# Systematic review: Work-related stress and the HSE Management Standards

**K. Brookes[1], C. Limbert[1], C. Deacy[2], A. O'Reilly[3], S. Scott[4] and K. Thirlaway[1]**

[1]Department of Applied Psychology, Cardiff Metropolitan University, Cardiff CF5 2YB, UK, [2]Occupational Health, Safety & Wellbeing, Cardiff Metropolitan University, Cardiff, UK, [3]Human Resources, Staff Development, Cardiff Metropolitan University, Cardiff, UK, [4]Occupational & Environmental Public Health, Cardiff Metropolitan University, Cardiff, UK

Correspondence to: C. Limbert, Department of Applied Psychology, Cardiff Metropolitan University, Cardiff CF5 2YB, UK.
E-mail: climber@cardiffmet.ac.uk

| | |
|---|---|
| **Background** | The Health and Safety Executive (HSE) has defined six management standards representing aspects of work that, if poorly managed, are associated with lower levels of employee health and productivity, and increased sickness absence. The HSE indicator tool aims to measure organizations' performance in managing the primary stressors identified by the HSE management standards. |
| **Aims** | The aims of the study are to explore how the HSE indicator tool has been implemented within organizations and to identify contexts in which the tool has been used, its psychometric properties and relationships with alternative measures of well-being and stress. |
| **Methods** | Studies that matched specific criteria were included in the review. Abstracts were considered by two researchers to ensure a reliable process. Full texts were obtained when abstracts met the inclusion criteria. |
| **Results** | Thirteen papers were included in the review. Using factor analysis and measures of reliability, the studies suggest that the HSE indicator tool is a psychometrically sound measure. The tool has been used to measure work-related stress across different occupational groups, with a clear relationship between the HSE tool and alternative measures of well-being. Limitations of the tool and recommendations for future research are discussed. |
| **Conclusions** | The HSE indicator tool is a psychometrically sound measure of organizational performance against the HSE management standards. As such it can provide a broad overview of sources of work-related stress within organizations. More research is required to explore the use of the tool in the design of interventions to reduce stress, and its use in different contexts and with different cultural and gender groups. |
| **Key words** | HSE; indicator tool; management standards; systematic review; work-related stress. |

## Introduction

Employers in the UK have a responsibility, created by the Health and Safety at Work Act, 1974, to manage the health and safety of their employees. Although initially this duty of care applied to physical health, recognition that work-related stress has a considerable impact on employees' well-being means that legislation now includes employees' physical and mental well-being [1]. The Health and Safety Executive (HSE) [2] defines stress as an adverse reaction to excessive or extreme pressures or demands that may be placed upon individuals. Although there are different frameworks and theories to explain work-related stress, it can be seen as a psychological state that reflects the relationship between individuals and their work environment [3].

Statistics throughout the literature show that occupational stress is a major cause of chronic and long-term ill health [4], with levels of stress highly dependent on demographic and occupational factors [5]. The HSE suggests that in 2011/12, 1.8 million people in the UK suffered from work-related illness, in many cases involving workplace stress, depression and anxiety [6]. The Labour Force Survey showed that work-related stress was more prevalent among females than among males with the

highest rates of work-related stress in the 3 years from 2009 to 2012 reported by health professionals, teaching and educational professionals and caring and personal services staff [7]. Stress is one of the greatest causes of sickness absence with each person suffering from stress taking an average of 24 days off work during the year 2011/12 [8].

In a review of UK literature, Giga *et al.* [9] showed that the majority of stress management interventions were aimed at the individuals, although more recent research has focused on organizational interventions. Individual- or person-centred approaches that focus on stress management training and that incorporate cognitive behavioural approaches and relaxation are shown to be effective for individual well-being, improving skills for coping with work-related stress and reducing overall levels of stress. Organizational interventions have a stronger focus on changing and improving employees' tasks, working conditions and social relations. Organizational interventions aim to control the hazards within the working environment and are more likely to have effects at an organizational level, for example on employee absenteeism rates. Evidence suggests that both types of stress-reducing interventions have some benefits for both individuals and organizations, especially when such interventions are implemented early, such as referral to occupational health services within 2–3 months of sickness absence [3,9–12].

Based on their review of literature and policy, Cox *et al.* [3] emphasized that work-related stress is a current and future issue that should be tackled with the same priority as other health and safety issues using risk management, theory and standards-based approaches.

The HSE is the UK regulatory body responsible for occupational health and safety and adopts a standards-based approach to tackling work-related stress. The concept is based on desired states or standards being identified and compared against actual or current standards. The HSE have highlighted six management standards defining aspects of work that, if poorly managed, are associated with lower levels of health, productivity and well-being and with increased sickness absence: demands, control, support, relationships, role and change. The HSE indicator tool is a standardized 35-item questionnaire, in which items are categorized into seven subscales that relate to the primary stressors identified by the management standards (see Table 1).

The aim of the indicator tool is to provide a broad indication of how employees rate an organization's performance in meeting the management standards. The HSE analysis tool provides mean scores for each subscale and allows organizational performance for each standard to be analyzed and compared with benchmark data, representing averages taken from 136 organizations [1,13–15].

The aim of this systematic review is to explore existing studies that have applied the HSE indicator tool within an organization to identify the contexts in which the HSE indicator tool has been used, the psychometric properties of the tool, relationships with psychological well-being and stress and any recommendations or problems with using the tool to identify sources of work-related stress.

## Methods

Three databases were searched: SUMMON (which is an electronic database used to explore all existing credible and reliable library content, including all records from the university's library catalogue, records from the institutional repository and citations and full text of 87% of the scholarly journals to which Cardiff Met Libraries provide access) and OVID SP (which includes MEDLINE and PsychINFO). Search terms and keywords used were as follows: HSE management standards, HSE indicator tool, HSE approach to stress and measures of work-related stress. All English-language content post-2005 was considered because 2005 is when the indicator tool was developed.

The key terms revealed 110 abstracts. There was an overlap in studies identified, so duplicates were removed. Full texts were obtained when abstracts satisfied the selected inclusion criteria, i.e. papers must include empirical studies using the HSE indicator tool, post-2005 and in the English language. Papers that did not use the 35-item HSE indicator tool to explore work-related stress were rejected. There were no restrictions on the country or location in which the study took place.

**Table 1.** HSE management standards and their relationship to the HSE indicator subscales

| Management standards | Indicator tool subscales |
| --- | --- |
| Demands (including issues such as workload, work patterns and the working environment) | Demands |
| Control (how much say the person has in the way they do their work) | Control |
| Support (which includes the encouragement and resources provided by the organization, line management and colleagues) | Managers' support + peer support |
| Relationships at work (which includes promoting positive working practices to avoid conflict and dealing with unacceptable behaviour) | Relationships |
| Role (whether people understand their role within the organization and whether the organization ensures that the person does not have conflicting roles) | Role |
| Change (how organizational change is managed and communicated) | Change |

For papers where the abstract did not give enough information, full texts were retrieved and were then included or rejected based on this information. Abstracts were considered by two researchers to ensure reliability in the selection process. Both researchers agreed on the inclusion/exclusion of papers in 90% of the cases. For the other 10%, disagreements were resolved through discussion of the paper. This selection process is outlined in Figure 1.

Ethical approval was not required for this study as it involved only the use of secondary data available in the public domain.

For each paper meeting the inclusion criteria, full texts were obtained and key information from each was extracted and entered into a summary table. Key information was categorized into the following: study design, sample size and population; response rate; findings; and additional comments relating to the use of the HSE indicator tool.

## Results

Thirteen papers were included in the review as they satisfied the inclusion criteria. The key information for each study is summarized in Table 2.

The sample size varied from 91 to 67 347, with the response rate varying from 23 to 100% between studies. The majority were UK based, but Guidi *et al.* [22] and Magnavita [27] used the indicator tool in Italy,

which required an Italian translation of the measure, and D'Aleo *et al.* [24] used the measure in Australia.

The HSE indicator tool has been used to investigate work-related stress and psychological well-being in a range of occupational groups. These included mental health nurses and allied health professionals [19], a university and college union [20], police officers [23], hospice workers [17], veterinary surgeons [16] and radiographers [21] among others. One study did not include a specific organization or occupation: in this instance, D'Aleo *et al.* [24] explored the difference in workplace stress between private and public sector workers in Australian organizations undergoing organizational health reviews. This range of occupational groups reinforces the relevance of the tool among different professions who inevitably experience different levels of stress.

The psychometric properties of the HSE indicator tool were also explored. Five of the studies considered the reliability of the measure using Cronbach's alpha. George and Mallery [28] suggested that a coefficient above 0.6 is questionable, above 0.7 is acceptable, above 0.8 is good and above 0.9 is excellent. The reliability coefficients reported in the papers in this review varied from 0.62 for 'change' [16] based on a cohort of UK veterinary surgeons to 0.92 for the scale as a whole [25] based on data from 39 organizations. It can be concluded that the items used in the HSE tool are generally reliable, with only one study suggesting that one scale may be 'questionable' [16].
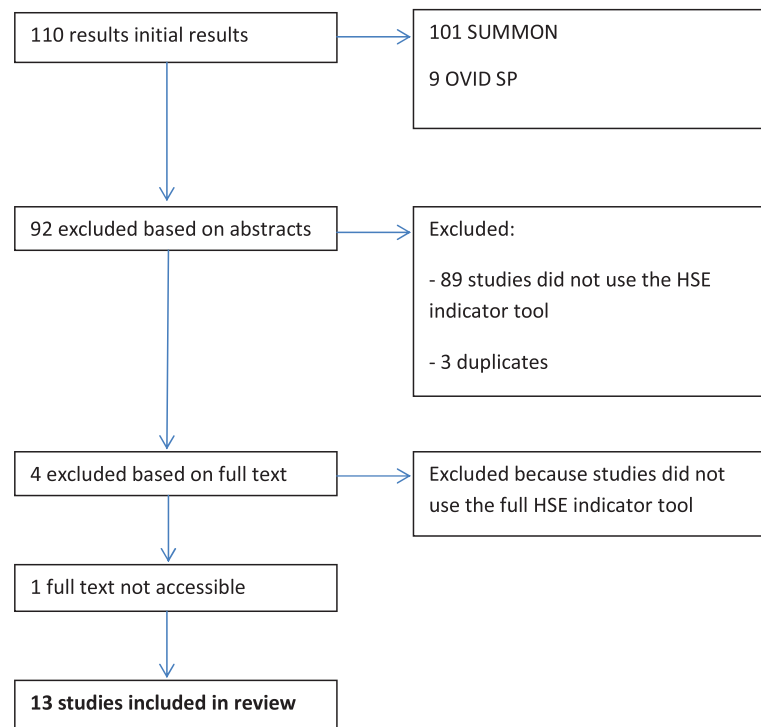


**Figure 1.** The selection process for studies included in the review.

**Table 2.** Summary of the studies included in review

| Study | Design/Measures | Sample | Response rate | Findings | Additional comments |
|---|---|---|---|---|---|
| Summary of studies that include a single public sector organization (by date) | | | | | |
| 1. Bartram *et al*. [16] | Questionnaire design including the HSE MS indicator tool and other measures of stress (using bespoke questions, re: anxiety and depressive symptoms, alcohol consumption, etc.) | 1796 UK veterinary surgeons | 56% | -Reliability coefficient over 0.60 for all subscales<br>-Higher level of work-related stress in areas of 'demands' and 'managers support' and lower level of stress in areas of 'relationships' and 'change' when compared with the general population (benchmark data)<br>-Work related stress determined by number of hours worked, employment status, etc. | -HSE indicator tool provides a broad indication of work-related stress<br>-Indicator tool may fail to recognize the specific elements of veterinary work |
| 2. Hackett *et al*. [17] | Cross-sectional design including the Depression, Anxiety and Stress Scale (DASS-21), the HSE MS indicator tool and a demographic questionnaire | 91 UK employees from two hospices (only three male employees) | 69% | -Five subscales show a need for improvement or urgent action, 'control' and 'peer support' are the only two with scores termed as 'good'—low overall scores on HSE MS<br>-'change' sig predictor of depression ($P < 0.01$)<br>-None of the HSE variables predicted anxiety<br>-'demands' sig predictor of stress ($P < 0.01$)<br>-'demands' and 'change' sig predictors of negative affect | -Qualitative research needed to explore the explanations of work-related stress |
| 3. Kerr *et al*. [15] | Cross-sectional survey including demographic variables, the HSE MS indicator tool and measures of job-related well-being, job satisfaction and witnessed errors/near-misses | 707 UK employees of a community-based Health and Social Services Trust | 29% | -All seven subscales had a significant relationship with the stress-related outcomes investigated<br>-There was a positive association between HSE MS and job satisfaction and a negative association between the HSE MS and job-related anxiety, job-related depression and witnessed errors/near-misses | -First study to examine the association between the final revised version of the HSE MS indicator tool and stress-related work outcomes |
| 4. Bevan *et al*. [18] | Questionnaire design including demographic variables, the HSE MS indicator tool and the exhaustion scales from the General Health Well-being Questionnaire | 1 038 UK employees of Her Majesty's prison service | 29% | -Five of the seven subscales were below the 20th percentile suggesting 'urgent action needed'<br>-Employees who reported psychosocial work environment to be poor were three times more likely to have a poor well-being score<br>-Problems with 'role' had the strongest association with poor well-being, and 'control' had the weakest association | -Indicator tool is limited when used as the only tool to measure work-related stress<br>-HSE benchmark data do not represent occupational groups known to have high levels of work-related stress |

**Table 2.** *(Continued)*

| Study | Design/Measures | Sample | Response rate | Findings | Additional comments |
|---|---|---|---|---|---|
| 5. Gibb *et al.* [19] | Questionnaire design including personal details, sickness absence, HSE MS indicator tool, Maslach Burnout Inventory Human Services Survey and questions relating to coping | 279 UK mental health nurses and allied health professionals | 37% | –Scores were above average for 'demands' and 'relationships', but required urgent action in areas of 'manager support', 'peer support', 'role' and 'change'<br>–Over 50% reported having previously suffered from work-related stress, 14% reported current work-related stress | –Coping strategies (i.e. diet, exercise and sleep behaviours) and support also considered<br>–OHS services supportive with regards to the self-management of work-related stress |
| 6. Kinman and Court [20] | Online survey of occupational stress including the HSE MS indicator tool and working hours | 14 270 UK members of the Universities and Colleges Union | 23% | –Reliability for each subscale determined, coefficient ranged from 0.83 to 0.90<br>–35% of respondents worked over 50 h per week<br>–Majority of HSE MS are not met, stress relating to role, support, relationships, demands and the management of change was particularly problematic. The 'control' subscale, however, exceeds that of the target group<br>–No UK higher education institution in the survey met the recommended levels for all of the HSE MS | –Data compared to previous study conducted in higher education sector to measure work-related stress but not using HSE MS indicator tool<br>– Recommend use of HSE instead of alternative measures<br>–The majority of UK higher education institutions were represented despite the low response rate. |
| 7. Verrier and Harvey [21] | Cross-sectional survey, including the HSE MS indicator tool and two qualitative free-response questions (FRQ) | 32 UK radiographers in a district hospital | 80% | –Work-related stress management standards are not being met within the radiography department<br>–Problem areas include 'managers support', 'relationships', 'role' and 'change'<br>–FRQ showed staff shortages, heavy workload and volume of patients contributed to work-related stress<br>–Recommendations from FRQ included increased staffing and improved communication and feedback systems | –Suggest the use of focus groups to explain work-related stress further<br>–Study does not collect any demographic information or levels of sickness absence, etc., which would allow comparisons of work-related stress among groups of individuals |

**Table 2.** *(Continued)*

| Study | Design/Measures | Sample | Response rate | Findings | Additional comments |
|---|---|---|---|---|---|
| 8. Guidi *et al.* [22] | Survey including demographic and job characteristic variables, the 12-Item General Health Questionnaire (GHQ-12), the HSE MS indicator tool and the Work Ability Index (WAI) questionnaire | 418 Italian bank employees | 99, 98 and 85% for each section of the survey | -Three out of seven subscales were above the 50th percentile and the remaining four were below the 50th percentile, suggesting a clear or urgent need for action<br>-GHQ score was above the cut-off threshold (11/12), 57% of respondents had potential psychological disorders<br>-Mean score for the WAI was 38.1 suggesting a good work ability<br>-HSE subscales were negatively associated with psychological distress and positively associated with work ability | -Surveys were translated into Italian for this survey<br>-First study to use the GHQ as an outcome measure<br>-Recommend use of indicator tool to investigate and manage work-related stress |
| 9. Houdmont *et al.* [23] | Self-report questionnaire including demographic and occupational details, the HSE MS indicator tool and a single-item measure of perceived work-related stress | 1729 UK police officers | 23% | -Psychosocial hazards were above the government guidelines (i.e. mean scores on each of the subscales fell below the 80th percentile compared with benchmark data—with the exception of 'relationships' where the mean was above average)<br>-Significant positive correlation between scores on each of the seven organizational psychosocial hazards and perceived work-related stress | -First study to assess police officers' organizational psychosocial hazards exposure using the HSE MS indicator tool<br>-Suggests that high-stress occupational groups are under-represented in the benchmark data |
| Summary of studies that include multiple public and private sector organizations (by date) | | | | | |
| 10. D'Aleo *et al.* [24] | Quasi-experimental study. Questionnaire including personal and job characteristics (i.e. sector of employment (private or public), workgroup size and gender) and the HSE MS indicator tool | 664 Australian private and public sector workers | 100% from samples for which data were used | -Private sector employees rated organizations significantly lower on effectively managing work-related stress on all dimensions<br>-For both sectors, all scores on each of the seven subscales and 35 items were below the top 20% of the UK sample scores (i.e. below the 80th percentile)<br>-Work-related stress hazards particularly related to 'role' and 'relationships' | -Study did not account for demographic variables such as gender, age, etc.<br>-Suggests that other work-related stressors may be prevalent<br>-Overrepresentation of public sector employees in the sample |

**Table 2.** *(Continued)*

| Study | Design/Measures | Sample | Response rate | Findings | Additional comments |
|---|---|---|---|---|---|
| 11. Edwards *et al.* [25] | HSE MS indicator tool | 26 382 UK employees from 39 different UK organizations | 45% average | -Overall reliability coefficient for 35 items is 0.92<br>-First-order seven-factor CFA showed the 35-item model for the HSE indicator tool fits the data. Second-order CFA had an acceptable fit to the data (suggests a hierarchical factor structure)<br>-Analysis supports the factor structure of the 35-item, seven-factor tool | -Supports the use of the indicator tool by employers across most industries |
| 12. Edwards and Webster [26] | HSE MS indicator tool | 67 347 UK employees from across 137 organizations 110 public and 26 private sector (1 unknown) | 45% average | -Reliability coefficient for seven subscales ranged from 0.81 to 0.89<br>-Private sectors had greater mean and percentile scores than the public sectors on HSE subscales<br>-Factor analysis of original model showed improvements for the fit of data<br>-Items with loadings <0.65 were removed from the measure (resulting in the 25-item measure)<br>-Shorter version had a good fit with data from study<br>-Comparison between 35-item and 25-item measure showed they were invariant across public and private sectors | -Study builds on preceding research from Edwards *et al.* (2008)<br>-Suggest the use of a shorter 25-item measure<br>-Provide benchmark means, standard deviation and percentiles for the 25-item measure<br>-Suggest that the HSE's benchmark data could incorporate the data from this study |
| 13. Magnavita [27] | Cross-sectional survey including sociodemographic variables, the HSE MS Revised Indicator Tool (MS-RIT, translated into Italian) and the GHQ-12. | 748 Italian employees over 17 companies | 91% average | -Reliability coefficient for six subscales ranged from 0.75 to 0.86<br>-Occupational conditions (measured by MS-RIT) associated with psychological distress<br>-All subscales had a significant relationship to psychiatric cases<br>-Demands and relationships increased risk of distress, managerial flexibility, support, role and control decreased risk of distress | -Factor extraction completed to determine factor components<br>-Principle characteristics remained the same as original UK version, although constructs (subscales) changed to represent sample |

The 35-item indicator tool was explored in three papers using factor analysis to determine the psychometric properties of the measure. Edwards *et al.* [25] performed confirmatory factor analysis (CFA) to analyse whether all items within the HSE indicator tool were consistent with the structure. The first-order CFA showed that the current model had a suitable fit with the organizational data used (from 39 UK organizations, $N$ = 26 382). Furthermore, the second-order CFA showed that the measure has a hierarchical factor structure. The authors concluded that although all measures assess different areas of work-related stress, they essentially all tap into the same overall concept, providing evidence to support the use of the 35-item measure as a reliable, representative and psychometrically sound tool to measure work-related stress.

Continuing from this research, Edwards and Webster [26] performed a similar CFA on the indicator tool using data from 137 organizations ($N$ = 67 347). They suggested improvements could be made within the model and thus removed items with low factor loadings (these same items were also suggested by Edwards *et al.* [25] in 2008 during their initial study). The new shorter 25-item measure produced good-fit statistics with the organizational data produced for this study, suggesting a reliable and sound improvement. When comparing the original and shorter versions, there was a significant improvement in how the shorter model fit the data and the measure was also invariant across both public and private sector companies, again supporting its use in both contexts.

Included in the review is the HSE management standards revised indicator tool that has been introduced into Italian workplaces by the Italian Institute for Health and Safety [27]. The standard UK measure was translated into Italian for this study, which explored whether the structure and psychometric properties of the original measure were changed in the Italian version. Factor analysis suggested the existence of six factors including five of the original factors: demands, role, control, peer support and relationships and a new factor 'elasticity', which combines the original manager's support and change constructs and one item from the control construct. It is suggested that the new factor 'elasticity' (which represented 12% of the total variance) represents the Italian workforce's ability to cope with difficulties and to adapt working methods when they receive managerial support. Cronbach's alpha for these factors all exceeded 0.75. When compared with the original indicator tool, the main characteristics remained unchanged and the factor structure was comparable to the UK version's factor structure. However, the addition of a new subscale was said to reflect differences between Italian and British employees, and it further suggests that the usability of the questionnaire for ethnic minorities and other cultural groups should be considered carefully.

The reliability of the benchmark data with which the HSE analysis tool compares organizational results is also considered by the studies included in this review. The HSE analysis tool compares scores against benchmark data to determine if the organization is performing above or below organizational averages. A number of studies highlighted reliability problems with the benchmark data. Bevan *et al.* [18] concluded that the benchmark data were not representative of occupational groups known to have high levels of work-related stress (e.g. prison workers). Their study concluded that the benchmark data explained why a high number of items were identified as needing attention and suggested that basing recommendations and judgements on comparisons with these data can be unreliable. Houdmont *et al.* [23] agreed that high-stress organizations are underrepresented in the benchmark data, suggesting that adding more organizations known to have high stress to the database could make it more representative of different occupational groups. Bartram *et al.* [16] also suggested that although the HSE indicator tool allows some exploration of work-related stress among veterinary surgeons, it fails to recognize specific elements of the profession. However, Edwards *et al.* [25] argued that the 39 organizations on which the benchmark data were based allowed the tool to be used by most occupations and provided a reliable and representative measure of work-related stress. Edwards and Webster [26] also recommend that the data collected from their study ($N$ = 67 347, across 137 organizations) could be added to the existing benchmark data to allow for more accurate comparisons between the HSE indicator benchmark data and individual companies. Within their study Edwards and Webster [26] also provided percentile tables for both private and public sector organizations, as well as standard deviations, benchmark means and percentile tables for the shorter 25-item measure they propose.

A number of other measures were used across the studies included in this review, in addition to the HSE indicator tool. Bevan *et al.* [18] included the exhaustion scale from the General Health and Well-being Questionnaire in a sample of prison service employees. They found that problems associated with 'role' had the strongest association with poor well-being, whereas perceived 'control' over the job had the weakest association with poor well-being. Kerr *et al.* [15] investigated the relationship between HSE management standards and three work-related stress outcomes that they identified in a sample of employees from a health and social services trust ($N$ = 707): job satisfaction, job anxiety/depression and errors/near-misses. Multiple regression analysis found that the subscales accounted for 67% of the variance in job satisfaction, 36% of the variance in job-related anxiety, 28% of the variance in job-related depression and 18% of the variance in errors/near-misses. Similarly, *Guidi et al.* [22] explored the relationship between the

HSE management standards and psychological distress, as measured by the General Health Questionnaire (GHQ-12) and the Work Ability Index (WAI) among Italian bank employees. The results demonstrated a negative association between the HSE management standards and psychological distress (GHQ-12) and a positive association between the HSE management standards and work ability (WAI).

Other measures of stress and well-being included within the studies were measures of job-related well-being, job satisfaction and witnessed errors/near-misses, sickness absence, the Maslach Burnout Inventory, bespoke questions relating to coping strategies, single-item measures of perceived work-related stress, the Depression, Anxiety and Stress Scale (DASS-21), bespoke questions relating to anxiety and depressive symptoms and FRQs relating to stress.

The studies suggest that although the HSE indicator tool is a good indicator of employers' performance in meeting the HSE management standards, it is common practice to use additional measures of stress and well-being to provide a more detailed account of workplace stress and employee health.

## Discussion

The results of the systematic review demonstrated that the HSE indicator tool has been used in a broad range of occupational contexts and in a number of different countries. The reports confirmed that the HSE indicator tool is psychometrically sound and demonstrates good reliability. A shorter, 25-item measure has been proposed [26], particularly for situations where the measure is combined with other questionnaires that could make the combined instrument long and time consuming to complete. The use of the tool to suit different cultures is discussed and supported, although it may need to be restructured to suit some audiences [27].

It has been argued that the benchmark data are unrepresentative of some employment groups, particularly those exposing employees to high levels of stress [18], and the measure has been criticized for ignoring some important issues such as boredom and work overload that also contribute to stress [24]. But overall the studies in this review suggest that the HSE indicator tool is a psychometrically sound tool that compares organizational performance with the benchmark data.

This is the first article to report on a systematic review of studies based on the HSE indicator tool and to provide a valuable summary of the outcomes of research that has been conducted to date. However, there are relatively few published studies on this topic, and there is a likelihood that many studies that have assessed the value of the measure have not been published but were undertaken purely for internal organizational purposes. A greater emphasis on the publication of studies based on the HSE indicator tool would enable future reviews such as this to incorporate a broader range of studies from more organizations and professional groups.

A number of studies in this review make recommendations for further research using the HSE indicator tool to improve the understanding of factors contributing to work-related stress. For example, Bartram *et al.* [16], Hackett *et al.* [17] and Verrier and Harvey [21] all suggested that although the HSE indicator tool provides a broad indication of work-related stress, further in-depth studies using focus groups or other qualitative approaches would help clarify issues related to stress that are highlighted by the HSE tool. None of the studies provide evidence of any organizational- or individual-level interventions that have been developed to reduce work-related stress in response to findings of the HSE indicator tool. This is an important omission as identifying problem areas is only of value if they can then be addressed in an evidence-based way. Future research is essential to develop a body of evidence on which such strategies can be designed. Investigation of the impact of different cultural groups, ages and genders on the experience of work-related stress in relation to the HSE management standards is also required.

In conclusion, this systematic review suggests that the HSE indicator tool is a reliable measure of potential causes of work-related stress. However, more research to investigate the use of strategies to reduce work-related stress based on the HSE indicator tool is required before any conclusions regarding the value of the tool for this purpose can be drawn. The use to date of the measure outside the UK is also of interest to those seeking to adopt it for international use.

### Key points
- The HSE indicator tool measures an organization's performance in respect of six management standards, and existing literature suggests that it is a psychometrically sound tool to explore work-related stress within an organization.
- The use of benchmark data allows organizational comparisons and areas for improvement to be identified within the specific cohort. More research is required to identify ways of reducing work-related stress based on the findings of the indicator tool.
- More research is also required to investigate the reliability and validity of the tool when used with different cultural, age and gender groups.

## References

1. 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:**113–136.

2. HSE. *Tackling Work Related Stress: A Managers' Guide to Improving and Maintaining Employee Health and Well-being.* Sudbury, UK: Health & Safety Executive, 2001.

3. Cox T, Griffiths A, Rial-Gonzalez E. *Research on Work Related Stress*. Luxembourg: Office for Official Publications of the European Communities, 2000.

4. Scott S. Health examination generates vital statistics. *Occup Health* 2011;**63:**15.

5. Smith A, Brice C, Collins A, Matthews V, McNamara R. *The Scale of Occupational Stress: A Further Analysis of the Impact of Demographic Factors and Type of Job.* Sudbury, UK: HSE Books, 2000.

6. HSE. *At a Glance Guide to Health and Safety Statistics 2011/12,* 2012. http://www.hse.gov.uk/statistics/overall/hssh1112.pdf (26 March 2013, date last accessed).

7. HSE. *Stress-Related and Psychological Disorders in Great Britain (GB)*. http://www.hse.gov.uk/statistics/causdis/stress/index.htm (26 March 2013, date last accessed)

8. HSE. *Stress and Psychological Disorders*, 2012. http://www.hse.gov.uk/statistics/causdis/stress/stress.pdf (26 March 2013, date last accessed)

9. Giga SI, Noblet AJ, Faragher B, Cooper CL. The UK perspective: a review of research on organisational stress management interventions. *Aust Psychol* 2003;**38:**158–164.

10. van der Klink JJ, Blonk RW, Schene AH, van Dijk FJ. The benefits of interventions for work-related stress. *Am J Public Health* 2001;**91:**270–276.

11. Michie S, Williams S. Reducing work related psychological ill health and sickness absence: a systematic literature review. *Occup Environ Med* 2003;**60:**3–9.

12. Semmer NK. *Mental Capital and Well-being: Making the Most of Ourselves in the 21st Century*. 2008, http://www.bis.gov.uk/assets/foresight/docs/mental-capital/sr-c6_mcw.pdf (12 December 2012, date last accessed)

13. 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:**91–112.

14. HSE. *Managing the Causes of Work Related Stress: A Step-by-Step Approach Using the Management Standards*. Sudbury, UK: HSE Books, 2007.

15. Kerr R, McHugh M, McCrory M. HSE management standards and stress-related work outcomes. *Occup Med (Lond)* 2009;**59:**574–579.

16. Bartram DJ, Yadegarfar G, Baldwin DS. Psychosocial working conditions and work-related stressors among UK veterinary surgeons. *Occup Med (Lond)* 2009;**59:**334–341.

17. Hackett A, Palmer S, Farrants J. Phase 1 of an investigation into the levels of stress in United Kingdom hospice services. *Int J Palliat Nurs* 2009;**15:**66–72.

18. Bevan A, Houdmont J, Menear N. The Management Standards Indicator Tool and the estimation of risk. *Occup Med (Lond)* 2010;**60:**525–531.

19. Gibb J, Cameron IM, Hamilton R, Murphy E, Naji S. Mental health nurses' and allied health professionals' perceptions of the role of the Occupational Health Service in the management of work-related stress: how do they self-care? *J Psychiatr Ment Health Nurs* 2010;**17:**838–845.

20. Kinman G, Court S. Psychosocial hazards in UK Universities: adopting a risk assessment approach. *Higher Education Quarterly* 2009;**64:**413–428.

21. Verrier W, Harvey J. An investigation into work related stressors on diagnostic radiographers in a local district hospital. *Radiography* 2010;**16:**115–124.

22. Guidi S, Bagnara S, Fichera GP. The HSE indicator tool, psychological distress and work ability. *Occup Med (Lond)* 2012;**62:**203–209.

23. Houdmont J, Kerr R, Randall R. Organisational psychosocial hazard exposures in UK policing; Management standards indicator tool reference values. *Policing* 2012;**35:**182–197.

24. D'Aleo N, Stebbins P, Lowe R, Lees D, Ham D. Managing workplace stress: psychosocial hazard risk profiles in public and private sector Australia. *Aust J Rehab Counsel* 2007;**12:**68–87.

25. Edwards JA, Webster S, Van Laar D, Easton S. Psychometric analysis of the UK Health and Safety Executive's Management Standards and work related stress Indicator Tool. *Work & Stress* 2008;**22:**96–107.

26. Edwards JA, Webster S. Psychosocial risk assessment: measurement invariance of the UK Health and Safety Executive's Management Standards Indicator Tool across public and private sector organizations. *Work & Stress* 2012;**26:**130–142.

27. Magnavita N. Validation of the Italian version of the HSE Indicator Tool. *Occup Med (Lond)* 2012;**62:**288–294.

28. George D, Mallery P. *SPSS for Windows Step by Step: A Simple Guide and Reference. 11.0 Update*. 4th edn. Boston: Allyn & Bacon, 2003.