

Available instruments for measurement of psychosocial factors in the work environment

Maria Carla Tabanelli · Marco Depolo · Robin M. T. Cooke · Guido Sarchielli ·
Roberta Bonfiglioli · Stefano Mattioli · Francesco S. Violante

Received: 19 October 2007 / Accepted: 20 February 2008 / Published online: 13 March 2008
© Springer-Verlag 2008

Abstract

Objective To provide an overview of the spectrum of available for measurement and evaluation of work-related psychosocial factors.

Methods We systematically searched the literature/internet to identify and describe the main available questionnaires and observational instruments for assessment of work-related psychosocial factors (with/without other job stressors).

Results A total of 33 instruments were identified (26 questionnaires, 7 observational), many (11 questionnaires, 5 observational) linked to national institutions/initiatives. Accessibility of relevant information (on the internet or elsewhere) regarding the instruments varied widely.

Conclusions This summary of the range of instruments currently available for evaluation of multiple work stressors at individual, group and/or organizational levels may provide a useful tool for operators and researchers.

Keywords Stress · Occupational health · Workplace · Observation · Risk assessment

Introduction

Assessment of occupational psychosocial factors and their impact on the health and safety of workers is an extremely relevant and topical subject (Cox and Rial-González 2005; Kasl 1998; Rosenstock 1997; Wrighy and Cropanzano 2000), which has been officially acknowledged by various national governments (Conseil National du Travail (CNT) 2004; Delaunois et al. 2002; D’Hertefelt 2002; Fédération Générale du Travail de Belgique (FGTB) 2002; Levi et al. 1999; Peter et al. 2004; Schaufeli and Kompier 2001). Psychosocial factors include exposures thought to impact on the well-being and health outcomes of workers (e.g. temporal aspects of employment and the work itself, aspects of work content, work-group, supervision, organisational conditions). Other factors that can be included in an assessment include strain (i.e. workers’ psychological and physiological reactions to stressors in terms of anxiety, depression, high blood pressure, heavy smoking, alcohol consumption, etc.) and coping strategies (Kasl 1987; Kristensen 1995). Psychosocial factors are assessed using psychological (as distinct from technical or physiological) models in which stress is viewed in terms of dynamic interactions between individuals and their work environment. The theoretical basis can be interactional—focusing on the structural characteristics of the person’s interaction with their work environment, as in the Person-Environment Fit (French et al. 1982) and the Demand-Control model developed by Karasek (1979) and later expanded by Johnson et al. (1991) as the Demand-Control-Support model. The basis may also be transactional—focusing on the cognitive processes and emotional reactions governing person-environment interactions, as in Effort-Reward Imbalance model developed by Siegrist (1990), and the models devised by Lazarus and

M. C. Tabanelli · R. M. T. Cooke · R. Bonfiglioli ·
S. Mattioli · F. S. Violante
Alma Mater Studiorum-University of Bologna,
Occupational Medicine Unit, S.Orsola-Malpighi Hospital,
Bologna, Italy

M. Depolo · G. Sarchielli
Faculty of Psychology, Department of Educational Science,
Alma Mater Studiorum-University of Bologna, Bologna, Italy

S. Mattioli (✉)
U.O. Medicina del Lavoro, Policlinico Sant’Orsola-Malpighi,
Via P. Palagi 9, 40138 Bologna, Italy
e-mail: s.mattioli@unibo.it

Folkman (1984) in the U.S.A. and Cox and Mackay (1981) in the U.K.

Self-reported questionnaires, usually containing questions regarding presence of risk factors in the work environment, are widely used since they are inexpensive and easy to analyze. An intrinsic limitation of self-reported questionnaires is that they provide “subjective” measures, representing the occupational stress perceptions of individual workers. “Objective” assessments are based on observational approaches, including archival data (e.g. sickness leave, performance measures, accidents), and biological measures (of adrenaline, cortisol values, etc). However, they are much more expensive to administer (Frese and Zapf 1988; Leitner and Resch 2005; Kompier 2005).

An overview of the spectrum of available resources for evaluation of psychosocial factors could facilitate selection of appropriate instruments for specific studies and provide a useful resource for enhancement of assessment strategies. We therefore systematically searched the literature to identify and describe the main available instruments for subjective/objective assessment of work-related psychosocial factors (with/without other job stressors).

Methods

Study design

We used a systematic search strategy to identify and describe reported questionnaires and observational instruments for measurement and evaluation of work-related psychosocial factors (with/without inclusion of strain and coping) that can be applied to a wide range of professional settings, whether at individual, group or organisation level (instruments designed only for the assessment of strain were not included).

Search strategy

We identified relevant search terms (“psychosocial factors”, “work”, “stress”, “job”, “stressors”, “occupational”, “workplace”, “environment”, “health”, “questionnaire”, “instrument”, “measure”, “observational”, “subjective”, “objective”, “assessment”) by consulting citations included in review articles on measurement of job stressors and strains (Hurrell et al. 1998; Quick 1998; Rick et al. 2001). In 2005–2006, we used combinations of these terms to conduct database searches in PubMed, PsychINFO, SSCI (Social Science Citation Index), Emerald, Science Direct, Ingenta Connect, Inter Science, and Job Stress Network. Titles and abstracts were carefully screened by one of the authors (M.C.T.) to identify articles that could contain descriptive information on instruments for assessment of work-related psychosocial

factors (or on roles of individual instruments within broader approaches to the problem of work-related stress). Full papers were retrieved for all pertinent articles (~250), which were also hand searched for references to further relevant literature and to trace authors’ original descriptions of instruments adopted in results papers. Other instruments were identified by consulting the NIOSH web search page (using the “all fields” option) for “Organisation of Work Measurement Tools for Research and Practice” (<http://www.cdc.gov/niosh/topics/workorg/tools/search.html>). Catalogs of the main publishers of psychological and psychosocial tests (PAR, Thames Valley Test Company, NFER Nelson, SHL Psychological Corporation, and ASE) were also searched to identify potentially relevant instruments. No language-based exclusions were made. The original instrument (and official revisions) was identified whenever possible and obtained when feasible. To facilitate description of each single instrument, further searches were then performed in Google, Google Scholar and PubMed (entering instrument names/acronyms as search terms).

Description of instruments

All identified instruments that included assessment of psychosocial factors at work were considered. Based on the characteristics of the instruments themselves or their descriptions, the single instruments were first grouped according to their methodological approach as questionnaires or observational instruments (workplace observations, including instruments employing questionnaires as part of a broader evaluation process). We excluded instruments designed only for use in specific professions. Due to the prohibitive number of questionnaires, we also decided to exclude questionnaires designed to assess only one or two factors. For each of the remaining questionnaires, an experienced psychologist (M.C.T.) identified the main objectives and measures, based on authors’ descriptions (and original instruments, where feasible). We listed versions (different length questionnaires, professions, etc.), available languages (including official translations), and official website addresses. We also noted officially acknowledged national/international parent organisations/approaches. Other notes on the instruments’ main characteristics (original purpose, etc.) were reported when considered helpful. For objective instruments, we also considered type and methodology.

Results

We identified a total of 33 instruments (26 questionnaires, 7 observational). Features of the instruments are individually summarised in Tables 1 and 2 (accompanied by selected

Table 1 Summary of questionnaires with references to a guide/description [and year of first publication]

COPENHAGEN PSYCHOSOCIAL QUESTIONNAIRE (COPSOQ) (Kristensen et al. 2005) [2002]	
<i>Objectives</i>	Psychosocial factors, stress, individual health/well-being, personality factors (coping style, sense of coherence, etc.)
<i>Measures</i>	Cognitive demands; commitment; freedom; demands to hide emotions; emotional demands; feedback; influence; insecurity; satisfaction; meaningfulness; career; predictability; leadership; quantitative demands; role clarity; role conflicts; community feeling; sensorial demands; social relations/support; mental/physical health; coherence; behavioral stress
<i>Versions</i>	Long (141-item) for researchers; medium (95-item) for work-environment professionals; brief (44-item) for workplace
<i>Languages</i>	Dutch; Chinese, Danish, English, Flemish, German, Croatian, Malaysia, Norwegian, Persian, Portuguese, Spanish, Swedish
<i>Notes</i>	Official instrument of AMI
<i>Internet</i>	< http://www.arbejdsmiljoforskning.dk/Spørgeskemaer/Psykisk%20arbejdsmiljø.aspx >
EFFORT-REWARD IMBALANCE (ERI) (Siegrist et al. 2004) [1994]	
<i>Objectives</i>	Effort-reward relations as determinants of well-being
<i>Measures</i>	3 unidimensional scales: effort (6 items on quantitative/qualitative load, overall increase, physical load); reward (11 on financial, esteem, career, security, etc.); overcommitment (6 or 29 items)
<i>Versions</i>	short (23-item), long (46-item)
<i>Languages</i>	German; Chinese, Czech, Danish, Dutch, English, Finnish, French, Italian, Japanese, Norwegian, Polish, Portuguese, Russian, Spanish, Swedish
<i>Notes</i>	Developed at University of Düsseldorf, primarily in cardiovascular health studies
<i>Internet</i>	< http://www.uni-duesseldorf.de/MedicalSociology/Effort-reward_imbalance_at_wor.112.0.html >
GENERAL NORDIC QUESTIONNAIRE (QPS NORDIC) (Lindstrom 2002) [2000]	
<i>Objectives</i>	Psychological/social factors (as potential determinants of motivation, health and well-being)
<i>Measures</i>	Job demands/control, role expectation, Work/individual predictability, social interaction, leadership, communication, organisational culture/climate, work group, organisation-commitment, competence, preference for challenge, work motives/centrality, private life interactions
<i>Versions</i>	Short (34-item); long (123-item)
<i>Languages</i>	English, Danish, Icelandic, Norwegian, Suomi, Swedish, Greeke
<i>Notes</i>	Official instrument of Nordic Council of Ministers
<i>Internet</i>	< http://www.norden.org/pub/velfaerd/arbetsmiljo/sk/TN00_603.asp >
HSE INDICATOR TOOL (HSE) [2004]	
<i>Objectives</i>	Conditions known to be potential determinants of work-related stress
<i>Measures</i>	6 primary stressors: demands; control; support; relationships; role; change
<i>Versions</i>	35-item
<i>Languages</i>	English; Arabic, Bengali, Chinese, Farsi, Gujarati, Hindi, Hungarian, Kurdish, Pashto, Polish, Punjabi, Russian, Tamil, Turkish, Urdu, Welsh
<i>Notes</i>	An official tool of HSE; designed as key step in HSE's Stress Management Standards process
<i>Internet</i>	< http://www.hse.gov.uk/stress/standards/downloads.htm >
JOB CHARACTERISTICS INDEX (JCI) (Sims et al. 1976)	
<i>Objectives</i>	Subjectively perceived job characteristics
<i>Measures</i>	Skill variety; autonomy; feedback; coworker interactions; task identity; friendships
<i>Versions</i>	30-item
<i>Languages</i>	English
<i>Notes</i>	Incorporates simplified JDS dimensions
JOB CONTENT QUESTIONNAIRE (JCQ) (Karasek et al. 1998) [1985]	
<i>Objectives</i>	Content of respondents' work tasks using high-demand/low-control/low-support model of job strain development
<i>Measures</i>	Three main scales of job stress development: decision latitude; psychological demands; social support. Two scales of work demands: physical demands; job insecurity

Table 1 continued

<i>Versions</i>	By Karasek: recommended (49-item); long (112-item); original (brief, 27-item) Widely used adaptations of the JCQ include the Swedish Demand-Control Questionnaire (DCQ) (17 items, with five on psychological job demands, six on decision latitude [authority, 2; skill discretion, 4], and six on social support) and the Whitehall version (25 items, with 15 on decision latitude/control, four on job demands, and six on social support) (Landsbergis and Theorell 2000)
<i>Languages</i>	English; Bulgarian, Chinese (incl. Taiwan), Czech, Dutch (incl. Flemish), German, Greek, French (incl. Canada), Iceland, Italian, Japanese, Korean, Malaysian, Norwegian, Polish, Portuguese (incl. Brazil), Russian, Spanish (various), Swedish, Thai.
<i>Notes</i>	Developed at University of Massachusetts. Provides indications of relative risks of developing job-related health outcomes (psychological distress, coronary heart disease, musculoskeletal disease, reproductive disorders)
<i>Internet</i>	< http://www.jcqcenter.org >
JOB DIAGNOSTIC SURVEY (JDS) (Hackman and Oldham 1975) [1975]	
<i>Objectives</i>	Subjectively perceived job characteristics
<i>Measures</i>	Skill variety; autonomy; task significance; task identity; feedback
<i>Versions</i>	15-item
<i>Languages</i>	English
<i>Notes</i>	Generally used to examine how workers respond to job design
JOB STRESS SURVEY (JSS) (Vagg and Spielberg 1999) [1994]	
<i>Objectives</i>	Severity/frequency of working conditions
<i>Measures</i>	3 main scales: job stress (-index, -severity and -frequency). Plus three job pressure (-index, -severity and -frequency) subscales and three support deficit subscales
<i>Versions</i>	30-item
<i>Languages</i>	English; French
MULTIDIMENSIONAL ORGANISATIONAL HEALTH QUESTIONNAIRE (MOHQ) (Avallone and Pamplomatas 2005) [2003]	
<i>Objectives</i>	Indicators of organisational wellbeing.
<i>Measures</i>	Environmental comfort, clear goals, competence valorisation, listening, information disponibility, conflict, relationships, problem solving, demand, safety, effectiveness, fairness, job descriptions, social utility, openness to innovation
<i>Versions</i>	139-item
<i>Languages</i>	Italian
<i>Notes</i>	Used by ISPEL
<i>Internet</i>	< http://www.oisorg.it/strumenti/mohq/index.html >
NIOSH GENERIC JOB STRESS QUESTIONNAIRE (Hurrell and McLaney 1988) [1988]	
<i>Objectives</i>	Job characteristics, psychosocial factors, physical conditions, safety hazards, stress, health and job satisfaction
<i>Measures</i>	Psychosocial exposure (workload, responsibility, role demands, mental demands, conflict, skill underuse, employment opportunities, types of job control, etc.); individual strain (depression, somatic complaints, job dissatisfaction, illnesses); stress-strain mediators (social support, self-esteem)
<i>Versions</i>	Selectable forms ($n = 22$); total: 246 items
<i>Languages</i>	English; Japanese, Korean, Spanish
<i>Notes</i>	Official NIOSH questionnaire
NOVA WEBA QUESTIONNAIRE (Huys and De Rick 2005) [1992]	
<i>Objectives</i>	Identify stress-related risks
<i>Measures</i>	4 main measures: control requirements/job demands (quantitative demands, control problems); control options (autonomy, contacts, organizing tasks, information provision); job composition (completeness of functions, cycle times, craftsmanship, cognitive complexity/mental effort); other risks (uncertainty, time constraints, job-education/experience fit, emotional effort/exhaustion)
<i>Versions</i>	156-item
<i>Languages</i>	Dutch
<i>Notes</i>	Incorporated in CWA

Table 1 continued

OCCUPATIONAL STRESS INDEX (OSI) (Belkic 2000) [2003]	
<i>Objectives</i>	Occupational stress burdens
<i>Measures</i>	2-dimensional matrix. Vertical: information transmission (sensory input, central decision-making, task performance). Horizontal: stress dimensions (underload, high demand, strictness, extrinsic time pressure, aversive/noxious exposures, vigilance/disaster potential, conflict/uncertainty)
<i>Versions</i>	Generic (65-item) and specific (drivers, physicians, teachers, manufacturing workers, clerical staff, air traffic controllers, airline pilots)
<i>Languages</i>	English; Bosnian, Serbian, Swedish
<i>Notes</i>	Focuses on work stressors of known cardiovascular relevance
<i>Internet</i>	< http://www.workhealth.org/OSI%20Index/OSI%20Home%20Page.html >
OCCUPATIONAL STRESS INDICATOR (OSIND) (Cooper et al. 1988) [1988]	
<i>Objectives</i>	Stressful working conditions
<i>Measures</i>	3 main measures: sources of pressure scale (intrinsic factors, managerial role, relationships, career/achievement, organisational structure/climate, home-work interface); stress effects (low job satisfaction, poor mental/physical health); stress-strain mediators (coping skills, stress-prone personality)
<i>Versions</i>	167-item
<i>Languages</i>	English; Italian
<i>Notes</i>	PMI (Pressure Management Indicator; see below) is a revised version of this instrument
OCCUPATIONAL STRESS INVENTORY (OSINV) (Osipow 1992) [1980]	
<i>Objectives</i>	Occupational adjustment in terms of job stressors, personal strain, and coping
<i>Measures</i>	3 dimensions: Occupational Roles Questionnaire (role overload/insufficiency/ambiguity/boundary, responsibility, physical environment); Personal Strain Questionnaire (vocational, psychological, interpersonal and physical strain); Personal Resources Questionnaire (recreation, self-care, social support, rational/cognitive coping)
<i>Versions</i>	Battery of three questionnaires (140 items)
<i>Languages</i>	English
OCCUPATIONAL STRESS QUESTIONNAIRE (Elo et al. 1998) [1992]	
<i>Objectives</i>	Occupational stress: perceived work/environmental stressors, individual stress reactions, and organisational influence
<i>Measures</i>	Job complexity, autonomy, role clarity, organisational climate, support from superiors, cooperation, work appreciation, work hazards, feedback, time pressure
<i>Versions</i>	56-item
<i>Languages</i>	Finnish; English
<i>Notes</i>	Official instrument of FIOH
PRESSURE MANAGEMENT INDICATOR (Williams and Cooper 1998) [1998]	
<i>Objectives</i>	Workplace pressure
<i>Measures</i>	Effects of pressure (job satisfaction, organisational satisfaction, organisational security, organisational commitment, state of mind, resilience, confidence level, physical symptoms, energy levels); sources of pressure (workload, relationships, recognition, organisational climate, personal responsibility, managerial role, home/work balance, daily hassles); individual differences (drive, impatience, control, influence, problem focus, social support, emotional detachment)
<i>Versions</i>	120-item
<i>Languages</i>	English; “over 20 languages”
<i>Notes</i>	Developed from Occupational Stress Indicator
<i>Internet</i>	< http://www.resourcesystems.co.uk/pmi/pmi2.htm >
PSYCHOSOCIAL WORKING CONDITIONS (PWC) (Widerszal-Bazyl and Cieslak 2000) [2000]	
<i>Objectives</i>	Stress impact of psychosocial working conditions
<i>Measures</i>	3 main scales: job demands (intellectual, psychosocial, and resulting from overload; role conflict); job control (behavioral/cognitive); social support. Plus two scales adapted from Occupational Stress Questionnaire: well-being, wish-list for change
<i>Versions</i>	36-item
<i>Languages</i>	Polish

Table 1 continued

<i>Notes</i>	Implemented by CIOP
STRESS DIAGNOSTIC SURVEY (SDS) (Ivancevich et al. 1983) [1983]	
<i>Objectives</i>	Identify specific areas of high job stress in work environment
<i>Measures</i>	2 main measures: individual (role conflict/ambiguity, job scope, time pressure, career, responsibility, qualitative/quantitative overload); organisational (policy, rewards, participation, underuse, supervisory style, organisation structure, human resource development)
<i>Version</i>	80-item
<i>Languages</i>	English
<i>Notes</i>	Developed from factor analysis in various settings (business executives, health workers, graduate managerial staff, engineering students, etc.)
STRESS D'ORGANISATION QUESTIONNAIRE (VOS-D) (PREVENT 2005) [1986]	
<i>Objectives</i>	Work conditions to facilitate task accomplishment for challenged workers
<i>Measures</i>	14 modules: overloads, role definition, over-responsibility, conflicting roles, work station immobility, decisional powers, interest in work, job security, support from superiors, from colleagues, job satisfaction, work worries, mental health, physical health
<i>Version</i>	95-item (some open questions)
<i>Languages</i>	Dutch, French
<i>Notes</i>	Developed by psychologists at University of Nijmegen, Netherlands
STRESS PROFILE (Setterlind and Larson 1995) [1995]	
<i>Objectives</i>	Psychosocial work environment
<i>Measures</i>	4 main measures: external causes of stress (psychosocial work environment, work content, workload/control, leadership climate, physical work environment, family relationships, major life events, daily hassles/satisfactions); reactions (self-perception, sense of coherence); coping skills (problem-focused, emotion-focused, behavior type, lifestyle); stress reactions (physical, emotional, cognitive, burnout)
<i>Versions</i>	224-item
<i>Languages:</i>	English; Norwegian, Danish, Estonian, Finnish, German, French
<i>Internet</i>	< http://www.setterlindconsulting.se/articles.html >
STRESS RISK ASSESSMENT QUESTIONNAIRE (SRA) (Stressrisk.com) [2003]	
<i>Objectives</i>	Workplace stress
<i>Measures</i>	12 main measures: organisational culture; demands (including physical hazards); control; relationships; organisational change; role; support; health; performance; coping with workplace pressures; need for organisational change; stress-reduction suggestions
<i>Versions</i>	50-item
<i>Languages</i>	English
<i>Notes</i>	Belongs to broader Stress Risk Assessment Process, based on principles outlined in HSE Managers' Guide to Tackling Work Related Stress
<i>Internet</i>	http://www.stressrisk.com
TRAVAIL ET SANTÉ (VAG) (Conseil National du Travail (CNT) 2004; Fédération Générale du Travail de Belgique (FGTB) 2002) [1993]	
<i>Objectives</i>	Characteristics of workplace stress
<i>Measures</i>	Task contents; work organisation; physical conditions, safety/equipment; relationships; physical/psychological efforts; work-private life interaction; career; health; work opinion
<i>Versions</i>	Complete (200-item), abridged (41)
<i>Languages</i>	Dutch, French
<i>Notes</i>	Developed during 1970s/1980s by NIPG-TNO
TRIPOD SIGMA QUESTIONNAIRE (Wiezer and Nelemans 2005) [2003]	
<i>Objectives</i>	Stress management tool
<i>Measures</i>	8 scales: procedures; hardware; organisation; communication; training/skills; incompatible goals; social support; individual defenses
<i>Versions</i>	166-item
<i>Languages</i>	Dutch

Table 1 continued

<i>Notes</i>	Highlights managerial advantages of combating employees' stress risks. Incorporated in CWA
<i>Internet</i>	< http://www.tripodsolutions.net/?rd=http://www.tripodsolutions.net/article.aspx?id=307 >
	VLAGENLIJST BELEVING EN BEOORDELING VAN DE ARBEID (VBBA) (Van Veldhoven and Broersen 2003) [1994]
<i>Objectives</i>	Causes and consequences of work-environment factors
<i>Measures</i>	8 dimensions: job characteristics (work pace/volume, emotional/mental load, physical effort); variety; autonomy; relationships/communication; job-related problems (task clarity/changes, information, problems); conditions (pay, career, insecurity); satisfaction (pleasure, organisational involvement, turnover); strain (need to recover, worry, sleep quality, emotional reactions, fatigue)
<i>Versions</i>	Full (232-item) and abridged (108-item); plus optional sector-specific items
<i>Languages</i>	Dutch; French (Questionnaire sur le Vécu du Travail; VT)
<i>Notes</i>	Incorporated in CWA, and used PREVENT.
<i>Internet</i>	< http://www.vbba.nl/vbba_nl/index.htm >
	WORK ENVIRONMENT SCALE (WES) (Moos 1981) [1981]
<i>Objectives</i>	Social climate of work units
<i>Measures</i>	Involvement; peer relations; supervisor support; autonomy; task orientation; work pressure; clarity; control; innovation; physical comfort
<i>Versions</i>	Long (90-item); short (40-item)
<i>Languages</i>	English
<i>Notes</i>	Developed for treatment and care agencies
	WORKING CONDITIONS AND CONTROL QUESTIONNAIRE (WOCQ) (De Keyser and Hansez 1996) [2001]
<i>Objectives</i>	Psychosocial risk and workers' job-control
<i>Measures</i>	Control of work situation: resources; future; task management; risks to self/others; work planning; time management
<i>Versions</i>	80-item (plus two optional questionnaires)
<i>Languages</i>	French; Dutch, English
<i>Notes</i>	Constructed by Department of Work Psychology of University of Liege, Belgium. Used in INRS. Used by PREVENT
<i>Internet</i>	< http://www.wocq.be >

Acronyms and abbreviations of institutional approaches (country): AMI National Institute of Occupational Health (Denmark), NIOSH National Institute for Occupational Safety and Health, HSE Health and Safety Executive (U.K.), CWA Combat Workstress Approach (Netherlands), FIOH Finnish Institute of Occupational Health, CIOP-PIB Central Institute for Labour Protection—National Research Institute (Polish), ISPESL National Institute of Occupational Health and Safety (Italy), INRS Institute of Research and Safety (French), PREVENT Institute for Occupational Safety and Health (Belgium), NIPG-TNO Institute of Preventive Health Care (Netherlands), SOBANE Screening, OBServation, ANalysis, Expertise (Belgium)

citations of instrument descriptions/guides). Among the 26 questionnaires, 14/26 (54%) only considered psychosocial factors; 3 (12%) considered psychosocial factors and coping; 3 (12%) considered psychosocial factors and strain, 6 (23%) di 26) psychosocial factors, strain stress reaction and coping. Five (71%) of the seven observational instruments focused on psychosocial factors only; 1 (14%) examined psychosocial factors together with strain and coping; 1 (14%) considered psychosocial factors, strain and coping. Based on information gleaned from the literature (Conseil National du Travail (CNT) 2004; Delaunoy et al. 2002; D'Hertefeldt 2002; Fédération Générale du Travail de Belgique (FGTB) 2002; Levi et al. 1999; Peter et al. 2004; Schaufeli and Kompier 2001), we found that at least 11 (42%) questionnaires and 5 (71%) observational instruments declare affiliation to (or participation/incorporation in) one or more wider official national/international institutional initiatives for prevention of psychosocial risks (HSE,

Netherlands Combat Workstress Approach, SOBANE) or national institutions (AMI in Denmark, CIOP in Poland, INRS in France, ISPESL in Italy, NIOSH in U.S.A., Nordic Council of Ministers, PREVENT in Belgium). As regards diffusion of information on the internet, a total of 13 (50%) questionnaires and 2 (29%) observational instruments had website pages.

Discussion

The present work provides a schematic overview of the spectrum of available instruments designed for evaluation of psychosocial factors (with/without other job stressors). We used a systematic search strategy in order to photograph the current overall availability of instruments within the broadest international context possible. The resulting summary (Tables 1, 2) may facilitate appropriate selection

Table 2 Summary of observational instruments with references to a guide/description [and year of first publication]

CANEVAS (Delaunois et al 2002) [1995]	
<i>Type</i>	Company analysis
<i>Objectives</i>	Company stress diagnosis at given moment. Initial global evaluation of situation (service, department, company, organisation) in terms of risks/confirmation of stress
<i>Measures</i>	Activities (task, autonomy, role, make decision, risks); environment (context, organisational structure, career, earnings, interpersonal relation); individual mediators (family stress, personality, values, capacity, experience, health)
<i>Methods</i>	70 items on factual company data (physical environment, information exchange dynamics, company culture, psychosocial factors, working conditions, working hours). Analysis based on four concepts: integration, mastery, transparency, requirements
<i>Languages</i>	French
<i>Notes</i>	Method relates to “analysis” levels of SOBANE
FINNISH INSTITUTE FOR OCCUPATIONAL SAFETY AND HEALTH (Hurrell et al. 1998) [1983]	
<i>Type</i>	Observational checklist
<i>Objectives</i>	Assessment of job stressors (psychosocial, physical, chemical)
<i>Measures</i>	12 stressors (safety responsibilities, repetitiveness, forced pace, complex decision making, etc.)
<i>Methods</i>	Ratings based on work observations (stressors defined/illustrated in user manual), supplemented by supervisor/worker interviews
<i>Languages</i>	Suomi
<i>Notes</i>	Historically, one of the first observational instruments designed for use by occupational health personnel
POSITION ANALYSIS QUESTIONNAIRE (PAQ) (McCormick et al. 1972) [1972]	
<i>Type</i>	Job-analysis
<i>Objectives</i>	Position and job stress evaluations
<i>Measures</i>	195 items:187 regarding activities/environment (information, mental processes, output, relationships, work station, job characteristics), eight compensation
<i>Method</i>	Based on worker/supervisor interviews, analysts rate items’ strength in particular job
<i>Languages</i>	English
<i>Notes</i>	Initially designed for position analysis for evaluating/classifying jobs for pay purposes
<i>Internet</i>	< http://www.paq.com/index.cfm?FuseAction=Main.Home >
RHIA/VERA (Leitner and Resch 2005) [1989]	
<i>Types</i>	Observational job-stress analysis
<i>Objectives</i>	Describe and evaluate stress factors thought to affect health
<i>Measures</i>	Work barriers, monotonous working conditions, time pressure, adverse environmental factors, time constraints, constraints to physical necessities.
<i>Methods</i>	Two parts: manual with all definitions and response sheets, prepared for particular analysis; 2–6 h worksite observations/worker-interviews using semi-standardised protocol (reported on response sheets following user-manual definitions)
<i>Languages</i>	German
<i>Notes</i>	Developed at Technical University of Berlin
SUVAPRO (Delaunois et al. 2002) [1999]	
<i>Type</i>	Checklist
<i>Objectives</i>	Screening of company stress situations providing premises for interventions
<i>Measures</i>	Stressors, anti-stress resources; symptoms of stress
<i>Methods</i>	3 documents: (1) For management, questions on accidents, absence, material damage, accidents, job security; deadlinesstress-related complaints, socially isolated working stations, monotony, responsibilities, work station. (2) For working groups, 3-section checklist comprising: stress identification, eliminating causes of stress, improving working conditions. (3) For individuals, 10 sections: “five illustrative cases”; explanation of stress; personal questions to identify stressors; evaluation of symptoms; resource assessment (autonomy, social network, information/participation, physical/mental fitness, organisation/planning/work motivation); summary results table (and identification of any immediate action); removing stressors (more detailed illustration), developing resources (facilitating organisation, planning/preparation, communication, relaxation/balance), discussion of “five illustrative cases”, construction of personal anti-stress program

Table 2 continued

<i>Languages</i>	French; German, Italian
<i>Notes</i>	Method relates to “tracking” and “observation” levels of SOBANE
<i>Internet</i>	< http://www.suva.ch/it/home/suvapro/branchenfachmen/stress.htm?WT.svl=sub >
	TRAVAILLEUR ET ORGANISATION (TOMO) (PREVENT 2005) [1994]
<i>Type</i>	Observational checklist
<i>Objectives</i>	Inventory of risks associated with functions/departments (not individual workers)
<i>Measures</i>	(1) Task requirements: work contents (monotony, function, cycles, units, etc.); workload (time pressure, precision/concentration, underload, emotional); responsibility (too much/little, poorly defined, contradictory); knowledge/aptitudes (too high/low). (2) Working relationships: functional contacts (dialogue , support, co-operation); other contacts (possibilities, work environment); superiors (feedback, support, etc.); personal integrity (space, intimacy, discriminations, sexual harassment). (3) Working conditions: remuneration (level, differentiation, etc.); secondary conditions (recreation facilities, etc.); rest-working time (schedules, working time, pauses); career. (4) Regulation possibilities: tasks (modality, rate/rhythm, solution of problems, external disturbances); environment (freedom of movement, work station, interruptions, contact with colleagues); organisation (dialog, working time/ schedules, career); information/feedback
<i>Methods</i>	Three documents: (1) inventory of problems, list of 54 items (evaluated by observation, interviews, discussion); (2) 137 preventive actions; (3) 54 items divided four groups of measures (see above)
<i>Languages</i>	Dutch
<i>Notes</i>	Used for SOBANE and by PREVENT
	WEBA (WELZIJN BIJ OF ARBEID) (Delaunois et al. 2002)[1990]
<i>Type</i>	Job-analysis instrument
<i>Objectives</i>	Identify threats to wellbeing in terms of risks of stress and psychic overload and lack of appropriate work-training availability
<i>Measures</i>	7 dimensions: (1) completeness of work function (coherent set of tasks with preparation/support); (2) task organisation (decision-making, communication with superiors/coworkers for problem-solving); (3) avoidance of short-cycle tasks (<90 sec); (4) degree of function difficulty (balance between intensive/ straightforward tasks); (5) work autonomy (rate/rhythm, task order, personal working method); (6) social contacts (superiors/coworkers); (7) information availability (individual, departmental and company levels)
<i>Methods</i>	Preliminary screening by questionnaire (to determine risk groups/departments), followed by six steps: (1) task analysis (inventory); (2) task-condition evaluation (work-cycle time, cognitive complexity, autonomy, opportunities for contact, information); (3) and (4) job control problems (capacity vs demands), process disturbances; (5) job evaluation (see measures, above); (6) reporting of results and discussion of priorities and interventions
<i>Languages</i>	French, Dutch
<i>Notes</i>	Designed for use by Work and Organisational experts in the context of CWA. Used by PREVENT

Acronyms and abbreviations of institutional approaches (country): *AMI* National Institute of Occupational Health (Denmark), *NIOSH* National Institute for Occupational Safety and Health, *HSE* Health and Safety Executive (U.K.), *CWA* Combat Workstress Approach (Netherlands), *FIOH* Finnish Institute of Occupational Health, *CIOP-PIB* Central Institute for Labour Protection—National Research Institute (Polish), *ISPESL* National Institute of Occupational Health and Safety (Italy), *INRS* Institute of Research and Safety (French), *PREVENT* Institute for Occupational Safety and Health (Belgium), *NIPG-TNO* Institute of Preventive Health Care (Netherlands), *SOBANE* Screening, OBServation, ANalysis, Expertise (Belgium)

for purposes and contexts ranging from rapid work-group/company screening to far more detailed analyses performed on various levels.

The preponderance (over threefold) of questionnaires is unsurprising given their convenience as compared with the far more expensive and time-consuming observational instruments, which generally require expert administration (Schaufeli and Kompier 2001). Remarkably, five of the seven available observational instruments initially appeared in a 10-year period between 1989 and 1999 (we were unable to find any new observa-

tional instrument published since then). Production of new questionnaires has been fairly prolific since the 1980s when seven instruments appeared (8 new instruments followed in the 1990s and a further eight since 2000). The need for production of new questionnaires can be attributed to multiple factors driven by socio-economic, technological and commercial transformations, including changing work demands (new skills, increased flexibility, etc), and social changes (gender and age distributions, ethnic groups, etc.) (Organisation of Work Team Members (NORA) 2002; Peter et al. 2004). Such

factors have also elicited increased institutional involvement (Polanyi and Tompa 2004).

About half the questionnaires and the majority of the observational instruments are used by national institutions or in national initiatives. Some instruments are used by more than one initiative (e.g. VBBA and WEBA, which are official instruments of both the Netherlands and Belgium), and some were originally developed for the specific purposes of an institutional initiative (e.g. COPSOQ in Denmark). These observations probably reflect integration of instruments in broader public prevention campaigns. A particularly advanced instance of institutional integration can be found in the Netherlands, where (following the introduction of the Working Conditions Act and the related Combat Workstress Approach) instruments such as WEBA and VBBA are administered for the Occupational Health and Safety Services by Work and Organisational Experts, who have received a highly specific post-graduate training. In Great Britain, the HSE indicator tool forms part of a broader institutional approach (Management standards for work-related stress) which responds to principles and specific requirements of the UK Management of Health and Safety at Work Regulations (of note, the SRA questionnaire also provides British companies with a tool to cover their national legal obligations). We think that awareness of how such instruments have been designed to fit into a broader approach to stress control may also be useful to facilitate effective implementation of appropriately selected tools in different settings.

As regards accessibility and diffusion of knowledge, some dedicated website sections (Table 1) provide [e.g. for COPSOQ, JCQ, and HSE's Stress Management Standards Indicator Tool (HSE Management standards for tackling work related stress. HSE indicator tool user manual. [monograph on the internet]. Available from: <http://www.hse.gov.uk/stress/standards/downloads.htm>)] extensive documentation and free access to the instrument (albeit without the essential instruction manual). For some instruments, only brief descriptions are provided, along with contact information for ordering. Still other instruments, including several institutionally important ones (such as WEBA) currently appear to offer no website information or support. Remarkably, we were not always able to find even in the literature contact information (for ordering, etc.). Of note, much useful information on U.S. instruments and some selected European ones can be found using the NIOSH website search engine for Organisation of Work Measurement Tools (see <http://www.cdc.gov/niosh/topics/workorg/tools/search.html>).

A premise of the present work is that the spread of information on instruments and their characteristics is a worthwhile objective to enhance both practice and research. Whereas work stress instruments are widely used in some

geographical regions (e.g. northern Europe), their diffusion elsewhere is rather limited. We hope this paper will facilitate wider international dissemination of some important initiatives (of note, we found website pages decisive for tracing some instruments and their national affiliations). It should be pointed out that several categories of instruments for assessing work stress fell outside the scope (or eligibility criteria) of the present work: (a) those based exclusively on technical or physiological measures; (b) relevant single-item measures (such as the single item measure of stress symptoms by Elo et al. (2003) which has shown validity at group level); (c) instruments for specific professions; (d) instruments considering less than three psychosocial factors. Of note, a useful reference table of scales for just one or two stressor is available from the University of South Florida website, at <http://www.cas.usf.edu/OHP/stressor-table.htm>. The completeness of the present work will quickly become dated by the ongoing production of new instruments, but the information provided could facilitate further surveys and updates for specific purposes.

Study limitations

The objectives of this extensive survey were purely descriptive, and quality assessment considerations were therefore outside the scope of the work. Of note, many validation studies can be found in the bibliographies of the guides and descriptions of the instruments cited in the present article, which were also chosen to provide access to information on theoretical assumptions and contexts. We used a systematic bibliographic search strategy in conjunction with uniform selection criteria, but (for practical reasons) we were not always able to obtain the original instrument. Thus, caution should be exercised when comparing the characteristics of individual instruments.

Conclusions

Recent decades have seen the development of a variety of questionnaires and observational instruments for stress assessment (Theorell and Hasselhorn 2005). The present summary of the range of questionnaires and observational instruments currently available for evaluation of multiple work stressors at individual, group and/or organisational levels may provide a useful tool in the initial phases of the selection process, and also for researchers who plan to develop a novel instrument (Murphy and Schoenborn 1987). We also hope this article may facilitate diffusion of the various instruments and knowledge of their relations with broader institutional approaches and initiatives for work stress control.

Acknowledgments We thank Lesley Cooper and Martyn Sandbrook for a personal communication on the background to the SRA and PMI questionnaires. This work was supported in part by a grant from the Italian Workers' Compensation Authority (*INAIL*), the National Institute for Prevention and Occupational Safety (*ISPESL*) and the Government of the Region Emilia-Romagna. Any opinions expressed in this paper are those of the authors.

References

- Avallone F, Paplomatas A (2005) Salute Organizzativa. Psicologia del benessere nei contesti di lavoro. 1st edn. Raffaello Cortina Editore, Milan
- Belkic K (2000) The Occupational Stress Index. An introduction. Job Stress Network [home page on the Internet]. Available from: <http://www.workhealth.org/OSI%20Index/OSI%20Introduction.html>
- Conseil National du Travail (CNT) (2004) La prevention du stress, Convention collective de travail n. 72 [monograph on the internet]. Available from: <http://www.cnt-nar.be/DOC-DIVERS/Stress/Prévention%20du%20stress-2004.PDF>
- Cooper CL, Sloan SJ, Williams JS (1988) Occupational stress indicator management guide. NFER-Nelson, Windsor
- Cox T, Mackay CJ (1981) A transactional approach to occupational stress. In: Corlett EN, Richardson J (eds) Stress, work design and productivity. Wiley, Chichester
- Cox T, Rial-González E (2005) Work-related stress: the European picture. Work-related stress is a strong negative emotional reaction to work. In: Working on stress Magazines 5 [serial on the internet]. Available from: <http://osha.europa.eu/publications/magazine/5>
- D'Hertefelt H (2002) Measuring psychosocial workload in Belgium. TUTB Newsl (19–20):39–44
- De Keyser V, Hansez I (1996) Vers une perspective transactionnelle du stress au travail: pistes d'évaluations méthodologiques. Cahiers de Médecine du Travail 33(3):133–144
- Delaunois M, Malchaire J, Piette A (2002) Classification des méthodes d'évaluation du stress en entreprise. Médecine du Travail & Ergonomie 39(1):13–28
- Elo AL, Leppanen A, Jankola A (2003) Validity of single-item measures of stress symptoms. Scand J Work Environ Health 29(6):444–451
- Elo AL, Leppanen A, Sillanpaa P (1998) Applicability of survey feedback for an occupational health method in stress management. Occup Med 48(3):181–188
- Fédération Générale du Travail de Belgique (FGTB) (2002) Stress agir pour le bien-être au travail [brochure on the internet]. Available from: http://www.fgtb.be/CODE/fr/Documents/2002/stress/c15_10e10Idx.htm
- French JRP, Caplan RD, van Harrison R (1982) The mechanisms of job stress and strain. Wiley, New York
- Frese M, Zapf D (1988) Methodological issue in the study of work stress: Objective vs. subjective measurement of work stress and the question of longitudinal studies. In: Cooper CL, Payne R (eds) Causes, coping and consequences of stress at work. Wiley, New York, pp 375–411
- Hackman JR, Oldham (1975) Development of the job diagnostic survey. J Applied Psychol 60(2):159–170
- Hurrell JJ, McLaney MA (1988) Exposure to Job Stress: A new psychometric instrument'. Scand J Work Environ Health 14(1):27–28
- Hurrell JJ Jr, Nelson DL, Simmons BL (1998) Measuring job stressors and strains: where we have been, where we are, and where we need to go. J Occup Health Psychol 3(4):368–389
- Huys R, De Rick K, Vandenbrande T (2005) Enhancing learning opportunities at work. [monograph on the internet]. Available from: http://ec.europa.eu/education/policies/2010/studies/enhance05_en.pdf
- Ivancevich JM, Napier HA, Wetherbe JC (1983) Stress in the Information Systems Professional. [monograph on the internet]. Available from: <http://delivery.acm.org/10.1145/810000/800620/p57-ivancevich.pdf?key1=800620&key2=9920451711&coll=&dl=ACM&CFID=15151515&CFTOKEN=6184618>
- Johnson JV, Hall EM, Stewart W, Fredlund P, Theorell T (1991) Combined exposure do adverse work organisation factors and cardiovascular disease: towards a life-course perspective. In: Fechter LD (ed) Proceedings of the 4th International Conference on the combined effects of environmental factors. Johns Hopkins University Press, Baltimore
- Karasek RA (1979) Job demands, job decision latitude and mental strain: implications for job redesign. Adm Sci Q 24:285–308
- Karasek R, Brisson C, Kawakami N, Houtman I, Bongers P, Amick B (1998) The job content questionnaire (JCQ): an instrument for internationally comparative assessments of psychosocial job characteristics. J Occup Health Psychol 3(4):322–355
- Kasl SV (1987) Methodologies in stress and health: past difficulties, present dilemma, future directions. In: Kasl SV, Cooper CL (eds) Stress and health: issues in research methodology. Wiley, New York, pp 307–318
- Kasl SV (1998) Measuring job stressors and studying the health impact of the work environment: an epidemiologic commentary. J Occup Health Psychol 3(4):390–401
- Kompier M (2005) Assessing the psychosocial work environment—“subjective” versus “objective” measurement [editorial]. Scand J Work Environ Health 31(6):405–408
- Kristensen TS (1995) The demand-control-support model: methodological challenges for future research. Stress Med 11:17–26
- Kristensen TS, Hannerz H, Høgh A, Borg V (2005) The Copenhagen Psychosocial Questionnaire—a tool for the assessment and improvement of the psychosocial work environment. Scand J Work Environ Health 31(6):438–449
- Landsbergis P, Theorell T (2000) Measurement of psychosocial workplace exposure variables. In: Schnall P, Belkic K, Landbergis P, Baker D (eds) The workplace and cardiovascular disease. Publ. Hanley Belfus, Inc. pp 163–171
- Lazarus RS, Folkman S (1984) Stress, appraisal and coping. Springer, New York
- Leitner K, Resch MG (2005) Do the effects of job stressors on health persist over time? A longitudinal study with observational stressor measures. J Occup Health Psychol 10(1):18–30
- Levi L, Sauter SL, Shimomotsu T (1999) Work-related stress—it's time to act. J Occup Health Psychol 4(4):394–396
- Lindstrom K (2002) Nordic method for measuring psychosocial and social factors at work. TUTB Newsl (19–20):48–49
- McCormick EJ, Jeanneret PR, Mecham RC (1972) A study of job characteristics and job dimensions as based on the position analysis questionnaire (PAQ). J Appl Psychol 56(4):347–368
- Moos RH (1981) Work environment scale manual. Consulting Psychologists Press, Palo Alto
- Murphy LR, Schoenborn TF (eds) (1987) Stress management in work settings. [monograph on the internet]. DHHS (NIOSH); Publication No. 87-111. Available from: <http://www.cdc.gov/niosh/87-111.html>
- Organization of Work Team Members (NORA) (2002) The changing organization of work and the safety and health of working people: knowledge gaps and research directions. [monograph on the internet]. Cincinnati: NIOSH. Available from: <http://www.cdc.gov/niosh/pdfs/02-116.pdf>
- Osipow SH (1992) Occupational stress inventory. Psychological Assessment Resources, Odessa
- Peter RA, Morvan O, Morvan E, (eds) (2004) European ways to combat psychosocial risks related to work organisation: towards

- organisational interventions? [monograph on the internet]. TNO Work and Employment/PEROSH. Available from: <http://tno-areid.adlibsoft.com/adlib/docs/Perosh-2004.pdf>
- Polanyi M, Tompa E (2004) Rethinking work-health models for the new global economy: a qualitative analysis of emerging dimensions of work. *Work* 23(1):3–18
- PREVENT (2005) [homepage on the internet]. Mesurer le stress au travail (la pratique). 2005. Available from: <http://fr.prevent.be/net/net01.nsf/p/75A18BC6C4EFD97AC1256AC00045EADF>
- Quick JC (1998) Introduction to the measurement of stress at work. *J Occup Health Psychol* 3(4):291–293
- Rick J, Briner RB, Daniels K, Perryman S, Guppy A (2001) A critical review of psychosocial hazard measures, Contract research report 356/2001 [monograph on the internet]. HSE Books. Available from: http://www.hse.gov.uk/RESEARCH/crr_hm/2001/crr01356.htm
- Rosenstock L (1997) Work organization research at the National Institute for Occupational Safety and Health. *J Occup Health Psychol* 2(1):7–10
- Schaufeli WB, Kompier M (2001) Managing job stress in the Netherlands. *Int J Stress Manage* 8:15–34
- Setterlind S, Larson G (1995) The stress profile—a psychosocial approach to measuring stress. *Stress Med* 11(2):85–92
- Siegrist J (1990) Chronischer Distress und koronares Risiko: Neue Erkenntnisse und ihre Bedeutung für die Prävention. In: Arnold M, v. Ferber C, Henke K.D (Hrsg.) *Ökonomie der Prävention*. Bleicher, Gerlingen
- Siegrist J, Starke D, Chandola T et al (2004) The measurement of effort–reward imbalance at work: European comparisons. *Soc Sci Med* 58(8):1483–1499
- Sims HP, Szilagyi AD, Keller RT (1976) The measurement of job characteristics. *Acad Manage J* 19:195–212
- Theorell T, Hasselhorn HM (2005) On cross-sectional questionnaire studies of relationships between psychosocial conditions at work and health—are they reliable? *Int Arch Occup Environ Health* 78:517–522
- Vagg PR, Spielberger CD (1999) The job stress survey: assessing perceived severity and frequency of occurrence of generic sources of stress in the workplace. *J Occup Health Psychol* 4(3):288–292
- Van Veldhoven M, Broersen S (2003) Measurement quality and validity of the “need for recovery scale”. *Occup Environ Med* 60:3–9
- Widerszal-Bazyl M, Cieslak R (2000) Monitoring psychosocial stress at work: development of the Psychosocial Working Conditions Questionnaire. *Int J Occup Saf Ergon (Spec)*:59–70
- Wiezer N, Nelemans R (2005) Tripod Sigma: an instrument for proactive stress management. *Occup Health Psychol* [serial on the Internet] 2(3):15–17. Available from: http://www.ea-ohp.org/downloads/The_Occupational_Health_Psychologist_Vol_2_Issue_3.pdf
- Williams JS, Cooper CL (1998) Measuring occupational stress: development of the pressure management indicator. *J Occup Health Psychol* 3(4):306–321
- Wright TA, Cropanzano R (2000) The role of organizational behavior in occupational health psychology: a view as we approach the millennium. *J Occup Health Psychol* 5(1):5–10