

# WORK-RELATED MENTAL DISORDERS IN AUSTRALIA

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Australian Government

Australian Safety and Compensation Council

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CONTENTS

ACKNOWLEDGMENTS ..... IV

EXECUTIVE SUMMARY ..... V

1. GENERAL OVERVIEW OF WORK-RELATED MENTAL DISORDERS ..... 6

2. OCCUPATIONAL STRESS ..... 6

3. THE HEALTH AND PERFORMANCE EFFECTS OF STRESS ..... 10

4. MAGNITUDE AND SEVERITY OF WORK-RELATED MENTAL DISORDERS 11

5. SYSTEMATIC OHS MANAGEMENT OF STRESS ..... 21

6. EVALUATION OF PREVENTION APPROACHES ..... 22

7. NATIONAL PREVENTION ACTIVITY ..... 23

## FOREWORD

The Australian Safety and Compensation Council (ASCC) leads and coordinates national efforts to prevent workplace death, injury and disease in Australia and aims to improve national workers' compensation arrangements and return to work of injured employees.

Through the quality and relevance of the information it provides, the ASCC seeks to influence the awareness and activities of every person and organisation with a role in improving Australia's occupational health and safety (OHS) performance.

The *National OHS Strategy 2002-2012*, (the National Strategy) which was endorsed by the Workplace Relations Ministers' Council on 24 May 2002, records a commitment by all Australian, State and Territory governments, the Australian Chamber of Commerce and Industry and the Australian Council of Trade Unions, to share the responsibility of ensuring that Australia's performance in work-related health and safety is continuously improved.

The National Strategy sets out five 'national priorities' to achieve short-term and long-term improvements.

The priorities are to:

- reduce high incidence and high severity risks
- improve the capacity of business operators and worker to manage OHS effectively
- prevent occupational disease more effectively
- eliminate hazards at the design stage, and
- strengthen the capacity of government to influence OHS outcomes.

In March 2004 it was agreed by the then National Occupational Health and Safety Commission (NOHSC) that, under the national priority to prevent occupational disease more effectively, eight disease categories would be considered for particular focus under any national action plan. These are work-related musculoskeletal disorders; mental disorders, noise-induced hearing loss; respiratory diseases; occupational cancers; contact dermatitis; infectious and parasitic diseases, and cardiovascular disease.

To assist the setting of national action priorities to prevent these diseases, reports were prepared for members on each disease category. The following report is an extract of the information provided to members on the causes and risk factors for cardiovascular disease, the available data on the magnitude and severity for the disease category within Australia, approaches to prevention and evidence for their effectiveness.

## **ACKNOWLEDGMENTS**

This report was prepared for NOHSC by staff within the Office of the Australian Safety and Compensation Council: by Dr Peta Miller, Su Mon Kyaw-Myint, Majid Hmeidan, and Helen Burbidge.

Peer review of this paper was undertaken by Associate Professor Wendy Macdonald of La Trobe University, Melbourne.

## EXECUTIVE SUMMARY

A priority area of the National Occupational Health and Safety Strategy 2002-2012 (National Strategy) is the more effective prevention of occupational disease. Work-related mental disorders have been identified as one of the eight occupational disease or disorder categories to be addressed over the life of the national strategy.

This profile was limited to reporting what is understood by work-related mental disorders, available data on magnitude and severity of 'mental stress', industries and occupations where claims are the highest.

Worldwide there has been an increase in work-related mental disorders, affecting all industries and professions. In Australia, the cost of workers' compensation claims for stress-related mental disorders is estimated at \$200 million every year. A similar trend is evident in Europe where the most commonly reported, work-related health problems are musculoskeletal, depression and burnout syndromes.

The major causative mechanism of work-related mental disorders recorded in the National Data Set is mental stress, and this is the focus of this paper. Mental stress itself is coded as caused by work pressure, harassment, workplace or occupational violence, exposure to a traumatic event, suicide or attempted suicide and other mental stress factors. For the three-year period from 2001-2003, the highest number of mental stress claims were due to *exposure to a traumatic event* and *work pressure*. There has been a significant increase in the incidence of mental stress claims due to *work pressure* from 2002 to 2003 and it has become the most common mechanism for mental stress in 2003.

Although in 2002 mental stress claims comprised 5% of all workers' compensation claims in Australia, this mechanism of injury/disease recorded the highest median claims cost (\$9,700) and the second highest average cost (\$16,400) as a result of the very high median and average time lost for this mechanism.

Using the NDS data the industries with the highest claim numbers or incidence were *health and community services*, and *education and personal and other services*. The occupational groups with the highest claims were *professionals*, and *intermediate clerical, sales and service workers*. However, a further breakdown of occupational groups reveal that *police officers*, *prison officers* and *social welfare professionals* and *school teachers* had extremely high incidence rates for mental stress claims.

For a comprehensive discussion of causes and preventative approaches to stress, readers are directed to reports published by Australian OHS jurisdictions listed under Section 2.2.

# 1. GENERAL OVERVIEW OF WORK-RELATED MENTAL DISORDERS

## 1.1 Overview

A priority area of the national strategy is the more effective prevention of occupational disease. Work-related mental disorders have been identified as one of the eight occupational disease or disorder categories to be addressed over the life of the national strategy.

This profile will report on: what is understood by work-related mental disorders; available data on magnitude and severity of 'mental stress'; and industries and occupations where claims are the highest. For a comprehensive discussion of causes and preventative approaches to stress, readers are directed to reports published by OHS jurisdictions listed under Section 2.2.

## 1.2 Definition of Work-Related Mental Disorders

This report confines itself to discussion on work-related mental disorders associated with mental stress. Mental stress is identified as the causative mechanism of each of the following work-related mental disorders; stress, anxiety, depression, nervous breakdown, and effects of witnessing traumatic events. Mental stress can be caused by exposure to a traumatic event, exposure to workplace or occupational violence, harassment, work pressure, and suicide or attempted suicide.

Mental stress is not a clinically diagnosable 'health condition'. Rather, it is a state in the individual that increases the risk of developing one or more of a wide range of physical and mental disorders, which, by definition, are clinically-defined health conditions or illnesses. Further confounding the issue is the fact that extreme levels of 'stress', such as those following a traumatic event, may cause psychiatrically-significant symptoms without the development of a classifiable 'mental disorder'. Such experiences are common and do not normally progress to become diagnosable disorders. The extent to which exposure to stressful episodes will be associated with the development of a psychiatric injury will be dependent upon a range of organisational factors and individual factors (Large 2001).

## 2. OCCUPATIONAL STRESS

Occupational stress may be a reaction people may have when faced with factors such as excessive work pressures, conflicts between individuals, and lack of clear direction from the management and they have inadequate resources to cope. It is exacerbated by little support from colleagues and supervisors (Loss Prevention Council 1998). NIOSH has defined stress as being *the harmful physical and emotional responses that occur when the requirements of the job do not match the capabilities, resources or needs of the worker* (NIOSH 1999).

## 2.1 Types of Mental Disorders Attributable To Occupational Stress

Mental stress can be either acute or chronic in nature. Acute stress is defined as a rapid response to an abrupt, easily-identified cause that will often respond positively to some form of intervention. A return to normal life within a short time period is expected for the majority of people who experience an acute stress response (Kendall et al. 2000).

Chronic stress is a cumulative reaction to a build up of pressures over a long period of time. It begins gradually and proceeds slowly. Chronic stress usually manifests itself in various ongoing physical and/or psychological symptoms such as hypertension, withdrawal and depression.

Mental disorders attributed to work-related stress include the following:

- post-traumatic stress disorder;
- burn-out;
- adjustment disorder; and
- depression and anxiety.

### 2.1.1 Post-Traumatic Stress Disorder (PTSD)

There is an accumulation of evidence suggesting that PTSD is a discrete entity with biochemical, neuroanatomical and phenomenological characteristics which differentiate it from other psychiatric disorders. For example, recent research on the neurobiology of severe stress has shown a breakdown of the blood-brain barrier, changes in neuronal function, altered gene expression and abnormal neurotransmitter production (Mezey and Robbins 2001). In addition, PTSD increases the risk of developing other psychiatric disorders (Kessler et al. 1999).

There is some difficulty in defining the type of event which has the capacity to elicit a pathological response. Butler (2002) divides traumatic stressors into three broad types:

- TIME LIMITED stressors - characterised by high intensity and the unpreparedness of the victim for the traumatic event;
- SEQUENTIAL stressors - which possibly have a cumulative effect. Emergency service workers such as police are particularly vulnerable. Clarke and Cooper (2004) refer to 'cumulative trauma', the development of mental illness as a result of continual exposure to occupational stressors;
- LONG-LASTING EXPOSURE TO DANGER - may evoke feelings of uncertainty and helplessness resulting from repeated abuse and the disruption of a basic inner sense of security.

### 2.1.2 Burnout

Those who are subject to the emotional pressures of working intensively with other people are at risk of burnout. Freudemberger (1975) describes burnout as the ultimate emotional exhaustion of workers who, under increasing pressure to help others, demand more of themselves than they are able to

give. The condition is most commonly seen in occupations involving the provision of care such as health and community services, and teaching. Burnout is characterised by a sense of lack of accomplishment, overload and exhaustion. It is particularly relevant to occupations such as palliative care or social work in which intervention is seen to have limited impact. The main factors identified as causing burnout in the health-care system are lack of time and inadequate training (Maslach and Jackson 1981). Potentially, burnout affects not only the employee but also the recipient of the care.

### **2.1.3 Adjustment Disorder**

This disorder occurs when an individual is unable to cope and develops behavioural or emotional symptoms. There are many different sub-types of adjustment disorders, including adjustment disorder with:

- depression;
- anxiety; and
- mixed anxiety and depression (American Psychiatric Association 1994).

### **2.1.4 Depression and Anxiety**

Symptoms of depression may include the following:

- depressed mood;
- difficulties in concentration or making decisions;
- feelings of worthlessness and guilt; and
- social withdrawal and agitation.

Symptoms of anxiety may include:

- overwhelming feelings of panic and fear;
- uncontrollable obsessive thoughts;
- painful, intrusive memories; recurring nightmares; and
- nausea, sweating, muscle tension (American Psychiatric Association 1994).

## **2.2. Main Causes Of Occupational Stress**

There are a number of theories used to determine the causes of stress. Each model incorporates key work variables and symptoms of stress. Although each theory proposes different combinations of factors to account for the antecedents and consequences of stress, most of the evidence points to aspects of the work environment which contribute to the experience of stress in the individual. A common set of work characteristics have been identified as risk factors for occupational stress and they are described in the Table 1 on the next page (Comcare 2003).

**Table 1. Work characteristics and occupational stress**

<b>Aspects of the Work Environment</b>	<b>Conditions causing hazard</b>
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/over-promotion, poor pay, job insecurity, low social value to work
Decision latitude/control	Low participation in decision-making, lack of control over work
Interpersonal relationships at work	Social/physical isolation, poor relationships with superiors, conflict, lack of social support, bullying
Home/work interface	Conflicting demands of work and home, low support at home
Work environment and work equipment	Problems regarding reliability, availability, suitability and maintenance or repair of equipment and facilities
Task design	Lack of variety or short work cycles, fragmented or meaningless work, under-use of skills, high uncertainty
Workload/Workplace	Work overload/underload, lack of control over pacing, high levels of time pressure

In addition to these hazards, the individual's susceptibility to developing mental stress may be influenced by:

- type A behaviour;
- psychological hardiness;
- negative affectivity, cognitive distortions and negative thinking patterns; and
- coping style.

For a comprehensive discussion of the main models, theories and causes of mental stress, and of common approaches to stress prevention, readers are directed to recently published reports such as:

- New South Wales Premier's Department (Sept. 2003), *Occupational Stress – Hazard Identification and Risk Management Strategy*, NSW Public Employment Office, Australia. Available online at: [http://www.premiers.nsw.gov.au/our\\_library/workplace\\_safety/occupational\\_stress\\_hazard\\_risk.doc](http://www.premiers.nsw.gov.au/our_library/workplace_safety/occupational_stress_hazard_risk.doc)
- WA Workcover (2000) *Occupational Stress: Factors that Contribute to its Occurrence and Effective Management*. Available online at <http://www.workcover.wa.gov.au/PDF/Occupational%20Stress.pdf>.

- VWA (2003). *Stress in the workplace: Review of the evidence of stress in the workplace.*
- Comcare (Oct. 2003) Information paper: Incidence, causes and prevention of work-related psychological injury.
- Comcare, (2003), *Preventing and Managing Psychological Injuries in the Workplace: An Agency Heads' and Senior Managers' Guide & A Managers' Guide*, Canberra, Australia. Available online at: <http://www.comcare.gov.au/>.

### 3. THE HEALTH AND PERFORMANCE EFFECTS OF STRESS

A recent meta-analysis of psychological stress found chronic work-related stressors, which make pervasive demands, have a considerable psychological and physiological impact upon employee well-being (Segerstrom and Miller 2004). Quick *et al.* (1997) have emphasised the interdependent nature of individual and organisational health. They further argue that organisational stressors can create substantial ill health among employees and that distressed employees can create substantial organisational dysfunction.

The effects of stress upon the individual can be divided into three broad categories:

- PSYCHOLOGICAL – e.g. anxiety, depression, distress, adjustment disorders;
- BEHAVIOURAL – e.g. irritability, poor dietary behaviours, sleep disorders, cessation of physical exercise; and
- PHYSIOLOGICAL – e.g. raised blood pressure, elevated risk of cardiovascular disease<sup>1</sup>, musculoskeletal disorders<sup>2</sup> possibly some forms of cancer,<sup>3</sup> digestive disorders, tiredness, impaired immune competence, increase in obesity due to job strain (Dollard 2001).

It should be noted that stress may be only one of the factors contributing to the onset of the above effects. Although it is difficult to predict the specific illness due to stress, there is a sufficient body of evidence pointing to the association between stress and a range of negative psychological, physiological and behavioural outcomes. In turn, the above effects of stress in the individual can affect the organisation negatively as detailed below (Greehaus and Parasuraman 1987):

- absenteeism;
- greater staff turnover;
- negative commitment to work;
- unsafe working practices and accidents;
- increased incidence of litigation over stress-related issues;
- decreased productivity; and
- poor morale.

<sup>1</sup> These have been addressed separately in the cardiovascular disorders paper.

<sup>2</sup> These have been addressed separately in the musculoskeletal disorders paper.

<sup>3</sup> These have been addressed separately in the occupational cancer paper.

## 4. MAGNITUDE AND SEVERITY OF WORK-RELATED MENTAL DISORDERS

In Australia, the cost of workers' compensation claims for stress-related mental disorders is estimated at \$200 million every year (NOHSC 2003). A similar trend is evident in Europe where the most commonly reported work-related health problems are musculoskeletal, depression and burnout syndromes (European Foundation for the Improvement of Living and Working Conditions 1999).

### 4.1 National Health Survey (NHS)

The National Health Survey was carried out by the Australian Bureau of Statistics (ABS) during Feb-Nov 2001 and included 26 900 people from across all states and territories. Almost one in ten people reported in the survey that they had a long-term mental or behavioural problem. The most commonly-reported problems were classified into two groups—anxiety-related problems and mood (affective) problems (each reported by approximately 3% of males and 6% of females). Respondents in the survey were not specifically asked whether they had been diagnosed with any mental disorders, therefore the information provided by the respondents could be based on self-diagnosis rather than diagnosis by a health professional. Hence, self-reported survey data on mental and behavioural problems are considered to be less reliable than other self-reported condition data.

To complement the data on long-term conditions, the ABS gathered additional information on mental health from adult respondents using Kessler 10 Scale (K10), a 10 item scale of current psychological distress. The K10 asks about negative emotional states in the four weeks prior to interview. The results from the K10 are grouped into four categories: low (indicating little or no psychological distress); moderate; high; and very high levels of psychological distress. Based on research from other population studies, a very high level of psychological distress, identified by the K10 may indicate a need for professional help.

Almost two-thirds (64%) of adults were classified to low levels of psychological distress, 23% to moderate levels, 9% to high levels and 3.6% to very high levels. Proportionally fewer males than females, across most age groups, reported high to very high levels of distress; of those who have very high levels of distress, 63% were female.

When results from the K10 study was compared with those from the *1997 Survey of Mental Health and Well Being*, relatively more people experienced moderate or higher levels of psychological distress in 2001 (36%) than in 1997 (26%). In 1997, almost one in five adults were classified as experiencing moderate (18%) psychological distress with a further 6% experiencing a high level and 2.2%, a very high level of psychological distress.

Approximately one in five (18%) adults reported that in the previous two weeks they had used some medication for their mental wellbeing. Of those who had used medication, 53% had used pharmaceutical medications, 43% had used vitamin and mineral supplements and 30% had used other natural

or herbal treatments. The most common pharmaceutical medications used were antidepressants (26% of those using medications), sleeping tablets (23%) and medications for anxiety or nerves (11%). Use of medications was higher among females than males overall (22% and 14% respectively), for all medication types and across most age groups. Use of medications was generally higher in older age groups. For example, 10% of males and 16% of females aged 75 years and over used sleeping medications compared with 3% and 5% respectively for the whole adult population.

A summary of results for the NHS can be found at this link:

<http://www.abs.gov.au/Ausstats/abs@.nsf/0/cac1a34167e36be3ca2568a900139364?OpenDocument>.

## 4.2 NDS data

The National Data Set for Workers' Compensation claims (NDS) remains the most reliable source of data regarding the incidence of work-related mental disorders in Australia. Current NDS data uses the second edition of Type of Occurrence Classification System (TOOCS) for coding workers' compensation claims. Under this system, mental disorders include stress, anxiety, depression, nervous breakdown, effects of witnessing traumatic events, effects of involvement in a hold-up, victim of harassment, hyperventilation (hysterical or psychogenic), hysterical symptoms, phobias, and obsessional and compulsive disorders.<sup>4</sup>

As discussed in section 1.2, mental stress is the mechanism of disease/injury for work-related mental disorders. In 2003, 94.1% of all mental disorder claims were due to mental stress, and the majority of the remaining cases were due to being hit by a moving object. Mental stress can be coded as caused by the following mechanisms:

- exposure to a traumatic event;
- exposure to workplace or occupational violence;
- harassment;
- work pressure;
- suicide or attempted suicide; and
- other mental stress factors.

In this report, unless specified otherwise, all data reported will be those due to mental stress.

### 4.2.1 Limitations of Analysis Based upon NDS Data

It is likely that compensation claims statistics underestimate the true incidence and cost of work-related mental disorders. This is because the data do not account for the following workers who:

- suffer a work-related mental disorder and take ordinary sick leave or other leave entitlements;

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<sup>4</sup> It is noted that the 3<sup>rd</sup> edition of TOOCS, which will come into effect in 2007, is more specific, and lists compensable mental diseases as: post-traumatic stress; anxiety stress disorder; depression; anxiety/depression combined; short-term shock from exposure to disturbing circumstances; reaction to stressors (other, multiple or not specified); other mental disease (not elsewhere classified); and mental disease unspecified.

- simply leave a stressful employment situation without claiming compensation;
- attend work with diminished capacity;
- do not lodge a compensation claim due to the stigma of being diagnosed with a mental disorder;
- feel unable to satisfy the causal requirements of a claim; and
- have negative symptoms which will fall into other disease categories, such as musculoskeletal or coronary heart disease.

Accordingly, it can be asserted with confidence that the NDS data represent the most conservative estimate of work-related mental disorders.

#### 4.2.2 Stress Claims

Between 1992-93 and 2000-01, there was an 89% increase in the total number of claims where stress was nominated as the mechanism of disease or injury. The number of stress claims as a percentage of total claims first peaked in 1994-95 at 4.3% and declined to 2.6% in 1996-97. However, the percentage of stress claims has since been increasing steadily, again reaching 4.4% in 2000-2001.

Table 2 (below) demonstrates that the average cost per stress claim and duration of absence for all nine years has been higher than for other claim types.

**Table 2. The number, time-off and cost of stress claims (1992-2001)**

YEAR	No of Stress* claims	% of Total claims	Average Absence per stress claims in weeks	Average Absence for all claims in weeks	Average Cost per stress claim \$	Average cost for all claims \$
1992-93	3682	2.9	20.9	9.7	21 100	10 300
1993-94	4893	3.4	20.1	9.7	19 400	10 000
1994-95	6392	4.3	20.8	11.4	25 400	19 100
1995-96	5537	3.3	18.9	11.3	28 600	23 000
1996-97	4108	2.6	23.4	14.9	30 300	25 200
1997-98	4574	2.9	23.2	14.7	32 500	24 000
1998-99	5368	3.6	24.8	14.4	31 500	21 900
1999-00	5499	3.7	22.7	13.2	27 400	19 100
2000-01	6513	4.4	23.9	13.4	25 300	15 400

Examination of claims data for 2001-2003 reveals that the number of mental stress claims has increased during this period, from 6513 to 7475. Between 1998 and 2002, mental stress claims increased from a total of 18.4% of all disease claims to 30.1% of all disease claims (Table 3 next page).

Accordingly, there has been an increase on the part of the jurisdictions to act to reduce the number of these claims.

**Table 3: Mental Stress\* Claims as a Percentage of all Disease Claims**

Sector/Jurisdiction	1998	1999	2000	2001	2002
ACT Private	n.a	n.a	43.0	37.4	33.7
ACT Gov't	43.1	30.9	36.2	29.3	25.5
Commonwealth	38.4	34.9	28.4	28.4	23.1
NSW	22.7	21.9	21.0	24.8	28.2
NT	29.3	34.8	29.0	36.5	40.6
QLD	13.1	18	26.8	32.7	40.0
SA	13.0	15.6	14.3	16.8	20.4
SEACARE	0.0	0.0	0.0	0.0	0.0
TAS	33.9	34.3	34.3	30.5	36.8
VIC	n.a	25.7	29.6	35.3	36.6
WA	31.9	30.2	29.2	24.7	27.5
<b>AUSTRALIA</b>	18.4	22.8	23.7	27.1	30.1

\*Stress recorded as mechanism of disease

#### 4.2.3 Mechanism of injury for mental stress claims

The mechanism of injury for work-related mental disorders include exposure to a traumatic event, exposure to workplace or occupational violence, harassment, work pressure, suicide or attempted suicide and other mental stress factors.

For 2001-2003, on average the largest number of stress claims was due to *exposure to a traumatic event* followed by *work pressure* (Table 4). The third largest number of claims was due to *other mental stress factors*. Examining data by each year revealed that although *exposure to a traumatic event* was the mechanism with the highest number of claims for 2001-02, it was only the third highest mechanism in 2003. This appears to be due to a dramatic decline in the number of cases due to *exposure to a traumatic event* in 2003, from 3398 to 1008, the reason for which is unclear. The number of claims attributed to *work pressure* increased over 2001-2003. Between 2002 and 2003, the number of cases due to *other mental stress factors* increased by a factor of 4, from 495 to 1955. The number of claims for *exposure to workplace violence* has been increasing for the three-year period, going from 353 in 2001 to 451 in 2003. A decline in the number of cases for *harassment* and *suicide or attempted suicide* was reported and this was probably due to the new coding options under TOOCS 2.1.

**Table 4: The number of stress claims by mechanism of injury/disease (2001-2003)**

Mechanism of Injury or Disease	2001	2002	2003	Total (mechanism)
<b>Exposure to a traumatic event</b>	3060	3398	1008	<b>7466</b>
Exposure to workplace or occupational violence	353	466	875	1694
Harassment	606	732	451	1789
<b>Work Pressure</b>	1921	1922	2560	<b>6403</b>
Suicide or attempted suicide	18	12	10	40
Other mental stress factors	518	495	1955	2968
<b>Total (year)</b>	<b>6476</b>	<b>7025</b>	<b>6859</b>	

Due to the changes to the NSW coding system in 2003, additional analysis was carried out excluding the data from NSW for the year 2003. This allowed for the examination of cases that used the same coding system and should provide a more accurate presentation of the overall data for Australia.

Table 5 (below) shows that for 2003 (excluding NSW), *work pressure* was still the mechanism causing the largest number of stress claims, followed by *exposure to workplace violence* and *other mental stress factors*. However, the large increase in the number of cases due to *other mental stress factors*, which was observed in the completed data set, was not seen, theoretically, due to NSW coding a large number of claims to this mechanism.

**Table 5: Percentage of mental stress cases by mechanism of injury or disease (excluding NSW), 2003**

Mechanism of injury/disease	Percentage of all stress claims
Exposure to a traumatic event	10.7
Exposure to workplace or occupational violence	13.8
Harassment	11.5
<b>Work Pressure</b>	<b>49.5</b>
Suicide or attempted suicide	0.2
Other mental stress factors	13.5
<b>Total</b>	<b>100</b>

#### 4.2.4 Mental Stress Claims by Industry – Australia

Table 6 (next page) itemises the industries by the total number of stress claims for the years 2001, 2002 and 2003. The table then provides a percentage figure (of total claims) of total mental stress claims over that three-year period. The three industries with the highest number of claims, as well as the highest percentage of total mental stress claims, are:

- health and community services with 19% of total mental stress claims;

- education with 18% of total mental stress claims; and
- personal and other services with 11% total mental stress claims.

It is also interesting to note that *personal and other services* had the highest incidence (of claims per 1000 employees) in each of the three years of data, i.e. 2.7 in 2001, 2.7 in 2002 and 2.6 in 2003. The only other incidence above 2.0 was observed for *education* in 2003 (2.2).

**Table 6: Mental stress claims and incidence by industry, 2000-01 to 2002-03**

Industry	Claims			Grand Total	Incidence (claims per 1000 employees)			% of total mental stress claims
	2001	2002	2003		2001	2002	2003	
<b>Health and community services</b>	1259	1361	1443	4064	1.5	1.5	1.6	<b>19%</b>
<b>Education</b>	1098	1159	1484	3741	1.8	1.8	2.2	<b>18%</b>
<b>Personal and other services</b>	763	815	825	2403	2.7	2.7	2.6	<b>11%</b>
Retail trade	607	583	544	1734	0.5	0.5	0.4	8%
Government administration and defence	403	469	586	1457	1.1	1.1	1.3	7%
Property and business services	436	492	517	1444	0.4	0.5	0.5	7%
<b>Transport and storage</b>	444	507	492	1443	1.2	1.4	1.4	<b>7%</b>
<b>Manufacturing</b>	374	399	382	1156	0.4	0.4	0.4	<b>5%</b>
Finance and insurance	307	336	328	971	1.0	1.0	1.0	5%
Accommodation, cafes and restaurants	303	333	272	909	0.7	0.7	0.6	4%
Wholesale trade	155	197	171	523	0.4	0.5	0.4	2%
Cultural & recreational services	117	142	142	401	0.6	0.6	0.6	2%
<b>Construction</b>	99	132	124	355	0.2	0.3	0.3	2%
Communication services	51	69	69	189	0.3	0.5	0.5	1%
Agriculture, forestry and fishing	25	34	47	105	0.1	0.2	0.3	1%
Mining	39	19	18	77	0.5	0.3	0.2	0%
Electricity, gas and water supply	29	19	28	76	0.4	0.3	0.4	0%
Australia	6514	7066	7473	21053	0.8	0.9	0.9	100%

The National OHS Strategy has identified construction; manufacturing; retail and wholesale trade; transport and storage; and health and community services as priority industries. Health and community services is the industry not only with the highest number of mental stress claims for the three-year period 2001-03, but it also has the highest percentage of mental stress claims at 19%.

Apart from the health and community services industry, the mental stress incidence of other priority industries is relatively low. This signifies the importance of performing industry specific analysis when developing effective intervention strategies.

Using NDS data, excluding NSW, the industries with the highest number of claims for 2003 are set out below.

- Health and community services – Apart from having the highest number of claims, this industry also had the highest incidence. For the three years 2001-03, this industry had a total number of claims of 4064. However, the total number of claims for this industry, excluding NSW, was 2337, indicating 1727 claims were from New South Wales.
- Education – This industry had the second highest incidence with a total number of claims of 3741 for the three-year period 2001-03, while the education total for the same period, excluding New South Wales, was 2049, indicating 1692 claims came from New South Wales.
- Personal and Other Services – This industry had the third highest incidence, with a total number of claims of 2,403 for the three period 2001-03., However, the total number of claims for the same period, excluding New South Wales, was 1614, indicating 787 claims came from New South Wales.

*Work-related harassment and/or workplace bullying* was coded for the first time in 2003. Below is the number of mental stress claims for selected industries (excluding NSW):

- |                                 |    |
|---------------------------------|----|
| • health and community services | 65 |
| • education                     | 56 |
| • personal and other services   | 32 |
| • transport and storage         | 8  |

The number of claims (excluding NSW) under the mechanism 'exposure to traumatic event', decreased over the three years except in the industry of *transport and storage*, which shows a significant increase from 59 claims in 2001, to 101 claims in 2002 to 105 claims in 2003.

#### **4.2.5 Mental Stress Claims by Age and Gender**

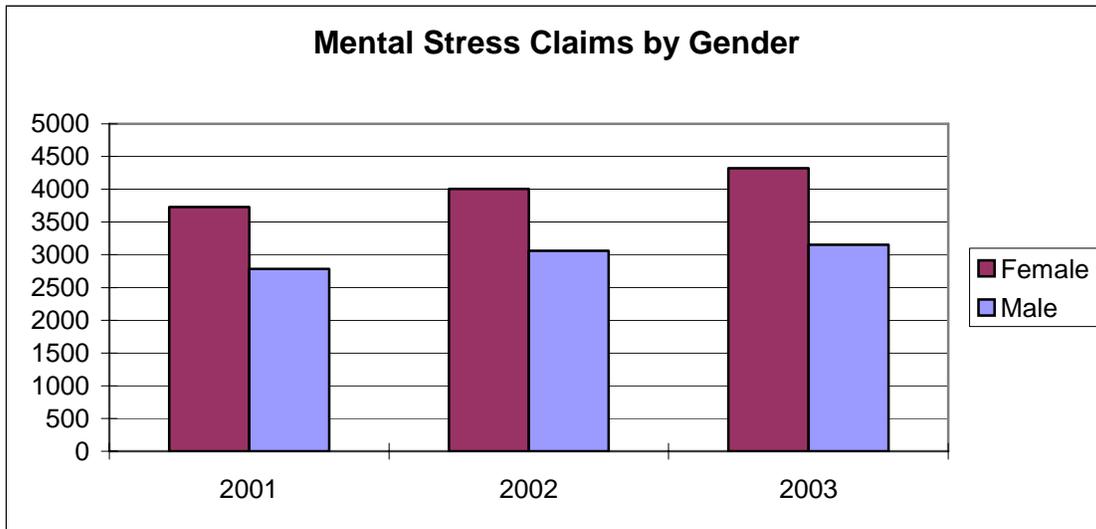
Table 7 (next page) shows the number of claims and the incidence of mental stress claims by age for 2001-2003. Both the number and incidence were similar for 40-44, 45-49 and 50-54 age groups and these three age groups reported the highest incidence. The data show that the incidence of mental stress claims steadily increased from the *less-than-20 year* age group to a peak at the *40-54 year* age group. The incidence declines after 54 years of

age and the rate for the 65+ age group is identical to that of the youngest age group.

**Table 7: Number and incidence of mental stress claims by age group – 2000-01 to 2002-03**

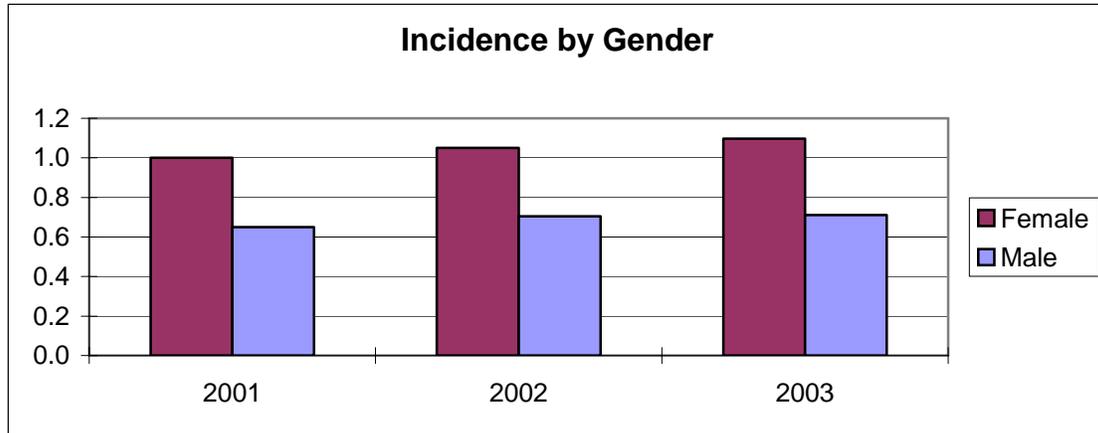
AGE GRP	Mental stress claims				Incidence
	YEAR				Grand Total
	2001	2002	2003	Grand Total	
<20	134	128	100	362	0.2
20-24	342	374	385	1101	0.4
25-29	629	649	625	1904	0.6
30-34	753	879	869	2500	0.8
35-39	935	946	972	2853	1.0
40-44	1088	1182	1280	3550	1.2
45-49	1106	1192	1285	3583	1.3
50-54	950	1047	1168	3165	1.3
55-59	454	528	604	1586	1.1
60-64	109	116	165	390	0.6
65+	12	24	21	57	0.2
<b>All ages</b>	<b>6514</b>	<b>7066</b>	<b>7473</b>	<b>21 053</b>	<b>0.9</b>

Gender differences in coping with occupational stress have been reported in the literature (Torkelson and Muhonen 2004). The number of stress claims for females was higher than that for males in 2001-03 (see Figure 1 below).



**Figure 1. The number of mental stress claims by gender, 2001-03.**

When incidence was compared by gender (Figure 2 next page), females also had a higher incidence than males for all three years. Mental stress claims for both genders increased each recorded year for 2001-03, with females recording a total of 12 056 mental stress claims compared with a total number of 8 997 for males. In contrast, the incidence for both genders increased between 2001 and 2002 but this increase was not seen for 2002-03.



**Figure 2. Incidence of mental stress claims by gender, 2001-03.**

#### 4.2.6 Mental stress and Occupations

The incidence of mental stress claims for the three years 2000-01, 2001-02 and 2002-03 was provided for nine occupations. The occupation groups 'professionals' and 'intermediate clerical, sales and service workers' showed not only an increasing number of claims each year but also recorded the highest incidence of the occupations listed of 1.2 and 1.0 respectively.

The next three occupation groups of 'associate professionals', 'elementary clerical, sales and service workers', and 'intermediate production and transport workers' had recorded incidence of 1.2, 0.7 and 0.7 respectively. Each occupation group recorded an increase in total claims from 2001 to 2002, but recorded a decrease in claims between 2002 and 2003.

An analysis of mental stress claims by selected occupation of ASCO3 (i.e. nursing professionals; school teachers; social welfare professionals; police officers; miscellaneous intermediate service workers; and road and rail transport drivers) revealed the following order of incidence over three years:

1. police officers - 7.1. The number of claims increased from 2001 to 2002 and decreased significantly in 2003. A breakdown by gender indicates an incidence of 6.3 for males and 10.5 for females for the total three-year period. *Work pressure* was the most common cause for mental stress claims.
2. social welfare professionals – 4.6. The number of claims increased slightly each year. A breakdown by gender indicates an incidence of 3.9 for males and 5.0 for females;
3. miscellaneous intermediate service workers – 2.5. The number of claims increased slightly each year. A breakdown by gender shows an incidence of 4.6 for males and 1.7 for females. *Other mental stress factors* and *work pressure* accounted for the majority of stress claims by this group
4. school teachers – 2.6. The number of claims increased each year. A breakdown by gender indicates an incidence of 3.1 for males and 2.4 for females over the three-year period. As the case with police

- officers, *work pressure* was the mechanism causing the largest number of stress claims.
5. nursing professionals – 1.3. The number of claims decreased each year. A breakdown by gender indicates an incidence of 1.2 for females and 2.3 for males over the three-year period;
  6. road and rail transport drivers – 1.3. There was an increase in claims from the first year to the second, however, a significant decrease from the second year to the third. A breakdown by gender indicates an incidence of 1.8 for females while the incidence for males is 1.2 over a three-year period.

A breakdown of ASCO4 – Personal and Other Services Industry Division to the level of 'prison officers' reveals an increase in claims in each reported year and a total incidence of 13.9. A further breakdown by gender indicates an incidence of 10.9 for males for the total three-year period, with a slight decrease in the number of claims from 2001 to 2002, but a significant increase in the number of claims from 2002 to 2003. The incidence for females is 30.4 with an increase in the number of claims each year. *Other mental stress factors* are the mechanism with the largest number of stress claims for this occupation.

As demonstrated by the data above, certain occupations, such as police officers, prison officers, and social welfare professionals, have an alarmingly high incidence of mental stress and marked gender differences were observed. For example, mental stress incidence for female prisoners in 2003 is particularly noteworthy at age 54.5. OHS prevention campaigns should target these occupations and the mechanisms *work pressure* and *other mental stress factors* as they were responsible for a large percentage of mental stress claims in these high-incidence occupations.

#### 4.2.7 Duration of Absence

The average time-off work due to mental stress has been decreasing between 2001-03 (from 27.7 weeks to 15.1 weeks). As shown in Table 8 (next page), in 2001, *harassment* and *work pressure* were the two mechanisms with the longest duration of absence whereas in 2002, *suicide* or *attempted suicide* resulted in the longest average duration of absence (43 weeks). *Harassment* and *work pressure* were responsible for the second and third longest duration of absence in 2002. During 2003, duration of absence from work for stress claims was the longest for claims due to *harassment*, closely followed by *work pressure*. The mechanism with the shortest average time-off was *exposure to a traumatic event*. *Work pressure*, being the mechanism with the largest number of stress claims, accounted for 39.7 % of total time-off due to mental stress in 2003.

It should be noted that although the number of mental stress claims for *harassment* are relatively low compared to other mechanisms, it results in a higher time-lost than most high claim mechanisms. If the objective is to reduce time-lost, and subsequently the cost of stress claims, focusing on

prevention and/or reduction of *harassment* and *work pressure* will be highly beneficial.

**Table 8: Average time-off from work due to mental stress for 2001-03**

Mechanism of Injury or Disease	Average Weeks		
	2001	2002	2003
Exposure to a traumatic event	23.3	19.4	11.0
Exposure to workplace or occupational violence	24.4	22.2	12.8
<b>Harassment</b>	<b>31.9</b>	<b>28.4</b>	<b>18.6</b>
Work Pressure	31.7	27.8	17.5
Suicide or attempted suicide	5.2	43.0	14.1
Other mental stress factors	12.0	13.6	13.4
Total	27.4	23.3	15.1

## 5. SYSTEMATIC OHS MANAGEMENT OF STRESS

A range of techniques are used to reduce the exposure to mental stress risk factors and manage mental disorders once they have occurred. Most recommend targeting known occupational stressors, which concern most workers, and allowing every worker, within reasonable limits, to adjust the work situation to improve its fit with their capacity. Any successful intervention regarding workplace stress involves planning of the content/nature of the intervention and the development of implementation plans involving the whole organisation. In addition, the intervention should be integrated with ongoing organisational development projects and re-organisations. This enables stakeholders to select an effective mix of actions to target both the organisation and the individuals within it. The work of Caulfield *et al.* (2004) on the efficacy of interventions suggests that the interventions most likely to succeed in reducing work-related stress are those which are organisation based and in which responsibility is shared by both the organisation and the employee.

Hurrell *et al.* (1996) reported that stress interventions may be divided into three broad categories—primary intervention, secondary intervention and tertiary intervention—and they are summarised below:

- primary intervention—strategies aimed at altering the organisational source of work-related stress;
- secondary intervention—strategies directed towards reducing the severity of the consequences of work-related stress; and
- tertiary intervention—strategies involving treatment of an identified condition and restoration of full health and functioning.

For further information on stress management approaches and intervention strategies, please refer to the following documents:

Comcare. (1997) *The management of Occupational Stress in Commonwealth Agencies*, - Available online at [http://www.comcare.gov.au/pdf\\_files/OHS\\_BK\\_8\\_J\\_Implementing\\_June04\\_V1.pdf](http://www.comcare.gov.au/pdf_files/OHS_BK_8_J_Implementing_June04_V1.pdf)

Health and Safety Executive. (2003) Research Report. *Beacons of Excellence in Stress Prevention* - Available online at <http://www.hse.gov.uk/research/rrpdf/rr133.pdf>

European Agency for Safety and Health at Work (2002). *Prevention of psychosocial risks and stress at work in practice* - Available online at <http://agency.osha.eu.int/publications/reports/104/en/stress.PDF>

## 6. EVALUATION OF PREVENTION APPROACHES

Systematically comparing the effectiveness of stress interventions is complicated by the diverse approaches which are used. Parkes and Sparkes (1998) contend that the failure of their review to find support for the value of organisational interventions to reduce stress may be attributed to methodological limitations rather than being a comment on the efficacy of the interventions themselves. Kompier et al. (1998) have also pointed to the difficulty of conducting methodologically 'sound' intervention studies.

However, Karasek's recent analysis of 19 workplace stress prevention initiatives found that, in general, the key to preventing stress lay in approaches where there is worker participation, open communication between workers and management and a learning approach to stress management. Where these approaches are used they are also associated with an increase in productivity (Karasek 2004). It is noteworthy that these features and those listed in Table 1 are common to good human resource management approaches.

The successful prevention of work-related stress is dependent upon an understanding of both the causes and effects of stress and also the efficacy of particular interventions. However, a number of research gaps have been identified, including the need for longitudinal studies, evaluation of job design interventions, multidisciplinary approaches, and further research into measurement for psychosocial hazards.

Studies of work-related stress relying upon cross-sectional questionnaires make any causal interpretation of empirical relations between stressors and strains difficult. Longitudinal studies would facilitate understanding of the causes of stress in addition to enabling the evaluation of interventions.

Job design factors have been identified as key variables contributing to stress. However, because redesign may entail considerable change, studies which evaluate this aspect need to be controlled so that their efficacy may be evaluated and confounding variables are eliminated as much as possible. Evaluation efforts need not be restricted only to large organisations or study groups. Qualitative approaches for smaller organisations may also be informative.

Stress has been acknowledged as being multi-factorial in origin. It involves organisational aspects and can affect both psychological and physiological health. Accordingly, it may best be understood through cooperative and multidisciplinary approaches.

HSE research found that it is not possible to recommend unreservedly the use of any of the measures it investigated for assessing psychosocial hazards. However, the same research also contends that the current absence of validity does not mean that assessment of psychosocial hazards in the workplace should stop until the required research and development of alternative measures is complete (Rick *et al.* 2001).

Examination of the NDS indicated that prevention actions may have the biggest effect if they target the following industries and occupations:

- Industries—*health and community services, education and personal and other services;*
- Occupations—*professionals, intermediate clerical, sales and service workers.* A further breakdown of occupational groups reveals that police officers, prison officers and social welfare professionals and school teachers had extremely high incidence of mental stress claims.

## **7. NATIONAL PREVENTION ACTIVITY**

All NOHSC members are undertaking a range of general prevention initiatives which aim to reduce the risk of work-related mental disorders. In Section 2 of this report, a list of published reports, which contain comprehensive information on mental stress, causes and common approaches to workplace stress prevention, is provided. NSW WorkCover and the University of South Australia have a research project on best practice models of prevention, early intervention and management of stress and psychological injury in the workplace. A number of guidance materials are also available via the NOHSC web site such as managing workplace hazards fact sheets on harassment at work and stress and burnout at work. In addition, the NOHSC web site contains a section on psychological hazards and solutions as part of OHS solutions for small and medium enterprises.

For further information on current projects, and prevention activities, readers are directed to the following web sites:

National Occupational Health and Safety Commission [www.nohsc.gov.au](http://www.nohsc.gov.au)

Department of Health and Ageing [www.health.gov.au](http://www.health.gov.au)

HealthInsite <http://www.healthinsite.gov.au/>

SANE Australia <http://www.sane.org/>

Australian Network for Promotion, Prevention and Early Intervention for Mental Health <http://auseinet.flinders.edu.au>

Australian Council of Trade Unions (ACTU) <http://www.actu.asn.au/>

Australian Chamber of Commerce and Industry (ACCI)  
<http://www.acci.asn.au/>

NSW WorkCover Authority <http://www.workcover.nsw.gov.au/default.htm>

Victorian WorkCover Authority  
<http://www.workcover.vic.gov.au/dir090/vwa/home.nsf>

WorkSafe Western Australia <http://www.safetyline.wa.gov.au/>

South Australian WorkCover Authority <http://www.workcover.com/>

Workplace Services South Australia <http://www.eric.sa.gov.au/home.jsp>

Queensland Division of Workplace Health and Safety  
<http://www.whs.qld.gov.au/>

Workplace Standards Tasmania <http://www.wst.tas.gov.au/node/WST.htm>

Northern Territory WorkSafe <http://www.nt.gov.au/deet/worksafe/>

ACT WorkCover <http://www.workcover.act.gov.au/>

Comcare <http://www.comcare.gov.au/>

## REFERENCES

1. American Psychiatric Association. (1994). *Diagnostic and Statistical Manual of Mental Disorders (fourth edition); DSM IV*, Washington DC, American Psychiatric Press.
2. Bright, J. (2002). *Individual Difference Factors and Stress: A Case Study Paper*, NOHSC Symposium on the OHS Implications of Stress.
3. Caulfield, C, and Dollard, M. (2004). "A Review of Occupational Stress Interventions in Australia", *International Journal of Stress Management*, 11, 2: 149-166
4. Clarke, S and Cooper, C. (2004). *Managing the Risk of Workplace Stress*, London, Routledge.
5. Comcare. (2003). Information paper: Incidence, causes and prevention of work-related psychological injury.
6. Dollard, M and Knott, V. (2004). "Incorporating psychosocial issues into our conceptual models of OHS", *The Journal of Occupational Health and Safety New Zealand*, 20, 4: 345-359.
7. Dollard, M. (2001). *Work Stress Theory and Interventions: From Evidence to Policy*, December 2001, The NOHSC Symposium on the OHS Implications of Stress.
8. Dollard, M. (1996). *Work Stress: Conceptualisations and Implications for Research Methodology and Workplace Intervention*, 1996, Work & Stress Research Group, University of South Australia.
9. Downes, 1985, cited in Kendall, E., Murphy, P., O'Neill, V. and Bursnall, S., *Occupational Stress: Factors that Contribute to its Occurrence and Effective Management*, 2000, WorkCover Western Australia.
10. European Foundation for the Improvement of Living and Working Conditions. (1999). *Second European Survey on Working Conditions*, Luxembourg.
11. Freudenberg, H. (1975). "The staff burn-out syndrome in alternative institutions", *Psychotherapy: Theory, Research and Practice*, 12: 73-82.
12. Greehaus, J and Parasuraman, S. (1987). "A work and non-work interactive perspective of stress and its consequences." In Ivancevich, J.M and Ganster. D.C. (eds), *Job Stress: From Theory to Suggestion*, New York, Haworth: 37- 60.
13. Hurrell, P, Murphy, L. (1996). "Occupational Stress Interventions", *American Journal of Industrial Medicine*, 16: 338-41.
14. Karasek, R. (2004). "An Analysis of 19 International Case Studies of Stress Prevention Through Work Reorganisation Using the Demand/Control Model", *Bulletin of Science, Technology and Society*, 24,5: 446-456.
15. Kendall, E, Murphy, P, O'Neill, V and Bursnall, S. (2000). *Occupational Stress: A Review of Factors Influencing its Occurrence and Effective Management*, Workcover WA.  
<http://www.workcover.wa.gov.au/PDF/Occupational%20Stress.pdf>

16. Kessler, R, Borges, B, & Walters, E. (1999). "Prevalence and Risk factors of Lifetime Suicide Attempts In the National Comorbidity Survey", *Archives of General Psychiatry*, 56,7: 617-26.
17. Kivimäki, M, Virtanen, M, Vartia, M, Elovainio, M, Vahtera, J and Keltikangas-Järvinen, L. (2003). *Workplace bullying and the risk of cardiovascular disease and depression*, *Occupational and Environmental Medicine*; 60:779-783.
18. Kompier N, Geurts, S, Grundemann, M, Vink, P and Smulders, G. (1998). "Cases in Stress Prevention: The Success of the Participative and Stepwise Approach", *Stress Medicine*, 14: 155-168.
19. Kompier, M, de Gier, E, Smulders, P, Draaisma, D. (1994). "Regulations, policies and practices concerning work stress in five European countries", *Work & Stress*, 8, 4: 296-318.
20. Kompier, M.& Levi, L. (1994). "Stress at work: causes, effects and prevention; Guide for small and medium-sized enterprises". European Foundation for the Improvement of Living and Working Conditions, Dublin
21. Large, M. (2001). "Relationship Between Compensation Claims for Psychiatric Injury and Severity of Injuries from Motor Vehicle Accidents", *Medical Journal of Australia*; 175: 129-132
22. Loss Prevention Council. (1998). *Work Stress: Advice on its Prevention and Management*, Hertfordshire.
23. Maslach, C. and Jackson, S. (1981). "The measurement of experienced burnout", *Journal of Occupational Behaviour*, 3: 99-113.
24. Mezey, G, and Robbins, I. (2001). "Usefulness and validity of post-traumatic stress disorder as a psychiatric category", *BMJ*, 323: 561-3.
25. National Occupational Health and Safety Commission (2003), *Compendium of Workers' Compensation Statistics Australia, 2001-02*, December 2003.
26. National Occupational Health and Safety Commission, (1999). *Types of Occurrence Classification System (2<sup>nd</sup> edition)*, July 1999.
27. National Occupational Health and Safety Commission (2004). *Types of Occurrence Classification System (3<sup>rd</sup> edition)*, March 2004.
28. NIOSH Stress at Work - DHHS (NIOSH) Publication No. 99-101, Jan 1999 <http://www.cdc.gov/niosh/stresswk.html>
29. Parkes, K and Sparkes, T. (1998). *Organisational Interventions to Reduce Work Stress: Are they Effective? A Review of the Literature*, HSE, London.
30. Quick J, Quick J, Nelson D. and Hurrell Jr, J. (1997). *Preventive Stress Management in Organizations*, Washington DC, American Psychological Association, [in European Commission: Directorate-General for Employment and Social Affairs, 1999, *Guidance on Work-Related Stress: Spice of Life or Kiss of Death?*]
31. Rick, J, Briner, R, Daniels, K., Perryman, S and Guppy, A. (2001). *A Critical Review of Psychosocial Hazard Measures*, HSE, London.

32. Segerstrom, S., & Miller, G. (2004). "Psychological stress and the human immune system: A meta-analytic review of 30 years of injury", *Psychological Bulletin*, 130,4:601-630.
33. Smith, A., McNamara, R., & Wellens, B. (2004). "Combined effects of occupational health hazards", Health and Safety Executive, RESEARCH REPORT 287. Available online at <http://www.hse.gov.uk/research/rrpdf/rr287.pdf>
34. Torkelson, E., & Muhonen, T. (2004). "The Role of Gender and Job Level in Coping with Occupational Stress", *Work & Stress*, 18:267-74.