



Defining a case of work-related stress

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This research considers the feasibility and possible nature of a case definition of work-related stress that is suitable for application in a variety of stakeholder domains. The most important of these, for this research, is that of the epidemiological domain. The overall issue is important in two different contexts. First, it is needed in occupational health epidemiology as the basis for surveillance, and for monitoring the effectiveness of interventions. Second, it is of obvious importance in determining the award of compensation in civil litigation, employee liability insurance and industrial injury claims.

The research involved two parallel studies. The first concerned the nature of case definitions already applied within epidemiological surveys recently conducted into work-related stress in the UK. The second study involved identifying key stakeholders and harvesting information on (i) the case definitions employed in their various fields and (ii) their views on the feasibility of developing a single case definition that could span all domains while remaining consistent with epidemiological case definitions.

The conclusion drawn from these two studies was that no simple and universal case definition is possible, largely because of the complex nature of work-related stress. While it is not possible to resolve the different requirements and practices of the various stakeholder groups to produce such a case definition, it is possible to develop a case definition for application in epidemiological surveys that is broadly compatible with thinking and practice in other domains studied. An epidemiological case definition and associated assessment framework was arrived at by consensus and acknowledged across stakeholder groups as appropriate for application within the occupational health epidemiological domain.

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EXECUTIVE SUMMARY

Throughout Western Europe, there is evidence that work-related stress is one of the major challenges to the health of working people. In Britain, it has become the focus of government policies and targets concerned with improving health and reducing work-related illness by 2010. There is a clear need to monitor the incidence and prevalence of work-related stress in the general population and to monitor progress in reducing such stress against government targets. At present, a variety of different survey methods are employed to these ends and it is not always possible to compare data across surveys nor to track changes across time. The critical issue is that of establishing a case definition in relation to work-related stress. This research addresses the issue by considering the possible structure and feasibility of a case definition or model for work-related stress.

The issue of establishing a case definition for work-related stress is important in two different contexts. First, as suggested above, it is needed in occupational health epidemiology as the basis for surveillance, and for monitoring the effectiveness of interventions. Second, it is important in civil litigation, employee liability insurance and industrial injury compensation domains. While it was recognised by the authors at the outset that it might not be possible to resolve the different requirements and practices of these broad domains to produce a single useable case definition, it was also thought important that any model developed for application in epidemiological surveys should nonetheless be broadly compatible with thinking and practice in other domains.

The research involved two parallel investigations. The first concerned the nature of the epidemiological surveys recently conducted into work-related stress in the UK. While briefly reviewing their methods and findings, the main focus was on the case definition implicit in the methods used. The second investigation involved identifying key stakeholders from both domains (stress researchers, epidemiologists, lawyers, trades unionists, employers and their representative groups, occupational health practitioners, psychiatrists, counsellors, insurers, policy makers) and harvesting information on (i) the case definitions employed in their various fields and (ii) their views on the feasibility of developing a single case definition that could span all domains while remaining consistent with epidemiological case definitions.

The conclusion drawn from these two studies was that no single and universal case definition was possible, largely because of the complex nature of work-related stress. It was apparent from stakeholders' views that stress could not, and should not, be treated as an 'illness' but rather presented as a 'process', where the emotional experience of stress largely resulted from exposure to psychosocial hazards at work and in the worst cases led to impairments of physical and psychological health of clinical and behavioural significance. It was agreed that it was possible to develop a framework for a case definition based on the stress process and investigate what evidence could be used to test out its component parts and the linkages between them. It was recognised in the interviews with stakeholders that the detail and application of this definition would necessarily be different in the two domains. It would not be viable to impose the specifics of one domain upon the other for reasons of both principle and practice. There was unanimous agreement amongst stakeholders on this point.

Nonetheless, the development of a case definition suitable for use in epidemiological surveys, together with an associated assessment framework, remained a priority. An epidemiological case

definition and associated assessment framework were arrived at by consensus and acknowledged across stakeholder groups as appropriate for application within the occupational health epidemiological domain. The case definition and assessment framework are presented below (Fig. 1 and 2).

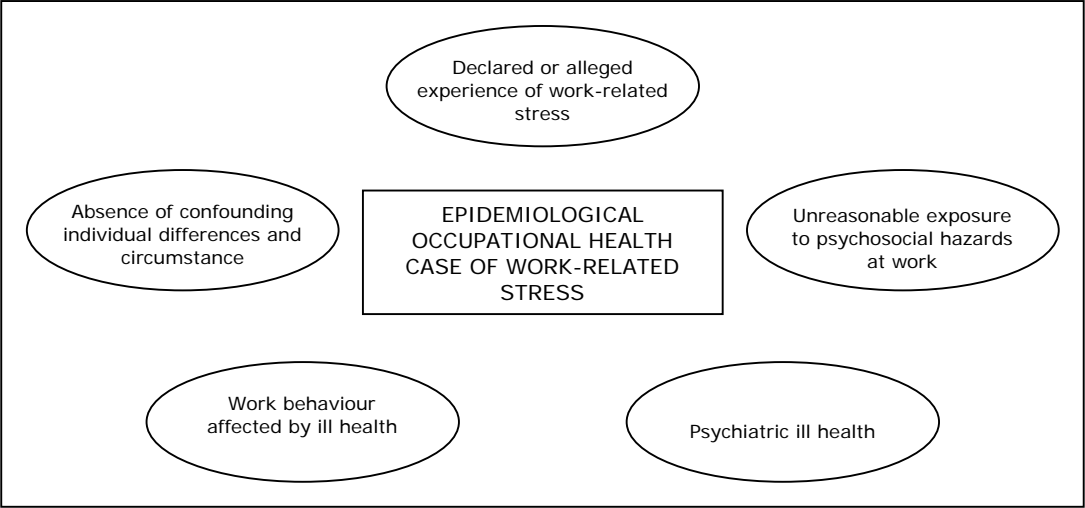


Figure 1 Conceptual model of an epidemiological occupational health case of work-related stress

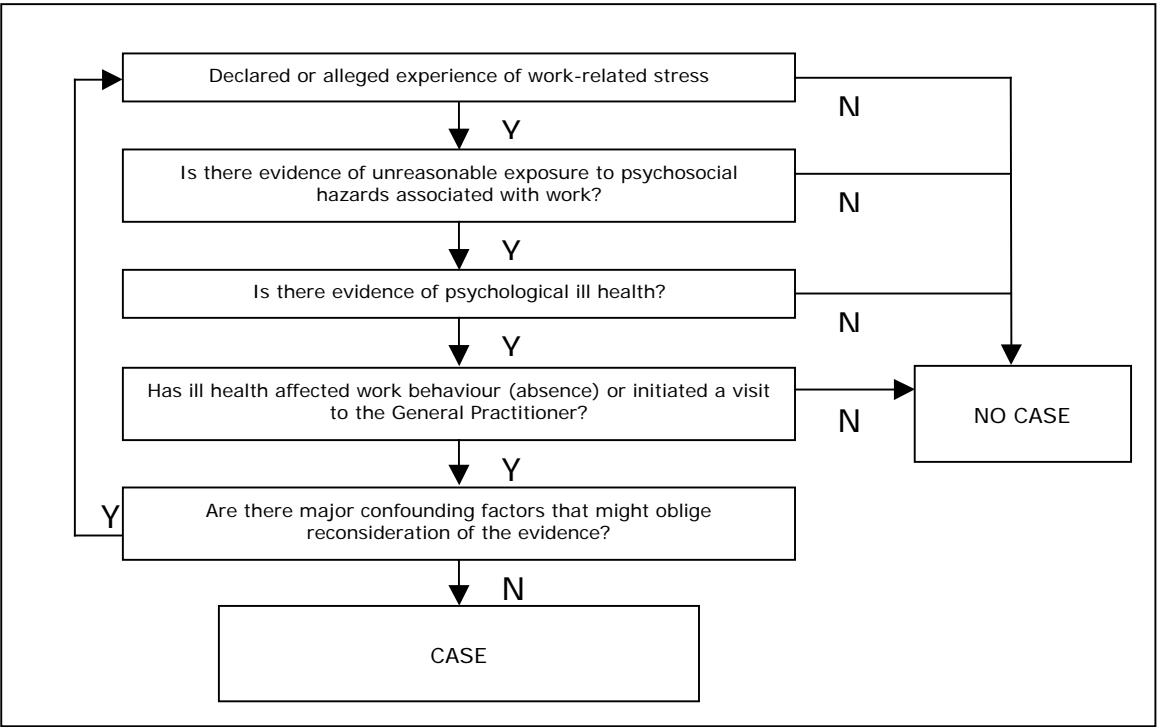


Figure 2 Epidemiological occupational health case assessment framework for work-related stress

The remit of this Report is to consider the feasibility of the development of a consensus case definition and assessment framework for work-related stress. The Report does not address specific technical issues within the assessment framework including the utility of existing measurement tools, case thresholds at each stage of assessment nor an overall algorithm for making a judgment on caseness. These issues will be considered in a subsequent programme of research.

CHAPTER 1 INTRODUCTION

This research was undertaken on behalf of the British Government's Health & Safety Executive (HSE) to examine the notion of a case definition in relation to work-related stress, and to suggest, if feasible, a consensus case definition and associated assessment framework.

1.1 AIMS OF THE PROJECT

The HSE set three objectives for this research.

Review the concept of 'case' or 'caseness' as applied to work-related stress, and consider: the purpose to which different formulations have been put and the different methodologies employed, together with the advantages and disadvantages of each, the principle target systems as well as psychological/behavioural domains.

The first objective is considered in Chapters three and four that describe (i) the various stakeholder groups with a vested interest in the modelling of a case definition in relation to work-related stress, and (ii) existing approaches to case definition employed by these groups.

Summarise the review process, make recommendations and develop a model about how (from HSE's perspective) a 'case' or degree of 'caseness' can be best derived/defined.

The second objective is considered in Chapter two which describes the research strategy used. Recommendations on the development of a consensus case definition are made in Chapter five.

Ensure recommendations for a definition are compatible with the measurement requirements (for HSE and stakeholder organisations): ability to be translatable into epidemiological tools with appropriate sensitivity and specificity and which are robust and simple enough to be used in surveys and in surveillance; consistency in interpretation – so that meaningful and reliable comparisons can be made across different groups; offer a degree of comparability with currently used data sources (e.g. self-reported work-related illness (SWI) surveys and surveillance schemes); capture severity/degree of caseness relevant to the needs of clinicians.

Recommendations on translation of the model into an epidemiological occupational health assessment framework, suitable for the identification of cases of work-related stress, are presented in Chapter six.

1.2 DEFINITIONS AND TERMINOLOGY

'Case'

In epidemiological terms, a 'case' may be defined as "a person in the population identified as having the condition under investigation" (Last, 2001). This Report concerns itself with the circumstances and individual characteristics that, in sum, constitute a 'case' of work-related stress at the level of the individual worker. Work-related stress is not made manifest in terms of a reliable set of observable signs and symptoms (Cox, 1978, 1993; Cox, Griffiths & Rial-Gonzalez, 2000); the

intangible, subjective and inconsistent nature of the phenomenon poses considerable challenges to the modelling of a case. At present, the different groups with a vested interest in work-related stress adopt differing criteria in making judgements on caseness.

'Work-Related Stress'

The term 'stress' "has so many different meanings that it is confusing, elusive, and heard so often its meaning is frequently distorted and its implications taken for granted" (Arthur, 2005). Confusion may be exacerbated when factoring work-relatedness into the definition.

The definition of work-related stress adopted in this Report is consistent with the HSE definition of stress as the reaction people have to excessive pressure or other types of demand placed on them (HSE, 2001). An important distinction is made in this definition between pressure, which can be a positive state if managed appropriately and a normal reaction to reasonable demands, and stress which can arise in response to intense, continuous or prolonged exposure to excessive pressures and can be detrimental to health. This definition has its origins in the transactional approach to the definition of stress (see below) which emphasises the degree of 'match' (or mismatch) between the demands and pressures on the person and his or her ability to cope with them. The concept of 'excessive pressure' derives from the notion of mismatch.

The HSE definition is consistent with that of the European Commission which defines work-related stress as an "emotional and psycho-physiological reaction to aversive and noxious aspects of work, work environments and work organisations. It is a state characterised by high levels of arousal and distress and often by feelings of not coping" (Levi & Levi, 2000). The experience of stress is treated as essentially emotional in nature.

Despite the clarity of these definitions, in recent years, across the scientific literature, assorted terms have been used to refer to the various elements of the work-related stress experience. Confusingly, the term 'stressors' has been applied to refer to (i) circumstances that may lead to distress and harm, (ii) to health outcomes itself, or to both (Industrial Injuries Advisory Council, 2004). The study of work-related stress would benefit from the use of concrete and standardised terms (Huang, Feuerstein and Sauter, 2002). This report derives its terminology from the concepts and language of risk management as recommended in an earlier report to the HSE by the first author (Cox, 1993). It refers to those aspects of work design, and the organisation and management of work, and their social and organisational contexts, which have the potential for causing psychological or physical harm as *psychosocial hazards* that, elsewhere, have been referred to as 'stressors'. Siegrist & Marmot (2004) offer an interesting standpoint on the definition of psychosocial environment that is not inconsistent with that adopted in this Report. In blending the sociological and psychological perspectives they construct a definition of the psychosocial environment as 'the sociostructural range of opportunities that is available to an individual person to meet his or her needs of well being, productivity and positive self experience'. Within this definition are highlighted two patterns of human motivations: the need for physical and mental well-being and the need for a positive experience of self (in particular self efficacy and self esteem). Both aspects are contingent on the social aspects of the work environment. Contained within the definition is the implication that environmental barriers to fulfilment of these basic motivations may impact upon health.

In adherence to risk management concepts and terminology, preference is given in this report to the terms 'harm' and 'health outcomes' over the alternative term 'strain' to refer to stress-mediated outcomes. The adoption of this terminology locates work-related stress research and management

within a health and safety framework and is consistent with the position of the both the HSE and European Commission.

Work-related stress is distinguished from occupational stress in this Report. The former includes cases where work may have aggravated the experience of stress and associated symptoms of ill health regardless of original cause. Here work may be a contributory factor but not necessarily the sole cause. This is consistent with the World Health Organisation's definition of work-related disease: "Work-related diseases are defined as multifactorial when the work environment and the performance of work contribute significantly, but as one of a number of factors, to the causation of disease" (World Health Organisation, 1985). The latter refers to cases where work is the sole cause of the experience of stress and associated symptoms of ill health. Although there will be instances where exposure to a psychosocial hazard at work is the sole antecedent of ill-health, it is presumed more common that personality states and traits, life circumstances and work factors interact to cause ill health (Cunningham, Lischeron, Koh & Farrier, 2004).

1.3 THEORIES OF STRESS

The objective of this Report is to consider the feasibility of the development of a consensus case definition of work-related stress. The theory of stress that underpins the model is important, not least, because of its implications for assessment and measurement and for the positioning of the model and the measure in relation to existing research.

Much research on work-related stress has been driven by two long standing interactional models: Person-Environment Fit theory (French & Caplan, 1972) and Karasek's (1979) theory of job demands and control.

Person-environment fit theory argues that stress effects may arise when threatening job demands lead to disequilibrium in the interaction between an individual and the work environment. Although influential, the model is considered by some to have generated an unfocused approach to the study of work-related stress (Chemers et al, 1985) and there remains confusion over the notion of fit and its measurement (Edwards & Cooper, 1990). The latter theory, the demand-control or 'job-strain' model, has its focus on the interaction between objective pressures of the work environment and the worker's decision latitude (Karasek, 1979; Karasek & Theorell, 1990). The emphasis is on the status of the psychosocial work environment rather than the individual. Despite widespread application, the model has been criticised, due to ambiguity surrounding conceptualisation and operationalisation of the decision latitude construct (Peter & Siegrist, 1997; Sauter & Hurrell, 1989), the nature of the relationship between demand and control and the applicability of the theory in terms of different health and health-related outcomes (Cox, 1993). Additionally, the model's narrow focus on just two, albeit key, psychosocial hazards is considered to limit its utility (Huang, Feuerstein & Sauter, 2002). Nevertheless, overall the demand-control model is deemed the more convincing of these theories, especially when considering two specific outcome criteria, that of physical disorders such as cardiovascular disease and sickness absence behaviour (Peter & Siegrist, 1997).

A more recent addition to this group of theories is the Effort-Reward Imbalance (ERI) model of Siegrist (1996) which holds that stress develops as a result of an imbalance between effort expended and rewards received. Both effort and reward are broadly conceptual. Imbalance is moderated by personal factors. A state of emotional distress arises, coupled with physiological strain reactions when costs outweigh gains. The model has proven capable of predicting stress-related health

outcomes (see, for example, de Jonge, Bosma, Peter & Siegrist, 2000; Siegrist et al, 1997; Siegrist, 1998). For reviews of health outcome research associated with effort-reward imbalance see Perrewle & Ganster (2002); Schnall et al (2000); Stansfeld & Marmot (2002); Tsutsumi & Kawakami (2005). A growing number of studies support the model but endorsement is not unanimous; the Whitehall II longitudinal study found the model was only supported for men (Stansfeld et al, 1999) and other studies have found no effect at all (Van Vegchel, de Jonge, Meijer & Harners, 2001). Presented only a decade ago, the model has, so far, received less attention in research than the longer established theories of work-related stress (Huang, Feuerstein & Sauter, 2002), although that pattern is now changing.

It is now generally accepted that interactional models have, in some sense, been supplanted or at least supplemented by, transactional theories of stress. These define stress in terms of the dynamic processes that represent the on-going and ever changing relationship between the person and their work environment (Cox, 1978; Lazarus, 1991). This Report adopts a transactional perspective because it integrates the more 'structural' aspects of the interactional approach with a process-based account of stress. The interactional and transactional approaches are broadly compatible (Cox, 1993; Cox et al, 2000) although all theories differ in research at the micro-level.

The strength of transactional theory lies in its account of the dynamic relationship between the individual and his or her work environment and the experience of stress within this relationship as a mediator between psychosocial hazard exposure and health. Importantly, transactional theory accommodates subjective experience in a way that models which regard stress simply as an environmental threat do not. Within transactional theory the emphasis is upon the individual's subjective appraisal of the environment, taking into consideration available coping resources. Indeed, the word 'transaction' implies that "stress is neither in the environmental input nor in the person, but reflects the conjunction of a person with certain motives and beliefs with an environment whose characteristics pose harm, threats or challenges depending on these personal characteristics" (Lazarus, 1990, p.3).

Transactional theory recognises that stress can be made manifest in physiological, psychological, behavioural, and social terms. In overtly recognising the mediating role of the experience of stress, the transactional approach accords with the definition of stress applied in common law which purports that 'stress is not an injury, it is a state of mind that can cause injury' (Buchan, 2001), and as such can impact upon virtually every dimension of health. Finally, it recognises that a degree of individual variation will exist due to stress being a process of transaction between the person and the work environment. In doing so it explains why conditions that one person experiences as stressful may not be regarded as stressful by another.

The various theories of work-related stress have contrasting implications for measurement and the construction of a case definition. Although broadly compatible, differences that exist between theories at the micro-level have led to discussions in which it is sometimes difficult to identify which particular aspects of the psychosocial work environment have been assessed as hazardous and potential sources of stress in relation to which particular health outcomes (Vagg & Spielberger, 1998). The available evidence suggests that the relationship between psychosocial hazards and health outcome is dependent on a number of other factors. Transactional theory allows for the complexity of this relationship.

As a result of this complexity, a multivariate case definition is required that is capable of considering the role of a variety of factors reflecting the core elements of the transactional process.

Furthermore, the emphasis on cognitive processes and emotional responses inherent in the transactional perspective imply the need to use self-reports in an associated measurement strategy (Cox, 1993; Smith et al, 2000).

1.4 SCALE OF WORK-RELATED STRESS

Stress is an inherent aspect of modern work and domestic life for many, one so great that, although not the sole or necessarily primary cause, is implicated in over half of human morbidity and mortality (Quick, 1998). However, epidemiological attempts to assess the scale of the work-related stress problem have had only limited success. Official prevalence data for work-related stress in the United Kingdom are largely derived from the Self-Reported Work-Related Illness (SWI) Surveys that began in 1990 as a trailer to the Labour Force Survey and which have continued on a regular basis (Hodgson et al 1993; Jones et al 1998, 2001, 2003, 2005). These have been augmented by reports and research commissioned by both Government and private organisations. SWI surveys provide an important benchmark for estimations of the incidence and prevalence of work-related stress. They are generally considered to be based on the 'best available' epidemiological measures of caseness. However, the lack of a standard theoretical case definition and methodological inconsistencies both within the SWI series and between those surveys and other epidemiological studies, have made it difficult to draw secure conclusions as to the 'true' extent of work-related stress.

Despite the methodological limitations described, SWI survey data gives a robust indication of the scale of the work-related stress problem. Headline results from SWI04/05 indicate that an estimated 12,820,000 days were lost to stress, anxiety and depression in 2004/5 (available at <http://www.hse.gov.uk/statistics/causdis/>). The equivalent figure for 2001/2 was 12,919,000, suggesting a small reduction in the annual prevalence. Similarly, headline results from the 2004/5 survey indicate that an estimated 509,000 of those who have ever worked were suffering from stress, anxiety or depression, compared to an estimated 548,000 in 2001/2. In contrast to the decline in prevalence and number of days lost overall, the number of lost days per case has increased slightly over the period in question. In 2001/2 each case of stress, anxiety and depression caused or made worse by work was associated with an average of 29.0 lost work days, rising to 30.9 in 2004/5.

1.5 GOVERNMENT TARGETS FOR WORK-RELATED STRESS

The drive to obtain a reasonable estimation of the scale of the work-related stress problem was given fresh impetus in Britain by the setting of national targets for the reduction of work-related ill health incidence, work-related injuries and deaths, and related sickness absence by 2010. The British Government set out its targets in its strategy statement on Revitalising Health and Safety (Department of the Environment, Transport and the Regions, 2000) and in its associated statement on Securing Health Together (Health & Safety Commission, 2000). These targets commit all stakeholder parties to working together to improve occupational health in a number of key areas, including work-related stress.

The 2010 objectives involve targets for a 20% reduction in ill-health incidence and a 30% reduction in the number of working days lost to sickness absence. Given that work-related stress is the second most commonly reported work-related ill-health problem in Great Britain it is evident that tackling work-related stress would become a priority programme for the Health & Safety Executive.

It is difficult to assess whether Britain is on course to achieve the 2010 targets in relation to work-related stress (HSE, 2002; HSC, 2002). The most recent SWI surveys provides some indication of the likelihood of achieving the target levels. However, as noted above, there are few other surveys available and those that have used nationally representative samples have employed varying methodologies and measures that prevent direct comparison.

The HSE has decided that progress towards achieving the 2010 targets will be facilitated by the development of a consensus case definition in relation to work-related stress and an associated assessment framework or measurement procedure for use in future epidemiological studies. Together they will afford two related benefits of specific interest to the HSE:

Improved interpretation of work-related stress statistics: In light of methodological shortcomings within nationally representative surveys of work-related stress, accurate assessments of the ‘true’ level of the phenomenon are not currently possible.

Facilitation of the development of subsequent targets: Equipped with accurate assessments of the true level of work-related stress at a national level, governmental decision-makers will be better informed for revising the 2010 targets and setting targets for subsequent periods.

1.6 IMPORTANCE OF CONSENSUS

The British government’s objectives for the reduction of work-related ill-health, including stress, commit all stakeholders to working collaboratively. The HSE is therefore keen to explore the feasibility of developing a case definition in relation to work-related stress and an assessment framework that are acceptable to all stakeholder groups. Consensus in this regard is crucial if stakeholders are to fulfil their commitment to working together towards achievement of the 2010 targets. The value placed on consensus is reflected in the research strategy outlined in Chapter two.

There are overlapping but different perspectives on the optimum format of a case definition. Each perspective is sustained within the particular stakeholder domain by the logic, evidence and practice of that area. Differences are determined, in part, by the use to which case assessments are put. The various perspectives are not easily reconciled with the requirements of the HSE that the derived case definition should be consistent with existing survey approaches to the assessment of work-related stress.

As far as the authors are aware there have been few, if any, attempts to reconcile the various perspectives in a constructive manner towards a consensus case definition. Marchand, Demers & Durand (2005) suggested this may, in part, be due to the predominance of a small number of stress theories that have guided the research, in particular Karasek’s (1979) demand-control model and Siegrist’s (1996) effort-reward imbalance model. This report attempts a reconciliation. There is an argument that although consensus on the definition of work-related stress may be desirable, it should not be sought to the extent that the resultant definition is all-inclusive (Eulberg, Weekley & Bhagat, 1988); such a definition may possess little utility for any particular purpose. Accordingly, the model advanced in the Report does not seek to be ‘all things to all people’. Rather, a model is developed for which the primary objective is the enumeration of cases of work-related stress through epidemiological occupational health studies. However, this model has been developed so that it might be relevant for other stakeholder groups.

The quest for consensus on a case definition of work-related stress is no easy task. Many differing definitions exist, each designed as fit for a specific purpose in a specific context. However, in attempting to achieve consensus on an epidemiological case definition, this Report may help to influence the design of future epidemiological studies and encourage researchers not to focus on a limited number of the separate elements of the stress process, but rather to take a holistic perspective on the experience. The results of research endeavours that consider not only psychosocial hazard exposure on the one hand, or stress 'reactions' on the other, but take an integrated view that encapsulates both these elements and others within a process context, will offer an indication of the prevalence of caseness in the working population superior to that achieved by the vast majority of work-related stress survey research that has its focus on situational variables.

1.7 STRUCTURE OF REPORT

The remainder of this report consists of seven chapters:

Chapter two describes the research strategy: a review of the available scientific literature and a series of semi-structured interviews with subject matter experts representing each of the stakeholder groups, supplemented by stakeholder seminars.

Chapter three and four describe the groups with a vested interest in the modelling of a case definition in relation to work-related stress and existing models employed by these stakeholder groups.

Chapter five explores the feasibility of reconciling stakeholder perspectives in a consensus case definition. A case definition is proposed that is consistent with the HSE requirement for compatibility with current survey approaches to the identification of work-related stress.

Chapter six is concerned with the translation of the consensus case definition previously described into an assessment framework suitable for the identification and enumeration of cases in a manner consistent with existing epidemiological approaches.

Chapter seven reports on the expert validation exercise. The objective of this activity was to ensure that the report accurately reflected the harvested data and to obtain expert feedback on the derived case definition and assessment framework.

Chapter eight draws conclusions from this research with respect to implications for defining a case of work-related stress. Avenues for further research are identified.

The worth of future research on work-related stress may be dependent on advances in relation to identification and enumeration of cases (Hurrell, Nelson and Simmons, 1998). Although consensus modelling presents a challenge, attempts should not be hindered by a misplaced belief that the arguably intangible nature of the phenomenon locates it beyond the scope of modelling (Huang, Feuerstein & Sauter, 2002). Furthermore, conflicts between different stakeholder perspectives do not make consensus an impossibility. This report takes up the challenge of developing a case definition by consensus and in doing so seeks to contribute to the broader goal of the amelioration of risk to individual and organisational health posed by work-related stress.

CHAPTER 2 RESEARCH STRATEGY

This Chapter describes the research strategy adopted to harvest and review the available evidence relating to case definitions of work-related stress. It also describes the methodology that was applied in considering the feasibility of the development of an epidemiological occupational health consensus case definition and assessment framework for work-related stress.

2.1 RESEARCH METHODOLOGY

Case definitions may be established through both expert stakeholder consensus methods and on the basis of peer-reviewed published evidence (Chen et al., 2005). Such a mix of methods has previously been achieved in the context of lower back pain (Waddell & Burton, 2001). The current research utilized a mixed-method approach of this type.

The research involved seven stages, each building on the previous, working towards the required consensus case definition and associated assessment framework. Several meetings were held with the HSE at the beginning of the project to agree this plan and to share information. The six stages are outlined below.

Stage 1: Harvesting and overview of available evidence

The first stage of the research focused on collecting and providing an initial overview of the available literature on case definitions in relation to work-related stress to provide the framework and key questions for the first exploratory round of interviews with experts from the various stakeholder groups. The overview covered:

National surveys of work-related stress were examined with attention paid to the methods and measures used, the definitions (and theories) of stress that were implicit in the research, and the prevalence and incidence estimates for work-related stress.

Models and approaches to case definitions in relation to work-related stress considering the purpose and use of associated assessment schedules and measurement procedures, the different methodologies employed together with the advantages and disadvantages of each.

Stage 2: Exploratory interviews

Following an initial overview of the available literature, and prior to its more detailed and critical review, a series of semi-structured interviews were conducted with experts from the stakeholder groups. The use of semi-structured interviews in epidemiological and occupational health research has been advocated by Ballard et al (2004).

The first round of interviews was essentially exploratory and served five specific purposes:

- Establish likely publications and information sources on the issue of case definitions as they relate to work-related stress,
- Establish markers of status and value to be used in the literature review,
- Establish the key issues that would drive the interrogation of the literature.

- Guide construction of a semi-structured interview schedule for application in the second interview round,
- Identify new or confirm existing stakeholders.

Semi-structured interviews were considered to be the most effective way of gaining in-depth information relating to the five objectives listed above. Interviews were conducted, face to face where possible, with experts drawn from the stakeholder groups. Interviews took place, in most cases, in the interviewee's place of work. Detailed notes were taken during each interview. Interviews lasted between one and three hours. Interviewees were told the purpose of the project at the beginning of the interview. Using the semi-structured interview format, the same key questions were asked of each interviewee, but individuals were free to discuss in more detail those issues that they considered particularly important or where they had particular expertise.

Among other things, interviewees were asked to identify sources of information relevant to the research. Where experts identified peer-reviewed publications, they were included in the review. Other contributions were assessed for quality and relevance by the research team prior to inclusion (see below).

Identification of Stakeholders

The identification of possible groups of stakeholders was one of the subjects discussed with the HSE in the initial set-up meetings. Possible 'experts' in relation to the question of case definitions for work-related stress were identified for each group. These experts were approached and invited to participate in the exploratory interviews. Where this was not possible, alternatives were approached. Once a particular group was identified as a potential stakeholder, a web-based search was conducted to provide information on that group and on its 'experts' and to establish the presence or otherwise of a relevant literature.

During the exploratory interviews, the question of stakeholders was discussed with interviewees and they were asked to confirm (or otherwise) the existing list of stakeholders and given the opportunity to add any other groups or suggest any other experts for interview. By the completion of the exploratory interviews, the research team was confident that, it had identified and included all key players.

The stakeholder groups included occupational health psychologists, occupational physicians, clinical psychologists and psychiatrists, epidemiologists, personal injury lawyers, insurers, trade unions, employer representative groups and occupational health and safety policy makers.

Stage 3: Critical review of available evidence

The literature search was restricted to English language publications. In line with previous work-related stress research commissioned by the HSE (e.g. Daniels et al, 2004) this was justified on the basis that the majority of the relevant world-class journals are published in English.

All papers and other publications for review were selected independently by two researchers on the basis of their methodological adequacy (see below) and their relevance. There was a high degree of agreement on the selection of papers and other publications. Where there was disagreement on the value added by a specific publication, a third researcher adjudicated. Papers relating to specific and unusual work groups, settings, patterns or events were excluded.

The literature review focused on three different types of publication:

Area 1: Peer-reviewed articles in international journals

Area 2: Organisational reports and contract research reports

Area 3: “Grey” materials

Area 1: Peer-reviewed articles in international journals

The first phase of the review focused on peer-reviewed articles in international journals. Peer-review assures quality control in the publication process. The emphasis in the selection of material here was largely on relevance. Potential papers for review were identified using a number of search engines and electronic databases. Searches included databases relevant to psychology, management, business and insurance, epidemiology, public health, occupational health, medicine and law.

Area 2: Organisational reports and contract research reports

The second phase of the literature review focused on reports produced by commercial and research organisations often commissioned by agencies such as the HSE or by professional bodies. Much of this literature is not peer-reviewed and so quality control might be poorer in some cases. To provide some extra quality assurance, the review was restricted to publications produced by organisations with a reputation for quality output. This judgement was arrived at by consensus among the research team on a publication by publication basis.

Area 3: ‘Grey’ material

The third phase focused on other material, the quality of which could not be easily established. Such ‘grey’ material included that which was not produced by reputable academic, professional or industry sources and/or was not necessarily specific in its focus on work-related stress or caseness. Material in this category was largely derived from web searches undertaken using general search engines including google and yahoo. A judgement on the value of each was arrived at by consensus among the research team on a publication by publication basis.

Commentary

Several reviews of the literature on work-related stress have focused exclusively on studies (papers) that were judged methodologically sound and to be without obvious flaws. Given the complexities of the world of work and the difficulties of conducting research in such an environment, the imposition of methodological perfection as a selection criterion results in a small and possibly unrepresentative population of studies to review. Furthermore, the logic sustaining such an exclusive strategy is itself flawed.

The review of evidence drawn from empirical studies that individually are not methodologically perfect can have value if there is no common failing and when taken together there are strong common findings. This principle is well established in other areas of science and was accepted here.

Stage 4: Follow-up interviews

A second round of semi-structured interviews was conducted with two specific objectives:

- to undertake validation of the data derived from initial interviews and interrogation of the literature
- to explore in detail particular issues arising from initial interviews and the literature

Interviews were again conducted, face to face, where possible, with a wide range of stakeholders, many of whom were recommended for interview during the first wave of interviews. A semi-structured interview schedule was again applied, the design of which was informed by the outcomes of initial exploratory interviews.

In addition to individual interviews with stakeholders, seminars were convened to explore the issues from the perspective of particular stakeholder groups. Recognised experts from various stakeholder groups were invited to these seminars as representatives of their particular groups. The seminars served to provide a cross-section of opinion for each stakeholder perspective.

Analysis of the data from the interviews and seminars was carried out using the technique of template analysis. The template consisted of a number of categories relevant to the research questions, which could be modified and developed in light of the data. Text was thematically coded into these categories direct from the detailed notes, in line with the technique suggested by Jones (1985). Coding was phrasal, not based on individual words.

Stage 5: Production of draft technical report

Upon completion of the literature review, interviews and seminars, a Report was prepared for and discussed with the HSE. The Report included a draft of the epidemiological occupational health consensus case definition and associated assessment framework derived from the harvested literature and stakeholder interview data.

Stage 6: Expert validation exercise

A validation exercise was conducted to obtain feedback on the project outcomes from a sample of subject matter experts drawn from across the stakeholder groups. The exercise served three specific functions:

- to provide verification that the views of stakeholders expressed in interviews and focus groups were accurately reflected in the final report
- to consider the strengths and weaknesses of the derived consensus case definition
- to consider the associated assessment framework and measurement tools that might be employed within it

Stage 7: Production of final report

Upon completion of the expert validation exercise, the final Report was presented to the HSE for publication.

CHAPTER 3 REVIEW OF CASE DEFINITIONS & ASSESSMENT SCHEDULES: EXPERT EVIDENCE

This chapter presents an overview of existing stakeholder approaches to the nature of a case definition in relation to work-related stress. In doing so, it considers both the more formal systems and schedules in use, for example those employed in compensation procedures and under law, and also presents the further positions of three important groups: employers, trades unions and the insurance industry. It attempts to answer four inter-related questions:

Which stakeholder groups possess a vested interest in the modelling and measurement of a case of work-related stress?

What theoretical models of work-related stress are applied by each stakeholder group?

Within the various perspectives on the modelling of work-related stress, what form do existing case measurement and assessment measures take?

What form of outcomes do existing conceptualisations make reference to?

3.1 OVERVIEW

Despite some arguments to the contrary, it is widely accepted that, in working people, psychological health is linked to the nature of their work environment (Cox et al, 2000). While knowledge is not, and cannot be complete, sufficient is known about this relationship to support action to protect psychological health through intervention at the level of the design and management of work (Cox, 1993; Cox et al, 2000). This being so, it might be expected that research to establish, apply and evaluate case definitions and associated measures among stakeholder groups would be well developed. This is not the case except for two domains. First, in the insurance and legal professions where an increase in personal injury litigation for psychiatric injury arising from work-related stress and claims through employment tribunals for damages arising from discrimination at work have focused minds. The second domain to have addressed the notion of a case definition is that of industrial injury compensation schemes. The case definitions employed in these domains are considered below.

3.2 DEFINING A CASE OF WORK-RELATED STRESS IN PERSONAL INJURY LITIGATION

There is no legislation in place in the UK specifically to control work-related stress or control the risks to psychological health in the workplace (Pilkington et al, 2001). The UK is not alone in this respect; no country within the European Union has introduced specific regulations on work-related stress, although some are close to doing so (European Foundation for the Improvement of Living and Working Conditions, 2001). While there is no specific legislative guidance, employers in the UK are reminded of their duty under Section 2 of the *Health and Safety at Work Act (1974)* to ensure, so far as is reasonably practicable, the (physical and psychological) health, safety and welfare of their workforce. Under *The Management of Health and Safety at Work Regulations (1999)* employers are required to make a suitable and sufficient assessment of the risks to health and safety to which staff are exposed while at work, including risks arising from stress in the workplace.

Breach of statutory health and safety laws may give rise to criminal proceedings. The HSE and other authorised bodies can pursue criminal cases where the employer will be prosecuted before a Magistrates' or Crown Court and if found guilty usually issued with a fine. At the same time, breaches of common law duty of care can result in civil liability with cases heard in the civil courts as personal injury claims.

The introduction of specific work-related stress legislation would require a precise definition of a 'case' of stress and a caseness assessment schedule – both agreed by consensus across stakeholder groups. In a sense, this Report provides a test of the existing consensus on a case definition as it relates to work-related stress. As such, its findings and recommendations may be of interest to those concerned with legislation and the regulation of work-related stress.

Research conducted for this Report found that the many of those involved in personal injury litigation perceived some scope for legislation specific to work-related stress, a position endorsed in surveys of personal injury solicitors (Earnshaw & Morrison, 2001). A large number of respondents thought that although the Health and Safety at Work Act 1974 does not differentiate between physical and psychosocial hazards, few employers make a concerted effort to manage exposure to the latter. The consensus conclusion was that only specific legislation would be sufficient to focus employers' attention.

The Health & Safety Commission's 1999 discussion document, *Managing Stress at Work* (HSC, 1999), sought to stimulate discussion about the extent to which work-related stress should be regulated through legislation. 94% of respondents agreed that because stress can affect well-being it should be considered to be a health and safety issue and regulated within legislation. 69% considered an approach based on a new Approved Code of Practice (ACoP) to be the most appropriate¹. Ultimately, it was decided that the most profitable way forward would involve the development of a series of Management Standards to guide employers in applying the overall risk management approach (Mackay et al, 2004; Cousins et al, 2004). The HSE Management Standards for work-related stress are discussed in detail later.

Somewhat in parallel, the Law Commission has considered whether legislation should be introduced for negligence in relation to psychiatric injury arising primarily from exposure to traumatic events. The Commission concluded that to do so would freeze the law whilst medical knowledge of psychiatric illness, its causes and effects, was still effectively in its infancy (Law Commission, 1998). A detailed discussion of the challenges faced in attempts to introduce work stress legislation is provided by Schaufeli & Kompier (2001).

Common law personal injury actions in England & Wales

The handling of work-related stress actions in the civil courts is a rapidly evolving field and common law personal injury actions represent one of the few arenas in which there is extensive deliberation over the nature of a case definition as it relates to work-related stress.

¹ ACoPs or Approved Codes of Practice, express specific measures which employers can take to ensure the goals set out in Regulations are met. As such, ACoPs for work-related stress form the third tier within health and safety legislation, below the relevant Act of Parliament (Health & Safety at Work Act, 1974) and Regulations (Management of Health and Safety at Work Regulations, 1992).

Since the 1901 case of *Dulieu v White & Sons*, claims for negligently inflicted psychiatric illness (originally referred to as ‘nervous shock’) have been possible within English & Welsh law. Although the mechanisms for taking civil action have existed for many years, it is only in the last couple of decades that civil liability for psychiatric injuries has become a relatively common basis for action. More recently a case definition has evolved through case law that attempts to identify the presence of stress-related illness and establish the work-relatedness of illness with a view to awarding compensation for personal injury, pain and suffering. This case definition is based on the established tests for actionable negligence.

To establish the presence of a work-related personal injury in the civil courts is relatively challenging and is based on a series of tests - the ordinary principles of employer liability. For a case to succeed the employee must be able to prove, on the balance of probabilities, that:

- a duty of care was owed by the employer to the employee (usually the claimant)
- injury was foreseeable
- a breach occurred in the duty of care
- injury was caused by that breach

That the employer has a *duty to take reasonable care* for the safety of employees can usually be taken for granted (although where the claimant is a secondary victim, i.e. injury has arisen out of witnessing harm to another, the issue can become more complex). Often, the key to a successful case from the claimant’s perspective comes in establishing the *foreseeability* of injury. Once an employer is aware that an employee is experiencing health problems associated with stress at work, he is, in effect, put on notice for foreseeable risk of subsequent illness and has a duty to act to prevent further illness. Failure to act appropriately may lead to any resultant psychiatric injury being considered foreseeable. In failing to take steps that are reasonable in the circumstances, the employer may be in *breach* of his duty of care. The issue is whether ‘the employer should have taken positive steps to safeguard the employee from harm: his sins are those of omission rather than commission (Hale LJ in *Hatton v Sutherland* [2002] EWCA Civ 76, para 23).’ Having demonstrated breach, the claimant must establish that the particular breach in question *caused* the injury rather than work-related stress generally. The ordinary principles of employer liability that constitute the case definition for psychiatric injury arising out of work-related stress are examined in further detail below.

Duty of care owed

That ordinary principles of tortious liability apply and that an employer’s duty of care extends to protection against psychiatric as well as physical injury was established in *Walker v Northumberland County Council* [1995] 1 All ER 737. As indicated above, in most circumstances it can be taken for granted that the employer has an obligation to take reasonable care for the safety of employees.

Foreseeability of injury

The second step in the common law case definition involves demonstration of the foreseeability of injury. A foreseeable risk of injury arises at the point at which the employer is made aware that an employee is experiencing health problems associated with stress at work. Once an employer is aware, he is, in effect, put on notice for foreseeable risk of subsequent illness. The foreseeability principle was clearly demonstrated in the landmark case of *Walker*, Mr Walker’s first breakdown

was not judged to be foreseeable and therefore at that point there was no legal case to answer. Upon his return to work, after his first breakdown and to similar working conditions, a second breakdown occurred that was judged to be foreseeable under these circumstances.

Breach in the duty of care

In establishing a legal 'case', negligence must be demonstrated on the part of the employer in relation to his or her duty of care by failing to protect against psychiatric injury. Employers must act reasonably to provide a safe system of work and take reasonable steps to protect their employees from the risks to their safety and health that are reasonably foreseeable.

To continue with the example from *Walker*, upon Mr Walker's return to work after his second 'breakdown', which was foreseeable, the employer's attention should have been focussed upon its duty to take appropriate and reasonable steps to prevent further harm. The failure of Northumberland County Council to implement changes to Mr Walker's working conditions or to provide appropriate support was taken to be demonstrative of it choosing to act inappropriately in view of pre-existing vulnerability.

The operation of the foreseeability rule has proved difficult in work-related stress claims (Barrett, 1998; Messham, 1995). In order to assess whether the employer has breached his or her duty of care, the court must examine what would be a reasonable response to avoid the risk of foreseeable harm. In doing so, consideration must be given to several factors, including the likelihood and gravity of psychiatric harm in addition to the cost and practicability of preventing the risk, among other factors (Earnshaw & Cooper, 2001).

Efforts to establish whether a psychiatric disorder was foreseeable become more complicated when the claimant has a history of psychiatric illness. Until the case of *Page v. Smith* [1996] AC 155, the presence of a pre-existing psychiatric disorder in the claimant allowed the defendant to argue that the psychiatric injury at the heart of the action could not have been reasonably expected in a healthy worker exposed to the working conditions in question. In order for a claimant to stand any real chance of success in such litigation it was then necessary for them to prove 'reasonable robustness'. Since this case, proving 'reasonable robustness' has not been necessary. Rather, all that is required is:

"proof that, from what was known prior to injury, it was reasonably foreseeable that the defendant's conduct would expose the claimant to a risk of personal injury whether physical or psychiatric" (Buchan, 2001, p.5).

The ruling in *Page* significantly increased the likelihood that a breach of duty of care might be demonstrated where the claimant had a pre-history of psychiatric illness. Furthermore:

"in theory, a claimant with a previous psychiatric history unconnected with work such as schizophrenia could successfully claim damages from an employer for a recrudescence of his or her condition provided s/he can prove that the injury was reasonably foreseeable and that the unreasonable workload materially contributed to the condition. As Lord Lloyd said: 'it is no answer that the plaintiff was predisposed to psychiatric illness. Nor is it relevant that the illness takes a rare form or is of unusual severity. The defendant must take his victim as he finds him'" (Buchan, 2001, p.6).

It is clear from this discussion that the concept of reasonableness is important and a variety of factors must be taken into account when drawing conclusions on the question of what is reasonable in preventing psychiatric injury through work. In *Walker*, for example, Mr Justice Coleman considered whether, in light of tight budgetary constraints, the Council had acted reasonably in not providing extra support to Mr Walker upon his return to work following his first breakdown. He found that there was no scope for reallocation of resources without impinging upon services elsewhere. Ultimately however, he concluded that the risk of Mr Walker having a second breakdown was so great that resource allocation should have been undertaken despite the impact this would have had upon other Council services.²

Psychiatric injury was caused by the breach of duty of care

The central question here concerns whether the individual would have suffered psychiatric injury had it not been for the employer's breach of duty of care that resulted in exposure to work-related psychosocial hazards. It is not sufficient to assume that experience of work accompanied by the experience of stress and psychiatric injury implies a causal connection. The burden is upon the claimant to prove that the employer's breach of duty either caused the psychiatric injury or materially increased the risk of psychiatric injury. The question of the 'work-relatedness' of the psychiatric injury is therefore paramount.

The process of establishing causation in psychiatric injury is extremely complex, not least because of the multi-factorial aetiology of stress-related illness makes difficult the task of disentangling potential contributory factors and then correctly attributing responsibility (Earnshaw & Morrison, 2001; Jamdar & Byford, 2003). The courts rely on medical and related scientific evidence, including expert witness testimony, personnel files and occupational health records to facilitate their decisions on the work-relatedness of psychiatric injury. In areas other than case law, this issue has also proved a major obstacle in the assessment of entitlement for War Pensions and Industrial Injuries Benefit where stress is alleged (Department of Social Security, 1998).

Lawyers are aware of the courts' reluctance to find in favour of a claimant where there are non-work-related factors implicated. Indeed, the courts have proven themselves sympathetic to employers in this regard, variously finding employers not liable for psychiatric injury on the grounds that illness is attributable to an employee's personality traits, events in the employee's personal life, failure on the part of the employee to recognise his declining health and inability of the employee to adapt to changing work practices (Jamdar & Byford, 2003). As a result, litigators can be reluctant to take on cases when the claimant has suffered, for example, a recent family bereavement or divorce (Earnshaw & Cooper, 1994). Although many cases are dropped before reaching court owing to difficulties in demonstrating causation, it should be noted that work-related factors do not have to be entirely responsible for the injury, rather they must have at least 'materially contributed' to it.

Nature of psychological injury in common law work-related stress cases

Implicit in the four ordinary principles of employer liability as applied to negligence cases for personal injury arising out of work-related stress is the assumption that injury is a) psychological in nature and, b) of clinical severity. The Law Commission's (1998) review of the present law on

² see Earnshaw & Morrison, 2001, for a detailed analysis of the legal issues in the *Walker* case.

liability for negligently caused psychiatric illness noted that it is a precondition of a claim that a psychiatric illness is present that is recognisable within either of the two commonly used schedules of psychiatric disorders: DSM-IV (American Psychiatric Association, 1994) and/or ICD-10 (World Health Organisation, 1992). Quoting Lord Bridge in *McLoughlin v O'Brian* [1983] 1 AC 410, the Law Commission report stated:

'The first hurdle which a plaintiff claiming damages of the kind in question must surmount is to establish that he is suffering not merely from grief, distress or any other normal emotion, but a positive psychiatric illness' (pp. 431).

There is no 'stress' category of disorder in either the DSM-IV or the ICD-10. However, DSM-IV contains a number of possibly relevant categories including: post traumatic stress disorder (424), acute stress disorders (429) and adjustment disorders (623); all of which require the presence of a psychosocial stressor. Arguably, other psychiatric categories, from DSM-IV, might also be applicable including other anxiety disorders (393), sleep disorders (551) and relational disorders (650). ICD-10 lists 'acute stress reaction' and adjustment disorder' as well as other possibly relevant conditions.

It is interesting to note that in most, if not all, cases to date it has been necessary to demonstrate the presence of a diagnosable psychiatric illness despite the suggestion made in several literature reviews that stress may be made manifest in a recognisable complex of physiological, psychological and/or behavioural symptoms (see, for example, Cox et al, 2000; Levi & Levi, 2000). When this general area of personal injury litigation began to develop, claimants often presented on the basis of the physical manifestations of illness attributable to psychiatric injury (Barrett, 1998). However, cases based on the physical manifestation of stress are now few due to the difficulty in proving the stress-relatedness of physical disorders to the court (Earnshaw & Morrison, 2001). This occurs despite the existing scientific literature; particular reference may be made here to the literature on coronary heart disease (Head et al, 2002). It has been suggested that impairment to physical functioning as a corollary of mental impairment is unlikely to be sufficiently severe or sufficiently long-term, in most cases, for a valid claim to be made (Department for Social Security, 1998); a stance which, at present, the courts seem willing to support.

The requirement to demonstrate a clinically recognised psychiatric illness ensures that all cases reaching the courts involve psychological impairment of a considerable magnitude. This poses a problem in that the majority of mental health problems associated with work-related stress are sub-clinical (Department for Social Security, 1998; Cox, 1993; Earnshaw & Morrison, 2001) and would therefore fail to warrant a psychiatric diagnosis. This situation often results in cases failing and compensation being refused in otherwise genuine cases where suffering is judged to fall short of diagnosable psychiatric illness (European Review of Private Law, 2003). The insistence upon clinical diagnosis within the parameters of DSM-IV and/or ICD-10 poses a second problem as it leads to cases failing in the courts when symptoms do not fit exactly into a pre-defined diagnostic category despite being of clinical severity. This may be a relatively common occurrence due to the idiosyncratic nature of stress-related symptoms across individuals, time and circumstance (Cox, 1993; Cox et al, 2000). Speculation continues concerning the potential for case law to evolve to a point where other alternative indicators of psychological injury can be embraced (Griffiths, Cox & Stokes, 1995).

If particular mental health problems were to manifest only in response to exposure to work-related psychosocial hazards, there would be no need for additional tests to ascertain the work-relatedness

of the illness. However, this is not the case; a point highlighted in the context of debate concerning the prescription for work-related stress within the Industrial Injuries Scheme (IIAC, 2004).

The injury warrants damages

The psychiatric injury caused, or materially contributed to, by the employer's breach of its duty of care must be considered of sufficient severity to merit damages (quantum). The yardstick usually applied for assessment purposes involves consideration of whether the employee is able to work as a result of injury. The extent of the damages awarded is contingent upon a number of factors, including a pre-history of psychiatric illness, which may combine to reduce these to a nominal amount (say £1) as in the case of *Johnston v Bloomsbury Health Authority* [1992] Q.B. 3.

Commentary

An insurer interviewed for the research presented in this Report observed that the case definition utilised within civil litigation is attractive for it 'permits justice and reparation for injured parties' while noting, however, that the definition is not without its drawbacks. In particular, there are problems associated with the inability of the case definition to encompass sub-clinical and idiosyncratic disorders and the more physical manifestations of stress. Furthermore, these shortcomings raise a question surrounding the morality of a case definition that requires an individual to suffer two separate episodes of injury (in order to establish foreseeability). An occupational health provider expressed concern over the use of a clinical significance threshold, noting that in the occupational health domain, setting the case threshold at the level of clinical significance 'might be necessary for retirement decisions, but its high threshold means that only a minority of cases get identified'.

Development of the case definition applied in civil proceedings is an area that requires further research, and test cases, that will allow the emergence of an equitable definition that is capable of consistent application by the courts. Suggestions to this end from interviewees included shifting the focus in court cases from symptoms to levels of functioning, broadening the definition to more readily incorporate physical manifestations of stress and refining the foreseeability principle to eliminate the need for two episodes of injury. Each of these suggestions is worthy of further research.

The case definition for work-related stress that is applied in case law is unique and complex. It is also a key reference point for many stakeholder groups in regard to the prevention and management of work-related stress, particularly employers and their representative groups, employees, trades unions, insurers and, naturally, legal parties. Considering its importance, it is perhaps surprising that such uncertainty exists within the case definition in terms of its capability to predict outcome on a given set of facts and confusion among stakeholders as to the manner in which each element of the case definition should be interpreted.

3.3 DEFINING A CASE OF WORK-RELATED STRESS IN CLAIMS UNDER EMPLOYMENT LAW

The courts have proven inconsistent in applying the aforementioned principles of employer liability in personal injury cases. Following the judgment in *Hatton v Sutherland* [2002] EWCA Civ 76, the Court of Appeal laid down sixteen practical propositions to guide litigators and employers on the characteristics of a potentially successful case. These practical propositions generated much

controversy and have been interpreted variously by the courts subsequently. The complexity and confusion that surrounds negligence claims for psychiatric injury arising from work-related stress has led to increased recourse to claims where discrimination is alleged under the Disability Discrimination Act (1995). The DDA is increasingly becoming the 'tool of choice' owing to stress claims generally standing a greater chance of success as a result of the focus being on the demonstration of discrimination as opposed to the more complex requirement in negligence on establishing psychiatric injury causally linked to a breach in the employer's duty of care.

The first stages of the Disability Discrimination Act (DDA) came into force on 2 December 1996, followed by a series of further implementation stages. The Act was designed to ensure the rights of disabled people in employment; access to goods, facilities and services; and the management, buying or renting of property. Cases relating to discrimination in employment are heard in Employment Tribunals (ET) where the DDA framework offers an alternative case definition to the four-test personal injury model applied in the civil courts.

In essence, the DDA involves a three stage case definition. The claimant must demonstrate:

- the presence of a *disability*
- that had a *substantial and long-term adverse effect* upon ability to carry out normal day-to-day activities
- that the employee was *discriminated* against on the basis of that disability

Each of these criteria is discussed below.

Demonstration of disability

The DDA defines disability as

"A physical or mental impairment which has, or has had, a substantial and long-term adverse effect on a person's ability to carry out normal day-to-day activities."

The inclusion of mental impairment within this definition has opened the door for work-related stress claims. The Act stipulates that in the context of psychological ill-health, mental impairment refers to a clinically defined illness that is recognised by a respected body of medical opinion. The Guidance accompanying the Act suggests that such a respected body would include the World Health Organisation and its International Classification of Diseases (ICD-10). The Employee Appeal Tribunal has clarified that ICD-10 should be used rather than the more stringent criteria contained in the Diagnostic and Statistical Manual of Mental Disorders (DSM IV) (Disability Rights Commission, 2002). The question of the nature of mental impairments resulting from or consisting of mental illness was clarified in *Morgan v. Staffordshire University* [2002] ICR 475. The case established that sickness certificates obtained from a general practitioner that refer to 'anxiety', 'stress', 'nervous debility', and 'depression' are insufficient alone to establish that the claimant suffers from a clinically well-recognised mental illness (Jamdar & Byford, 2003).

As in negligence litigation, claims under the DDA require the demonstration of a clinically recognised psychiatric disorder; some consider this to remain a major shortcoming of the law governing work-related stress (Chapman, 2000).

Substantial adverse effect on the applicant's ability to carry out normal day-to-day activities

For a disability to be *substantial and have a long-term effect* it must last, or be expected to last for at least twelve months. Long-term effects include those which are likely to recur. For example, an effect will be considered to be long-term if it is likely both to recur, and to do so at least once beyond the 12-month period following the first occurrence.

'Day-to-day' activities are described in the Act as 'normal activities carried out by most people on a regular basis', and any adverse effect must involve one of the following broad categories:

- mobility - moving from place to place
- manual dexterity - for example, use of the hands
- physical co-ordination
- continence
- the ability to lift, carry or move ordinary objects
- speech, hearing or eyesight
- memory, or ability to concentrate, learn or understand
- being able to recognise physical danger.

In work-related stress cases, the activity category 'memory, or ability to concentrate, learn or understand' is the most commonly cited in relation to disability. Impaired mobility and manual dexterity may be cited where tiredness and fatigue associated with some mental illnesses impacts upon these physical functions. Details of relevant judgements handed down by the Employment Appeal Tribunal, including 'starred judgements' that are highlighted as being of particular significance by way of guidance to litigants, can be found at http://www.employmentappeals.gov.uk/judge_fr.htm.

Discrimination

There are three ways in which an employer might unlawfully discriminate against a disabled employee or job applicant:

- by treating him or her less favourably (without justification) than other employees or job applicants because of his or her disability;
- by not making reasonable adjustments (without justification); or
- victimisation

In making an assessment on whether discrimination occurred by virtue of the disabled employee being treated less favourably owing to the disability, the Employment Tribunal must consider i) the reason for the treatment, ii) whether that reason relates to the individual's disability and, iii) whether the employer would have treated an employee without the disability in the same way. Where it is established that less favourable treatment occurred, the onus is on the employer to justify that treatment.

A duty is imposed upon employers to make reasonable adjustments to work design, management and organization where these would place a disabled employee or job applicant at a substantial disadvantage in comparison to non-disabled peers. Adjustments listed in the Act include physical alterations to premises, allocation of some of the disabled person's duties to another employee,

transferring the disabled person to another task where available, alteration of working hours, assignment to a different place of work, allowing the person to be absent during working hours for rehabilitation, assessment or treatment, giving the person, or arranging for him to be given, training, acquiring or modifying equipment, modifying instructions or reference manuals, modifying procedures for testing or assessment, providing a reader or interpreter, providing supervisory support. Establishing that an employer failed to make reasonable adjustments can be complex and central to failure of many claims.

Victimisation occurs as a form of discrimination where an employee is mistreated as a result of having brought legal proceedings or given evidence under the DDA.

Remedy

Where a claim is upheld by an employment tribunal, it may:

- declare the rights of the disabled person (the complainant), and the other person (the respondent) in relation to the complaint;
- order the other person to pay the complainant compensation; and
- recommend that, within a specified time, the other person take reasonable action to prevent or reduce the adverse effect in question.

Commentary

Earnshaw and Morrison (2001) predicted that the DDA was likely to become a valuable method for the seeking of damages where work-related stress is claimed due to the fact that a large number of potential claimants in stress cases suffer from some form of depression – a form of impairment encompassed under the Act's definition of disability. They further pointed to the attractiveness of a method for the seeking of compensation that avoids the difficulty and expense of proving causation as required in personal injury actions. Earnshaw and Morrison's (2001) prediction has been fulfilled and a number of high profile cases have been pursued through employment tribunals since the introduction of the Act.

The employment related provisions of the DDA have not, however, gone uncriticised by business. Of particular concern is the notion of what constitutes a *reasonable adjustment* (Harris, 2000). Ambiguity surrounds this concept despite provision of guidance from the Government stating that what is reasonable will be determined by the effectiveness of the particular adjustment in preventing the disadvantage; the practicality of the adjustment; the financial and other costs of the adjustment and the extent of any disruption caused; the extent of the employer's financial and other resources; and the availability to the employer of financial or other assistance to help make an adjustment (DfEE/DTI, 1999). There is also concern about the cost to business of making reasonable adjustments (Harris, 2000); estimates running to hundreds of millions of pounds to British industry have been suggested (DfEE, 1999).

3.4 CASE DEFINITIONS WITHIN INDUSTRIAL INJURY COMPENSATION SCHEMES

A variety of case definitions relating to work-related stress and associated assessment frameworks have developed to support Industrial Injury (II) compensation schemes in a number of countries

beyond the United Kingdom. These were originally established to compensate for physical injury suffered at work but are now facing the challenge of how to assimilate psychiatric injury.

There are two key questions to be answered: 'is there evidence of psychiatric injury or disablement?' and 'to what extent is it work-related'. One way of answering such questions is to produce a list of conditions that are recognised as 'occupational' in origin and then to ask more simply 'is the claimant suffering from a condition that is recognised as occupational in its aetiology?' The question is whether, on the available scientific evidence, work stress can be safely considered as an occupational condition: one that is largely or solely caused by work-related factors. This is a matter of international debate and lack of consensus has led to a variety of different schemes operating. Schemes that consider work stress as an occupational condition operate a case assessment schedule that seeks to establish specific answers to the two key questions in relation to each claimant: a) what is the evidence of psychological injury or disablement and b) to what extent is this work-related? A summary of the position and models adopted in the European Union and United States is presented below.

European models

No European Member State has, as yet assimilated work-related stress into its industrial injury compensation schemes. In certain Member States, recognisable psychological problems resulting from workplace accidents may be compensated on the conditions that (EUROGIP, 2004):

- the event that caused injury was acute and not prolonged
- it occurred at a definite point in time
- it occurred in work time and in the workplace
- the disorder appeared shortly after the accident

Five Member States - Belgium, Denmark, France, Italy and Portugal - operate a 'mixed' system that allows compensation on a case by case basis where an individual can provide adequate proof of injury or disablement and work-relatedness in relation to a non-prescribed disease. Denmark, in particular, has witnessed a significant rise in the number of claims involving 'nervous disorders' from 2.8% of claims in 1996 to 9.3% in 2002 (EUROGIP, 2004).

In Sweden, a complex system operates in which compensation may be sought for psychological or psychosomatic illness caused by an 'adverse influence at work' where the individual suffers from a permanent work disability and/or loss of earning capacity. However, a number of circumstances for which compensation is *not* available are listed. Most relate to the design and management of work. These include (EUROGIP, 2004):

- personal disputes
- disputes concerning work contracts
- a change in work tasks
- lack of promotion
- boredom
- being poorly regarded
- unsuccessful accomplishment of tasks
- plant shutdown
- staff cuts

Italy, France and the Netherlands have in recent years sought to improve procedures for the assessment of work-related stress claims in order to ensure consistency. This has resulted in the development of complex case definitions specific to work-related stress that differ by country.

The European Commission (1990) has expressed the opinion that work-related stress should be integrated into industrial injury compensation schemes, noting, in its review of EU Member State occupational disease schedules, that,

“There are ailments which are caused by etiological factors inherent in the circumstances in which work is carried out, such as...mental stress, and which could therefore justifiably be recognised as occupational diseases.”

(European Commission, 1990, c.f. Department for Social Security, 1998).

The European Commission has recommended moving away from attempts to include stress in a prescribed list of occupational conditions. It has argued that the varied nature of psychological and physiological stress reactions challenges the inclusion of work-related stress in such lists. It believes that it is more appropriate to adopt systems that allow each case to be considered on its merit. A number of countries, including Spain and Finland, have followed the recommendations of the European Commission and abandoned attempts to prescribe work-related stress as an occupational condition (EUROGIP, 2004).

United Kingdom

In the UK, the Industrial Injuries Scheme (IIS) compensates employees who have been disabled by a prescribed occupational disease. For most diseases, Industrial Injury Disablement Benefit (IIDB) is payable where disablement reduces capacity by 14% or more. Work-related stress is not considered an occupational disease under the scheme.

The UK Government’s view has long been that the Industrial Injuries Disablement Benefit (IIDB) scheme would be best served by resisting any move to incorporate adverse health outcomes ascribed to work-related stress. It has argued that the Civil Courts are most suited to dealing with complex work-related stress claims and that the IIDB scheme should remain the primary tool for addressing recognised occupational diseases for which the aetiology and symptoms are irrefutable (Department for Social Security, 1998). Evidence from France, which has tried to assimilate work-stress into its compensation scheme, appears to support the UK view. The necessary assessments have tended to be highly complex and challenging, and, as a result, there have been few successful claims. Although the number of cases heard by French Regional Recognition Committees is rising each year, the number is very small; in 2002, only 15 cases were examined (EUROGIP, 2004).

The position in the UK is unlikely to change in the short to medium term. The most recent advice from the Industrial Injuries Advisory Council (2004), the body that advises the Government on matters of prescription, is that work-related stress should not be classified as a prescribed disease. It observes that prescription can only be considered by the Secretary of State where:

- a disease is a recognised risk of a particular occupation
- the work-relatedness of that disease can be established with reasonable certainty.

In practical terms, these conditions translate into two requirements:

- there must be a valid and low-cost method of assessment (diagnosis) suitable for high-volume administration
- it must be possible to attribute illness to work within these same constraints.

IIAC (2004) has argued that lack of consensus on a definition of work-related stress and the difficulties associated with the assessment of what is an essentially a subjective experience makes fulfilment of the first practical requirement difficult although not impossible.

In the context of the IIBD scheme, the second requirement, that work-relatedness be established, is usually assessed by looking for evidence of distinctive clinical features that might point to work as a causal factor. The fact that symptoms of stress can be idiosyncratic and may be caused by non-work factors, and that no gold-standard exposure assessment tool exists for psychosocial hazards, combine to make it particularly challenging to prove work-relatedness within this framework.

Where clinical evidence is not sufficient, the IIAC may investigate attribution by reference to epidemiological evidence that demonstrates the existence of at least a doubling of risk for a particular occupation. IIAC (2004) concluded that no sufficiently robust literature exists to demonstrate doubling of risk for work-related stress while it acknowledged that should a body of literature develop supporting the notion of doubling of risk, it will be necessary to revisit this issue. An indication of those occupations that might be considered high risk by virtue of high levels of reported work-related mental ill-health can be gleaned from official THOR surveillance data based on the reports of psychiatrists and occupational physicians (see www.hse.gov.uk/statistics.pdf/thorp04.pdf for a detailed analysis of THOR work-related mental health data categorised by occupation). However, the quest to identify high risk occupations is unlikely to inform future developments in the IIBD sphere, for the burden of evidence suggests that work-related stress has its roots in poor work design and management rather than the characteristics of specific jobs and as such may be evident in any employing organisation irrespective of the task-specific nature of employment. The HSE Management Standards for work-related stress provide guidance for employers on the assessment of work-related stress and design of interventions. The Management Standards are recognised as consistent with the notion that stress has its origins in the design, management and organisation of work.

United States

US Workers Compensation statutes were established at the beginning of the 20th century to provide for medical attention and lost-wage benefits for employees injured in the course of their work. Schemes were established state by state and designed on a ‘no blame’ basis. In return for benefits, employees sacrificed their right to sue employers for negligence (Moran, Wolff & Green, 1995). In Workers’ Compensation schemes the burden is upon the employee to prove that:

- an injury has been suffered
- the injury is related to work

It has been argued that Workers’ Compensation schemes have largely failed to keep pace with recent changes in the nature of work, and with the recognition of the risks associated with exposure to psychosocial hazards and the increased prevalence of psychological injuries. There is variability from State to State regarding the accepted aetiology of conditions, in the definition of a case and in the nature of injuries encompassed within case parameters. Such variability is exemplified by the fact that some States accept psychological symptoms of stress as constituting an occupational injury

whereas others require the demonstration of both psychological and physical symptoms (Moran, Wolff & Green, 1995). The establishment of both elements can prove difficult (Elisburg, 1995) possibly owing to a lack of clear definition of psychiatric injury and objective causation standards (Adler & Schochet, 1999).

Both the US insurance industry and employers' groups argue that work-related stress cases place an unwelcome pressure on the workers' compensation system and raise costs exponentially (Elisburg, 1995) and some recent decisions have heightened concerns. The case of *Bailey v. Republic Engineered Steels Inc* (Ohio Supreme Court, February 7, 2001), for example, illustrates the complexity and evolving nature of statute. Mr Bailey accidentally ran over and killed a colleague whilst driving a tow motor at work. He subsequently developed severe depression. Initially he was refused compensation because his illness had not arisen out of an injury to himself or out of an occupational disease. Rather, its origin lay in a compensable injury suffered by a third person. However, the Ohio Supreme Court concluded that because Bailey was injured in a workplace mishap, the statute should be interpreted to provide compensation for psychiatric conditions arising following injury to a third party. Employers have expressed concern that verdicts of this type increase the likelihood of litigation in cases where individuals might claim psychiatric injury after hearing of injuries to colleagues who they do not know or work in close proximity to (Stempel, 2002). It is not yet clear whether this has happened.

There are limited references in the US Workers' Compensation literature to the development of a case definition as it relates to work-related stress. Two notable proposed case definitions include the 'Work-Related Psychological Diagnostic System' (Wiggins, 1995) and that proposed by Adler and Schochet (1999). Both sets of authors have suggested models that, they argue, could facilitate the process of assessing mental stress claims.

3.5 STAKEHOLDER PERSPECTIVES ON LEGAL AND COMPENSATORY CASE DEFINITIONS

Various stakeholder groups identify the legal case definitions, and particularly that applied within civil litigation, as key forces shaping work-related stress prevention and management activities. Among these groups, employer representative bodies, trades unions and insurers have been active in the expression of opinion and implementation of policy. The general perspective of each is presented below. There is a degree of variance within each stakeholder group in regard to opinion and activity. This section provides an overall impression rather than a definitive picture of stakeholder perspectives on the nature of case definitions for work-related stress.

Employer perspectives on case definitions

Establishing case definitions in relation to work-related stress appears to be of potential benefit to employers, not least, because they provide them and their employees with a shared language to deal with the issue of stress (Wiggins, 1995) and an enhanced understanding of each parties' roles and responsibilities. Furthermore, the evidence is that employers, keen to avoid becoming engaged in costly litigation, are increasingly paying close attention to the legal case definition applied within personal injury actions.

Generally, employers and their representative groups appear to be wary of the issue of work-related stress. This may, in part, be due to questions of how it can be measured and managed and whether non-work-related stress can ever be disentangled from that directly caused or made worse by work

(CBI, 1999; European Foundation for the Improvement of Living and Working Conditions, 2001). Reddy (2002), and others, have argued that this wariness might be reduced by [1] the introduction of HSE standards of reasonable organisational and management behaviour against which an organisation can be measured and [2] research endeavours to more clearly define stress-related illnesses with attendant improvements in diagnostic practice.

The position of some employers and their representative groups with regard to work-related stress can perhaps be inferred from the reaction to the Enforcement Notice imposed upon West Dorset Hospitals NHS Trust in August 2003. Spiers (2003) regarded the negative reaction of the Institute of Directors and Confederation of British Industry as “at the best misguided and at the worst misleading”. She argued “not all managers are as caring for their employees as the IoD and CBI would like them to be, and there are organisations in which a stress inducing work culture is as ‘institutionalised’ as racism or sexism were until similar legislation was introduced to stop them. Some managers are even proud of this fact, believing that unrealistic deadlines and work pressures are the best way of getting their employees to perform”.

The perspective of employers’ representative organisations to work-related stress might also be inferred from the choice of language used to describe it. In referring to work absence research conducted by the Chartered Institute of Personnel and Development (2004), a report from the Institute of Directors refers to work-related stress as one of a number of ‘minor illnesses’ along with colds, influenza, stomach upsets, back pain, musculo-skeletal injuries and recurring medical conditions (Wilson, 2004). Such terminology perhaps reveals a conceptualisation of work-related stress as a problem unlikely to be associated with a high degree of impairment to functioning.

There is evidence of a change in attitude among employers towards a growing appreciation of the destructive nature of work-related stress. This change in attitude may be, in part, a result of a series of high profile court cases that have forced employers to take note of the increasing body of scientific evidence that demonstrates links between stress-related illness and exposure to workplace psychosocial hazards. The landmark case of *Walker v. Northumberland County Council* [1995] 1 All ER 737, in particular, focussed employers’ attention and gave rise to fears of ‘a tidal wave of litigation’ (Earnshaw & Morrison, 2001). A survey of Human Resource professionals, some years later, found that 1 in 6 respondents considered work-related stress litigation to be the single most important employment law issue facing employers (Personnel Today, 2002). Some comfort was offered to employers by the ruling in *Hatton v Sutherland* [2002] 2 All ER 1 that seemed to shift the onus of responsibility for the management of work-related stress away from the employer towards the employee. However, the subsequent House of Lords’ judgement in *Barber v. Somerset County Council* [2004] UKHL 13 is likely to refocus employers’ attention upon the prevention of work-related stress. The judgement in *Barber* made clear that employers must engage proactively in stress prevention activities and keep up to date with developments in best practice and not simply rely on palliative measures such as counselling.

Claims against employers on the grounds of work-related stress have increased across Europe in recent years and associated costs to employers have likewise enlarged. One survey of over 500 organisations found that almost 4% had had stress-related claims made against them. Data from the Republic of Ireland suggested that the average settlement in these claims was £52,000, in some cases rising towards £200,000 (Irish Business and Employers’ Confederation, 2001). It is difficult to obtain an accurate picture of the number of stress cases brought each year as the vast majority are settled out of court and fail to make the public record. Indeed, the IBEC survey found that only 5% of personal injury claims against employers were ultimately decided on by the courts. This figure

has been confirmed in the present research (for England & Wales) through discussions with the major insurance companies that provide employer liability cover to organisations.

Various reasons have been put forward by employer representative organisations to explain the growth in purported stress cases in recent years. The IoD, for example, has suggested that the increase may largely represent the scapegoating of employers for people's general dissatisfactions:

"It is far easier to take an employer to court, 'the medicalisation of stress', than, say, family members (Lea, 2003, p.2)."

Many of the organisations that represent UK employers are showing an increasing willingness to consider stress-related injury within a health and safety framework. Moreover, some now consider it to possess the equivalence of an occupational illness. Some organisations, often those wishing to present themselves as 'an employer of choice', make reference to data on work-related stress in documentation that is available to the public domain, such as Annual Reports. Such information is typically presented to potential employees and to shareholders as indicative of the organisation's willingness to recognise the existence of work-related stress, and of a willingness to address and prevent it as far as possible with the ultimate aim of encouraging sustainable productivity. The employers, and their representative groups, interviewed for this report accepted that work-related stress should be considered in the same way as other workplace health and safety issues, with the caveat that total elimination of psychosocial risks may be more difficult to achieve than that of risks associated with physical hazards.

Various sources identify a change in employer attitudes towards work-related stress and there is growing evidence that employers do now recognise the problems commonly associated with work-related stress. A recent survey by HSE/Personnel Today found that 83% of employers responding to the survey believed stress had an adverse effect on their organisation's productivity (O'Reilly, 2003). Half the respondents believed that stress had an effect upon ability to retain staff. An equal number reported that the problem of work-related stress appeared to be getting worse and largely attributed this to the pace of change in work. Similar results emanated from an earlier HSE survey of employers which found that 87% of respondents considered stress to be a possible cause of work-related illness (Pilkington, Mulholland, Cowie, Graham, & Hutchinson, 2001), and by an IoD survey to which 40% of company directors acknowledged stress to be a 'big problem', and over 80% agreed that working practices could have a causative influence upon stress levels (Day, 1998).

A recent IoD members' survey provided indication of a growing recognition of the potential for harm associated with work-related stress. 41% reported that there had been complaints from employees about work-related stress in the previous year. 65% reported the work-related stress problem to be stable and not increasing in severity in their businesses. Employers seem aware of the challenge to well-being and organisational productivity posed by work-related stress, as evidenced by the prevalence of initiatives to address it. 76% of respondents reported they were providing more training and support, 72% were giving staff more responsibility, 70% were allowing employees to work from home, 63% were introducing more flexible working arrangements and 60% were ensuring that their staff had more manageable workloads (Wilson, 2004).

Despite these positive indications, some UK employers persist in the belief that work-related stress is an individual problem that is unlikely to impact upon the health of the organisation and is best remedied by interventions targeted at the individual level. A survey commissioned by Investors in People UK found that 20% of employees responding to the study perceived stress as the single

greatest factor negatively affecting their productivity whereas only 10% of managers held such beliefs (IiP, 2002). Consistent with this, HSE research has shown that where employers have taken steps to deal with stress, only 35% of initiatives have been at the primary or organisational level (Pilkington et al, 2001). This finding presents cause for concern as UK employers are required in law to take preventive steps to manage the problem of work-related stress. Research suggests that even when managers consider that restructuring the workload may be the most effective way to deal with stress, only a small minority report having done so (Dewe & Driscoll, 2001).

The perception among some employers appears to be that stress is essentially an individual problem that is unlikely to impact upon the health of the organisation. This view is also prevalent in other Member States of the European Union (European Foundation for the Improvement of Living and Working Conditions, 2001). However, despite this, employers' organisations in Ireland, Denmark, Belgium, the Netherlands and the UK have produced guidelines on work-related stress that focus on the need for organisational-level interventions (ibid).

Although employers and their representative groups have increasingly recognised and seized the opportunity to integrate work-related stress into health and safety frameworks, there remains some scepticism concerning the drive for a consensus case definition.

Identification at the expense of rehabilitation

The interview research undertaken for this report found concern among employers in reference to the symptoms of ill health that might be included in a case definition. Specifically, unease was expressed concerning what attempts to model a case (and the meaning of what it might mean to be 'unfit for work') may do to attempts to manage 'fitness for work' in relation to work-related stress. It was argued that delineation of a case definition carries the risk that excessive emphasis may be placed upon problem identification (with a view to establishing liability) rather than on solution-focused rehabilitation initiatives. Some employers' representative groups have been vocal in their lament of the absence of a national rehabilitation service, alarmed by Government figures indicating that more than 7.5% of the working age population was in receipt of incapacity benefits in 2002 (Day, 2003). Indeed, research suggests that modified work programmes, designed to ease employees back to work are associated with significant reductions in lost working days and costs (Krause, Dasinger & Neuhauser, 1998).

A recent national survey of company directors found that only 35% of organisations hold 'return to work' interviews with all employees following a period of sickness absence (Day, 2003). The lack of initiatives designed to assist the effective return to work following injury or illness is evident across the spectrum of industries. In view of this it is perhaps understandable that some employer representative groups will offer a cautious reception to attempts to define a case of work-related stress that could be construed as encouraging case identification with a view towards litigation.

Compensation culture

Employers' representative groups have argued that a focus on rehabilitation initiatives may also help capture potential cases of work-related stress in the early stages of development, and moreover, avoid a tacit endorsement of a compensation culture in favour of promotion of the notion that that it is better to be at work and healthy than off work living on compensation. In contrast, the trades unions have argued that the compensation culture is a myth, particularly in relation to work-related stress for which compensation may not be easily secured (TUC, 2005). The employers' fear of

litigation is very real, in part, owing to the adversarial nature of the civil litigation process that sets the claimant's solicitor against the employer's insurer. Within this face-off, the health and rehabilitation needs of the claimant can become sidelined in pursuit of a 'winner takes all' financial outcome (Day, 2003).

Case definitions in organisational health and safety frameworks

In recent years work-related stress has been identified as a priority area deserving of further research owing to its impact on individual and organisational health (Harrington & Calvert, 1998). Increasingly, stress-related injury has been incorporated into existing health and safety frameworks within occupational health provision. Moreover, a number of large employer organisations now consider work-related stress as an occupational illness. In doing so, the notion of the modelling of a case of work-related stress is brought to the fore. However, case identification is secondary in importance within many occupational health programmes to the primary objective of the prevention and management of stress with a view to sickness absence reduction.

Many medium-sized and large enterprises provide in-house occupational health provision or buy in services. The nature of involvement varies according to the details of the contract between the employer and provider, and reflects that organisation's needs and culture. To varying degrees occupational health programmes seek to identify cases of work-related stress, although assessment is often conducted informally and the presence of a case inferred from manifested behaviours. The characteristic shared by all schemes however, is the objective of facilitating return to work and the enhancement of well-being.

One leading UK-based occupational health provider interviewed for this report estimated that per 100,000 workers, approximately 9,600 formal mental health referrals are received each year: the vast majority of these being stress-related in some way³. This figure may underestimate the overall scale of the problem as it only includes formal referrals initiated by the employer and not self-referrals via employee assistance programmes.

A generic case definition applied within occupational health provision appears to have two elements at its core: (i) the identification of a stress-related illness and, (ii) the establishment of the work-relatedness of that illness. A best-practice case definition as it relates to work-related stress in an occupational health context is described below.

Generally, in the occupational health context, illness diagnosis is undertaken by a health professional. There is debate among employers and their representative groups over the inclusion of physical disorders within the umbrella of stress-related illnesses. It is argued that the challenge in establishing the stress-relatedness of many physical disorders is of such magnitude that, for the present, it makes sense to restrict the definition to psychological illness. On the other hand, it is argued that although the 'science' is not sufficiently advanced to demonstrate the details of linking mechanisms between stress and many physical disorders, more robust justification is needed to eliminate physical disorders. This is not to suggest that occupational health providers consistently restrict case definitions of work-related stress to symptoms of psychological ill-health; in some cases physical manifestations such as post-viral infections and chronic fatigue may be considered stress related. The type of illnesses included within case definitions is at the discretion of the

³ *Of course, not all stress-related illness can be attributed to work-related factors. However, in the majority of these cases work-related factors are implicated to a greater or lesser extent.*

occupational health provider. Certainly, there is good evidence for causal linkages between exposure to problems in the psychosocial work environment and a range of physical illnesses (Cox, Griffiths & Rial-Gonzalez, 2000). A good example is provided by cardiovascular disease. The now classic Swedish studies of the 1970s demonstrated, through the use of case controlled studies, relationships between aspects of the psychosocial work environment, particularly control, and increased risk of heart attacks (for a review, see, Alfredsson et al, 1982).

In light of these competing points of view, the approach taken by one large organisation that contributed to this report is demonstrative of a pragmatic attempt to incorporate work-related stress into a health and safety framework. The organisation's definition of an illness attributable to work-related stress is restricted to the psychological domain:

“Any clinically significant emotional impairment, diagnosed by a qualified health professional, primarily caused by identified abnormal or excessive psychological pressures from the workplace. The impairment is manifested by symptoms or behaviours including, marked distress in excess of what would be expected and/or significant impairment in social or occupational functioning.”

In identifying the cause of stress-related symptoms, occupational health providers attempt to disentangle the range of possible contributory stressors, both those unrelated to work and those associated with employment.

In considering work-related stress as an occupational illness it is necessary to examine what is implied by the term. Models adopted for occupational health purposes generally define occupational illness in terms of an abnormal condition or disorder caused by factors associated by work. For pragmatic reasons, the term 'caused' may be taken to imply that it is more likely than not. For example, 'occupational' may simply mean that there is a greater probability that the illness has been caused by work-related factors than not, and that this decision has been made by an occupational health professional. Such definitions acknowledge that a decision on caseness in this respect is not an exact science.

Approaches to the assessment of work-relatedness range from the simple to the highly complex. A number of large organisations in the private sector have demonstrated that it is possible to make a judgement on work-relatedness through application of four key questions, delivered and assessed by a health professional that seek to examine:

- unexplained changes in work performance
- unexplained changes in sickness absence patterns
- deviations from normal in health assessments
- any other abnormalities detected by competent health professionals during clinical encounters

Further questions may be posed to assess whether psychosocial hazard exposure has occurred that may be associated with the illness. Reference may also be made to additional sources of organisation data such as employee assistance programme uptake and individual employee feedback from attitude surveys.

Commentary

Employers, although often wary, have in general developed an appreciation of the scale of the work-related stress problem over the last decade. More recently, spurred on by the proliferation of litigation, and perhaps encouraged by their insurers, employers are increasingly developing stress management policies. Within these, some have developed thorough procedures for the identification of cases of work-related stress. Many organisations provide occupational health services which, with varying degrees of formality, seek to identify cases of work-related stress. It is likely that the number of organisations developing sophisticated procedures will grow in coming years owing to the advent of the HSE Management Standards for work-related stress, and a developing appreciation that ignoring the issue may prove costly "...in litigation, in out of court settlements, in sick pay and in having a de-motivated and under-productive workforce. Employers would do well to take it seriously" (Earnshaw & Morrison, 2001).

Trades unions perspective on case definitions

Trades unions are the primary source of financial support for personal injury actions where work-related stress is claimed. As such, the definition of a case of work-related stress applied in legal proceedings is central to union activities in this field. In recent years trade unions have won several high profile cases on behalf of members and secured awards totalling millions of pounds.

Trades union representatives interviewed for this report frequently criticised the model of work-related stress used within personal injury actions owing to its complexity that makes it difficult for legal cases to be brought against employers considered in breach of their duty of care to employees. Once a case is brought, the process of establishing the evidence for employer liability is fraught with challenges. The Court of Appeal's 'practical propositions' issued in 2002 served to raise further the barriers to successful litigation. In response, trades unions have reported the widespread early closing of cases. Nevertheless, following pronouncement of the practical propositions, the Trades Union Congress (TUC) identified 2,503 new work-related stress cases being pursued by unions on behalf of members in one twelve month period (Bryson, 2003).

Scale of the problem

For many trades unions, work-related stress is regarded as one of the major challenges to health and safety faced by the workforce today across Europe. An indication of the scale of the problem in the UK from the perspective of trades unions can be ascertained from the TUC biennial survey of union safety representatives. In each of the first three surveys (1996, 1998, 2000) stress was identified as a major concern (Tudor, 2002), reaching a peak in 1998 when 77% of respondents identified stress as a major problem in their workplace. The trend dipped in the 2002 survey, which found 56% of representatives reporting stress as a problem faced by their colleagues. However, an upward trend was again evident in the 2004 survey which found that 58% of the 4,521 safety representatives sampled reported stress in their workplaces as a problem (TUC, 2004). The survey also identified banking and finance as the occupational group experiencing the most work-related stress – 83% of safety representatives in this sector reported stress to be a major problem.

Further indication of the scale of the problem is evident in records of legal cases pursued by trade unions on behalf of members suffering from stress-related injuries attributable to work. In the three year period from 1997 to 2000, the number of work-related stress cases taken on by trade unions rose from 459 to 6,428 in 2000 (Oliver, 2002).

Work-related stress activities

Attempts to define a case of work-related stress have not been central to trade union activities on stress. Rather, efforts have tended to focus on interventions available to tackle stress at the organisational level. Nevertheless, some trade unions have endorsed commercially available checklists for the assessment of work-related stress.

Relations between trades unions and employers vary in the context of dialogue on work-related stress. The UK is one of only a few EU Member States in which trades unions have successfully included work-related stress as an issue in collective bargaining with a view to applying a policy of prevention (European Foundation for the Improvement of Living and Working Conditions, 2001). Most agreements have been made at a company or workplace level, although sectorial agreements are increasingly common. In the UK, areas of disagreement remain concerning the definition of work-related stress and optimum approaches to its management. Publicly available trades union documentation often indicates a recognition of the genesis of work-related stress in the design and management of work that is not always shared with employers. Survey results substantiate this (see, for example, Communication Workers Union, 2001). There is a widespread belief that employers and unions can work together to alleviate the problem (Monks, 2002).

Legislation for work-related stress

Compensation for work-related stress through the Industrial Injuries Disablement Benefit scheme is primarily available for stress resulting from one or more discrete events and as such is largely restricted to illness such as Post Traumatic Stress Disorder. These circumstances have forced trade unions to seek compensation for their members suffering from work-related stress through the civil courts and also more recently through employment tribunals. As a reflection of the number of civil cases pursued, UK trades unions have lobbied for specific work-related stress legislation for several years (Sunley, 2000; Tudor, 2002). Insofar as legislation would require a case definition and associated schedule for assessment, trades unions can be regarded as eager to see developments in this research field.

Insurer perspectives on case definitions

Providers of employer liability insurance have, in recent years, expressed keen interest in work-related stress measurement and management. The focusing of attention has been in response to the rise in civil claims for personal injury. In the early 1990s work-related stress claims were virtually unseen; by 2003 such claims ranked sixth in the Association of British Insurers' list of occupational injuries for which claims were brought that year (reported in TUC, 2005). In addition, the possibility that the number of enforcement notices given by the Health & Safety Executive might increase, with the subsequent possibility that if unsuccessfully dealt with, criminal prosecution and civil claims may ensue, has sharpened the industry's focus.

Insurance companies are aware that the Management of Health & Safety at Work Regulations were updated in October 2003 to take account of the EC view that the previous 'civil liability exclusion' was inconsistent with the 1989 European Framework Directive (391). The exclusion had prevented employees or members of the public from bringing a civil action against employers solely on the basis of a breach of these Regulations (for example, that a risk assessment had not been carried out). Breach of that regulation is now sufficient grounds for a successful claim (provided there is a clear

proximal link between the breach and the cause of the harm done). Nonetheless, insurers regard it as unlikely that a lack of stress risk assessment alone is likely to be cited as the most direct cause of a specific injury to an individual, although such a lack might be viewed as symptomatic of an employer's general disregard for employee psychological well-being.

The main focus of insurance provision, once a claim reaches the courts, is on liability and compensation. From the days of the earliest psychiatric injury claims there were concerns about the implications for the insurance industry including the scope for fraudulent claims and the problems in establishing causation – all of which might open the litigation floodgates (Peart, 2003). It is widely thought that the adversarial nature of personal injury litigation may be detrimental to the promotion of health and rehabilitation of the claimant. Indeed, a recent national survey of company directors found that 0% believed that lawyers prioritise a claimant's health improvement when engaged in civil actions, and only 4% believed that insurers prioritised claimants' rehabilitation (Day, 2003). Prompted by the Government's recent review of employer liability insurance, employers' representative groups have lobbied for a greater focus on rehabilitation to work within insurance arrangements rather than on the pursuit of financial compensation. Many employer liability insurers are now arguing in favour of a 'rehabilitation first' approach to indemnity.

Case definitions

To inform this Report of the position of the insurance profession on the issue of case definitions in relation to work-related stress, a seminar was convened and attended by representatives of the largest UK employer liability insurance providers.

When considering a case definition, employer liability insurance providers primarily refer to the four ordinary principles of employer liability applied in personal injury litigation. These existing criteria were considered, by consensus at the seminar, adequate for purpose. In particular, the insurers continue to regard the requirement for demonstration of a clinically recognised psychiatric disorder as appropriate in defining a case. This judgement is partly based on the assumption that the time period between psychosocial hazard exposure and symptom manifestation is usually short.

Insurers typically regard case assessments, as seen in civil litigation, to involve a 'double knock' procedure. This means that the first stress-related illness displayed by an individual (first knock) has often not warranted compensation due to the fact that in most cases it would be unreasonable for an employer to have foreseen the development of an illness. However, a second stress-related illness (second knock) may be considered foreseeable, given the same or similar working conditions, in the light of previous illness, thus opening the doors to the compensation process. The double knock approach may constitute a suitable framework for insurers to base compensation decisions around. The insurers' seminar expressed grave doubts about the adequacy of a consensus model of work-related stress that is consistent with existing epidemiological survey approaches to caseness assessment, and that could incorporate evidence of a first knock that would also be acceptable in a claim context.

Insurers have forced several legal cases, initially found in favour of the claimant, to the Court of Appeal. This was most successfully achieved in 2002 when three out of four cases were overturned and a list of sixteen 'practical propositions' handed down for guidance in future work-related stress claims in *Hatton v Sutherland* [2002] 2 All ER 1. The judgment of the Court of Appeal in one of these cases, that of Mr Barber, was subsequently appealed in the House of Lords, which affirmed the decision of the original trial judge (*Barber v Somerset CC* [2004] UKHL 13). The judgment of

the House of Lords made clear that the practical propositions issued by the Court of Appeal should be regarded as ‘no more than practical guidance’ (Buchan, 2004).

The *Barber* case is of interest here because it supports the notion that the onus is upon the employing organisation to be proactive in the prevention of work-related stress. In doing so, the House of Lords’ judgment failed to support the proposition that an employer is only under a duty to ensure that work is designed, managed and organised so as to prevent psychiatric injury following a complaint from an employee (Buchan, 2004). The House of Lords judgement has been referred to as ‘the last word on occupational stress for the foreseeable future’ (Mason, 2004).

In discussing the practical propositions of the Court of Appeal, the insurers’ seminar expressed the consensus opinion that the propositions have served to clear up many of the arguments that cause delay in resolving stress at work claims. Additionally, there is a perception that claim handling efficiency has improved as speculative or disingenuous claims have been deterred. The overturning of the Court of Appeal judgement in one of the four cases and the assertion that the propositions are merely practical guidelines may alert the insurance industry that complacency in the prevention and management of work-related stress manifested, for example, as only taking action to reduce work-related stress following employee complaints, will no longer suffice to protect against litigation. In the same vein, practical proposition 11: “an employer who offers a confidential advice service, with referral to appropriate counselling or treatment services, is unlikely to be found in breach of duty”, is no longer an assurance of immunity from litigation for those organisations that offer such services.

The insurer seminar concluded it very unlikely that a consensus model of work-related stress suitable for epidemiological application could ever be consistent with the standards required by the insurance profession: i.e. that which would enable successful insurance claims and litigation. If a proposal were ever presented arguing for a case assessment measure, acceptable to the civil courts, in which the symptom threshold exists at a point less severe than the present ‘clinical’ level, it would be resisted by the insurance profession due to the inflationary effect such a move could have upon claim frequency.

CHAPTER 4 REVIEW OF EPIDEMIOLOGICAL SURVEYS OF WORK-RELATED STRESS

4.1 INTRODUCTION

Any case definition of work-related stress must be capable of being translated into an assessment tool for use in epidemiological occupational health studies given the importance of such studies in understanding the nature of stress and monitoring its incidence and prevalence. Consistency between the case definition developed in this report and that applied in official government surveys of work-related stress is a key term of reference for this research.

4.2 INCIDENCE DATA

Annual incidence data as it relates to work-related stress is defined as the estimated number of *new* cases occurring in the 12 month reference period i.e. people first becoming aware of their illness in this 12 month period. In the UK, incidence data has been collected through the Surveillance of Occupational Stress and Mental Illness (SOSMI) and Occupational Physicians Reporting Activity (OPRA) surveillance schemes, operating under The Health and Occupational Reporting Network (THOR). The former collects data from consultant psychiatrists, the latter from occupational physicians. Injury data from the Labour Force Survey and information from the Self-Reported Work-Related Illness (SWI) surveys also contribute to generating an overall picture of the incidence of work-related stress.

Undertaken in 2004/5, the most recent household survey of work-related illness (SWI) afforded a national picture of the incidence of work-related illness based on self-reported perceptions. Headline results (available at <http://www.hse.gov.uk/statistics/causdis/>) indicate that the estimated incidence of stress, anxiety and depression caused or made worse by work has declined slightly following the turn of the new millennium, from 257,000 cases in 2001/2 compared to 245,000 in 2004/5. These figures were derived from a sample of individuals who had been in employment but who had not necessarily worked in the previous twelve months. When consideration is restricted to individuals engaged in employment in the previous twelve month period the figures show that per 100,000 workers, in 2001/2 there were an estimated 890 cases of work-related stress, anxiety and depression; 820 in 2004/5.

Taken together, OPRA and SOSMI data identified an estimated 6,579 new cases of work-related mental ill health in 2003 - a figure that was unchanged in the four years previous. Of this number, the majority, 4,360 cases, were identified as anxiety/depression (see, <http://www.hse.gov.uk/statistics/pdf/thorp01.pdf> for a detailed analysis of THOR data 1999-2003).

Incidence estimates derived from data collected voluntarily from specialist doctors under the THOR surveillance scheme are acknowledged to under-estimate the true state of affairs and, as such, the HSE recommends that 'figures from the THOR schemes should be regarded very much as minimal estimates of the true incidence of work-related disease' (<http://www.hse.gov.uk/statistics/sources.htm>). Annual total estimates are based on small samples of actual reported cases and are subject to random variation due to sampling error. There is also evidence that the longer doctors report to the scheme, the less inclined they might be to report cases. Furthermore, many cases will not be seen by doctors reporting to THOR. This is particularly the

case where individuals do not have access to an occupational physician at their place of work and also where psychiatric symptoms are not of sufficient severity to warrant a referral to a consultant psychiatrist.

Taken together, THOR surveillance data and SWI self-reported data offer a robust indication of the incidence of work-related stress. Each has its particular limitations. The accuracy of THOR data is limited by the voluntary nature of reporting into the scheme as well as the limited coverage of occupational groups that do not have access to an occupational physician and where symptoms are of insufficient severity to warrant referral to a consultant psychiatrist. SWI data may be criticised for its reliance on self report; participants may incorrectly ascribe a problem to work or, conversely, fail to identify the work-relatedness of an illness. To their advantage, each data source offers an indication of incidence levels over time that allows changes to be tracked and, when the data sources are taken together, Government policy to be shaped accordingly.

4.3 PREVALENCE DATA

Annual prevalence data as it relates to work-related stress is defined as the estimated number of people with a work-related stress at any time during the 12 month reference period. It includes both long standing and new cases. Official prevalence data in the UK is largely derived from Self-Reported Work-Related Illness (SWI) surveys that began in 1990 and have continued periodically since that time. SWI prevalence data has been augmented by research commissioned by government and private organisations. Estimated prevalence rates for stress and related conditions increased steadily during the 1990s. SWI data suggests that the prevalence of work-related stress reached a plateau in the late 1990s at approximately double the 1990 level. Headline results from the 2004/5 survey (available at <http://www.hse.gov.uk/statistics/causdis/>) indicate that an estimated 509,000 of those who have ever worked have suffered from stress, anxiety or depression, compared to an estimated 548,000 in 2001/2. These figures exclude those who reported heart disease that might be mediated by work-related stress.

Together the SWI surveys provide an important monitor of the prevalence of work-related stress in the UK and give estimates of incidence superior to THOR data. However, methodological inconsistencies within the SWI series make exact comparisons across surveys difficult and challenge the usefulness of those surveys in assessing progress against the government's health targets with respect to work-related stress (HSE, 2002).

This section provides an overview of the case definitions of work-related stress used in the SWI surveys and in other similar enterprises.

4.4 UK & EUROPEAN SURVEYS: A REVIEW OF FINDINGS

Large epidemiological studies have repeatedly shown that work-related stress affects self-reported health. For example, in considering comparative data from five European countries Siegrist et al (2004) showed that work-related stress, as measured in terms of self-reported effort-reward imbalance (Siegrist, 1996), is related to poor health. The multi-factorial nature of stress-related illness makes the task of assessing incidence and prevalence through epidemiological surveys complex. Nevertheless, there are a good number of such surveys. A sample has been selected for discussion here. These all provide data on the prevalence of work-related stress and meet the following inclusion criteria:

- the sample should be representative of the national working age population rather than of a particular organisation or a profession or some other kind of interest group. This criterion resulted in the elimination of several available surveys
- the surveys must have included questionnaire items relating to employee stress
- the surveys must be quality studies adhering to high standards of survey practice in terms of sample and survey design and administration, or, where this is not made explicit, they must have been conducted by an organisations regarded as an authority in survey research
- the surveys should not have been conducted prior to 1995
- all measures of work-related stress have to be of the self-report kind, thus reflecting subjective experiences

Surveys meeting the criteria are indicated below in Table 1.

Table 1 Nationally representative surveys of the scale of work-related stress

<i>Survey</i>	<i>Commissioner</i>	<i>Publication</i>	<i>Sample</i>
Self-reported Work-related Illness in 2003/04 (SWI03/04)	HSE	2005	91,000
Self-reported Work-related Illness in 2001/02 (SWI01/02)	HSE	2003	98,000
Self-reported Work-related Illness in 1998/99 (SWI98/99)	EUROSTAT	2001	66,000
Third European Survey on Working Conditions 2000	European Foundation	2001	21,703
The Bristol Stress and Health at Work Study (SHAW)	HSE	2000	17,000
Whitehall II	HSE	2000	10,308
Self-reported Work-related Illness in 1995 (SWI95)	HSE	1998	40,000

It is outside the scope of the current review to consider large scale surveys of work-related stress that do not include UK samples. The European Foundation for the Improvement of Living and Working Conditions (Houtman, 2005) has produced an interesting comparison of methodology and results across surveys of work-related stress employed in seven EU Member States including Denmark, Finland, France, Germany, The Netherlands, Spain and Sweden. Furthermore, this review does not consider the numerous small scale surveys of work-related stress in particular workgroups that have been commissioned in recent years by public and private organisations. Such surveys have applied a variety of research methodologies and case definitions.

Self-reported Work-Related Illness (SWI) surveys

Together the SWI surveys provide an important indicator of both the scale and the nature of work-related stress in Britain. Headline results from the latest SWI survey are available at <http://www.hse.gov.uk/statistics/causdis/>. This brings to six the series of SWI surveys (SWI90, SWI95, SWI98/99, SWI01/01, SWI03/04 and SWI04/05) commissioned by the HSE and conducted in collaboration with the Labour Force Survey (with the exception of SWI98/99 commissioned by the European Union Statistical Office).

Although results from the SWI surveys are not directly comparable, the available evidence suggests that self-reported evidence of work-related stress doubled between SWI90 and SWI98/99, and reached a plateau thereafter.

SWI95

The HSE commissioned SWI95 which involved 40,000 adults from a representative sample of households living in Great Britain. Unlike other SWI surveys, SWI95 included follow-up interviews for the collection of detailed information about the illness and reference to General Practitioner records.

Results suggested that 279,000 individuals in Britain were suffering from work-related stress, depression or anxiety (Jones, Hodgson, Clegg, & Elliott, 1998). A further estimated 254,000 people ascribed a physical condition to stress at work. Physical conditions included hypertension, heart disease or stroke and digestive problems. In total, 515,000 people were estimated to suffer from work-related stress at a level that had made them unwell either physically or mentally. 14% of those reporting a work-related illness reported experiencing stress, depression or anxiety in the last twelve months and an additional 12% reported a physical condition they ascribed to work-related stress. 40% of this number described their complaint as hypertension, heart disease or stroke. A further 21% described their complaint as a disease of the digestive system.

Those suffering from work-related stress were 6.4 times more likely to report a 'lack of help and support from the people in charge at work' than members of a control group. Those reporting work-related stress were also significantly more likely to be exposed to 'working to tight deadlines' and 'having too much work to do'. It is noteworthy, for purposes of further validation of data derived from SWI95, that anxiety scores for those reporting work-related stress were higher than those reported by a control sample.

SWI98/99

SWI98/99, commissioned by the European Union Statistical Office (EUROSTAT), surveyed 66,000 adults in Britain. The sample included those who had worked in the previous twelve month period rather than people ever employed.

Data indicated that 438,000 people had suffered from work-related stress, depression or anxiety in the previous twelve months in the UK (Jones, Huxtable & Hodgson, 2001). Work-related stress accounted for one third of all self-reported work-related illness. Extrapolated across the European Union, this means that approximately 1.4 million European workers had health problems associated with work-related stress (European Commission, 2004).

SWI01/02

Commissioned by the HSE, SWI01/02 surveyed 98,000 adults in Britain. Individuals responding positively to the screening question were asked a limited number of questions about their most serious illness.

From the results it was estimated that nationally, 563,000 people (ever employed) had suffered from work-related stress, depression or anxiety in the previous 12 month period (Jones, Huxtable,

Hodgson & Pryce, 2003). This equated to 1.3% of people who had ever worked. A further estimated 80,000 people reported work-related heart disease that could be stress-related.

SWI03/04

The (HSE commissioned a module of questions in the winter 2003/04 administration of the Labour Force Survey (LFS) that surveyed some 91,000 people (Jones, Huxtable & Hodgson, 2005). Results indicated that work-related stress, depression or anxiety affected 557,000 people in Great Britain and approximately 254,000 of that number first became aware of their condition in the previous twelve months. This represents an estimated average of 28.5 working days lost per year per affected case, totalling 12.8 million reported lost working days per year, making stress, depression or anxiety the largest contributor to annual days lost from work-related ill-health (HSE, 2004a).

In addition, a further estimated 66,000 people reported work-related heart disease. It is noted that data from SWI95 suggested that many people reporting heart disease ascribed it to work-related stress. On this basis it is plausible to assert that most of these estimated 66,000 may also represent indirect reports of work stress, indicating a prevalence estimate of nearly two thirds of a million people reporting work stress at a level that was making them ill.

SWI0405

The sixth in the series of SWI surveys, which addresses the period 2004-2005, is due for publication in May 2006. Headline results (available at <http://www.hse.gov.uk/statistics/causdis/>) indicate a slight fall in the estimated incidence of stress, anxiety and depression caused or made worse by work: 245,000 cases compared to 254,000 in SWI03/04. Prevalence rates appear to have followed the same pattern. SWI0405 identified 509,000 cases compared to 557,000 in the previous survey.

Third European Survey on Working Conditions

The European Survey on Working Conditions is conducted periodically and seeks to provide an overview of the state of working conditions in the European Union and to identify the nature and content of changes facing the workforce and the quality of work. The third survey (Paoli & Merllié, 2001) involved 21,703 people randomly sampled from the total active population (within the 15 Member States that formed the European Union at the time of the study) who underwent face to face interviews in their homes.

The survey identified work-related stress as the second most common work-related health problem (following back pain) in the UK sample, reported by 28% of workers (the same figure as reported in the 1995 second European Foundation survey). This pattern was replicated across the fifteen EU Member States surveyed. Work-related stress prevalence and trends across the three European Working Conditions Surveys are discussed in detail in Houtman (2005), available online at <http://www.eurofound.eu.int/>.

The Bristol Stress and Health at Work Study (SHAW)

The Bristol Stress and Health at Work (SHAW) study (Smith et al, 2000) did not involve a sample of equal magnitude to the SWI surveys (approximately 17,000 compared to no less than 89,000 in the three most recent SWI surveys). As such, it might not be considered to fulfil the inclusion criteria set out at the beginning of this section of having employed a nationally representative

sample. Nevertheless, the SHAW study is considered here on the basis that it fulfils all other criteria and remains one of the most influential studies of its type in recent times.

The study found that almost 20% of respondents rated their work as very or extremely stressful. This was estimated to equate to five million people exposed to work-related stress. Stress was associated with exposure to a number of self-reported psychosocial hazards, including, long working hours, high workload and lack of support. In terms of symptomatology, stress was perceived to be associated with a range of chronic and acute health conditions, prescribed medication usage and health related behaviours such as the number of hours slept during weekdays.

The longitudinal data obtained from a second mailing twelve months after the first allowed further conclusions to be drawn. Significant associations were evident between work-related stress and sick leave, visits to general practitioners and accidents.

The laboratory phase of the study (n=200) compared individuals identified as 'stressed' at both points in time with a random sample of those who were not. Many of the associations between stress and health remained even after controlling for the confounding influence of negative affectivity.

Whitehall II

As with the SHAW study, Whitehall II did not involve a sample of similar magnitude to the SWI surveys. Nor did it encompass a range of occupational groups, focusing as it did on civil servants. As such, it might not be considered to fulfil the inclusion criteria set out at the beginning of this section of having employed a nationally representative sample. Nevertheless, Whitehall II is considered here on the basis that it fulfils all other criteria and remains one of the most influential studies of its type in recent times.

The Whitehall II project aimed to establish the relative contribution of work-related factors to ill-health in a cohort of 10,308 London-based male and female civil servants aged 35-50 at baseline in 1985. The study did not directly set out to ascertain the prevalence of work-related stress in the cohort.

Results indicated that effort-reward imbalance was associated with increased risk of alcohol dependence in men, psychiatric disorder, long spells of sickness absence and poor general health state. High job demands were predictive of poor health and psychiatric disorder over a five year follow up period. Low decision latitude was associated with alcohol dependence, particularly in women (Stansfeld, Head & Marmot, 2000). Numerous publications have emerged from Whitehall II detailing a wide range of dimensions in the dynamic relationship between work and health.

4.5 UK & EUROPEAN SURVEYS: A REVIEW OF CASE DEFINITIONS

Each of the surveys, described above, identified work-related stress as a considerable problem challenging the health of the British workforce. The case definitions used in these surveys are described below.

SWI95

Participants who had worked at any time in their adult life were posed a screening question:

"In the last 12 months have you suffered from any illness, disability or other physical problem that was caused or made worse by your work? Please include any work you have done in the past."

Those who reported affirmatively to the screening question were asked to participate in a follow-up interview that sought to ascertain the nature of the illness, the job which caused it (or made it worse), the number of work days lost, other characteristics of the illness, the job and other relevant factors. That the interview required respondents to consider possible causes of illness enabled individuals to ascribe a broad range of illnesses to stress, including physical conditions and in particular, heart disease. This required the survey designers to generate two disease categories: 'stress, depression or anxiety' and 'stress ascribed illnesses'. Aetiological links in the latter of these categories cannot be proven within a survey of this style where the respondent is unlikely to possess the medical knowledge necessary to ascertain whether the illness is a result of stress. Nevertheless, the picture developed of perceived links between stress and various illnesses is interesting in itself and provides an indication of the prevalence of physical ailments associated with work-related stress.

Follow-up interviews ascertained the nature of psychosocial hazard exposure through questioning about aspects of work known to be associated with symptoms of stress. Responses were given along a seven-point scale ranging from 'always/nearly always' to 'never'.

Questions included, whether and how often they:

- had too much work to do
- had too little work to do
- worked to tight deadlines
- had lack of control over their work
- had inadequate management support and help when needed
- had been physically attacked or threatened by a member of the public at work

A number of further specific questions developed by Goldberg and colleagues (Goldberg, Bridges, Duncan-Jones & Grayson, 1988) were asked to all those reporting stress, depression or anxiety or a physical condition ascribed to stress.

SWI95 pioneered reference to the doctor or specialist who treated the illness as a means of verifying self-reported data. With the respondent's consent, the medical professional was approached and asked to confirm or correct the diagnosis and offer opinion concerning work-relatedness of the illness. In only 11% of cases where medical specialists were consulted was work considered 'unlikely to be' or 'definitely not' the cause of illness. This relatively low discrepancy suggests the self-report format to possess a high level of reliability and validity. SWI95 also introduced a refinement on the survey methodology applied in SWI90 by means of including a control group (n=3029) that was asked the same questions on general health, chest problems and working conditions.

The screening question used to identify those who may have experienced a work-related illness in SWI95 made no specific reference to psychological illness. It is unsafe to assume that all respondents interpreted the question to include these. As a consequence, the true prevalence of work-related stress may have been under-estimated. Subsequent SWI surveys applied a revision of the screening question intended to overcome problems of under-estimation of psychological problems. The new wording included specific reference to mental problems.

SWI98/99

As stated above, for SWI98/99 a modified screening question was applied that encouraged respondents to consider not only physical but also mental illness:

“Within the last twelve months have you suffered from any illness, disability or other physical or mental problem that was caused or made worse by your job or work done in the past?”

Unlike the previous two surveys, the screening question was only administered to those who had worked in the previous twelve months rather than those who had ever worked. In addition the battery of work-related illness questions was shorter than in the previous surveys and no verification of illness was made with the treating doctor or specialist.

SWI01/02 & SWI03/04

These surveys retained the screening question as modified for SWI98/99 but reverted to posing it to those who had ever worked as opposed to only those who had worked in the previous twelve months.

As in SWI98/99, a limited battery of work-related illness questions was posed in response to an affirmative answer to the screening question and no attempt was made to verify self-reported data by reference to the doctor or specialist who treated the illness.

Third European Survey on Working Conditions

The questionnaire employed in the Third European Survey on Working Conditions comprised of over eighty questions, although, as with other general surveys of working conditions, the questionnaire only briefly addressed the issue of work-related stress. Assessment involved a two-stage procedure:

Stage 1: Interviewer asks interviewee: *Does your work affect your health?*

Stage 2: If YES, interviewer reads a list of seventeen *illnesses*, of which stress is one. The interviewee is asked to consider which, if any, of the illnesses apply to him or herself.

Surveys vary in the rigour with which they assess psychosocial hazard exposure. At the simplest level, respondents may be asked to rank a list of potential hazards according to the degree to which each is perceived to be problematic. A slightly more sophisticated scheme may be provided that requires respondents to rate each factor on a scale ranging from ‘very good’ to ‘very bad’ or make some equivalent judgement (see for example, Communication Workers Union, 2001; or the risk assessment procedures developed at Nottingham (Cox, Griffiths, Barlow, Randall, Thomson & Rial-Gonzalez, 2000). A model similar to this was applied in the Third European Survey on Working Conditions.

Work characteristics were themed into categories: the physical environment, time related factors, organisational environment and social environment. Responses were harvested using two response formats: a ‘yes/no/don’t know’ format and an eight-point Likert scale ranging from ‘all the time’ to ‘don’t know’.

Whitehall II

The following two-stage methodology was applied for assessing work-related stress in Whitehall II:

Stage 1: Psychiatric disorder (depression and anxiety) was measured by the 30-item General Health Questionnaire (GHQ-30; Goldberg, 1972) with a case threshold of five (5). General health state was measured using the SF-36 General Health Survey, with subscales of physical, general mental health, and social functioning (Ware & Sherbourne, 1992).

Stage 2: The work-relatedness of the cases identified in stage 1 was assessed with reference to work characteristics specified in a modified self-report version of the Karasek & Theorell Job Content Instrument (Karasek, 1979; Karasek, 1985; Karasek & Theorell, 1990). The assessment of work characteristics in the Whitehall II study was essentially theory-driven.

4.6 CONSENSUS AMONG SURVEYS

These different surveys, on which official estimates of the prevalence of work-related stress are based, all demonstrate that work-related stress is a genuine problem. They differ, however, in the prevalence estimates that they generate by dint of contrasting case definitions and methodological designs. The validity of this general finding that work-related stress is a real problem can be approached through comparisons of the findings of the contributing surveys with other types of study (including other surveys). An example can be offered in terms of the Whitehall II survey and some of its more specific findings: the influence of high work demands on increased risk of psychiatric morbidity as described in this study was in keeping with that found in the NHS workforce (Wall et al, 1997).

Comment must be made on the Bristol SHAW survey (Smith et al, 2000) which produced anomalous results in that it obtained reported stress levels in excess of the other surveys described above. Several explanations can be offered. It may be due to the differences in samples and methodologies used. Inconsistent question phrasing is known to generate different prevalence estimates across surveys (Houtman, 2005). The SHAW results may represent respondents' assessments of stress levels in their job following prompting, whereas SWI surveys may only identify the sorts of cases that are reported without prompting. The SHAW survey may provide an estimate of the number of people exposed to work-related stress while the SWI surveys may provide an estimate of the number of people who consider the work-related stress to have impacted upon their health (HSE, 2002). Yet other explanations are possible.

On one particular finding most nationally representative surveys are in agreement: the scale of the work-related stress problem increased throughout the 1990s and appears to have levelled off. SWI data indicates that the prevalence of work-related stress roughly doubled between 1990 and 2001/2 (Jones, Huxtable, Hodgson & Pryce, 2003). Headline results from the 2004/5 SWI survey (available at <http://www.hse.gov.uk/statistics/causdis/>) indicate that an estimated 509,000 of those who have ever worked were suffering from stress, anxiety or depression, compared to an estimated 548,000 in 2001/2.

Small scale, sector-specific surveys indicate stress to be on the rise but have not shown the levelling off in the problem found in national surveys. For example, 76% of trade union representatives surveyed in 2002 indicated a belief that stress levels were either 'much more' or 'more' than the

previous year, whilst a similar number agreed that stress levels were ‘much more’ or ‘more’ than five years previous (n=2000) (Amicus-MSF, 2002). Similar findings emerged from an HSE commissioned survey in which 62% of companies reporting problems with work-related stress felt stress levels had increased in the previous twelve month period (Pilkington, Mulholland, Cowie, Graham, & Hutchinson, 2001). These findings are consistent with the decline in physical work and increase in work-related psychosocial stressors and emotional work witnessed towards the end of the twentieth century (Karasek & Theorell, 1990).

Methodological advances have been made with each SWI survey towards optimally capturing the overall prevalence of work-related illness. The evolution of the SWI case definition poses challenges in drawing comparisons between surveys; however, SWI data remains the best available epidemiological evidence in the UK upon which to base estimates of the extent of work-related stress. Detailed description of SWI survey methodology and links to the full report of each survey can be found on the HSE website at <http://www.hse.gov.uk/statistics/causdis/sources.htm#swi>. A detailed account of the differences in design, coverage, level of information collected, methods used to adjust for non response to the screening question and weightings is available in Chapter 8 of the full report to SWI01/02 that can be downloaded from <http://www.hse.gov.uk/statistics/causdis/swi0102.pdf>

4.7 ACCURACY OF SURVEYS

It is widely recognised that surveys such as those discussed here do not offer ‘rocket science’ and questions can be asked about their accuracy as well as their reliability and validity.

The last decade has witnessed an increase in the self-reporting of work-related stress and associated absenteeism in SWI surveys. The rise is too great to be explained in terms of statistical anomaly. There is no doubt that in part reporting the experience of stress has become more socially acceptable, but the rise more than likely represents the true state of affairs (Lundberg, 2002). Lundberg substantiates this point of view by asserting that in the absence of significant changes in sickness absence compensation in the last decade, the rise cannot be explained as a consequence of policy.

Self-reporting as a means of gaining an impression of the scale of work-related stress is not a perfect science and a margin of error is inevitable, not least because they represent lay people’s perceptions of medical matters. As Jones and colleagues note

“People’s beliefs may be mistaken: they may ascribe the cause of illness to their work when there is no such link; and they fail to recognise a link to working conditions when there is one” (Jones, Huxtable, & Hodgson, 2001).

It has been argued that some surveys are limited in their usefulness by virtue of reliance on self-administered questionnaires for the assessment of psychiatric morbidity. Interview methodologies may be preferable means of information elicitation where psychiatric morbidity is concerned, not least because they generate detailed information that permits diagnosis (Cropley, Steptoe & Joekes, 1999). On the other hand, interview methodologies are more resource hungry, yet are not necessarily more reliable or valid.

Despite these problems, the alternative approach, the application of more in-depth epidemiological methods to large case samples is often not feasible due to financial and logistic requirements of conducting such studies and on a large scale (Jones et al, 1998).

The inherent shortcomings of surveys do not necessarily render them unreliable indicators of the extent of the problem. When correlated with epidemiological illness data from other sources, survey data illustrate a surprising degree of consistency. For example, SWI95 provided estimates of self-reported pneumoconiosis consistent with data from the compensation system (Smith et al, 2000). Furthermore, in SWI95 individual reports were cross checked with doctor's opinions and only in 11% of cases did the doctor think the illness was unlikely to be work-related.

There is a question over whether misattribution occurs when respondents participate in epidemiological surveys of work-related health. The Third European Survey on Working Conditions, for example, asked interviewees who indicated that their work affected their health to state in what ways this was manifested by choosing from a list of seventeen ailments of which stress was just one. Although 28% of the workforce indicated stress to be a problem, 33% reported backache, which arguably could be interpreted as stress-related. Likewise, stress could be implicated in disorders such as headache, neck and shoulder pain and fatigue, all of which were perceived as being caused by work.

SWI methodology is rigorous, but as with all survey methodologies, open to criticism in certain respects. Shortcomings are recognised and addressed in depth within each of the survey reports. A detailed study of the differences between and limitations of the SWI surveys, and the extent to which comparison may be permitted by these inconsistencies is available in Chapter 8 of the SWI01/02 published report (Jones, Huxtable, Hodgson, & Pryce, 2003).

One of the primary shortcomings in SWI surveys worthy of mention here is the high reliance on response by proxy. Proxy answers are permitted when the household member is unavailable for interview. Approximately 30% of responses in SWI95 and SWI01/02 were by proxy, 35% in SWI98. Proxies reported less work-related illness (6%) than first persons (8%) in SWI95 (4.1% and 5.9% respectively in SWI01/02; 3.3% and 5.3% respectively SWI98), suggesting a margin of error. The problem introduced by proxy reporting was mitigated somewhat by the insistence of first person reporting in all follow up interviews in SWI95. It is estimated that replacing proxy interviews with first person interviews would increase reported cases of work-related illness by around 10% (Jones, Huxtable, Hodgson & Pryce, 2003).

4.8 SUMMARY

This chapter has served to highlight key findings in terms of the incidence and prevalence of work-related stress identified through nationally representative epidemiological surveys of work-related stress that have incorporated UK samples across the last decade. Importantly, it also provided an overview of the case definitions of work-related stress employed in these surveys. It is necessary to describe the case definitions applied in epidemiological occupational health research for they necessarily inform the nature of a consensus case definition of work-related stress. The following chapter describes the development of a consensus case definition of work-related stress that, in accordance with the specification for this Report, is consistent with existing epidemiological case definitions, particularly those applied in SWI surveys.

CHAPTER 5 CASE DEFINITION: A FRAMEWORK MODEL

5.1 INTRODUCTION

This chapter brings together the expert evidence and the review of epidemiological surveys presented in the preceding chapters with the available literature on research into work-related stress to suggest a possible case definition that could be applied in future epidemiological occupational health studies. Crucially, the derived case definition should be agreeable by consensus to stakeholders.

Essentially there are two different approaches that might be applied here to modelling a case. The first is that of a single diagnostic measure of the core construct. The second is that of an assessment schedule based on the wider processes that frame the core construct. The nature of and differences between these two approaches, and their relative strengths and weaknesses, have been discussed for some time in relation to work-related stress (see, for example, Cox, 1984; Cox & Griffiths, 2005). The argument that is advanced here is that the first approach is not tenable for scientific reasons.

There is broad agreement on the essential nature of work-related stress and on the various elements that make up the stress process; this is sufficient to sustain meaningful research. However, there are a plethora of competing theories in this area and no agreement on the value, let alone the positioning and nature, of a single definitive measure of stress. At this level of detail, there is a marked lack of consensus. Perhaps the nearest that the research community could get to a single measure is a simple and direct question such as:

'Are you experiencing stress associated with your work?'

Where such questions have been used, there has been debate over the exact nature of the question, the reliability and validity of single item measures, and the comparability of meaning and response patterns across individuals, groups and cultures. There is a general lack of confidence in such measures: it is believed that they are not sufficiently secure in the conclusions that might be drawn from the data that they generate.

This situation does not reflect on a poor quality of research but rather on the nature of work-related stress as revealed through research. It is generally agreed that the experience of stress associated with work is multi-faceted, has a complex and multi-factorial aetiology and is, in turn, associated with a broad spectrum of psychological, behavioural and physiological change (Cox, 1993; Winefield et al, 2002). The notion of the adequacy of a single diagnostic measure in reflecting this complexity is hard to sustain.

This conclusion is not new and is implicit in the current practice of using multiple item assessment schedules in law and in related areas such as industrial injuries compensation. It is also somewhat reflected in the logical structure of the SWI surveys and in the risk management approach that frames the current HSE initiative on Management Standards for work-related stress (Mackay et al, 2004; Cousins et al, 2004).

This chapter attempts to develop a case definition with reference to the evidence harvested from the stakeholders during the study, to the review of existing epidemiological surveys on work stress, and

to the scientific literature as appropriate. The overall aim is to develop a case definition applicable to epidemiological occupational health studies but consistent with the needs of other stakeholders.

5.2 THE STRESS PROCESS

Research on work-related stress, within an epidemiological framework, should be primarily concerned with identifying links between psychosocial hazard exposure and health state (Kasl, 1987). It must be able to reveal and quantify associations and/or causal relations where they exist. The evidence suggests that the translation of such research into a case definition and an associated assessment framework has to be based on the broader notion of a stress process that integrates these associations and/or causal relationships. The literature is clear on the elements that provide the skeleton of this process (see, for example, Cox, 1993; Cox & Griffiths, 2005; Quick & Quick, 1998):

- antecedents of stress: exposure to the psychosocial hazards associated with work
- emotional experience of stress
- correlates or responses to stress: changes in psychological, behavioural and physiological function and immediate health state some of which represent coping and many of which may be normal and of no clinical significance
- consequences: clinically, socially or organisationally significant outcomes rooted in the individual response to stress such as breakdown in social and organisational behaviour or in psychological and physical morbidity and possibly mortality

Such models usually recognise and give importance to the psychological and psycho-physiological mechanisms that underpin the function of most if not all elements in the stress process and, in doing so, flag up the role played by individual differences (Cox and Ferguson, 1994). The issue of individual differences in psychological function or circumstance may represent the fifth of the main elements of the stress process and moderate the overall relationship between exposure to psychosocial hazards and health state:

- Individual differences in psychological function or in circumstances

It has been argued (Cox and Griffiths, 2005) that deciding on whether or not an individual (or group) is 'stressed' must logically involve considering the 'big picture' combining data from all five sources. While such an approach may seem cumbersome, compared to the application of a single diagnostic measure, it is less controversial, more acceptable judged against the scientific evidence, and provides for a greater flexibility in decision making in complex situations where there are incomplete data. It is argued here that it provides for greater certainty and confidence in decision making. The question is '*can such an approach be configured to provide a set of decision rules to decide on caseness in a systematic fashion?*'

5.3 A CASE DEFINITION FRAMEWORK

The case definition suggested here, is developed on the basis of the stress process, as described above, and draws on all five elements of that process.

First, it either assumes the possible experience of stress in that an individual is taking a legal case or making a complaint or it allows for that experience to be directly questioned as an entry point to an assessment schedule.

It then seeks evidence of unreasonable exposure to the psychosocial hazards associated with work and evidence of significant ill health. It asks about the possible consequences of the person's ill health and finally questions the existence of possible confounding factors associated with individual difference (or, more broadly, individual circumstances). The case definition is presented in Figure 1. Each of the five elements is briefly outlined below. Assessment issues are discussed in Chapter 6.

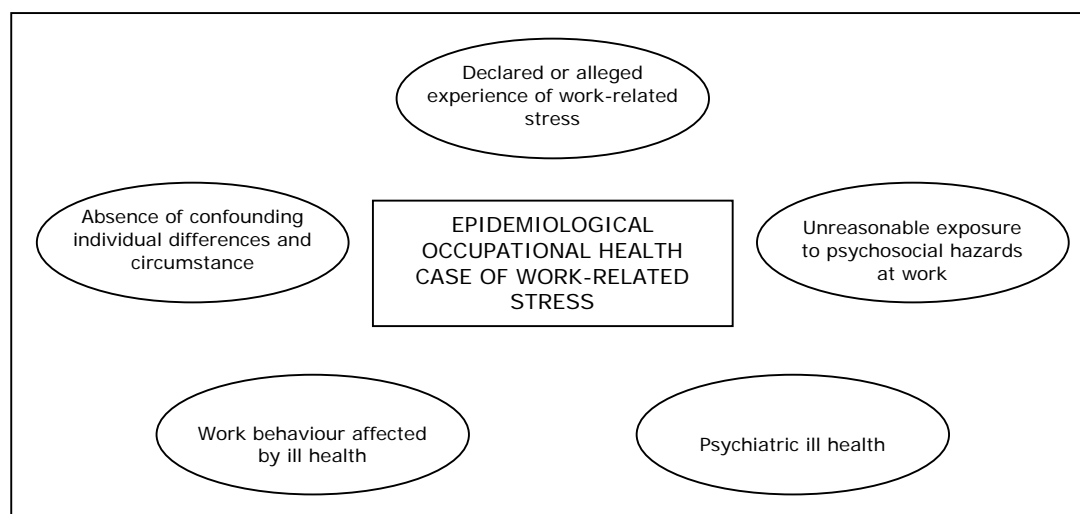


Figure 1 Conceptual model of an epidemiological occupational health case of work-related stress

Declared or alleged experience of work-related stress

In the domain of legal or related activities, it is likely that the person in question has complained of or initiated an activity that is focused on the question of work-related stress. It can be assumed that, implicit in these actions, the person has effectively declared that they have experienced or are experiencing stress through work. This assumption is the entry point to the model.

In an epidemiological survey, it cannot be assumed that the respondents are experiencing stress and thus the entry point here to the model may be a simple direct question such as:

'Are you experiencing stress in relation to your work?'

The SHAW study (Smith et al, 2000) and a recent administration of the Office for National Statistics Omnibus Survey (HSE, 2004b) applied a more detailed question that could be used as the entry point question in an epidemiological case assessment of work-related stress. The question required respondents to indicate on a 5-point Likert scale how stressful they find their work, from *not at all stressful* to *extremely stressful*.

It is generally accepted that such single item measures have their shortcomings, but when applied in survey research they nevertheless obtain the consistent finding that around 20% of respondents find their job stressful (HSE, 2004b; Smith et al, 2000). Furthermore, the SHAW study found that self-reports of work-related stress correlated positively with poor mental health. Together, these sources of evidence suggest a single item measure of this type may possess an adequate degree of validity

and reliability and, importantly, also suggest that direct questioning does not prime respondents to answer in a particular manner. If priming were to occur, it is likely that any variance would be cancelled out in a large-scale epidemiological survey. Should further quantification of the elicited answer be required or further defence against the risk of priming, the 'stress' scale from the Stress Arousal Checklist (SACL) (Cox & Griffiths, 1996; Cox and Mackay, 1985; Gotts & Cox, 1990; Mackay, Cox & Freeman, 1978) that provides independent measures of stress and arousal, or a similarly brief scale, might be employed.

Unreasonable exposure to psychosocial hazards at work

One of the main conclusions that can be drawn from studies that have explored the relationship between work characteristics and health is that the work environment can be a cause of psychological, behavioural and physical symptoms of ill health (Jamison, Wallace & Jamison, 2004). It is also clear that the experience of stress is often a mediating or at least a concomitant factor in this relationship (Cox, 1993; Cox et al, 2000). The scientific literature is clear on the importance of exposure to psychosocial hazards in determining the experience of work-related stress. However, anxiety about exposure or the threat of exposure to the more tangible and physical hazards of work may also contribute to that experience (Cox, 1993). There was no disagreement with this summary in the views expressed by the experts interviewed for this research.

The evidence from a number of studies, and as reflected in most contemporary theories of work-related stress, is that exposure to some, if not all, psychosocial hazards is moderated by individual perception and cognition and to this extent is subjective in nature. This has clear implications for measurement and the emphasis in the current case definition and assessment framework is on self-reported exposure both for this reason and for reasons of practicability. However, this approach is not without its detractors and there remains some debate over the reliability and validity of self-reported perceptions of exposure (Rick et al, 2001).

There is evidence that single-variable measures of stress that provide an indication of the level of work-related stress on the basis of questions regarding psychosocial hazard exposure, without reference to well-being as well as individual and other variables, may be poor at detecting individuals with work-related stress (Main, Glozier & Wright, 2005). Siegrist & Marmot (2004) point out 'research on psychosocial work-related stress differs from traditional biomedical occupational health research by the fact that stressors cannot be identified by direct physical or chemical measurements'; in consequence, the measurement of psychosocial hazard exposure cannot be an exact science. It is therefore important that psychosocial hazard exposure is only one element among several within the case definition.

There are a number of different, but overlapping, taxonomies of work-related psychosocial hazards available: attention is drawn to two in particular. The first is that commissioned by the HSE from the first author which reviewed the available scientific evidence to the early 1990s (Cox, 1993). This review and resulting taxonomy acknowledges the contribution of other researchers and taxonomies to that point in time. The review was up-dated at the end of the 1990s for the European Agency for Safety and Health at Work (Cox et al, 2000). This review concluded that "There is a reasonable consensus among the various attempts to review the literature on those psychosocial hazards of work which are experienced as stressful and/or otherwise carry the potential for harm (Baker, 1985; Blohmke & Reimer, 1980; Cooper & Marshall, 1976; Cox, 1978, 1985; Cox & Cox, 1993; Frankenhauser & Gardell, 1976; Karasek & Theorell, 1990; Kasl, 1992; Levi, 1972, 1984; Levi et al., 1986; Loher et al., 1985; Marmot & Madge, 1987; National Institute, 1988; Sauter et al.,

1992; Sharit & Salvendy, 1982; Szabo et al., 1983; Warr, 1987)". This consensus is summarised in Table 2. Among other things, these reviews have contributed to the thinking behind the subsequent development of Management Standards for work-related stress by the HSE. The six-domain taxonomy explicit in the Management Standards (see later) is offered here as the second source of reference (Mackay et al, 2004; Cousins et al, 2004).

Table 2 Context and Content Based Taxonomy of Psychosocial Hazards of Work

CATEGORY	CONDITIONS DEFINING HAZARD
	<i>Context of work</i>
Organisational culture and function	Poor communication, low levels of support for problem-solving and personal development, lack of definition of organisational objectives.
Role in organisation	Role ambiguity and role conflict, responsibility for people.
Career development	Career stagnation and uncertainty, under promotion or over promotion, poor pay, job insecurity, low social value to work.
Decision latitude / Control	Low participation in decision making, lack of control over work (control, particularly in the form of participation, is also a context and wider organisational issue)
Interpersonal relationships at work	Social or physical isolation, poor relationships with superiors, interpersonal conflict, lack of social support.
Home-work interface	Conflicting demands of work and home, low support at home, dual career problems.
	<i>Content of work</i>
Work environment and work equipment	Problems regarding the reliability, availability, suitability and maintenance or repair of both equipment and facilities.
Task design	Lack of variety or short work cycles, fragmented or meaningless work, underuse of skills, high uncertainty.
Workload / workspace	Work overload or underload, lack of control over pacing, high levels of time pressure.
Work schedule	Shift working, inflexible work schedules, unpredictable hours, long or unsocial hours.

Psychiatric ill health

In 2002, the Court of Appeal in *Hatton v Sutherland* [2002] 2 All ER 1 put forward a number of practical propositions in summary of injury claims arising in relation to work-related stress. The propositions made it clear among other things, that within law, stress should be considered ‘an injury to health, as distinct from occupational stress’ (para. 23). A somewhat awkward statement, this may be interpreted, in the wider scientific and legal contexts, as saying that stress is an outcome related to health and is not an aspect of the work environment. This point has been argued in the scientific literature for some time (see, for example, Cox, 1978). However, if stress is positioned in law more as a health-related response than a stimulus, the question follows:

‘Is stress an injury or illness in itself?’

The experts interviewed in this project were unanimous in their assertion that stress should not be regarded as an illness or injury in its own right, but rather as a mechanism by which ill health or injury may be caused. In expressing this viewpoint, the experts provided some endorsement of the stance taken by the Court of Appeal, that:

“Stress is not an injury; it is a state of mind that can cause injury” (Buchan, 2001).

In accordance with the above, the measurement of health as applied in the derived case definition does not focus on the experience of stress as the key health-related outcome measure. This given, there were a number of questions that arose with respect to health state in the case definition during the interviews and review of the literature for this report. The key issues are discussed below. They relate to the measurement strategy applied, to the focus of that strategy and the decision criteria to be used.

Measurement strategy

Most epidemiological studies in the area of work-related stress have relied on self-report measures. These appear to offer a practical solution to the logistic problem of collecting health data in large scale studies with finite and limited resources operating within a defined and relatively brief time frame. Despite the questions of reliability and validity that can be asked of such methods, the focus in the current case definition and associated assessment framework (see Chapter 6), as with psychosocial hazard exposure, is also on self-reported health state. Questions of reliability and validity in relation to the self-report of hazard exposure and health state are technical questions that can be answered. Measures which are not reliable and not valid, as demonstrated following good psychometric practice should not be used (Cox & Ferguson, 1994).

Researchers investigating the individual health effects of exposure to psychosocial hazards, by self-report, are faced with a choice. The first option involves asking the respondent to report *only* those symptoms of ill health that they perceive to be work-related. The second option requires that all symptoms are reported regardless of perceived aetiology (Kasl, 1998). The second of these options is methodologically preferable as it allows the testing of relationships between psychosocial hazard exposure and the self-report of health state. As mentioned earlier, it may also help resolve issues of attribution if there is some heuristic for empirically establishing the relationship between the self-report of exposure and ill-health. This is the approach that has been applied in the risk assessment procedures for work-related stress developed by the authors (Cox, Griffiths, Barlow, et al, 2000) and funded by the HSE. It is also applied here.

Nature of ill health

The discussion of what should be the focus of the measurement of health within the case definition encompassed questions relating to the measurement of: psychological *vs* physical health states, general well-being, psychophysiological function, acute *vs* chronic health states and functional impairment.

Psychological v physical health states

The over-riding view of the interviewed stakeholder representatives was that order to achieve consensus, the epidemiological case definition should primarily focus on psychological health, restricted to symptoms of anxiety and depression, although it was recognised that the experience of stress could contribute to physical ill health, in particular, cardiovascular disease.

Consistent with this view, a recent meta-analysis of studies on work and ill-health concluded that exposure to adverse working conditions is more strongly associated with psychological than with physical outcomes (Daniels et al, 2004) and evidence from occupational stress counselling services suggests that more than 85% of users present with symptoms of anxiety or depression (Arthur, 2002, 2005). At the same time, data drawn from surveillance programmes operating under the Health and Occupational Reporting Network suggest that together anxiety and depression account for about 85% of work-related mental health problems. Accordingly, Glozier (2002) has suggested that in the context of work-related stress, three types of psychological ill health might be considered:

- common mental disorder: encompassing those conditions defined by measures such as the General Health Questionnaire and minor states of anxiety and depression as usually seen in primary care settings
- depression and Anxiety States: encompassing commonly occurring but more severe conditions
- psychosis: encompassing conditions rarely seen in the workplace. The low frequency of such severe conditions has largely precluded their inclusion in epidemiological and occupational health surveys

The literature thus endorses the consensus view that the central element of the case definition should be the experience of anxiety or depression in relation to work. In this respect the case definition is consistent with the definition of work-related stress posited by the European Commission that considers stress to be primarily emotional in nature (Levi & Levi, 2000).

General well-being

There was some discussion in the stakeholder interviews about the utility of referring solely to general well-being in the case definition as an indicator of health. The measurement of general well-being is popular in stress research. Essentially, the concept relates to the self-report of the general state of health or of non specific symptoms of general malaise. The General Health Questionnaire is often used as a measure of general well-being while other dedicated instruments have been specifically developed to that end; for example, the General Well-Being Questionnaire (GWBQ) (Cox, Thirlaway, Gotts & Cox, 1983).

The General Well-Being Questionnaire purports to measure two clusters of non specific symptoms of general malaise: those relating to feeling exhausted and worn out and those relating to feeling tense and anxious. Both clusters include behavioural and physical symptoms as well as more obviously psychological symptoms and may be differentially predictive of clinical anxiety and depression. This remains to be established empirically.

Such questionnaires manage to combine the use of psychological symptoms with the use of physical symptoms in terms of reporting on health. Most do not offer 'cut offs' or 'thresholds' for defining what is clinically significant. The General Health Questionnaire does.

Physical health

A wealth of research, beginning in the 1920s and 1930s with the work of Cannon (1929, 1931) and Selye (1936), has demonstrated empirically that the experience of stress can affect physical health. Indeed, it has been argued that under certain circumstances *all* physical conditions can be susceptible to such effects (Cox, 1978). However, questions remain concerning the relative sensitivity of different conditions to the experience of stress and the mechanisms by which those effects might be expressed (Cox, Griffiths & Rial-Gonzalez, 2000). Research evidence suggests that the most susceptible conditions may be those relating to the cardiovascular and respiratory systems, the immune system, the gastro-intestinal system and also those relating to the endocrine, autonomic and muscular systems (Cox et al, 2000).

It has been reasonably argued that many physical effects only emerge over an extended time-frame following confirmed or repeated exposure. Results from SWI95 (Jones, Hodgson, Clegg, & Elliott, 1998) suggest that 254,000 individuals in Britain suffered from a physical condition ascribed to stress at work, where 'physical condition' was defined to encompass hypertension, heart disease or stroke and digestive problems. 12% of those who reported suffering from work-related stress at a level that had made them unwell reported experiencing a physical condition they ascribed to work-related stress. 40% of this number described their complaint as hypertension, heart disease or stroke. A further 21% described their complaint as a disease of the digestive system. This position is supported by the extensive epidemiological literature concerned with the relationship between work characteristics and cardiovascular outcomes (e.g. Hammer, Alfredsen & Theorell, 1994; Johnson & Hall, 1988).

There are several interesting questions around the possible inclusion of physical health in the case definition. These are largely to do with establishing the degree of stress-relatedness of physical conditions. Research suggests that factors other than exposure to the psychosocial hazards associated with work may be the main determinants of physical ill health and that the degree of stress-relatedness, in relation to work, might be relatively small, operate in a complex way and therefore be particularly difficult to establish. This is not to say that possible effects on physical health should be discounted, rather that they may require a greater strength of evidence than effects on psychological health.

In the case definition proposed here, the focus is primarily on psychological health as manifested in terms of anxiety and depression, but it does not, and should not, exclude consideration of possible physical health effects as appropriate.

Psychophysiological function

Some interviewees raised the question of whether it would be possible to include psychophysiological functioning in the derived epidemiological occupational health case definition. This is a complex matter, and ultimately, in order to achieve consensus on the case definition, psychophysiological functioning was not included. Psychophysiological function in relation to work-related stress is discussed below.

In the 1960's, many stress researchers focussed on the psychophysiological correlates of stress largely for one of two reasons: first, to better understand the mechanisms underpinning the response to stress, and, second, to avail themselves of a proxy measure of subsequent illness. Much of the early research focussed on peripheral physiology and, in particular, on autonomic and endocrine function, but this gave way in more recent years to concern for psycho-neuro-immunological systems. Most recently, the advent of magnetic resonance imaging technology has re-focused at least some of the research effort on brain mechanisms. Of course, not all of the recent physiological research has found its way into more applied psychosocial studies of work-related stress. A comprehensive overview of that which has used physiological measures as available to the mid 1990s is provided by Cohen, Kessler & Gordon (1995). A later overview of the key issues has been produced by Hurrell, Nelson & Simmons (1998).

The use of self-reported measures of psychophysiological function could be incorporated into the case definition and assessment schedule as proxies of subsequent ill health. The measures used would have to be carefully chosen with attention paid to their reliability and in particular their validity. As important, the interpretation of findings from such data would need to be both accurate in terms of the nature of the measure and conservative. Several past studies have used such measures and, in their conclusions, jumped immediately to statements about health ignoring the different strengths and complexities of the relationships between psychophysiology and health. This risks creating false findings.

In the SHAW study (Smith et al, 2000) a subsample of survey respondents were studied in more detail in a laboratory setting. Under these circumstances, psychophysiological data might be collected in a more direct way and used to support or expand the self-report data collected from the larger survey sample. This can be a useful exercise in itself but does not necessarily remove the proxy status of the measures in relation to health.

Acute vs chronic health states

Whatever aspect of health state is included in a case definition, there is the difficult question of managing the real differences between acute and chronic illness. The discussion of acute vs chronic illness that took place in the interviews with stakeholders reflected, in some senses, on a non issue from a measurement point of view. The challenges for measurement have effectively been addressed in the consideration of timing of events and its significance. Repeating that discussion would suggest that it should distinguish between the parameters of exposure, short or long term, singular, repeated or continuous, and focus on the nature and relationship between that exposure and any ill-health and the timing of key events. It may not be necessary to evoke concepts of acute and chronic illness at this stage but simply rely on the empirical evidence. However, the interpretation of the data might be carefully developed if distinctions are made in relation to the type of health challenge. The findings of the Bristol study could be interpreted to imply that the pathology of work-related stress as measured will be acute rather than chronic (Smith et al, 2000).

Schulz et al (1998) have argued that decades of research with a focus on acute stress has done little to advance our understanding of the onset of disease whereas the evidence suggests that only chronic stress will lead to long-term health problems.

Functional impairment

The Whitehall II study is notable for, among other things, including an assessment of daily health functioning. The inclusion of measures of functioning was justified on the basis that they “provide a useful intervening measure between workplace exposures and the expression of frank illness. In this way they may be sensitive to the early signs of the effects of environmental factors which may be damaging to health in the long run” (Stansfeld, Head & Marmot, 2000). It is implied that impairment to functioning may indicate those at risk of developing a case of work-related stress should exposure not be reduced. As such, a measure of functioning may help to flag up potential future cases.

Accepting this argument, the measurement of functional impairment could offer an alternative approach to the traditional focus upon symptoms of ill-health in work-related stress research. The task of establishing the presence of a stress-related illness is difficult and might be side-stepped by a shift of emphasis from symptomatology towards degree of impairment to daily function. This position was advocated by a number of those interviewed. This would be in line with the decision criteria used in industrial injury cases but could represent a weakening of the level of proof in common law cases depending on ‘cut-offs’ or thresholds adopted.

Precedent exists for focusing attention away from overt symptoms of illness and disease towards function impairment. The Industrial Injuries Scheme (ISS) operated by the Department of Work and Pensions compensates workers for disablement by a prescribed occupational disease. For most diseases compensation is payable where functioning is reduced by a minimum of 14%. Although the majority of claims under the ISS relate to physical ailments including lung disease, vibration white finger and deafness, it is interesting to consider whether a schedule of degrees of disablement to functioning associated with stress could ever be developed that would satisfy ISS requirements. If so, the argument for adding work-related stress to the list of recognised occupational diseases might be strengthened. The Industrial Injuries Advisory Council (2004) recommended that work-related stress remain unprescribed due to difficulties in verification of diagnosis based on self-report and the absence of data linking stress to any particular occupation.

Despite the intuitive appeal of a shift in emphasis from the measurement of symptoms of ill-health to that of impairment of function such a move requires careful consideration. An individual suffering from depression mediated by work-related stress may be unable to function within the workplace that is perceived to be the cause of illness. However, they might find themselves able to function effectively on a day to day basis outside of the work environment. This forces the questioning of what is meant by ‘daily functioning’ and the manner in which assessments should be designed and applied. A measure of functioning may be of most value when applied in tandem with measures of symptoms.

Work behaviour affected by ill health

The consequences of ill health related to exposure to the psychosocial hazards of work can be considered for two different reasons: first, their existence and linkage back to the demonstration of

ill health provides further evidence of significant impairment as a result of exposure, and, second, the nature of the consequences observed and the strength of their relationship with ill health (and exposure) may provide for a greater understanding of the stress process (or an individual case). Two particular areas of concern were flagged up in the interviews with experts as part of this research: stress-related absence from work and the events leading to treatment for stress-related ill health.

On consideration of the interview data and the research literature, it was argued that three particular indicators might suffice here:

- absence from work of more than 3 days due to illness
- the fact or frequency of visits to the general practitioner or occupational health specialist
- the fact of subsequent treatment for ill health.

While the linkage of self-reports of work characteristics to health outcomes may provide evidence of the experience of stress, the risk management literature (see, for example, Cox, 1993; Cox et al, 2000) argues that self-reports can be validated by triangulation with data on organisational and health-related behaviour. In an epidemiological context such triangulation commonly involves absence data. It is estimated that approximately 30% of work absence is due to mental health problems (Schaufeli & Kompier, 2001). In terms of the DSM-IV classification, most sufferers experience common adjustment disorders whilst a smaller proportion suffer from more serious depression or anxiety disorders (Veerman et al, 2002; Casey et al, 2001).

There was strong consensus among expert stakeholders on the importance of reference to organisational data in the model (albeit self-reported). Absence data was widely recognised as the most easily obtained and informative. Consideration of absence is included in the model. There was also agreement on the value of considering the health-related behaviours that led to a person receiving treatment for their ill health. Each of the various acts taken in this process would appear to testify to the fact and significance of their illness. These acts include: visiting a general practitioner or occupational health specialist, receiving a formal diagnosis of their illness, and being prescribed a course of treatment for that illness.

There is a strong body of evidence to suggest that psychosocial hazard exposure is related to sickness absence (Ala-Mursula, Vahtera, Kivimaki, Kevin & Pentti, 2002; De Jonge, Houtman, Bongers, Reuvers and Kompier, 2000; Vahtera, Kivimaki, Pentti, & Theorell, 2000) and that the problem is evident across Europe (Cartwright & Cooper, 1996). Michie & Williams' (2003) comprehensive review of the literature pertaining to stress and absence identified significant relationships between sickness absence and long working hours, work overload, and the effects of these on family life; lack of participation in decision making; poor social support; unclear management and work role. Decision latitude has also been found predictive of long term sickness absence (Andrea et al, 2003; North et al, 1996).

Large scale survey based studies of work-related stress have repeatedly identified strong positive correlations between absence and perceptions of stress-related symptoms and psychosocial hazard exposure (see, for example, RCN, 2002). A figure of approximately one-quarter of all employees having taken time off work due to work-related stress is consistently found in worker surveys. A survey of 2,729 Communication Workers Union members found that 15% of workers had taken time off work due to stress-related illness in the previous twelve months (Communication Workers Union, 2001). Interestingly, 90% of those who had taken time off work due to a stress-related illness reported an awareness of the sickness control policy operational in their workplace, and

almost all were worried about the implications of taking time off. These findings indicate that the decision to absent oneself is not taken lightly, and as such, self-reported absence data may be a valid indicator of the incidence of relatively severe work-related stress health outcomes.

Recent surveys by insurance companies have concluded that around 10% of long term (greater than 1 month) sickness absence is attributable to 'pure' work-related stress and in an additional 20% of cases, work-related stress holds joint causative responsibility alongside other factors (D'Hertefeldt, 2002). In sum, the evidence suggests that absence data may be a good indicator of work-related stress when considered in conjunction with other sources of evidence. However, data suggest that only when depression is present, either as the sole symptom or co-morbid with anxiety, might workers absent themselves from work (Arthur, 2005; Hardy & Woods, 2003). These preliminary findings require further investigation. If it is indeed the case that non-attendance is less likely to result where depression is not evident, absence data may be an unsound confirmatory barometer of the presence of a case of work-related stress.

A number of researchers have found that the relationship between psychosocial risk and absence is, in some cases, weaker than that between psychosocial risk and performance and that, as such, absence should not be considered as a sole indicator of the financial cost of stress to organisations (Druss, Schlesinger & Allen, 2001; Main, Glozier & Wright, 2005). In the same way, in a case-definition of work-related stress, absence should not be considered the sole consequence of stress, but rather, one manifestation to be considered within the caseness decision-making process.

Absence of confounding individual differences and circumstance

Self-reports of the way that work affects health may consist of a mix of true health effects, and individual attributes and circumstances reflecting differential or biased reporting behaviour (Ettner & Grzywacz, 2001). It is therefore necessary to identify in the case definition factors that might moderate the relationship with health (Williams & Cooper, 1998). It has, for example, been shown that individual differences in personality and cognitive style can modify the self-reported relationship between psychosocial hazard exposure and stress-related health outcomes (Daniels et al, 2004). However, the extent to which such differences may distort the estimation of such associations is uncertain.

The final element of the derived consensus case definition thus concerns the absence of evidence on the presence of individual differences and circumstance that might confound a judgment on caseness. When all other criteria are met, but confounding factors exist, a reconsideration of the caseness assessment is required. For the purpose of achieving consensus on the make-up of the case definition, confounding individual differences and circumstances, as identified in the model, are limited to high levels of social support and negative affectivity.

Consideration in the case definition of personality related issues and individual circumstance was thought by the stakeholders to be wise. It has been observed that "few studies take...into account the broader contexts of people's lives and personality characteristics in order to understand how and under what conditions work affects mental health. In so doing, the specific contribution of work in mental health problems remains controversial and needs to be clarified" (Marchand, Demers & Durand, 2005). At present, the research evidence suggests that the main individual difference questions relate to the concepts of negative affectivity and the type A behaviour pattern, although others have been identified. These are discussed below. At the same time, the individual's circumstance may also affect their experience and reporting of work-related stress and ill health.

Two particular areas of concern have been highlighted by the literature: life events and social support. Both force a discussion of the relationship between work and non-work factors and the experience of stress and ill-health.

Social support

Most discussions on the nature of social support distinguish between a number of different forms of support. Wills (1985), for example, suggests four types of support: esteem support, informational support, social companionship and instrumental support. Earlier, Kahn and Antonucci (1980) suggested three forms: affective support (e.g. love, liking and respect), confirmation (of the moral and factual correctness of actions and statements), and direct help (e.g. aid in work, informative or financial assistance). At a general level of description, it has been defined as 'the resources provided by other persons' (Cohen & Wills, 1985), whereas social support available at work may be defined as 'overall levels of social interaction available on the job from both co-workers and supervisors' (Karasek & Theorell, 1990, p. 69).

Social support outside of work may moderate the psychological and physiological effects of exposure to psychosocial hazards (Achat et al., 1998; Blau, 1981; Bourbonnais et al., 1996, 1999; Evans & Steptoe, 2001; Frese, 1999; Fuhrer et al., 1999; Hammar, Alfredsson & Johnson, 1998; House & Wells, 1978; Leiter, 1990; Petterson & Arnetz, 1997; Stansfeld, Fuhrer, Head, Ferrie & Shipley, 1997; Uden, Orth-Gomer & Elofsson, 1991). Social support at work has also been found to buffer against short periods of absence attributable to psychiatric illness (Stansfeld, Rael, Head, Shipley & Marmot, 1997). However, moderating effects have not always been found (Leiter & Robichaud, 1997), but possibly because of a lack of methodological rigour in studies, amongst other factors (Frese, 1999). There is also an emerging literature to contradict the established view that social support associated with work stress serves to inhibit health risk behaviour. A small number of studies have shown that social support can in certain circumstances encourage alcohol consumption (Hagihara, Miller, Tarumi & Nobutomo, 2003; Peirce, Frone, Russell & Cooper, 1996). This finding has a certain common sense validity.

Reference to a high level of social support, as a confounding variable, is included in the case definition framework proposed in this report. However, interviewed stakeholders failed to reach consensus on whether reference should be made to social support received in the domestic or work domain and at what level within each of these, i.e. in the work environment social support might be obtained by superiors, immediate colleagues, subordinates and extra-organisational bodies such as trades unions, among others. The precise nature of social support, as referred to the epidemiological occupational health case definition, is to be explored in further research.

Negative Affectivity

Differences in personality and possibly related differences in cognition may be important moderators of the self-reported relationship between exposure to psychosocial hazards and health state. Most of the current debate focuses on the concept of negative affectivity (NA) while earlier debates concerned the issue of control. Both are discussed here along with other areas of possible concern.

NA reflects a pervasive tendency towards negative emotions and self concept (Watson & Clark, 1984). Individuals reporting high NA tend to experience more negative affect generally. By extension they are also more likely to report negatively on work characteristics and on symptoms of

ill-health (Semmer, Zapf & Greif, 1996). Spector, Zapf, Chen & Frese (2000) have proposed five mechanisms via which a negative orientation could influence the experience and reporting of work-related stress. These are: differential perceptions of psychosocial hazards, perceptual influences on mood, greater incidence of exposure to psychosocial hazards, greater interaction with hazards, and drift into psychologically hazardous employment due to poor interview and self-presentation skills at the point of employment selection.

It is true that individuals high in negative affectivity are likely to report both high psychosocial hazard exposure and greater incidence of stress-related symptoms. Response bias due to NA has been found to account for some of the variance between psychosocial hazards and health (Brief, Burke, George, Robinson & Webster, 1988). Subsequent to Brief et al's early findings, the relationship of NA to reporting of work characteristics and health outcomes has been demonstrated in a number of studies (Chen & Spector, 1991; Heinisch & Jex, 1997; Moyle, 1995). Notable in this respect are the findings of Spector & Jex (1998) who showed a strong relationship between NA and symptoms of work-related stress in a meta-analysis of 18 studies. They argued that such a relationship should not be unexpected as somatic symptoms are known to be a manifestation of neuroticism and trait anxiety.

From the results of a study of stress in fire and police department employees, Schaubroeck, Ganster & Fox (1992) concluded that NA poses a greater problem in the reporting of health than of work characteristics. Kirmayer, Robbins & Paris (1994) identified three pathways through which a negative orientation may influence the exaggerated reporting of *physical* symptoms. These were: 'somatic attention' whereby individuals are more likely to notice symptoms due to paying greater attention to bodily sensations, 'difficulty distinguishing bodily sensations from cognitive sensations' and, 'tendency to catastrophise' whereby common ailments are perceived as far more serious than they really are. It is possible that similar pathways exist in relation to the reporting of psychological symptoms.

Not all studies have identified a strong influence of NA. The Whitehall II study found the effects of NA to be mixed, in some cases moderated by sex and exposure type (Stansfeld, Fuhrer, Shipley et al, 1999). Similar mixed results were found by Paterniti and colleagues (2002) in the longitudinal French GAZEL study. It is also noteworthy that Brief et al (1988) used a life events measure of both work and personal stressors in their study, which may hold greater potential for confounding (Hurrell, Nelson & Simmons, 1998). Chen & Spector (1991), in contrast, focused purely on work stressors and found that NA did not significantly affect the hazard-harm relationship.

The SHAW study (Smith et al, 2000) further demonstrated an absence of distorting effects due to NA. Participants rated stress outside work lower than their work-related stress indicating an ability to discriminate between the two. The findings also showed that work stress ratings were not attributable to a general negative outlook. The laboratory phase of the study (n=200) demonstrated significant associations even when the confounding influence of negative affectivity was controlled. Longitudinal studies have similarly found few confounding effects (Schonfeld, 1996). From a comprehensive meta-analysis of the literature, Daniels et al (2004) concluded that "even after controlling for negative orientation, we found that psychosocial hazards still had a significant association with changes in subsequent health status".

Taken as a whole, the NA literature suggests that the phenomenon may not pose as great a distorting impact as early studies had suggested (Hurrell, Nelson & Simmons, 1998). Hurrell and colleagues, however, do suggest that until the issue is resolved, researchers would be well advised

to incorporate measures of NA into studies of work-related stress. It is worthy of note that the effects of NA upon psychosocial hazard reporting could be reduced by a more detailed analysis of severity and frequency of psychosocial hazard exposure, possibly eliminating the need for a measure of NA.

Without dismissing the debate on NA, there is a risk that we overly concern ourselves with its possible biasing effects. The history of applied psychology is replete with examples of each generation of researchers fixating on and endlessly debating a specific issue; maybe negative affectivity is to current stress research what demand characteristics were to previous generations of applied research (Kasl, 1998).

The case definition framework presented in this report includes negative affectivity. However, the exact nature of this inclusion needs to be considered further.

Other forms of confounding individual differences and circumstance

A number of additional forms of confounding individual differences and circumstances were suggested by interviewees for inclusion in the case definition. These includes Type A behaviour pattern, stressful life events and control. The achievement of consensus on the constitution of the case definition being paramount, these were ultimately not included. Each is discussed briefly here.

Stressful life events

Stressful life events unrelated to work may confound attempts to establish links between work-related psychosocial hazard exposure and health. However, there is evidence to suggest that the effects of work-related stress and non-work stress can act independently upon health (Weinberg & Creed, 2000).

In a minority of interviews with stakeholders, it was suggested that to assess the contribution of non work-related factors to stress-related illnesses an assessment of exposure to stressful life events in the preceding twelve months might be applied. In occupational health practice, as in civil litigation, there is a risk that exploration of potentially stressful life events may represent an attempt to absolve the employer of their responsibility in law. Such actions are mistaken. If an employee declares a non work-related health problem that affects their vulnerability, their employer has an enhanced duty of care. They have to take reasonable steps to ensure that work does not make worse a person's situation. The use of information on life events may be useful if taken in the right context. However, the use of existing life-event scales may be considered inappropriate to the assessment of caseness. The various scales are generally flawed in that they fail to account for the personal significance of an event and consequently make the assumption that significance can be objectively measured with a high degree of reliability.

Perceived control

It has been suggested that general levels of perceived control may influence the self-reporting of health (Pikhart et al, 2001). An individual possessing a high level of control over their exposure to psychosocial hazards is less likely to experience a sense of vulnerability and to perceive the environment as risky (Leiter & Cox, 1992; Leiter & Robichaud, 1997). This position was affirmed during interviews with stakeholders.

In addition to an assessment of the reasonableness of exposure, assessment can be made of the resources an individual has at his or her disposal to aid attempts at controlling exposure. Relevant resources might include factors such as some discretion concerning the manner in which a task is executed. Current indications are that perceived general life control does not present a significant biasing effect on the self-report of exposure (Pikhart et al, 2001). Therefore, a measure of control may add little value to a model.

Type A behaviour pattern

It is accepted that various personality states and traits and also behaviour patterns might influence perceptions of hazard exposure and possible health outcomes. Studies have effectively demonstrated such linkages (e.g. Cunningham et al, 2004; Paterniti et al, 2002).

The Type A Behaviour Pattern (TABP) may be implicated in moderating the hazard-harm relationship. The individual displaying a TABP tends to “*strive to achieve as much as they can in the least amount of time, to self-impose an overload of work, and to have a sense of time urgency. Individuals with TABP tend to be very critical of themselves, tend to set high expectations for themselves and may believe others have these same high expectations of them as well* (Day & Jreige, 2002).” A possible moderating role has been identified in a number of studies (Day & Jreige, 2002; Ganster, Sime & Mayes, 1989; Jamal, 1990).

5.4 TEMPORAL ISSUES IN THE CASE DEFINITION FRAMEWORK

Within the case definition framework there are a number of issues that impinge upon its utility and validity. These include considerations of timing, work-relatedness and attribution. These are discussed below.

Considerations of timing

What is important for this case definition is the story line or argument that connects the different stages or tests and, an important part of this, are the temporal relations between exposure to psychosocial hazards and the development of the ill health and its consequences and, in law and related areas, the point at which the person complained. The issue of the history in time of the different events is crucial.

Occupational vs work-related ill health

If exposure to the psychosocial hazards of work is deemed to have *caused* the ill health, then that exposure must have preceded the onset of the ill health: the occupational health case. However, if exposure is deemed to *have made worse* existing ill health, then the onset of the condition will precede exposure, but following exposure there should be evidence of a worsening of the condition and one that might not be expected as part of its natural history: the work-related case. Of course, the situation is made straightforward if injury rather than ill health is being considered.

The case definition and assessment framework for epidemiological surveys will probably have to accept data based on cross sectional study. It is therefore important that, within this methodological constraint, questions to participants are appropriately phrased and explore to some extent the temporal history of events.

Realisation and attribution

Much of the logic underpinning the case definition assumes that the individual may be more-or-less instantly aware of their ill health and may, at the same time, attribute it to work (or otherwise). This, of course, is unlikely to be the case. This may pose problems for legal and related cases although may not be so critical in large scale epidemiological surveys. Assuming that 'delays' in realisation and attribution are either randomly distributed throughout the sample or effect all participants in the same way, at the most, they will probably lead to an under-estimation of effect. This is a conservative error and may have to be accepted.

The point of complaint (or disclosure)

The question of the point in time at which the person reports a stress-related health problem is an interesting one both for epidemiological survey and legal and related work. Logically, it can be at three points in time.

First, it may be made at a time when the person is concerned that they are exposed to possible psychosocial hazards but before any health effects are manifest either in terms of new conditions arising or existing conditions being made worse. It is at this time that the organisations response is a critical issue in law. In epidemiological surveys, respondents may assume that exposure will equate to ill health, even if they have not realised such ill health yet, and respond appropriately. This is an issue for the design of the survey and the measurement of health (see below): respondents should *not* be asked to report only on what they believe are stress-related conditions.

Second, the complaint may be made soon after the ill health has become obvious and an attribution of work-relatedness made. Beyond the issue of 'delays' (see above), this scenario poses less of a problem to epidemiological survey and also to legal and related work. It reflects many of the assumptions underpinning both areas (as above).

Third, the complaint may be made some time after and distant from exposure and the manifestation of ill health or the worsening of ill health. Three factors might influence this scenario: a change in the organisational context for complaining, a change in the person's motivation to complain and the availability of additional information changing the person's overall view of their situation. This scenario makes different demands on epidemiological survey and on legal and related work. In large scale surveys, and if the various factors are randomly distributed or effect respondents in the same way, the effects again will probably lead to a conservative error of under-estimation. This type of error may have to be accepted. In legal and related work, questions of motivation may detract from the individual's case while the issue of organisational context and the information available could strengthen it.

5.5 THRESHOLDS

It is important for the case definition that there are ways of establishing the significance of self-reported exposure, ill health and individual differences and circumstance. It is not correct, in any sense, to treat every report of being 'stressed', 'exposed to psychosocial hazards' and 'ill' as defining a stress case. There have to be questions about what is and is not unreasonable exposure, what is and is not significant ill health and what is and is not confounding individual difference or circumstance. Within any model, it is important to specify thresholds or similar devices that can be applied to the data and used to establish the significance of a respondent's situation. It is beyond the

scope of this report to identify appropriate thresholds – the current report sets out to provide a framework of a case definition that may be subjected to further examination in future research. The issue of thresholds is thus discussed here briefly.

This issue can be approached in three ways.

First, where established questionnaires are used that directly measure the construct in question, it is possible to use an agreed cut off score to differentiate between cases and non cases. Such cut offs have usually been established empirically or by reference to appropriate normative data. Direct reference to normative data is also possible and this is the device suggested for dealing with the issue of thresholds in relation to unreasonable exposure to psychosocial hazards.

Second, where established measures of health are used that do not offer a cut off facility, or where new short scales are developed, it is possible to examine evidence relating to the consequences of ill health such as absence from work, visits to a general practitioner or occupational health specialist or treatment for the illness (see above).

Third, where neither of the above apply, or as a supplement to them, reliance may be placed on expert judgement such as the evaluation of a job by a trained supervisor or the diagnosis of ill health by an appropriate clinician.

Psychiatric ill health

The derived consensus case definition has a focus on evidence of ill health that is restricted to symptoms of anxiety and depression at the level of clinical equivalence. This threshold was deemed necessary and appropriate by virtually all interviewed stakeholders. This appears consistent with research findings. For example, the SHAW Study (Smith et al, 2000) defined those reporting their work to be ‘very’ or ‘extremely’ stressful as being “stressed”. Of importance here was the subsequent finding that average levels of mental health problems evident in this group were sufficient to support a clinical diagnosis of psychiatric morbidity. In other words, caseness as conceived by the SHAW study equated to psychiatric morbidity.

It is therefore suggested that the threshold should be located in terms of symptom severity whereby if exposed to formal psychiatric diagnosis using DSM-IV or ICD-10 criteria, the individual would, in all likelihood, receive a clinical diagnosis. Although it is not feasible formally to diagnose psychiatric disorder in an epidemiological context, it is possible to introduce a measurement tool capable of identifying symptoms that equate to clinical significance and one that is capable of administration by lay researchers.

At the same time, the majority of stakeholders expressed the opinion that symptoms should also be considered towards the definition of a case if they were of sufficient severity to have altered the person’s behaviour and impaired quality of life. There were several suggestions that have been reflected in the concern for the consequences of ill health and that related to changes in organisational behaviour and, in particular absence from work, and in health-related behaviour beginning with a visit to the general practitioner and resulting in treatment for ill health.

The use of questions relating to ‘visits to a general practitioner’ was successfully adopted in a national survey of work-related illness by the Irish Business and Employers Confederation. This survey only considered symptoms as possible elements of a ‘stress case’ where medical diagnosis

(usually by a general practitioner) had confirmed them (IBEC, 2001). Some self-report tools for assessment of work-related stress symptoms, such as the Physical Symptoms Inventory (Spector & Jex, 1998), likewise distinguish between those serious enough to require the attention of a doctor and more minor symptoms.

Unreasonable exposure to psychosocial hazards at work

The stakeholders interviewed felt that attempting to establish thresholds for self-reported exposure to psychosocial hazards was fraught with difficulty. The main reason cited was a concern about defining and establishing what was 'unreasonable' exposure in a survey format. This might be dealt with in two ways.

The first method of establishing the reasonableness or otherwise of exposure to psychosocial hazards is by direct enquiry of the respondent. Many stakeholders, and especially employers, were wary of such a direct enquiry. They doubted whether individuals who were ill (by their own declaration) would be able to make unbiased judgements on what was and was not reasonable about their work.

An alternative method is possible if the assessment schedule for exposure draws on an established taxonomy of psychosocial hazards and one that provides an associated normative database for exposures in broadly comparable working populations. It is suggested that identifying individuals reporting extreme (high) levels of exposure, judged against the normative data might provide a basis for establishing what was unreasonable. Perhaps, respondents in the top ten percent could be thought of as at an extreme. As the model will consider several psychosocial hazards, there has to be a rule for combining these data in a way that is itself reasonable – not too severe - and obvious in some sense. Most contemporary theories of stress (see Chapter one) consider the interaction of two, if not three, stress-related variables. This observation may provide a working argument for judging exposure to be unreasonable. The working decision rule might be:

Exposure to psychosocial hazards may be judged to be unreasonable overall if it involves extremes of exposure in relation to three or more particular hazards. Exposures to other more tangible hazards, assessed in the same way, may be considered if there is reason to believe that they give rise to anxiety.

The validity of this statement, or similar decision rules, requires empirical test.

5.6 SUMMARY: A CASE DEFINITION FRAMEWORK

This chapter outlines the framework for a possible case definition for work-related stress, derived by stakeholder consensus for application in the epidemiological occupational health domain. It offers a model developed from the available research literature and from the interviews with stakeholders and a review of existing epidemiological surveys. The case definition is offered as a framework model in terms of providing architecture and a discussion of the key issues and criteria for deciding them. It is thought that this case definition is capable of being translated into an assessment strategy for use in epidemiological surveys while remaining consistent with the requirements of stakeholders in the legal-insurance-compensation domain.

The model suggested is based on the notion of the stress process, as described in the research literature, and involves five elements: the direct report of work-related stress, unreasonable

exposure to psychosocial hazards, significant ill health, evidence of that ill health experienced has changed organisational and/or health-related behaviour (consequences) and, finally, consideration of individual circumstances. All elements are possible to assess by self-report. Chapter 6 explores the feasibility of the translation of the case definition into a practical assessment framework.

CHAPTER 6 OUTLINE OF AN ASSESSMENT FRAMEWORK FOR WORK-RELATED STRESS

6.1 INTRODUCTION

An epidemiological occupational health case definition for work-related stress was described in Chapter 5 developed from interviews with stakeholders and a supporting review of the relevant research evidence. The case definition was based on the concept of a 'stress process' involving five main elements which together provide its essential architecture. The case definition requires that evidence from these five domains are brought together and considered in terms of the 'big picture'. This, it was argued, invests the model with some flexibility and a greater certainty particularly in situations where the data are incomplete.

In terms of determining the presence of a case, the five critical elements of the definition, as discussed by the stakeholders are:

- the report of experience of work-related stress (or equivalent)
- evidence of exposure to psychosocial hazards associated with work
- evidence of the onset of a new condition of clinical significance or of the worsening of an existing condition of similar level of significance
- evidence of a significant consequence either in terms of absence from work or change in frequency of visits to a general practitioner (or treatment for ill health)
- lack of evidence of any major confounding individual difference or circumstance

This chapter addresses the translation of the case definition into an assessment framework that is suitable for epidemiological occupational health application. Measurement issues pertaining to each element of the case definition are discussed.

6.2 THE CASE DEFINITION ASSESSMENT FRAMEWORK

The scientific evidence and expert stakeholder opinion elicited for this research report indicated that for purposes of an epidemiological occupational health case definition, a judgment on caseness should centre on a number of key elements, as reviewed above. It is necessary that the case definition is receptive to translation into an assessment framework that is capable of identifying caseness in an epidemiological context. Such a framework is illustrated in figure 2.

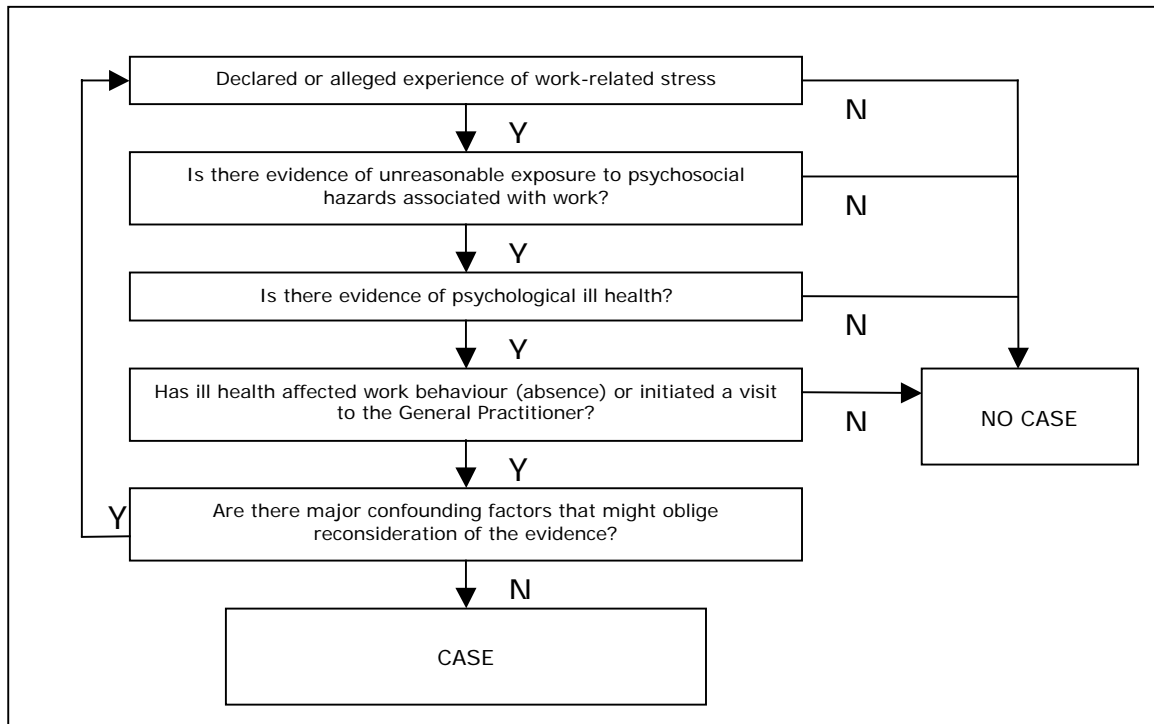


Figure 2 Epidemiological occupational health case assessment framework for work-related stress

The assessment framework (Figure 2) addresses each of the five elements of the model described in Chapter 5. Measurement issues at each stage of the framework are discussed below.

Declared or alleged experience of work-related stress

There are two scenarios in which a case definition of this type might be applied: in relation to legal or related activities and as part of an epidemiological survey. In the first case, it is likely that the person in question has complained of or initiated an activity that is focused on the question of work-related stress. It can be assumed that, implicit in these actions, the person has effectively declared that they have experienced or are experiencing stress through work. This assumption is the entry point to the model. In the second case, it cannot be assumed that the respondents to a survey are experiencing stress and thus the entry point here to the model may be a simple direct question such as:

'Are you experiencing stress in relation to your work?'

Alternatively, a more detailed entry question might be applied, such as:

'How stressful do you find your work?'

The SHAW study (Smith et al, 2000) and a recent administration of the Office for National Statistics Omnibus Survey (HSE, 2004b) sought to apply a more detailed entry question of this

type, requiring respondents to indicate on a 5-point Likert scale how stressful they find their work, from *not at all stressful* to *extremely stressful*.

Should further quantification of the elicited answer be required at this stage of assessment, or further defence against the risk of priming, the 'stress' scale from the Stress Arousal Checklist (Mackay et al, 1978; Cox and Mackay, 1985), or a similarly brief scale, might be employed.

Unreasonable exposure to psychosocial hazards at work

It was suggested that exposure to psychosocial hazards was best based on a known taxonomy and two were offered relating to earlier work for the HSE: that developed by the author (Cox, 1993; Cox, Griffiths, Barlowe et al, 2000) and that published by the HSE in relation to Management Standards (Cousins et al, 2004; Mackay et al, 2004).

A large number of generic questionnaires of work-related psychosocial hazard exposure have been developed during the last thirty years. The regulation of work-related stress has entered a new phase in the UK with the advent of the HSE Management Standards (Cousins et al, 2004; Mackay et al, 2004) that arose out of the British Government's 2010 targets for the reduction of work-related ill health incidence, work-related injuries and deaths, and related sickness absence. Within this framework, the HSE Stress Programme has been assigned a target of reducing the incidence of stress by 8%. In numerical terms, based on SWI 03/04 data, this might mean that the Stress Programme needs to achieve a reduction of 20,320, from a baseline of 254,000, in the number of people first reporting awareness of work-related stress by the end of the 2007/08 financial year. The conditions necessary to achieve this target are said to be: 100% awareness of the Management Standards approach, 80% uptake in usage of Management Standards approach, 80% undertaking Management Standards approach properly.

The standards take the form of guidance and provide employers with a process to enable them to undertake a risk assessment and develop appropriate interventions and controls for work-related stress. Specifically, the standards allow an organisation to gauge whether it is achieving acceptable performance in terms of tackling a range of key psychosocial hazards that the scientific literature has identified as associated with stress outcomes.

The Management Standards comprise six standards that address the following, as described in HSE (2004b):

Demands – includes issues such as workload, work patterns and the working environment,

Control – how much say the person has in the way they do their work,

Support – includes the encouragement, sponsorship and resources provided by the organisation, line management and colleagues,

Relationships – includes promoting positive working to avoid conflict and dealing with unacceptable behaviour,

Role – whether people understand their role within the organisation and whether the organisation ensures the person does not have conflicting roles,

Change – how organisational change (large or small) is managed and communicated in the organisation.

The scientifically valid assessment of psychosocial hazard exposure requires an adequate theoretical framework, reliable and valid measurement instruments, standard implementation procedures and, adequate data analysis (Cox & Griffiths, 1996). The Management Standard programme appears to have been developed with these criteria in mind and constitutes a major advance in psychosocial hazard exposure assessment. There is a general acceptance among subject matter experts interviewed for this research that the Management Standards model is workable. There is also appreciation that the Management Standards are likely to guide future developments in work-related stress identification, measurement and legislation. As such it makes pragmatic sense to ensure all related activities are within this framework or consistent with it. It seems sensible therefore to adopt a measure of exposure that addresses the six categories of psychosocial hazard delineated within the Management Standards: demand, control, support, role, change and relationships at work.

The Management Standards offer a comprehensive package of guidance and tools that facilitate organisations in meeting their statutory duty to conduct risk assessment for psychosocial risk to the workforce. To enable organisations to assess their performance across the hazard categories a 35 item self-report Indicator Tool and accompanying User Manual and Analysis Tool have been developed. These are freely available for download in full from <http://www.hse.gov.uk/stress/standards/index.htm>. The Indicator Tool was developed via a large study in a local authority population using standard development techniques (Cousins et al, 2004; Clarke, 2004). However, questions remain about its ability to adequately assess exposure frequency and intensity and, in addition, whether it is suitable for the identification of caseness at the individual rather than group level.

To be considered suitable for inclusion in the assessment framework advanced in this report, in addition to consistency with the hazard categories contained within the Management Standards, measures must meet four criteria:

- be derived from transactional stress theory
- address the broadest possible range of psychosocial hazard categories
- assess frequency and severity of exposure
- be available in a short-form version suitable for epidemiological application

Of the enormous number of self-report questionnaires have been developed for use in studies of work-related stress only a minority have been subjected to psychometric analysis (Spector & Jex, 1998). Those that best measure psychosocial hazard exposure and capture all categories of potential exposure are difficult to identify. Kasl (1998) lamented the absence of a Mendeleeff-type periodic table of psychosocial hazards. If such a facility did indeed exist, the task of modelling work-related stress would be greatly simplified. Waldenström et al (2002) appears to have developed a tool utilising both questionnaire and interview for the assessment of psychosocial hazard exposure. Some congruency exists between the nine psychosocial dimensions in this tool and those within the HSE Management Standards framework. The tool possesses the added benefit of the demonstrated capability to predict health and well-being defined in terms of psychosomatic symptoms and sleep disturbance.

Self-report psychosocial hazard exposure questionnaires typically offer a list of hazards from which respondents are required to identify which they have been exposed to. The more detail that can be

elicited on the nature of exposure, the greater the ability of a model to establish links with health. However, it is impossible for any generic questionnaire to address all the hazards involved in the 12,000-plus known occupations and the many more variations that exist within these job titles (Kirkcaldy, Athanasou and Trimpop, 2000). As a consequence, it is common for generic questionnaires to fail to identify hazard-harm associations where occupation-specific tailored questionnaires do so. Ideally, in epidemiological work-related stress research additional occupation-specific items should supplement the main questionnaire. This would serve to address idiosyncratic hazards particular to certain occupational contexts.

Questionnaires struggle to acknowledge the meaning of exposure to an individual; at best they can enquire about frequency and intensity of exposure. To overcome this problem inherent in nomothetic research an approach to hazard exposure assessment is required that can identify the personal meaning of the situation. Kirkcaldy et al (2000) demonstrated the effectiveness of such an approach through the application of the repertory grid technique, used for its ability to enable an “idiographic analysis of stress because the grid operates at the level of personal meaning rather than the pre-structured questionnaire”. Techniques such as the repertory grid help the researcher and practitioner to understand fully the way in which a particular work environment may be stressful for one person and not for another. However, the labour intensive nature renders them inappropriate for epidemiological use and points to the utility of ‘good enough’ self-report questionnaires that include consideration of intensity and frequency.

The importance of measuring exposure frequency and severity to gain an understanding of the meaning of exposure has been widely observed (Cox & Ferguson, 1994; DeFrank, 1988; Dewe, 1989; Hurrell, Nelson & Simmons, 1998; Rick et al, 2001; Vagg & Spielberger, 1999). Failure to consider these elements could result in the over-estimation of the health impact of highly stressful but rare events, and under-estimate the impact of common but minor exposures. Vagg & Spielberger (1999) cite the example of a police officer who witnesses the death of a colleague in the line of duty (extreme, infrequent exposure) and contrast this experience against the office worker who is consistently burdened with excessive paperwork (low level, frequent exposure). A measure of exposure that fails to consider frequency and intensity may result in the drawing of flawed conclusions as to the importance and meaning of particular hazard exposure.

The importance of exposure to psychosocial hazards to the individual is determined, at least in part, by their perceptions and cognitions and therefore there is a logical as well as a practical reason for assessing exposure by self-report. That given, two approaches are possible: one based on psychological reasoning and the other on situational reasoning (Cox & Ferguson, 1994). The former, for example, explores the person’s reactions to the hazard and often their emotional reactions. The latter, for example, may explore their evaluation of the hazard. The foci of these two sorts of enquiry are clearly different. In the former case, the question might be: *‘how worried are you about safety when working alone?’* and, in the latter case, the question might be *‘how safe is it to work alone?’*

It is suggested that epidemiological surveys should use the situational form of enquiry. The grounds for this suggestion lay in a need to separate out the assessment of exposure from that of health state so that any relationship between them might be empirically established or, at least, determined by a set of decision rules. Using a psychological form of reasoning here integrates the two domains and assumes the critical linkage. This argument has been applied to the assessment of health state and precludes the assessment of only those conditions that the respondent believes are work-related.

Assessments of exposure to psychosocial hazards by self-report, using situational reasoning, can be applied to the fact of such exposure and to its intensity or duration. The question of the reasonableness of any given exposure must also be addressed and this is challenging. It might be dealt with in two ways. The two methods are both applicable in decisions on individual cases.

The first method of establishing the reasonableness or otherwise of exposure to psychosocial hazards is by direct enquiry of the respondent using situational reasoning. An example is:

'Is this way of working reasonable ?

The second method is possible if the assessment schedule for exposure draws on an established taxonomy of psychosocial hazards, such as those discussed here; one that provides an associated normative database for exposures in broadly comparable working populations. Exposures, however measured, that would be more than one standard deviation from the mean of the normative data might be judged unreasonable. As each assessment schedule will consider several or more psychosocial hazards, there has to be a rule for combining these data which is itself reasonable – not too severe - and obvious in some sense. Most contemporary theories of stress (see, for example, those of Cox, 1978; Karasek, 1979; Siegrist, 1996) consider the interaction of two, if not three, stress-related variables. This observation may provide a working argument for judging exposure to be unreasonable. The working decision rule might be:

Exposure to psychosocial hazards may be judged to be unreasonable overall if it involves extremes of exposure in relation to three or more particular hazards. Exposures to other more tangible hazards, assessed in the same way, may be considered if there is reason to believe that they give rise to anxiety.

The validity of this statement, or similar decision rules, requires empirical test.

Psychiatric ill health

It is recommended that health outcomes in the case definition are restricted to psychological manifestations of anxiety and depression, which together have been demonstrated to account the around 85% of the variability in psychological stress-related symptoms. For the purposes of an epidemiological model and assessment tool, such restriction was deemed acceptable by consensus among interviewed subject matter experts. It is important to note that in limiting the case definition to psychological outcomes, it is nevertheless recognised that stress can manifest physically. Physical aspects have been excluded purely for reasons of consensus and pragmatism in epidemiological modelling and assessment.

The existence of work-related stress is predicated on the report of stress and the demonstration of harm to health resulting from exposure to stress-related hazards. Given the critical nature of this linkage, it is important that the assessment of health state is independent of that of exposure (see above). Therefore, the form of enquiry used has to encompass a broad spectrum of possible conditions and not just those believed by the respondent to be stress-related.

The assessment of health, as with the assessment of exposure, is by self-report for largely but not exclusively practical reasons. It focuses on psychological health, and, reflecting reality, largely on evidence of anxiety or depression. However, the model has to be capable of also considering general well being, common mental conditions and impairments of function, the possibility of

psychoses and harm to physical health. The model recognises a role for psychophysiological measures in epidemiological surveys but most probably in laboratory based studies of subsamples of the survey population.

The consensus in both the stakeholder interviews and in the research literature is that it is appropriate to impose a threshold here in terms of the interpretation of the self-report data on health. The discrimination between the less and the more serious, it is suggested, is essentially that of clinical significance or its behavioural equivalence. This decision has two particular implications within the model. First, a strict requirement for clinical significance constrains the model to the diagnostic categories covered by taxonomies such as DSM-IV and ICD-10. This is consistent with the practice of civil law. Second, it feeds forward to affect the sort of evidence that is acceptable in terms of the consequences of ill health. There are two categories that are suggested: first, the fact or frequency of visits to the general practitioner (or occupational health physician) or subsequent treatment of ill health, and, in terms of equivalence, being absent from work due to illness for more than three days.

There are clear implications here for measurement. Health state has to be measured in a way that allows levels of health to be established and assessed against the threshold of clinical significance or some equivalent but also can identify within the survey any significant changes that have taken place during some specified period if the linkage to psychosocial hazard exposure associated with work is to be drawn. The specification of a time window for these health assessments is important here and, in terms of linkage to exposure, has to be logically related to a time window for that judgement. The time window for both should be long enough to allow exposure to precede the onset of or a significant change in a condition.

Decisions on caseness, in relation to the assessment of health state, may therefore depend on the report of either a clinically significant level of ill health, or ill health and some evidence of its seriousness equivalent to clinical significance, or a significant change in a clinically recognised condition of similar magnitude.

Survey approaches to psychological health measurement

A great deal of work-related stress research has relied upon self-report measures of health, particularly psychological health (Spector & Jex, 1998). The suitability of a measure of psychological health is largely determined by whether it can identify a case at the required threshold. The threshold advocated in this report equates to clinical significance, i.e. demonstration of symptoms that equate in severity to those evident in clinical populations. A range of self-report tools are capable of distinguishing between clinical and non-clinical populations.

Self-reports of health are generally considered important and useful in epidemiological research (Pikhart, Bobak, Siegrist et al, 2001). Such measures have, for example, been found to influence absence from work and there are a relatively large number of prospective studies have found self-reported health to be predictive of morbidity and mortality (Appels et al., 1996; Bjorner et al., 1996; Helmer et al., 1999; Idler & Benyamini, 1997; Idler & Angel, 1990; Jylha et al., 1998; Moller et al., 1996; Yu et al., 1998). By contrast, a number of scientific studies have demonstrated the shortcomings of objective measures of health outcome (Spector & Jex, 1998). Self-reported health status has been found to be a good predictor of morbidity, even when compared with physicians' assessments (Ferraro & Su, 2000). Furthermore, it is also noteworthy that objective health assessments made by physicians may be influenced by a range of factors including age, income and

physical appearance (Eisenberg, 1986; Kaplan & Camacho, 1983). Epidemiological survey designers intending to conduct studies unhindered by time constraints may prefer to adopt structured interview measures in order to achieve a more robust diagnosis. Tools such as the Revised Clinical Interview Schedule (Lewis et al, 1992) and the Diagnostic Interview Schedule (Robins et al, 1981) have been shown effective in this regard (see, for example, Jenkins et al, 1997; Copley, Steptoe, & Joeke, 1999; Mausner-Dorsch, & Eaton, 2000). The terms of reference for this report state that the assessment schedule advanced should be consistent with survey methodologies currently in use, particularly the Self-Reported Work-Related Illness (SWI) survey format that utilises such an interview methodology.

A factor to be considered in the assessment of psychological health is the extent to which enquiries into symptomatology should be intrusive. This is an issue of particular import in the epidemiological domain where few opportunities may exist for follow up and counselling. A number of interviewed subject matter experts pointed out that good survey design should incorporate, at the very least, signposting to sources of support.

Survey approaches to physical health measurement

For the purposes of achieving consensus on the modelling of a case of work-related stress, the definition advanced in this report restricts symptoms of ill-health to the psychological domain. In doing so, the fact that stress may manifest in physical form remains acknowledged. However, achieving stakeholder consensus on a) the nature of physical symptoms associated with stress, and b) the measurement of physical symptoms in an epidemiological context, presents an enormous challenge. In order therefore to satisfy the terms of reference for this research report in terms of achieving stakeholder consensus and compatibility with existing epidemiological survey tools, it is necessary to focus the assessment upon symptoms of psychological ill-health.

Should user groups wish to adapt the assessment framework for their own purposes to incorporate measures of physical symptoms of ill-health there exists a variety of self-report tools designed for assessment of physical health impairments typically associated with stress. These include, not exclusively, the Physical Symptom Inventory (Spector & Jex, 1998), the Jamison, Wallace & Jamison (2004) Index and the Physical Functioning subscale of the SF-36 General Health Survey (Stewart et al, 1998; Ware & Sherbourne, 1992). The latter has been widely used in work-related stress research as a measure of observable physical impairment associated with the stress experience (see, for example, Stansfeld et al, 2000).

It is generally accepted that stress can impinge upon physiological functioning in terms of cardiovascular, hormonal and immune response. The first of these categories has received the greatest proportion of research attention specific to work-related stress (Hurrell, Nelson and Simmons, 1998). Reference to physiological functioning in the model and companion assessment framework would pose a considerable methodological challenge owing to terms of reference that require compatibility with current survey approaches to the assessment of work-related stress that rely on self-reported symptoms in large-scale population-based studies. Although it may be possible to self-report in relation to some forms of observable cardiovascular activity, self-reporting of stress hormone and immune response activity is naturally beyond the scope of survey design. If it were possible to arrange for physiological measures to be taken from a limited sub-sample of participants in epidemiological studies, it is likely that the need for access to specialised facilities would dictate the point in time and the manner in which measures are taken. This is an issue of importance because the physiological effects of work may only reveal themselves under particular conditions. It

is known that the time course for elevation of different physiological indicators is variable. Thus, measures taken at inappropriate times may fail to reveal associations between work and health. Furthermore, Kasl (1998) has also noted that demonstration of long-term physiological effects can be particularly difficult owing to biological systems that may show exhaustion or adaptation.

Work behaviour affected by ill health

The assessment of consequences, in some ways, contributes to the question of the significance of any observed health effects. On consideration of the interview data and the research literature, it was argued that three particular measures might suffice here:

- the assessment of absence from work of more than 3 days due to illness
- the fact or frequency of visits to the general practitioner or occupational health specialist
- the fact of subsequent treatment for ill health.

Of the various sources of organisational data elicited for triangulation purposes, absence data is the most frequently used in surveys of work-related stress. Reference to information about consequence allows triangulation and has been shown to help reduce confounding and improve interpretability of exposure-outcome linkages (Cox et al, 2000; Greiner, Ragland, Krause, Syme & Fisher, 1997).

The evidence of interviewed subject matter experts pointed to the adequacy of elicitation of absence data by self-report for epidemiological purposes. The more detailed the absence data that can be collected, the greater the understanding of the impact of stress. Questionnaire items that attempt to elicit absence associated with work-related stress may be most informative if worded to eliminate absence due to other causes. The Third European Survey on Working Conditions 2000 (Paoli & Merllié, 2001) is a good example of an attempt to categorise absence by perceived cause. Unfortunately it neglects to elicit more information beyond 'absences due to health problems caused by work'. The Whitehall II longitudinal study categorised absence as either short term (1-7 days) or long term (8 days or more). Surveys that have focused solely on work-related stress rather than work-related health more generally tend to enquire specifically about stress-related absence.

Short term absence has been hypothesised to represent a coping strategy for dealing with minor symptoms of mental and physical well-being in order to prevent the development of more serious morbidity (Kristensen, 1991). It may be expected therefore that absence duration may show an interesting association with severity of health outcomes.

Adaptation of the assessment schedule advanced in this report into a format acceptable to employers for workplace application may involve the use of organisational absence records rather than reliance on self-report. Most organisations routinely collect employee absence data. A recent survey by the Institute of Directors found that only 7% of organisations fail formally to monitor sickness absence and the vast majority that do actively use it for management purposes (Day, 2003), suggesting that most organisations would find it simple to apply this element of the framework model. In an organisational context, in addition to absence data, it may be desirable to collect information on a number of additional features of organisational health, including:

- alterations in work performance/productivity
- relationships at work
- attitudes to work
- alterations in workplace behaviour

- complaints and disciplinary procedures

Absence of confounding individual differences and circumstance

The research evidence clearly demonstrates two things. First, there are a plethora of factors, relating to individual differences of a psychological nature and of circumstance that might moderate the relationship between exposure and health. Second, the evidence relating to most of these factors is either equivocal or complex making their inclusion in the framework model problematic (Marchand, Demers & Durand, 2005). While it might be important to include measures such as those of negative affectivity and social support for research purposes; in terms of decisions on individual cases, the question is:

'Is there sufficient evidence of particular confounding factors effecting the decision on caseness to discount that decision?'

The answer to this question will, in most cases be 'no'.

In the light of the research evidence, the model therefore adopts a conservative position and considers only the availability of social support and negative affectivity as possible moderating factors.

Few available measures of the stress process, which are suitable for epidemiological application, attempt to account for moderators of the hazard-harm relationship. The Pressure Management Indicator (PMI; Williams and Cooper, 1996, 1998) is a rare exception that contains scales pertinent to a variety of individual difference variables including Type-A drive, impatience, control, decision latitude, coping strategies of problem focus, work-life balance and social support. Other measures of social support exist that are suitable for epidemiological application. In their epidemiological assessment of the scale of work-related stress in Quebec, Canada, Marchand et al (2005) successfully introduced three items concerning the availability of social support outside of work. The items addressed the presence of a person with whom the individual could speak openly about problems, the presence of a person who could offer help if needed and the presence of a person on whom the individual felt a closeness and who expressed affection.

In recognition of concern expressed by subject matter experts for reference to negative affectivity in the case definition of work-related stress, and in line with the recommendation of Hurrell et al (1998) that until the issue is resolved researchers would be well advised to incorporate measures of negative affectivity into studies, it is recommended that a measure be included in the assessment framework. A gold standard measure of negative affectivity as a responding tendency is yet to be developed (Kasl & Rapp, 1991). Kasl (1998) suggests that existing measures may in fact measure a mixture of a) responding tendency, b) a stable trait such as neuroticism that reflects a vulnerability to negative affect, or c) a state level of negative affect. If negative affectivity is indeed a stable personality trait, attempts to control for it in the analysis of associations between work and health may be misguided as it may be an important element in the perceptual process from which stress arises.

The Spielberger Trait Anxiety Inventory (Spielberger et al, 1970) has been extensively used in work-stress research as a measure of negative affectivity (see, for example, Smith et al, 2000). Other commonly applied measures include the PANAS Scales (Watson, Clark & Tellegen, 1988) and various neuroticism scales embedded in personality questionnaires. Further consideration of the

psychometric and practical merits of various tools needs to be undertaken before further recommendations can be offered on the suitability of available tools (Daniels et al, 2004).

6.3 ISSUES OF ASSESSMENT

There are several important issues of assessment to discuss or re-visit in this chapter. They include the time commitment, overall design strategy, use of self-report, case thresholds and issues of comparability.

Time Commitment

The epidemiological occupational health case definition advanced in the previous chapter involves five elements. Translated into a case assessment framework, each of those elements might subdivide into multiple questions each of which could require numerous answers from the respondent. This has obvious implications for the time that would be required to complete a case assessment for work-related stress in a self-report survey. The authors acknowledge that the length of a case assessment based on the framework presented in this chapter might preclude it from integration into larger surveys that seek to assess other issues in addition to work-related stress, as is the case with the SWI survey series. The time required for a case assessment might restrict use of a case assessment schedule based on the definition presented herein to studies that have work-related stress as their sole focus.

Overall design strategy

Although questionnaire measures and scales are considered in this chapter for possible inclusion in the assessment framework, the model is not predicated on the use of any particular measure or combination of measures. To attempt to determine an issue such as this is, at present, doomed to failure and will only give rise to counter productive debate and competition. This was clear both from the research literature and in the stakeholder interviews. Rather, as with the risk management paradigm developed by the authors (Cox, Griffiths & Barlowe et al, 2000) the emphasis is on using measures that are fit for purpose judged both against the criteria discussed here in terms of the overall model, and that are of proven reliability and validity. This is a defensible position and reflects the complexity of the stress process as described in this report.

Epidemiological surveys have to be user friendly in that they have to be understandable and relevant to the survey population and relatively brief. These design constraints are demanding but important. In terms of the translation of the framework model into an assessment schedule, there are two different strategies that might be adopted: first, the use of established questionnaires to tap each of the elements of the framework model, and second, the development of shorter scales, or possibly single items, to capture those elements more succinctly.

Each of these strategies might be usefully supplemented by more detailed or exhaustive investigation of the situation of a defined subsample of the survey population. Several methodological possibilities exist and have been employed elsewhere:

- organisational-based studies involving techniques such as job analysis (Greiner, 2000; Greiner et al, 1997, Greiner et al, 2004)
- laboratory-based studies, sometimes using psycho-physiological measures (see, for example, Smith et al, 2000)

- service-based studies such as investigative interviews with general practitioners or occupational health specialists (Jones et al, 1998)

Such studies can explore the population-specific validity of the measures used in the main survey, elaborate on the main survey's findings and provide greater insight into the mechanisms underpinning the stress process and the relationships between its elements in the survey population.

For the main survey, while there is an obvious appeal to using well established and psychometrically proven instruments, there are also drawbacks. Those instruments may not be fit-for-purpose in a number of ways: they may not provide evidence exactly as required by the assessment having usually been developed for other purposes, they may be too long, or the language used may not be appropriate for the survey populations in question as the instruments were developed elsewhere or for very specific purposes. In short, while their internal properties might be excellent, their situational utility may not.

The use of (new) short scales or single items might overcome these problems and be acceptable if their reliability and validity can be demonstrated.

Use of Self-Report

The design of an assessment framework for use in large scale epidemiological surveys is subject to a number of practical constraints. Perhaps the most taxing is that of the use of self-report.

There remains a deep suspicion of self-report measures in some quarters and there are regular calls for the use of objective measures in the assessment of work-related stress defined, for example, as those that make assessments "independently of the individual operator's perception and interpretation" (Greiner, Krause, Ragland & Fisher, 1998). Such calls have generally been justified in terms of the inaccuracy of the size estimations of the relationship between exposure and health associated with self-report data (e.g. Frese & Zapf, 1988; Kasl, 1987; Kristensen, 1995; Spector, Dwyer & Jex, 1988).

Possible sources of error associated with the use of self-report measures of work-related stress have been variously described (Greiner, 2000; Greiner et al, 1997; Hurrell, Nelson & Simmons, 1998, Smith et al, 2000; Williams, 2003). In their overview, Greiner et al. (1997) *inter alia*, argued that,

- affective and attitudinal reactions to the job might influence the perception and the report of work-related stress
- perceptions of work-related stress may be affected by personality traits or habitual coping responses, such as negative affectivity, anxiety or locus of control
- common methods variance may occur if exposure and health outcomes are measured using the same type of methodology

Greiner et al (2004) warn that the failure of studies to identify links between self-reported psychosocial hazard exposure and objective measures of blood pressure might be due to the confounding effects of personality and coping strategies. They point in particular to the deflating effects of 'stress-denial', non-complaining tendency, alexithymia and repressive coping.

To these arguments, Hurrell et al (1998) added that socially desirable reporting may occur due to the personal nature of information sought. Furthermore, Cohen, Kessler and Gordon, (1995)

suggested that cognitive schemas may influence reporting while earlier, Kasl (1984) had argued that reverse causation may explain associations between work and health; that is poor health may influence perceptions of the work environment.

Many of these points are not facts but are possibilities and represent 'testable' hypotheses. As possibilities they should be assessed and do not, as they stand, preclude the use of self-report data.

The relative strengths and weaknesses of different types of data in the measurement of stress were discussed by the first author some twenty years ago (Cox, 1984). Among other things, a defence of the use of self-report measures was offered. Briefly, revisiting those arguments here, three points are made.

First, the object of a self-report might be more or less factual and publicly verifiable. For instance, the number of visits to a particular general practitioner is verifiable as is a person's age or the presence or absence of a treatment regime are publicly verifiable. The self-report of a 'headache' or on the 'safeness of working alone' is less easily verified. However, in the first of these latter examples, there may be diagnostic physiological changes that might be assessed by way of validation, while in the second, consensus among similar workers, could provide some benchmark.

Second, issues of reliability and validity, underpinning much of the above, can be established using good psychometric practice and judged acceptable or not. It is not unusual to find situations in which self-report measures can be as reliable as other types of measure and as or more predictive of outcome variables. In relation to reliability, for example, self-reports of work conditions have been shown to be stable and independent of mental health status at commonly occurring levels of distress (Waldenström, Lundberg, Waldenström & Harenstam, 2003). In relation to validity, for example, the evidence, as reviewed by Daniels et al (2004), suggests that subjective appraisal is an essential mediator of the relationship between hazard and harm. Furthermore, studies that have objectively measured work characteristics have generally failed to find associations with health outcomes (Stansfeld, 2002). Questions of reliability and validity are empirical ones.

Third, where studies focus on psychological processes, such as the experience of stress, there may be a theoretical argument for using self-report. For example, transactional theory argues that perception is the key to the stress process. This has implications for measurement as articulated by Lazarus (1990):

"If we define stress in terms of appraisal, which refers to the personal meaning of encounters, we do not need to be uneasy about subjectivism. Quite the contrary, this is precisely what we want to know".

In essence, Lazarus (1990) has argued that data on the experience of stress and on stress appraisals can only be elicited by self-report and are valid when considered from the philosophical perspective that such reports reflect actual experience. Assessment tools based on such a philosophy have been described as '*providing objective measures of subjective reactions*' (Vagg & Spielberger, 1999). A somewhat related justification for the use of self-report in the assessment of work-related stress has been provided by Daniels et al (2004) who observed that some psychosocial hazards do not exist in any objective, quantifiable way, and therefore can only be assessed by these means.

Employers are generally wary of self-reported health data and the validity of attributions of work-relatedness. Something of their concern has been set out in a report from the Institute of Directors:

“Self-reporting of illnesses and of their perceived causes will not in general lead to the same results as when these are classified by professional medical staff. Apart from anything else there is a huge knowledge imbalance between medics and the general population as to diseases and their causes...Self-reporting will not give a precise description of the picture, nor of what is related to work in some way (Day, 1998, p4)”

In the interviews with stakeholders, occupational health professionals, employers and their representative bodies expressed the opinion that only clinically trained experts might be considered suitably qualified to make caseness assessments for purposes of stress management and rehabilitation in the workplace. Irrespective of a real question as to whether such professionals are the best qualified to make caseness assessments, there is a problem here that approximately half of all employing organisations in Britain provide no occupational health service for employees (Day, 2003; Harling, 2003). Thus, if case identification and assessment were to be the exclusive domain of occupational health professionals, approximately half the working population would have no easy access to this provision.

That employers might be generally unwilling to consider employees sufficiently objective to make accurate health assessments was borne out by the results of a recent HSE/Personnel Today survey of approximately 700 HR professionals in which 51% of respondents reported believing that at least half of the sickness absence attributable to stress is disingenuous (O'Reilly, 2003). Although employers may recognise they are not best suited to make assessments, they are equally unlikely to endorse general practitioners as the most appropriate diagnostician: the survey found that 68% of respondents believed that at least 50% of general practitioner's notes diagnosing stress are inaccurate (ibid).

It has been argued that the multi-causal aetiology of many stress-related disorders may mean that self-report surveys can only identify perceptions of causes rather than actual causes (Day, 1998) especially where interviewers are not medically trained diagnosticians. However, as peoples' cognitions and behaviour are determined by their perceptions of reality, as is their psychological health to a large extent, mapping those perceptions is both scientifically credible and practically sensible. The notion that the *actual* causes of behaviour are necessarily different from *perceived* causes is a somewhat extreme dualist position.

In response to their concerns regarding the accuracy of self-reported exposure to psychosocial hazards it may be anticipated that some employers would wish to augment subjective assessment with objective job analysis that incorporates examination of organisational and technological characteristics of jobs by either trained observers or supervisors (Greiner et al, 1997). This presents three benefits. First, objective job analysis may overcome problems with common methods variance; second, it may help ascertain the relative importance of appraisal, coping and the objective work environment; third, it may yield further information about organisational sources of stress that go beyond workers perceptions (Greiner et al, 1998). The fact that objective job analysis instruments have been demonstrated capable of predicting psychosomatic complaints and irritability (Greiner & Leitner, 1989), accidents (La Flamme & Friedrich, 1993), absence (Greiner et al, 1998), depression, anxiety and chronic disease (Greiner & Ducki, 1991) suggests they may constitute reliable supplementary measures of work-related stress that would make case definitions of work-related stress such as that presented in this Report more palatable to some employers and their representative groups. Such methods are not easily incorporated into epidemiological surveys

unless used with subsamples of the survey population and are thus not included within the proposed assessment schedule.

While some aspects of the employers' position are philosophically extreme and appear underpinned by distrust of their employees, much of the overall employer perspective is consistent with the majority view and current practice in the legal-insurance-compensation domain. However, it does not translate directly into the context and constraints of epidemiological survey.

Case thresholds

The assessment framework for the identification of an epidemiological occupational health case of work-related stress must contain cut-off points in the decision rules at two key assessment stages: that of psychological health and psychosocial hazard exposure. The two studies contained within this report clearly suggest that in the assessment of psychological health the threshold should be located at the point where symptoms equate to clinical significance. This accords with the requirement of the report's terms of reference that the assessment schedule should be able to distinguish between clinical and non-clinical populations. The suggestions from the evidence for an appropriate threshold concerning psychosocial hazard exposure are less clear. Guidance is no more specific than to suggest a threshold at the point that exposure becomes unreasonable. The identification of unreasonable in this context will prove a considerable challenge.

Psychiatric ill health

A number of measures of psychopathology are available for the identification of psychiatric morbidity reflected in symptoms of depression and anxiety that are suitable for epidemiological application. Importantly, the so-called 'third generation' (Dohrenwend & Dohrenwend, 1982) of psychiatric survey tools include standardised assessments of mental health and thus permit a high degree of accuracy in studies of the prevalence of various common mental disorders (Jenkins et al, 1997). In addition, each can distinguish between clinical and sub-clinical populations. Some of the widely used measures as well as emerging tools are listed below.

- Clinical Outcomes in Routine Evaluation (CORE) Outcome Measure (Evans et al, 2000)
- Diagnostic Interview Schedule (Robins et al, 1981)
- General Health Questionnaire (GHQ) (Goldberg, 1978)
- General Well-Being Questionnaire (GWBQ) (Cox, Thirlaway, Gotts & Cox, 1983)
- Hospital Anxiety and Depression Scales (HAD) (Zigmond & Snaith, 1983).
- Pressure Management Indicator (PMI) (Williams and Cooper, 1996, 1998)
- Psychiatric Symptoms Index (PSI) (Ilfeld, 1976)
- Revised Clinical Interview Schedule (CIS-R) (Lewis et al, 1992)

If a consensus model of a case of work-related stress is to yield meaningful information about the scale of work-related stress, a case threshold for stress-related symptoms of mental ill-health is recommended that equates to clinical significance. Among other things, analysis of psychiatric functioning at the individual level may allow researchers to establish relationships between psychiatric illness and specific cause, an attribute that would facilitate further research into the relationship between the nature of hazard exposure and psychiatric morbidity.

In addition to being capable of distinguishing between clinical and non-clinical populations providing information on symptom severity, the tool advocated as a measure of psychopathological

symptomatology must be one that fulfils the remaining requirements of section 3 of the terms of reference by virtue of the following attributes:

- demonstrated suitability for application within an epidemiological framework
- able to provide a meaningful indication of psychological health
- through fulfilment of the above two points, possess a degree of consistency with currently applied methodologies (i.e. SWI survey methodology)
- normative data exists for sub-clinical and clinical populations and thus is of relevance to the needs of needs of clinicians.

Furthermore, the preferred measure should not be excessive in length for it to be integrated into a manageable survey format. Further research is planned to consider the application of existing or development of new measures of psychiatric ill health within the epidemiological occupational health context.

Unreasonable exposure to psychosocial hazards at work

It is difficult to state with certainty what measure of psychosocial hazard exposure associated with work and what case threshold within that measure might be optimal. Interviewed stakeholder representatives were largely uncertain in this area, but many pointed to the HSE Management Standards for work-related stress becoming increasingly central to legal and organisational developments in work-related stress in the UK by virtue of providing an authoritative and evidence based taxonomy of psychosocial hazard exposure associated with work. Further research is needed concerning the identification of an appropriate psychosocial hazard exposure cut-off suitable for inclusion in an epidemiological case definition of work-related stress. This report has sought to initiate the debate on this matter by suggesting *unreasonable* exposure as a case threshold, where unreasonable involves extremes of exposure (greater than 1 standard deviation above the mean of normative samples) in relation to three or more particular hazards.

Survey comparability

The issue of comparability is paramount to this research both across surveys and within surveys across time. The current approach does not provide the direct comparison perhaps hoped for by epidemiologists; such a comparison could be easily sustained against the evidence reviewed here. It is argued that comparability can be made at three levels in terms of:

- respondents answers to the entry question
- the frequency of 'cases' defined by the decision rules suggested here applied to the assessment data (if those data are collected as recommended here)
- the profile of health states associated with the cases defined as above.

Applying this schema to existing data and across new data sets would allow a re-evaluation of the size of the problem associated with work-related stress and the monitoring of progress towards Government targets for improving health through the reduction of such stress.

6.4 SUMMARY

This chapter has discussed the translation of the consensus model of a case of work-related stress described in Chapter 5 into an assessment framework suitable for epidemiological application. A

framework is presented developed on the basis of data harvested from stakeholder interviews and a supporting review of the relevant research evidence. Together, these suggest a five stage assessment framework and point to the suitability of a number of measures in the assessment of elements of the framework, as well as caseness thresholds within those elements. It is beyond the scope of this report to present a detailed assessment schedule that includes an algorithm for making caseness judgements. Further research is planned in this regard.

CHAPTER 7 EXPERT VALIDATION

7.1 INTRODUCTION

A validation exercise was conducted to obtain feedback on the project outcomes from a sample of subject matter experts drawn from across the stakeholder groups. The exercise served three functions:

- to provide verification that the views of stakeholders expressed in interviews and focus groups were accurately reflected in the final report
- to consider the strengths and weaknesses of the derived consensus case definition
- to consider the associated assessment framework and measurement tools that might be employed within it

The validation exercise confirmed that stakeholder opinion elicited from interviews and focus groups had been accurately reflected in the final report. It was also confirmed that the derived consensus case definition of work-related stress and associated assessment framework was suitable for purpose within the epidemiological occupational health domain. It was noted that for the case definition to have utility in other domains modifications would be necessary.

7.2 METHODOLOGY

Validation of the project outcomes was conducted at two stages. Stage four in the research strategy, as described in Chapter 2, involved a second wave of subject matter expert interviews that provided opportunity for validation of interim findings with a group of stakeholder representatives based on the data derived from initial interviews and interrogation of the literature. This process is described in further detail in Chapter 2.

Upon completion of the data collection exercise and development of a proposed epidemiological occupational health case definition and assessment schedule, further validation of the project outcomes was conducted through an expert validation panel. A questionnaire was produced that provided a summary of the project background, methodology and preliminary results followed by a series of questions designed to elicit opinion, particular to the stakeholder perspective of the respondent, on the derived case definition and associated assessment framework.

The questionnaire was administered to a sample of key stakeholders drawn from the wider group of interviewees who contributed to the project. The identification of individuals for inclusion in the wider group was discussed with the Health & Safety Executive in the initial project set-up meetings. Possible 'experts' in relation to the question of case definitions for work-related stress were identified for each group. These experts were approached and invited to participate in the exploratory interviews. These interviews afforded opportunity to have stakeholder representatives confirm (or otherwise) the 'expert' nature of the existing list of stakeholders and to suggest others for the second wave of interviews. In this way assurance was obtained that the subject matter experts representing each stakeholder domain were just that. Individuals and, in some cases, organisations were selected from the wider group for inclusion in the expert validation panel upon fulfilment of four criteria, each a prerequisite to the next. First, panel members were affiliated with one of the key groups identified as a stakeholder at the outset of the research. Stakeholder groups

included stress researchers, epidemiologists, lawyers, trades unionists, employers and their representative groups, occupational health practitioners, psychiatrists, counsellors, insurers and policy makers. Second, members of the panel had all expressed, to the project team, an active interest in the research study and a desire to contribute to the research process. Third, all had demonstrated willingness to dedicate the time necessary for questionnaire completion. Fourth, initial interviews had confirmed that all were recognised as eminent within the stakeholder group in terms of their engagement with activities concerning caseness as it relates to work-related stress.

Questionnaires were administered by email for pragmatic and theoretical reasons. The project team was disinclined to request a one-on-one interview with stakeholder representatives, many of whom were burdened by pressured work diaries. Tied in with this was understanding of the fact that for many people email has become the standard and supposedly efficient means of communication. Email communication also ensured that quotes could be captured and that no data was 'lost' in transcription; a problem sometimes associated with interview data. In addition, it was accepted that the asynchronous, time-delayed nature of email would facilitate reflexivity in communication, thus enabling heightened reflection and consideration in production of questionnaire responses (Morgan & Symon, 2004). Indeed, giving individuals the opportunity to reflect in this way and construct their position has been shown to heighten participants' perceptions of their role in the research process (Smith, 1996). Email questionnaire methodology was thus applied to engender involvement in the research and a sense of responsibility for the outcomes in members of the expert validation panel. Finally, previous research has shown that email can be a useful method for data collection that attracts a good response rate where the participant and researcher have spoken previously, either by telephone or face to face, and in doing so had the opportunity to establish a relationship (Morgan & Symon, 2004) - as was the case in the current study.

7.3 EXPERT VALIDATION OF THE DERIVED CASE DEFINITION

The expert validation panel offered comment on each element of the case definition (Figure 1). Overall, the framework approach to defining a case of work-related stress was well received, at a conceptual and practical level, as indicated by the following quotes:

"The framework approach is better than just asking ~ was your mental ill health and resulting work absence caused by unreasonable stress at work ~ in that each component can be individually analysed."

"If the standards of evidence suggested...are followed, then much of the frivolous, vexatious and culture/media led reporting of stress would be eliminated."

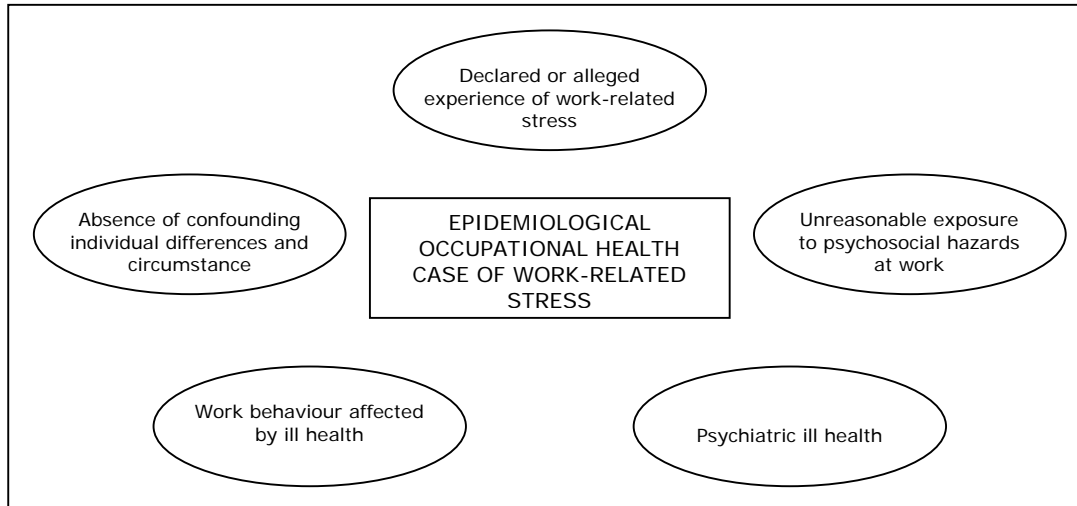


Figure 1 Conceptual model of an epidemiological occupational health case of work-related stress

Declared experience of work-related stress

The derived consensus case definition required an initial acknowledgement, on the part of the worker, of work-related stress in response to direct questioning. The declared experience of work-related stress was recommended as a screening question, an affirmative response to which would trigger further enquiry. Direct questioning was shown to be effective in the large scale Stress and Health at Work study (Smith et al, 2000) and was acceptable to the expert validation group.

Psychological health status

The derived consensus case definition has its focus on psychological manifestations of stress, primarily symptoms of anxiety and depression. This narrow focus is acknowledged to be somewhat restrictive and in practice might exclude some who genuinely suffer from the manifestations of work-related stress. However, in order to achieve consensus on an epidemiological occupational health case definition the restricted focus was necessary. It is also noted that around 85% of symptoms of work-related stress are psychological in nature and a similar percentage of psychological symptoms may be described as anxiety and depression (see chapter 5). The expert validation group endorsed the view that it was appropriate to exclude physical manifestations:

“The risk would be greater in their [physical symptoms] inclusion not their exclusion. This would apply to the epidemiological as well as the compensation domains.”

“An epidemiological survey which included physical symptoms would be subject to the opinions and interpretations available to the respondent and the meaning attached to the physical symptoms. E.g. a person may not bother to report diarrhoea [dismissed simply as “I get that sometimes”] but would be happy to report a neck pain [“my boss stands over me too much”]. Awareness of the somatic complaint is conditioned by the meaning that is attached to it.”

“Epidemiology of somatism would tell you little about the actual incidence of somatic complaints or causal direction or the actual effect of interventions.”

The consensus case definition considers symptoms of anxiety and depression where they are of equivalence to clinical significance. The psychiatric level of severity was endorsed as appropriate by the validation panel:

“If a survey tool is to be valid, it must rely on valid outcome measures. Use of mild mental ill health as an outcome would add considerable uncertainty to the interpretation of any research findings...There is a duty to protect people from preventable ill health not to protect them from feelings of a lack of well being, fatigue or disappointment.”

Psychosocial hazard exposure

Reliance on self-reports of psychosocial hazard exposure was deemed adequate and suitable for purpose. A number of subject matter experts highlighted the shortcomings of self-report data in this context while conceding that the survey approach offers little or no alternative to self-reporting:

“Stressors are not stressors unless they are interpreted as such by the exposee. However, the awareness of a potential stressor and its interpretation by individuals and groups are potentially conditioned responses. In that respect, self report is potentially unreliable. Self report should be corrected for factors (innate and environmental) which would influence ‘tendency to report’. This correction may be possible at the group level, and perhaps at the individual level, but confidence in this correction would usually be moderate at best, e.g. negative affectivity is determined by self report!!.”

“There are no alternatives but to use the exposure as the source of information on the stress in the environment.”

There is a considerable degree of inconsistency between the requirements of the epidemiological and compensation domains in terms of evidence of psychosocial hazard exposure. It was noted by a number of subject matter experts that the psychosocial hazard exposure element of the derived case definition would require modification in order to achieve congruence with the compensation (common law) domain:

“Judgements made by others about whether or not an environment should be perceived as stressful by the individual exposee or group are irrelevant to the assessment of risk for that individual exposee or group [unless as a result of hearing that opinion the exposee(s) is (are) strongly influenced by the holder of that opinion]. Group level judgements may be relevant for those assessing whether or not a duty of care to a group has been broken. In the absence of documented specific complaint by an individual, the relevance to an individual of a breach of duty to a group is highly questionable, but may be the only reasonable way for a Judge to come to a view.”

“The degree to which a duty of care has to be broken before diagnosable harm results is unknown (both for individuals and groups). The cumulative nature of the effect of stressors is unknown. The effect of stressors on existing ill health is unknown.”

There was agreement that psychosocial hazard taxonomy encompassed within the Health & Safety Executive’s Management Standards for Work-Related Stress offers a workable categorisation framework. It was pointed out, however, that individual interpretations of hazard exposure will be subjective:

“The meaning attached to a given stressor is highly individual unless, for some reason, awareness of that stressor has been culturally influenced e.g. by a trades union campaign.”

“It would be far better to obtain, without prompting, views from individuals about the aspects of work they have difficulty with and those which made the job worth doing. Obviously, such an approach is unlikely to be popular in epidemiology; it would be time consuming and in the end a judgement would need to be made (or obtained) about the reasonable balance between these factors.”

Absence of confounding individual difference or circumstance

The consensus building exercise identified the absence of confounding individual difference or circumstance as a central element of the case definition. It appeared that the validation panel was cognizant of the oft used dismissal of work-related stress as attributable to non-work factors and were keen for confounding factors to be weighted equally with other elements in the case definition, as indicated by the following quote:

“It is something of a relief to see that assessment of confounding factors takes equal precedence with self declared experience of stress.”

The derived case definition was noted to focus on a restricted range of factors relating to individual difference and circumstance as a result of the drive for consensus.

Reference to negative affectivity was considered correct and proper in a case definition designed for epidemiological application:

“Negative affectivity must be corrected for in any assessment of the balance between stress hazards and coping mechanisms/resources. As many as 20% of the adult population may be of the negative affectivity trait; easily enough to distort the results of an epidemiological survey. A 5% difference in the rates of negative affectivity between two groups of people could easily be detected and interpreted as a difference in hazard exposure”

The focus on individual circumstance in the case definition is limited to social support. Subject matter experts agreed that this was useful and observed that intra and extra organisational social support should be referred to. A minority also suggested that reference to coping and control should be made.

With a view towards creating congruence between the epidemiological and common law case definitions of work-related stress, subject matter experts from the legal and insurance domain suggested that reference could also be made to additional factors that might facilitate the ascribing of cause. Such factors include previous history of mental ill health and exposure to traumatic events that might be associated with stress-related symptoms. Any assessment of causation in the courts will also consider the presence of non-work related physical illness concurrent to the episodes of mental breakdown. Few epidemiological studies consider the impact of physical illness upon the reporting of stress-related symptoms attributed to work. In order to achieve consensus, nor does the derived epidemiological occupational health case definition. This shortcoming was identified by some members of the expert validation panel, particularly those drawn from the occupational health domain. To aid the process of establishing whether an employer’s duty of care was breached it was

also suggested that consideration be taken of a number of confounding issues. These include the existence of organisational, media, trades unions and regulatory campaigns designed to highlight psychosocial risk at work and the extent of employment rights disputes within the employing organisation.

Changes in work behaviour

The case definition requires that the individual has experienced absence from work that is self-attributed to work-related stress or has presented to a health professional in relation to work-related stress. Changes in work behaviour are included in the case definition in order to provide a degree of triangulation of evidence and to ensure that the case definition captures only the more severe cases. The validation panel acknowledged the incorporation of changes in work behaviour as important. A minority pointed out a number of shortcomings associated with absence data:

“Absence from work is largely affective. Directed absence from work, when directed by a general GP is also of little objective value.”

“Self referral is by definition entirely affective.”

“Affective choices are not reliable in the determination of the objective presence or absence of ill health or its deterministic significance. They are hugely dependent on circumstances, beliefs and innate characteristics.”

“Outcomes should be objectively determined during the epidemiological study.”

“Delayed return to work following illness has often been confused with ill health that is caused by work.”

“Presenteeism cases would be missed by this criterion.”

It was suggested by some members of the validation panel that symptoms of work-related stress could be objectively verified by reference to the worker's general practitioner, as has been the case with selected SWI surveys (Jones, Hodgson, Clegg, & Elliott, 1998). Introducing such an element into the case definition would be labour intensive and require the co-operation of general practitioners and other health professionals. It might not be outside the bounds of practicality for large national surveys, but could present challenges for designers of local, small-scale surveys.

Modifications to the case definition

The derived consensus case definition was designed for use in the epidemiological occupational health domain while remaining receptive to modification so as to be suitable for purpose in a range of settings. A number of modifications were recommended by the expert validation panel, particularly with a view to reducing the dissonance between the epidemiological case definition and that applied in legal actions for personal injury arising from work-related stress. The possibility that reference be made to previous history of mental ill health and/or exposure to traumatic events was discussed. A recommendation was made for bolstering the 'change in work behaviour' element through inclusion of information on whether work re-assignment had been suggested by an occupational health provider, and if so, whether health improved following re-assignment.

Together, these examples suggest that congruence between common law and epidemiological case definitions might be greater than it appears at first glance.

7.4 EXPERT VALIDATION OF THE DERIVED CASE ASSESSMENT FRAMEWORK

The expert validation panel offered comment on each element of the case assessment framework (Figure 2) and noted the requirement for a programme of further research to explore measurement issues located within each element of the assessment framework. Overall, the framework approach to the assessment of caseness was well received, as indicated by the following quotes:

“The framework offers much hope for the improvement of stress research, such an improvement is long overdue. It seems unlikely that the practical constraints of epidemiology will allow that the actual methods used would be of direct assistance to compensation issues, but the framework provides a step in the right direction.”

“Yes, [the framework offers a useful contribution to occupational health epidemiology] provided exposure to psychosocial hazards are not assumed to correspond to stress risk (which they don’t), confounding factors are properly accounted for, and diagnosable harm is the basis of any analysis.”

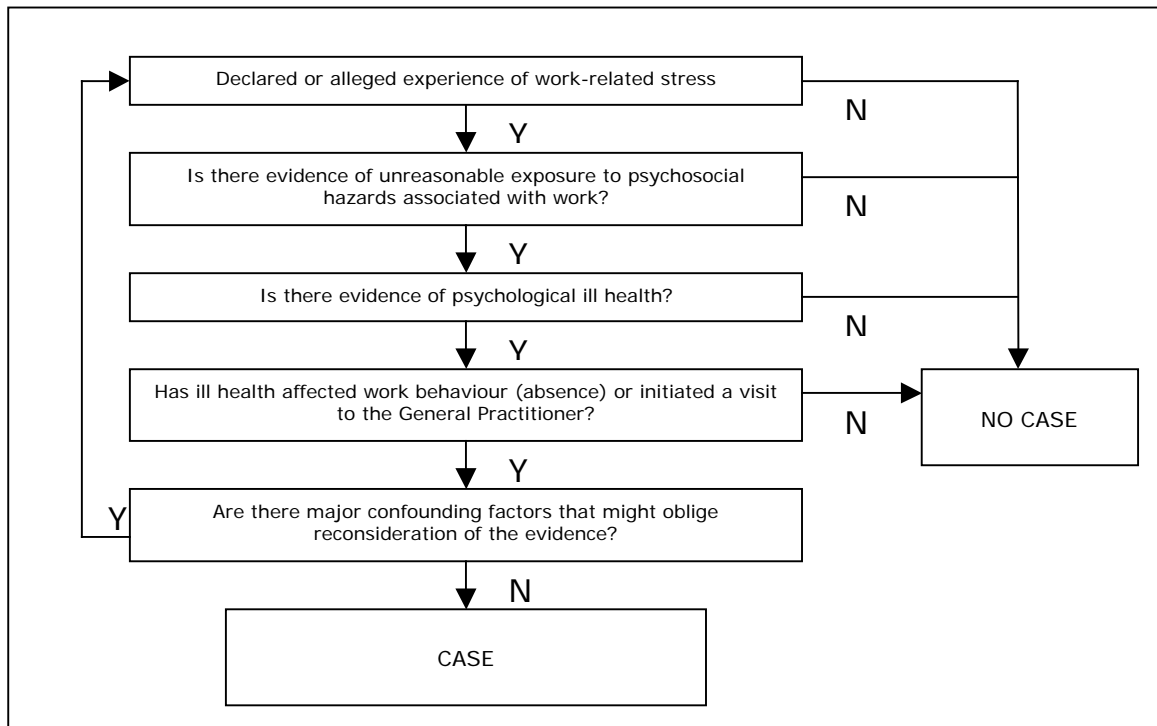


Figure 2 Epidemiological occupational health case assessment framework for work-related stress

Declared experience of work-related stress

The validation panel concurred that inclusion of a declared experience of work-related stress in the assessment framework is unlikely to bias subsequent reporting where due consideration is given to the wording of the questionnaire item. It was also suggested that a direct question could be followed with a limited number of associated questions. For example:

“Perhaps the question should be accompanied by “how significant was/is that stress to you?” Did it happen before you became aware of your mental ill health?”

Psychological health status

Subject matter experts commented on the challenges to measurement of psychological health in an epidemiological survey format. A variety of existing measures were highlighted as appropriate. It was also noted that self-report measurement tools designed to detect mild mental ill health might be confounded by somatic complaints. Some of the validation group noted that, where possible, assessment of psychological health should be made by suitably trained practitioners.

Psychosocial hazard exposure

Existing off-the-shelf measures of psychosocial hazard exposure, such as the Indicator Tool developed for the HSE management standards programme of work, were endorsed as satisfactory for epidemiological occupational health application. The validation panel, while acknowledging the difficulty of introducing bespoke measures into large-scale surveys, warned that the generic nature of tools of this type might limit their sensitivity. It was also noted that assessment of the unreasonableness of psychosocial hazard exposure might be facilitated by consideration of coping resources, as indicated in the following quote:

*“Survey tools fail to appropriately account for a balance between hazard and coping factor. The number of assessments of coping in epidemiological studies is remarkably few. Off the peg tools fail to appropriately account for the **meaning** of any hazard, coping factor.”*

Changes in work behaviour

The validation exercise offered some comment on the measurement of changes in work behaviour arising from work-related stress. The challenge in obtaining valid and reliable data regarding absence ascribed to work-related stress was highlighted. The subject matter experts expressed some support for the inclusion in the case definition of presentation to a general practitioner but noted measurement challenges.

7.5 SUMMARY

The expert validation exercise importantly concluded that stakeholder opinion elicited from interviews and focus groups had been accurately reflected in the report. The validation panel concurred that the derived consensus case definition of work-related stress and associated assessment framework was suitable for purpose within the epidemiological occupational health domain. It was noted that for the case definition to have utility in other domains, modifications would be necessary.

Furthermore, the validation exercise served to highlight a number of strengths and weaknesses in the consensus case definition and assessment framework. In doing so it pointed the way to future research that would make a valuable contribution to the identification and assessment of work-related stress in the epidemiological occupational health context and more broadly in the compensation domain.

CHAPTER 8 CONCLUSIONS

8.1 OVERVIEW

This report offers a basic consensus on an epidemiological occupational health case-definition of work-related stress, valid as a starting point for further developments and modifications by the various stakeholder groups concerned. An occupational health epidemiological case-definition is useful for detecting incidence and prevalence trends and target setting for work-related stress, but also for other objectives such as prevention and generating estimates of the burden of the problem, in addition to identifying emerging risk factors.

A major problem with much of the applied research on work-related stress is that studies have not been guided by one model, or case definition, of the phenomenon (Smith et al, 2000). Studies have obtained conflicting results, in part, owing to the inconsistent application of measures of stress that arise from the absence of a unifying case definition. In the epidemiological occupational health domain the lack of a guiding model for research makes it difficult to draw comparisons between and within surveys that would enable an estimation of whether Britain is on target to meet the 2010 targets for the reduction of work-related ill health incidence, work-related injuries and deaths, and related sickness absence (HSC, 2002; HSE, 2002). Work-related stress is a key element within these targets by virtue of being the second most commonly reported work-related ill-health problem in Great Britain. The Government targets commit all stakeholders to working together towards their achievement.

The Health & Safety Executive has decided that what is needed to facilitate progress towards achieving the 2010 targets is a case definition and companion assessment framework that affords stakeholder consensus and is capable of informing future epidemiological occupational health studies. It is precisely this that the Health & Safety Executive sought from this report. Together, a consensus case definition of work-related stress and associated assessment framework will afford two related benefits of specific interest to Healthy & Safety Executive:

Improved interpretation of work-related stress statistics: In light of methodological shortcomings within nationally representative surveys of work-related stress, accurate assessments of the ‘true’ level of the phenomenon are not currently possible.

Facilitation of the development of subsequent targets: Equipped with accurate assessments of the true level of work-related stress at a national level, governmental decision-makers will be better informed for revising the 2010 targets and setting targets for subsequent periods.

The Health & Safety Executive set three specific objectives for this research.

Objective 1

Review the concept of ‘case’ or ‘caseness’ as applied to work-related stress, and consider: the purpose to which different formulations have been put and the different methodologies employed, together with the advantages and disadvantages of each, the principle target systems (e.g. CNS, functional somatic syndromes, cardiovascular) as well as psychological/behavioural domains.

This first objective was considered in Chapters three and four which described (i) the various stakeholder groups with a vested interest in the modelling of a case definition in relation to work-related stress, and (ii) existing approaches to case definition employed by these groups. The objective was considered through two parallel investigations. The first concerned the nature of the epidemiological surveys recently conducted into work-related stress. While briefly reviewing their methods and findings, the main focus was on the case definition implicit in the methods used. The second investigation involved identifying key stakeholders from both domains (stress researchers, epidemiologists, lawyers, trades unionists, employers and their representative groups, occupational health practitioners, psychiatrists, counsellors, insurers, policy makers) and harvesting information on (i) the case definitions employed in their various fields and (ii) their views on the feasibility of developing a single case definition that could span all domains while remaining consistent with epidemiological case definitions.

Objective 2

Summarise the review process, make recommendations and develop a model about how (from HSE's perspective) a 'case' or degree of 'caseness' can be best derived/defined.

The second objective was considered in Chapter two which described the research strategy used. Recommendations on the development of a consensus case definition were made in Chapter five. The conclusion drawn from the two studies was that no single and universal case definition was possible, largely because of the complex nature of work-related stress. It was apparent from stakeholders' views that stress could not, and should not, be treated as an 'illness' but rather presented as a 'process', where the emotional experience of stress largely resulted from exposure to psychosocial hazards at work and in the worst cases led to impairments of physical and psychological health of clinical and behavioural significance.

It was recognised that views on the feasibility of developing a single case definition in relation to work-related stress that could span all domains while remaining consistent with epidemiological case definitions would be a challenging task. Each case definition is designed for a specific purpose in a specific context and many do not possess sufficient flexibility to permit adaptation for purposes of achieving consensus across stakeholder groups. It was therefore deemed unviable to impose the specifics of one domain upon the other for reasons of both principle and practice. There was unanimous agreement amongst stakeholders on this point. Nonetheless, the development of a case definition suitable for use in epidemiological occupational health surveys, together with an associated assessment schedule, remained a priority and one on which consensus was achieved. The consensus case definition is described in Chapter 5. It is possible at this stage to achieve consensus on a case definition that supports the Health & Safety Executive's self-reported work-related illness surveys but is also consistent, at a general level, with the operation of civil law in relation to personal injury and related insurance claims.

Objective 3

Ensure recommendations for a definition are compatible with the measurement requirements (for HSE and stakeholder organisations): ability to be translatable into epidemiological tools with appropriate sensitivity and specificity and which are robust and simple enough to be used in surveys and in surveillance consistency in interpretation – so that meaningful and reliable comparisons can be made across different groups offer a degree of comparability with currently used data sources (e.g. self-reported work-related illness (SWI) surveys and surveillance schemes) capture severity/degree of caseness relevant to the needs of clinicians.

Chapter 6 concerns translation of the case definition into an epidemiological assessment framework that is receptive to development into an assessment tool suitable for administration by lay interviewers. An assessment framework utilising a series of decision rules is presented. Waldenström et al (2002) has previously observed the difficulty of achieving consensus on the approach to measuring the relationship between psychosocial working conditions and health and noted that models of the relationship that guide the best research fall into two broad categories: those that employ models of disease aetiology involving multiple risk factors and those that attempt to measure characteristics of the psychosocial work environment, stress and ill-health independently, with particular focus on objectively measured work characteristics. The assessment strategy proposed in Chapter 6 is essentially a hybrid of the two contrasting approaches in that a multi-factorial approach to aetiology is adopted with the emphasis on subjective experience.

8.2 THE IMPORTANCE OF CONSENSUS

Obtaining consensus on a case definition in relation to work-related stress, that is receptive to translation into an assessment framework suitable for use in epidemiological surveys, proved no easy task. The research strategy outlined in Chapter 2 was designed so as to incorporate as wide a spectrum of stakeholder opinion as practicably possible on the notion of case definitions for work-related stress generally and the development of an epidemiological occupational health case definition specifically. A number of differing case definitions exist, each designed as fit for a specific purpose in a specific context and some stakeholder groups are understandably resistant to the modification of case definitions that have proven fit for purpose or that have satisfied a specific agenda. The case definition and assessment framework contained in this report were, in accordance with the terms of reference, arrived at by consensus and agreed suitable for the study of work-related stress in an epidemiological occupational health context. This was verified by the expert validation panel (see Chapter 7).

In upholding the paramount importance of consensus it was necessary to make compromises in the construction of the case definition and assessment framework. Such compromises might have limited their utility outside of the epidemiological occupational health domain but, nevertheless, served to ensure agreement on the efficacy of the case definition and assessment framework within the domain for which it was designed. In achieving consensus, the contents of this report may help to influence the design of future epidemiological occupational health studies, and in doing so encourage researchers to adopt a holistic perspective of the stress process rather than focus on a limited number of the separate elements of that process. The results of research that considers not only psychosocial hazard exposure on the one hand, or stress 'reactions' on the other, but takes an integrated view that encapsulates both these elements plus moderators and mediators of the relationship while also taking account of organisational evidence for purposes of triangulation and the establishment of validity, will offer an accurate indication of the prevalence of caseness in the working population and facilitate the setting of future targets for the continuing drive towards the amelioration of work-related stress.

8.3 DEVELOPMENT OF A CASE ASSESSMENT SCHEDULE

The schedule outlined in Chapter 6 offers a framework for assessment that is consistent with the case definition described in Chapter 5. It was beyond the remit of this report to make suggestions on the suitability of existing or new measures of each component of the case definition and to offer

specific guidance on case thresholds to be applied within an algorithm for assessment of caseness. These aspects require further consideration. Research is planned in this regard.

Obtaining consensus on the optimal approach to measurement of psychological ill health that accords with the restricted definition advanced in Chapter 4 might not present a difficulty owing to the high degree of consensus and scientific evidence available to support the use of measures such as the GHQ. In contrast, the expert validation exercise (Chapter 7) highlighted the difficulty in making an assessment on the meaning of psychosocial hazard exposure to an individual and the dearth of research available to assist in making judgments in this regard in the epidemiological occupational health context. The role of moderating factors, including coping resources, is of crucial importance here. Likewise, the measurement of confounding individual differences and circumstance presents a number of challenges, particularly in relation to case thresholds for constructs such as social support and negative affectivity. The expert validation exercise highlighted a concern among some subject matter experts in regard to the measurement of changes in work behaviour that might arise out of work-related stress. The measurement of absence arising from work-related stress warrants further research, as does the notion of presentation to a general practitioner with symptoms ascribed to work-related stress as sufficient evidence of a change in work behaviour. A programme of further research is planned to explore these measurement issues at a greater level of granularity than was possible in the current project with a view to the development of an effective epidemiological occupational health work-related stress caseness assessment schedule.

The forthcoming research programme will endeavour to identify well established and psychometrically proven instruments and new shorter scales or single items. The former are attractive in that their internal properties are often excellent. However, their situational utility may be poor, especially where they are excessively long for application in an epidemiological survey. The use of new shorter scales might overcome the problems of a lack of situational utility inherent in many established measures if the reliability and validity of such new measures can be demonstrated.

8.4 CONSISTENCY BETWEEN EPIDEMIOLOGICAL AND COMMON LAW CASE DEFINITIONS

The issue of establishing a case definition for work-related stress is important in two different domains within the context of the current research report. First, it is needed in occupational health epidemiology as the basis for surveillance, and for monitoring the effectiveness of interventions. Second, it is important in civil litigation, employee liability insurance and industrial injury compensation domains. While it was recognised by the authors at the outset that it might not be possible to resolve the different requirements and practices of these two broad domains to produce a single useable case definition, it was also thought important that any model developed for application in epidemiological surveys should nonetheless be broadly compatible with thinking and practice in other domains. In this regard, the research identified a number of points of particular interest:

- (1) The case definition applied within common law claims for personal injury arising out of work-related stress exists as the key reference point for most stakeholder groups in defining cases of work-related stress.

- (2) A high degree of uncertainty was evident across stakeholder groups within and without the legal profession concerning the make-up of the common law personal injury case-definition. In particular, the centrality of psychosocial risk assessment to the case-definition was not widely recognised.
- (3) There is a need for clear guidance on the make-up of the case-definition for personal injury arising out of work-related stress that could guide employers and employees in judging the merits of a potential claim. Such guidance should also address case-definitions inherent in emerging legal routes for seeking compensation for work-related stress such as claims for disability discrimination, unfair and constructive dismissal where work-related stress is alleged and claims in negligence for breach of implied term of mutual trust and confidence.
- (4) The case definition applied in personal injury litigation involves applying ordinary principles of employer liability to stress. These principles have proven adequate for many physical hazards and injuries; they are less suited to psychosocial hazards and stress-related injuries associated with the modern workplace. A number of shortcomings are evident that make it difficult to predict the outcome of claims and prevent many injured employees from seeking compensation.
- (5) There is a need for psycho-legal research that seeks to identify and address the shortcomings and areas of uncertainty and ambiguity within the case-definition of work-related stress applied in personal injury litigation. Theory and evidence from the field of applied psychology may, for the first time, be creatively applied in this respect.
- (6) The necessary research (outlined in point 5 above) would help to generate recommendations on the development of the law in this area.

To these ends, a further programme of research has commenced. Results will be published in due course.

8.5 WORK-RELATED STRESS AS AN OCCUPATIONAL ILLNESS

Stakeholder interviews conducted for this report indicated that a growing number of employers consider work-related stress to be akin to an occupational illness within occupational safety and health frameworks. This is at odds with existing industrial injury compensation and case law provision. Nevertheless, numerous organisations have found it beneficial to consider work-related stress as such when defined in a restricted form to encompass psychiatric illness, primarily in the form of anxiety and depression. As recently as 2004, the Industrial Injuries Advisory Council recommended that work-related stress should not join the prescribed list of occupational illnesses and indeed the European Commission has suggested that efforts to incorporate work-related stress into such compensation schemes might be misguided (EUROGIP, 2004). It has argued that the varied nature of psychological and physiological stress reactions challenges the inclusion of work-related stress in such lists, believing instead that it is more appropriate to adopt systems that allow each case to be considered on its merit. Nevertheless, the willingness of employers to consider work-related stress in this context raises interesting questions about future compensation policy. Further research is warranted in this regard.

Three stakeholder groups in particular, employers' representative groups, legal professionals and insurers, noted the challenges in their particular domains arising from the absence of an

authoritative list of illnesses that might be stress related and an assessment schedule for judging the work-relatedness of those illnesses. For litigation, insurance and workplace stress management purposes, such authoritative guidance is considered by desirable by these stakeholder groups. The multifactorial nature of work-related stress renders the construction of guidance in this regard extremely complex. Nevertheless, research is warranted that seeks to more clearly define those stress-related illnesses that might be associated with work and identify circumstances where, on the balance of probabilities, work is a contributory factor. Calls were also made by these same stakeholder groups for guidance on the nature of illnesses associated with exposure to particular psychosocial hazards. Research of this type may be especially difficult owing to the idiosyncratic nature of the stress process. However, large scale analysis of data collected by the HSE within the Management Standards for work-related stress programme of work might allow some tentative links to be established between the nature of psychosocial hazard exposure and particular manifestations of ill-health.

8.6 STRESS-SPECIFIC LEGISLATION

Both studies described in this report identify the dominance of the legal case definition of work-related stress applied within personal injury litigation for psychiatric illness arising from stress at work. This is a somewhat fluid definition, open to interpretation by the courts, and one that has generated a good deal of controversy. Indeed, many stakeholders interviewed as part of the second study, with the notable exception of some representatives of the insurance industry, raised concerns about the current case definition surrounding a stress-related claim arising out of employer negligence on the grounds of its suitability for purpose and clarity. The complexity of the legal case definition is heightened by the rise in stress-related claims in recent years through employment law channels, in particular, on grounds of contract and discrimination. Legal definitions are central to the caseness debate and to defining employer duties in the context of the organisational management of work-related stress.

Many interviewed stakeholders, particularly those from legal and trades unions domains, expressed the view that legislation specific to work-related stress would be welcomed. An initial step in the development of specific law in this area must be the generation of a case definition and assessment schedule that is agreeable to the legal community. The epidemiological case definition and assessment schedule presented in this report is not inconsistent with the model applied within personal injury claims in negligence, but in its current form lacks the rigour necessary to satisfy legal criteria. In the judgment in *Hatton v Sutherland* [2002] EWCA Civ 76, Hale LJ issued a series of practical propositions which in essence were designed to act as a guiding framework for litigators in deciding the merits cases. The practical propositions have generated an enormous amount of debate. Further research is warranted to explore the notion of developing a consensus case definition of work-related stress and associated assessment schedule, which in addition to being agreeable to all vested interest parties, would afford consistent application in the courts that in turn would permit accurate predictions on likely outcome in terms of findings regarding employer liability.

8.7 THE ROLE OF THE GENERAL PRACTITIONER

The derived case definition makes reference to changes in work-behaviour that might have arisen in response to work-related stress. On consideration of the interview data and the research literature, it was argued that three particular measures might suffice:

- the assessment of absence from work of more than 3 days due to illness
- the fact or frequency of visits to the general practitioner or occupational health specialist
- the fact of subsequent treatment for ill health.

The views of interviewed stakeholders were somewhat polarised on the utility of information about presentations to a general practitioner or occupational health specialist where work-related stress is alleged. It was acknowledged that reference to information of this sort serves a useful purpose in regard to triangulation of evidence. Nevertheless, general practitioner evidence remains a contentious area both in epidemiology and in case law. A number of recent civil cases for personal injury arising from work-related stress have centred on general practitioner sick note evidence. There appear to be two particularly difficult issues here: First, the willingness of general practitioners to sign employees off sick with 'stress' and, second, the reluctance of some employees who suffer from stress-related symptoms, particularly highly paid professionals, to obtain a sick note that makes reference to psychological ill health. Failure to obtain an appropriate sick note can have disastrous consequences for the success of work-related stress litigation. Further research is required that to consider the benefits and shortcomings of reference to general practitioner evidence in occupational health epidemiology and civil litigation and to explore suitable alternatives or refinements to current practices.

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