsewhere [15].

At the same time, the multidisciplinary working group proceeded with the translation, adaptation to the Italian context, and validation of the HSE web platform.

2.4. Checklist

A checklist was developed to help companies in the preliminary assessment phase. This list forms a basis for identifying indicators of work-related stress risk in an organization, under three headings (Table 1): (1) sentinel events; (2) work content factors; (3) work context factors. The checklist was developed as the result of a critical review [16] by the National Network for the Prevention of Work-related Psychosocial Disorders, in compliance with the Consultative Committee's specific requirements. It was tested on 800 companies listed by the Veneto Region ASL20 (regional NHS unit) Occupational Prevention, Hygiene, and Safety Service, and by the University of Verona, by asking for feedback on the clarity and full understanding of the items, completeness of the information required, and feasibility in compiling it. The checklist serves to assess risk conditions in the organization by checking the items presented in Table 1.

3. Results

Subsequent to the benchmarking of the European experience, we selected the HSE approach based on six MS and validated it in Italy, after merging with the experience of the Interregional Technical Coordination for Prevention in the Workplace and the National Network for the Prevention of Work-related Psychosocial Disorders [16,17] and contextualized it in accordance with the Consultative Committee's guidelines. As explained above, we developed a web platform to help companies apply the proposed method. Access to the platform is free and no specific configurations or installations are required.

By registering on the platform, users have access to several resources, the manual reporting [18] the whole proposed method and tools for assessing work-related stress risk. The software allows them to insert data in the preliminary and in-depth assessment phases and provides the data analysis and reports on risk assessment. The method based on the HSE MS includes four phases,

summarily described in Table 2: (1) preliminary phase; (2) preliminary assessment/checklist; (3) in-depth assessment/Indicator Tool; (4) management and monitoring.

As of December 2012, 4,396 companies have registered on the INAIL web platform and 5,273 homogeneous groups of workers have been created. Nearly two thirds of the companies (62%) have up to 50 employees, 9% have 51–100, 10% have 101–250, 10% have 251–1000, and the remaining 9% have more than 1001 employees. Five Italian Classification of Economic Activity's sectors (ATECO) are mainly represented, namely services, professional, scientific and technical activities, manufacturing, healthcare and social services, and construction. Finally, companies are distributed as follows: 23% in the North-East, 37% North-West, 24% Central Italy, 11% Southern Italy, and the remaining 5% on the Islands.

So far, 99 companies have completed both the preliminary and in-depth assessments on 186 homogeneous groups of workers (186 checklist and 2,603 completed questionnaires). Of these, 53% made the in-depth assessment even though the preliminary assessment reported a low risk for the organization.

4. Discussion

There are already many risk assessment tools and methods available in Italy, but most have not yet been validated. To comply with the legal obligations associated with work-related stress, research can play a key role, making a rigorous contribution to preparing reliable tools for assessing and managing the risk. A model for assessment—in accordance with the generally accepted concept of risk assessment—must take a holistic, global approach, with participation and sharing in the process. For work-related stress, this approach is substantially widened by the European Framework Agreement on stress and the Consultative Committee's guidelines.

The efficiency of the HSE approach lies in its solid, comprehensive, and validated scientific construct based on the six MS, and its easy applicability to the Italian context. This makes it an ideal basis for developing and implementing assessment and management methods for work-related stress. The methods section adapted well to the Italian regulatory framework and the Indicator Tool can be easily administered in all work settings, as emerged from the findings. The strength of the model is the active involvement of workers and occupational health professionals who should collaborate with the employer, as established by law, in order to obtain important information on the organizational context and identify any corrective strategies and/or action plans needed. The HSE approach ensures effective stress assessment and management and full compliance with the Italian regulations.

Table 1

Indicators of work-related stress risk identified by the checklist

(I) Sentinel events (10 organizational indicators)	(II) Work content factors (4 indicators)	(III) Work context factors (6 indicators)
1. Work-related injuries	1. Work environment and work equipment	1. Function and organizational culture
2. Sick leave*	2. Task planning	2. Organizational role
3. Absences from work [†]	3. Workload, work pace	3. Career path
4. Unused vacations	4. Work schedule	4. Autonomy in decision making, job control
5. Job rotation		5. Interpersonal relationships at work
6. Turnover		6. Home/work interface, home/work balance
7. Disciplinary measures		
8. Requests for extra medical checks		
9. Work-related stress notifications		
10. Juridical petitions		

* The total number of days lost because of sickness, nursing, and maternity leave are not included in the calculation.

[†] The total number of absences from work [including sickness leave; absences from work for personal reasons; unjustified absences; non-observance of the minimum working hours (late arrival at work, leaving early, etc.)].

Table 2
Phases, tools/procedures, and outcomes of the method

Phases	Tools/procedures	Outcomes
<p>1. Preliminary phase This phase aims to prepare the organization for all further assessment processes. It involves occupational health professionals, workers, managers, and employers.</p>	<p>Three steps (1) Set up a steering group to manage the assessment; (2) Develop a communications/employee engagement strategy; (3) Draft the risk assessment plan</p>	<p>Obtain commitment from the employer, employees, and their representatives; Define the time schedule for assessment.</p>
<p>2. Preliminary assessment This phase aims to assess some organizational indicators associated with work-related stress (such as turnover, absenteeism, sick leaves, work schedule, organizational culture, etc.)</p>	<p>Checklist (1) Sentinel events (2) Work content factors (3) Work context factors</p>	<p>Report Results refer to the risk levels rated as low, medium, or high. Actions needed depend on the resulting level of risk and may vary from a monitoring plan for low risk to corrective measures and, if required, in-depth evaluation for medium and high risk.</p>
<p>3. In-depth assessment This phase aims to gather important information on the organization's "health" through assessment of employees' perceptions. It is required if corrective measures prove inadequate. However, organizations may also use it to collect further in-depth information.</p>	<p>Indicator Tool A questionnaire with 35 items corresponding to the six MS: (1) Demands (2) Control (3) Support (4) Relations (5) Role (6) Change</p>	<p>Report Results are presented in a report where a number and color are assigned for each MS. The meaning of each color is as follows: Green and blue = doing very well, good performance; Yellow and red = urgent action required for improvement.</p>
<p>4. Management and monitoring This phase aims to manage work-related stress by identifying corrective measures and interventions.</p>	<p>Focus group To help organizations in this phase, a specific Focus Group Tutorial has been designed; this tutorial illustrates all the steps needed for organizing and running focus groups to help companies design appropriate interventions to manage work-related stress risks</p>	<p>The direct involvement of workers so as to bring specific problems to light, help interpret the results of previous steps and identify the best solutions; Develop a monitoring plan.</p>

MS, management standards.

The validity of the approach was confirmed by the findings of the European Survey of Enterprises on New and Emerging Risks (ESENER) [19], reporting an improvement in the awareness of psychosocial risks at work among UK and Irish companies, subsequent to the introduction of the MS for work-related stress as structured guidelines on its management. It is also included in the European Commission's report dated February 2011 on implementation of the European Framework Agreement on work-related stress in the EU [20].

The methodological path we have outlined is "modular" and respects the specific differences in enterprises throughout the country; it ensures the "minimum level of implementation of the obligation", allowing scientifically validated full assessment and ensuring coordinated, integrated participation of workers and OSH representatives.

In view of the growing impact of eHealth [21,22]—the emerging field of health and prevention services and information delivered through the Internet and related technologies—the proposed integrated method has been made available on line (<http://85.18.194.67/focusstresslavorocorrelato/>). The main aim was to provide scientifically validated instruments to help companies assess and manage work-related stress, in compliance with national regulations. Registered users have access, with no charge, to all documents needed for thorough analysis, with tools for evaluating and managing risks, ensuring the coordinated, active, and integrated involvement of workers and OSH professionals. The large number of companies that have registered and used the software and tools and the heterogeneity of the sample (which includes companies, small and large, from different sectors as well as important Italian companies such as, for instance, two of the main Italian companies in the transport and power engineering sector, several municipalities, public health care agencies, universities, and financial institutes) confirms that our goal has been achieved: to outline a systematic path resulting from lengthy study, to enable employers,

workers, and OSH professionals to manage work-related risks step by step, the same way as other risks, simply but in full compliance with the regulatory framework, using validated tools.

Our findings indicate that several companies have voluntarily adopted the in-depth assessment beyond the minimum requirements of the law, so as to collect more detailed information on employees' perceptions using a validated tool, since 53% of those that developed the whole proposed method had earned a positive rating (low risk) in the preliminary assessment. The number of companies using the whole method may well grow in the future, given that most of them are currently developing interventions for managing and reducing the work-related stress risk, after the preliminary assessment, as required by law.

By signing up and using the assessment tools provided, companies not only comply with the law, but also contribute to a database for monitoring and assessment, on the one hand while, on the other, acquiring access to a reserved area for data analysis and comparisons.

Several goals still have to be achieved. For example, the proposed method must be disseminated widely to enlarge the data base, to cover more ATECO sectors [23] and companies of different sizes, and also to back up the monitoring and assessment required by the Consultative Committee. In-depth analysis will consider specific sectors and different sizes to offer firms tailored tools, solutions, and interventions. Our findings make a contribution to the monitoring phase set out by the Consultative Committee on the state of the art of the assessment of work-related stress risk in Italy and on the efficacy of the guidelines. Implementation of the web platform is still in progress to provide tools for support in the management of work-related stress risk, as an essential follow-up step in an integrated method for assessing and managing it. The Consultative Committee has still to provide guidelines to clarify the appropriate corrective measures for risk management.

Finally, we are currently proceeding with a follow-up on companies using the web platform for the assessment of work-related stress risk, to explore their satisfaction and collect more details about how they have followed the methodological path, in order to further improve the method.

What we have achieved so far encourages us to continue our multidisciplinary work, knowing that an integrated, informed approach to the assessment and management of work-related stress risk can help prevent other risks in organizations and safeguard workers' health, without affecting a company's competitiveness and productivity.

Conflict of interest

All the authors declare they have no financial or personal relationships with people or organizations that could inappropriately influence their work.

Acknowledgments

We are grateful to the whole working group (Antonia Ballottin, Tiziana Castaldi, Marina Catelli, Patrizia Deitingner, Fulvio D'Orsi, Monica Ghelli, Alessandra Luciani, Marco Mirabile, Elena Natali, and Luigi Perbellini), and in particular to Andrea Catarinozzi, Davide Di Marzio, Pasquale Fruscella, and Alfredo Paradisi, whose support and help enabled us to develop the web platform. Particular thanks go to the organizations, employers, employees, and the occupational health professionals who contributed to the validation of the HSE MS approach. Finally, the authors wish to thank Tom Cox, Peter J. Kelly, Stavroula Leka, and Colin Mackay for their productive collaboration.

References

- [1] European Agency for Safety and Health at Work. OSH in figures: stress at work. Facts and figures. European communities ed. Luxembourg: European Agency for Safety and Health at Work; 2009.
- [2] European Social Partners. Implementation of the European autonomous framework agreement on work-related stress. Brussels (Belgium): European Social Partners (BUSINESS EUROPE, CEEP, ETUC, UEAPME); 2008.
- [3] Deitingner P, Nardella C, Bentivenga R, Ghelli M, Persechino B, Iavicoli SD. Lgs 81/2008: conferme e novità in tema di stress correlato al lavoro. *G Ital Med Lav Erg* 2009;31(2):154–622.
- [4] Iavicoli S, Jain A, Persechino B, Rondinone BM, Ronchetti M, Valenti A, Leka S. Hard and soft law approaches to addressing psychosocial risks in Europe: lessons learned in the development of the Italian approach. *J Risk Res* 2012. in press.
- [5] Leka S, Cox T. The European Framework for Psychosocial Risk Management: PRIMA-EF. Nottingham (UK): I-WHO Publications; 2008. p. 80–95.
- [6] Leka S, Jain A, Cox T, Kortum E. The development of the European Framework for Psychosocial Risk Management: PRIMA-EF. *J Occup Health* 2011;53:137–43.
- [7] Ertel M, Stijljanov U, Iavicoli S, Natali E, Jain A, Leka S. European social dialogue on psychosocial risks at work: benefits and challenges. *Eur J Ind Relat* 2010;16:169–83.
- [8] Leka S, Jain A, Iavicoli S, Vartia M, Ertel M. The role of policy for the management of psychosocial risks at the workplace in the European Union. *Saf Sci* 2011;49:558–64.
- [9] Iavicoli S, Natali E, Deitingner P, Maria Rondinone B, Ertel M, Jain A, Leka S. Occupational health and safety policy and psychosocial risks in Europe: the role of stakeholders' perceptions. *Health Policy* 2011;101:87–94.
- [10] Mackay CJ, Cousins R, Kelly PJ, Lee S, McCaig RH. Management Standards and work related stress in the UK: policy background and science. *Work & Stress* 2004;18(2):91–112.
- [11] Cousins R, Mackay CJ, Clarke SD, Kelly C, Kelly PJ, McCaig RH. Management Standards and work-related stress in the UK: practical development. *Work & Stress* 2004;18(2):113–36.
- [12] Edwards JA, Webster S, Van Laar D, Easton S. Psychometric analysis of the UK Health and Safety Executive's Management Standards work-related stress Indicator Tool. *Work & Stress* 2008;22(2):96–107.
- [13] Iavicoli S, Natali E, Rondinone BM, Castaldi T, Persechino B. Contestualizzazione e validazione in Italia del modello Management Standards HSE quale contributo all'individuazione delle indicazioni per la valutazione dello stress lavoro correlato. *G Ital Med Lav Erg* 2010;32(4 Suppl.):130–3.
- [14] Natali E, Martini A, Ronchetti M, Rondinone BM, Iavicoli S. HSE Management Standards and work-related stress: Italian translation and validation of the Indicator Tool. In: Proceedings of the IX Conference of the European Academy of Occupational Health Psychology (EAOHP). Rome, Italy; March 29–31, 2010.
- [15] Rondinone BM, Persechino B, Castaldi T, Valenti A, Ferrante P, Ronchetti M, Iavicoli S. Work-related stress risk assessment in Italy: the validation study of Health Safety and Executive Indicator Tool. *G Ital Med Lav Erg* 2012;34(4):392–9.
- [16] Network Nazionale per la Prevenzione Disagio Psicosociale nei Luoghi di Lavoro. La valutazione dello stress lavoro-correlato: proposta metodologica. Roma (Italy): ISPESL; 2010.
- [17] Coordinamento tecnico interregionale per la prevenzione nei luoghi di lavoro [Internet]. Valutazione e gestione del rischio da stress lavoro-correlato: guida operativa. 2010 [cited 2012 Nov 29]. Available from: http://www.ausl.mo.it/dsp/spsal/doc_CTIPL/DLgs_81_08_rischio_stress_lavoro-correlato_marzo2010.pdf.
- [18] Castaldi T, Deitingner P, Iavicoli S, Mirabile M, Natali E, Persechino B, Rondinone BM, Ballottin A, D'Orsi F, Perbellini L. Managing and Assessing the Risk for Work-Related Stress. Guide for companies, in compliance with Leg. Decree 81/2008 and subsequent integrations and modifications. E-book English Version. Milan (Italy): INAIL; 2013. in press.
- [19] European Agency for Safety and Health at Work. European Survey of Enterprises on New and Emerging Risks (ESENER). Luxembourg: Office for Official Publications of the European Union; 2010.
- [20] European Commission. Commission staff working paper – report on the implementation of the European social partners' Framework Agreement on Work-related Stress. Brussels, 24.2.2011 SEC 2011. 241 final.
- [21] Eysenbach G. What is eHealth? *J Med Internet Res* 2001;3(20):e20.
- [22] Podichetty V, Penn D. The progressive roles of electronic medicine: benefits, concerns, and costs. *Am J Med Sci* 2004;2:94–9.
- [23] Italian National Institute of Statistics. ATECO (classification of economic activity) 2007. ISTAT, Metodi e Norme no. 40 2009.