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Anxiety and depression in teachers and healthcare workers

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This report includes some technical terms, the meanings of which are explained in a concluding glossary.

Summary

1. This report, which arises from a question raised at a public meeting of the Council, considers the case for prescribing anxiety or depression in teachers, healthcare workers and other professions. Following some generic comments regarding definitions, the scope of inquiry, and the challenges inherent in addressing mental ill-health in a compensation context, we summarise evidence on the risks of anxiety, depression and mixed anxiety-depression in various specific occupations relative to others.

2. A considerable international research base has been identified. Although not wholly consistent, and with some limitations, much of the evidence points to higher risks of mental health problems in healthcare workers and, to a lesser extent, in teachers.

3. However, the Council has decided that on present evidence the case for prescription is not made. A factor weighing in this judgment is that the elevation in relative risk in any given occupation does not appear to cross the threshold (of a more than doubling of risk) that is normally required before recommending prescription.

Background and scope of this review

4. A previous report by the Industrial Injuries Advisory Council (IIAC) considered the case for prescribing occupational stress and Post-Traumatic Stress Disorder (PTSD) for purposes of Industrial Injuries Disablement Benefit (IIDB) within the IIDB Scheme (IIAC, 2004). This report has been prepared in response to a question on the possible prescription of anxiety or depression in teachers, raised by a delegate at IIAC's public meeting in 2015. Since anxiety and depression are also commonly seen in healthcare professionals, the Council has extended its consideration to include healthcare workers. It also conducted a literature review to ensure that no compelling evidence in other occupations was overlooked.

5. Mental health disorders pose particular challenges to a publicly funded no-fault occupational compensation scheme which aims for consistent, equitable decision-making. These include among other factors: 1) the subjective nature of symptoms, with few clinical signs and no laboratory tests to confirm their presence or their associated level of disability; 2) their multifactorial origins, with predisposing, precipitating, and perpetuating factors; and 3) the fact that

psychological symptoms in the absence of a mental health disorder are common and normal in daily experience.

6. The distinction between everyday symptoms (such as feeling down in spirits, anxious, nervous or panicky) and discrete mental health disorders is an important but sometimes difficult one to make. While mental health disorders are usually distressing, and can be very severe and incapacitating, psychological symptoms in the absence of a mental health disorder are usually transient and lift spontaneously within a reasonable time frame without the need for expert help. Psychological symptoms in the absence of a mental health disorder do not amount to treatable illness or cause disablement (functional impairment) within the meaning employed within the IIDB Scheme.

7. There is a substantial international literature on mental health disorders, including on causation. Criteria for including subjects in studies vary from self-report of symptoms, use of recognised screening tests, which can at best indicate 'probable' diagnosis, to gold standard full clinical evaluation. Against this background, in considering the literature, the Council has given greater weight to evidence in people who had clinical evaluation and diagnosis meeting the criteria specified in the International Classification of Diseases or in the American Diagnostic and Statistical Manual of Mental Disorders (e.g. ICD-10 or DSM-IV-TR defined disease). Among adults from general populations undergoing formal psychiatric evaluation, about 7% to 13% meet such criteria at any given time (e.g. Meltzer *et al.*, 1995; Buxton *et al.*, 2005; Butterworth *et al.*, 2006; Markkula *et al.*, 2015).

8. Less definite endpoints used in studies include self-completed questionnaires. Such scales can serve as markers for mental health disorders, but an uncertain proportion of respondents will have a discrete clinical disorder sufficient to give rise to a significant degree of disablement. The Council has considered but given less weight to evidence of this kind, and even less weight to evidence based on self-reports without any clinical evaluation.

9. Importantly, the Council has considered only evidence that includes a comparison or control group. Much research on mental health in teaching, healthcare and human service professionals is based on small cross-sectional datasets that lack such basic information (Harvey *et al.*, 2009).

10. A generic challenge in the mental health field is the ambiguous use of terminology and the confusing mix of overlapping health states. The word 'stress', for example, is sometimes intended to refer to an exposure (e.g. a 'stressful' job) but sometimes to a health outcome (e.g. when a person is said to be 'suffering from stress'), both uses often lacking clear definitions. More importantly, sundry definitions of stress as a health outcome refer to it as a 'normal reaction' to stressors (stressful circumstances) and the formal classification systems do not recognise 'stress' as a discrete disorder *per se*. For these and various other reasons recorded in a previous report of the Council ((IIAC, 2004), 'stress' was not considered eligible for prescription and is not the focus of interest in this review. "Adjustment disorder" (a temporary emotional response to a life change or stressful life event, usually lasting less

than six months), "occupational burnout" (a state of exhaustion and demotivation attributed to working conditions), distress, and fatigue are likewise out of scope; and no consideration is given here to schizophrenia or bipolar disorder, which are important severe and enduring mental health disorders, but with no clear link to the workplace; nor to PTSD, since this is already catered for by the Scheme's accident provisions. Instead this report focuses on the case for prescription in relation to anxiety and depression. In ICD-10, these discrete disorders are included under the headings of 'mood disorders' (F30-39) and 'neurotic stress-related disorders' (F40-43.9). Since the outcome of suicide may be linked with major depression (although not invariably so), information is also presented on risks of suicide by occupational title.

Anxiety, depression and anxiety-depression

11. 'Generalised anxiety disorder' is defined by ICD-10 as a period of at least six months marked by excessive worry and feelings of fear, dread, and uneasiness. Other symptoms include being restless, tired or irritable, muscle tension, not being able to concentrate or sleep well, shortness of breath, fast heartbeat, sweating, and dizziness. Symptoms tend to be unattached to a clearly identifiable stimulus and are not due to a physical disease, an organic mental disorder (such as dementia), or drug misuse.

12. Central to the diagnosis of 'depression' is low mood and/or loss of pleasure in most activities. The severity of the disorder can be gauged by the number and severity of symptoms and the degree of functional impairment. A formal diagnosis using the ICD-10 classification system requires at least four out of ten depressive symptoms, whereas the DSM-IV system requires at least five out of nine for a diagnosis of major depression. Symptoms should be present for at least two weeks and each symptom should be present at sufficient severity for most of every day. Both diagnostic systems require at least one (DSM-IV) or two (ICD 10) key symptoms (low mood, loss of interest and pleasure or loss of energy) to be present.

13. Not infrequently, depression and generalised anxiety disorder co-exist and are referred to by various terms such as 'mixed anxiety-depression' or 'anxiety-depressive disorder'. Anxiety is also a common *accompaniment* of depression.

14. Paragraphs 11 and 12 imply a simple algorithm for psychiatric diagnosis. In practice, however, the clinical challenges can be substantial, such that psychiatrists may sometimes reach different conclusions when faced with the same person, even with the benefit of the ICD and DSM criteria. Also, formal mechanisms for assessing the extent of functional impairment are not well established.

15. The causes of anxiety, depression, and anxiety-depression are complex and multiple. Genetics, gender, environment, personal life events and personality are pre-disposing factors which have all been linked with these disorders. The

frequency of mental health symptoms is also influenced by social, societal and cultural factors, and so may differ by setting.

16. When symptoms occur in an employed earner, occupational circumstances (e.g. lack of decision latitude, job strain, bullying, effort-reward imbalance, poor relations with colleagues and supervisors, high emotional pressures) may play a part in precipitating or perpetuating symptoms (e.g. Theorell *et al.*, 2015; Hoven *et al.*, 2015; Meier *et al.*, 2015); but work may play no part at all, or only a limited part, extending say to the challenges in coping with previously acceptable demands of employment. A further complexity in disentangling the objective from the subjective is that employees' perceptions regarding work as a cause of their symptoms can sometimes be influenced by the illness itself.

Approach taken by the Council

17. In practice, it would be difficult if not impossible to construct a robust objectively verifiable occupational exposure schedule for prescription within the Scheme in such general terms as 'poor decision latitude', 'work overload', 'job strain', 'bullying', 'effort-reward imbalance' and 'poor relations with colleagues'. Decision-makers would face major difficulties in corroborating these factors. More feasible is to consider whether risks of anxiety and depression are especially elevated in one or more occupations versus the generality of other occupations, and, if so, to define the schedule in terms of occupational title(s).

18. This approach accords with that often taken by the Council. The legal framework[1] makes it clear that entitlement to benefit through the IIDB Scheme should only apply where a causal link between disease and employment can be established or presumed with reasonable certainty. For diseases such as anxiety and depression where attribution is difficult to make case by case in this way (paragraphs 15-17), the Council looks for evidence that risks are more than doubled in people from a given occupation relative to a suitable comparator. This doubling threshold, as set out in other Council reports and explained on the Council's website,[2] supports attribution to work on the balance of probabilities.

19. In this review, therefore, the Council sought evidence on whether risks of anxiety, depression, or mixed anxiety-depression, ideally diagnosed to formal psychiatric standards, are more than doubled in some occupations relative to most others. In doing so it acknowledges the limits of the evidence – for example, the need in many studies to group occupations together (because of lack of numbers for statistical analysis), which could thereby conceal higher (or lower) risks in sub-groups; the complication that psychosocial risk factors in the workplace may not be fixed, but change over time as working conditions

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[1] Social Security Contributions and Benefits Act 1992
[2] See for example: https://www.gov.uk/government/publications/how-decisions-are-made-about-which-diseases-iidb-covers

evolve; and the issue of relevance of international research findings to British workers, when societal and cultural factors influence symptom frequency.

20. The starting position was a search for published research reports on teachers and healthcare workers – these being suggested by a stakeholder of its 2015 public meeting and by Council members themselves. Both occupations are widely believed to be at particular risk of mental health problems, several reports finding for example that up to half of teachers report their job to be "stressful" or "extremely stressful" (e.g. Borg 1990; Smith *et al.*, 2000). The Council's Research Working Group also undertook a literature search for published research reports on risks of clinically defined anxiety, depression, and mixed anxiety-depression by job title across all other occupations.

21. In addition, further evidence was sought from several national experts in psychiatry and several international researchers from Denmark, Finland and Sweden. A list of those consulted in search of evidence appears in an appendix.

Research evidence

Teachers

22. A report for the Health and Safety Executive (HSE) compared self-reported stress levels in different occupations (Smith *et al.*, 2000). Figures for teachers were double the average at 42%. It should be noted, however, that the report enquired about 'stress' as an exposure rather than as a health outcome (the working environment of teachers as they assessed it, rather than their health).

23. Another HSE report (HSE, 2012) employed the Self-reported Work-related Illness (SWI) questionnaire module from the national Labour Force Survey to estimate the mean rate of work-attributed "stress, depression and anxiety" (with stress as a health outcome) for the teaching profession over the period 2008-2011. Rates were more than twice those in other occupations. However, depression and anxiety were self-reported with no breakdown relative to self-reported 'stress', and no independent corroboration of diagnosis was possible to ICD, DSM, or formal psychiatric standards. The data rest on people's own beliefs as to diagnosis and cause, and perhaps – and to an unknown extent – include symptoms that a clinician might regard as within normal bounds. However, higher report of "stress, depression and anxiety" than the average across other occupations has been a consistent finding across successive waves of the survey.

24. It should be emphasised that the SWI data have practical value to HSE and other stakeholders in the context in which they were conceived – for example, to identify workplace circumstances potentially warranting a review of existing risk assessments and control arrangements. It should also be emphasised that some self-reported cases from this survey, be they teachers or those from other occupations, could have had major mental illness; however, given the limitations in case ascertainment, the extent of this is uncertain.

25. More applicable, given the requirements of the IIDB Scheme, are surveys involving psychiatric assessment, and those recording the medical care and treatments of patients with formally diagnosed mental health disorders. The Council's inquiries have identified several such reports, most of which have been published since the Council's last review on mental health.

26. In Denmark, record linkage using individuals' unique identification numbers has been used to explore the relationship of occupation to medically diagnosed 'affective' disorders and 'stress-related' disorders treated through hospital contacts. The first of the categories mainly involved patients with hospital-diagnosed depression. The second group, although labeled 'stress-related disorders' by the paper's authors, were 'neurotic stress-related disorders' according to the ICD-10 classification, and were doctor-diagnosed generalised anxiety and related anxiety states (and not self-reported 'stress'); to avoid confusion in the account that follows, we refer to these as 'anxiety disorders'.

27. In one such study, almost 29,000 cases of working age listed in the Danish Psychiatric Central Research Register were compared with 144,855 age- and sex-matched non-cases from a 5% sample of the general population (Wieclaw *et al.*, 2005, 2006). In an analysis that used all occupations (other than human service professions) as its comparator, higher rates of affective and anxiety disorder were found among educational professionals, with hazard ratios (HR) ranging from 1.22 for affective disorders in women to 1.68 for anxiety disorders in men (Wieclaw *et al.*, 2006). All findings were statistically significant. Risks were analysed in both sexes and separately for primary school teachers, secondary school teachers, pre-school teachers, child day care professions, teaching associates and workers delivering child care at home. Among the 24 risk estimates generated, only one in men (for affective disorder in preschool teachers) and two in women (for both disorders in child day care professions) were above two (HRs ranging from 2.05 to 2.33).

28. In a second report on the same sample which took clerical staff as the comparison group and coded job titles with some differences, relative risks (RR) were less elevated – in the range of 1.19 -1.58 for male teaching and teaching-associated professionals and 0.94 -1.58 for their female counterparts (Wieclaw *et al.*, 2005).

29. A separate study from Denmark assessed incidence rates for new hospital contacts with mood disorders between 2001 and 2005 (Hannerz *et al.*, 2009). 'Mood disorder' comprised (in 87% of the sample) depression or generalised anxiety or both, defined as in paragraph 26. In all, 8,305 cases were identified in men and 10,731 cases in women. Standardised incidence rate ratios (SIR) for mood disorder were estimated for certain industries relative to all others. Risks were barely higher for the industry group "education and research" (SIR 1.10 and 0.95 in men and women respectively).

30. In a third Danish study, self-reported data on occupation in 2000 from the Danish Work Environment Cohort Study were linked with a register of incident

antidepressant use during 2001-6 (Madsen *et al.*, 2010). After excluding those with severe depression or taking antidepressants initially, odds of new treatment over follow-up were found to be elevated 1.37-fold in education workers relative to a baseline of all non-person related professions. Differences were not statistically significant.

31. Elsewhere, two reports have appeared on a survey of 'common mental disorders' (CMD) and occupation in Great Britain (Stansfeld *et al.*, 2011; Stansfeld *et al.*, 2013). A survey by the Office for National Statistics (ONS) in 2000 involved personal interviews with several thousand workers from randomly chosen private households. These were lay-administered, but computer-aided and standardised according to a revision of the Clinical Interview Schedule (CIS-R). Algorithms were then used to derive probable ICD-10 diagnoses in six categories (depressive episode, generalised anxiety disorder mixed anxiety and depressive disorder, panic disorder, phobia and obsessive-compulsive disorder), with cases of depression, anxiety, or a combination of these two conditions being most common. The subsequent Adult Psychiatric Morbidity Survey of 2007 followed a similar methodology.

32. The overall prevalence of CMD in the ONS survey was 13% (95% confidence interval (95%CI) 12-15%) (Stansfeld *et al.*, 2011), but was as low as 4% in police officers and 6% in natural scientists and business and finance professionals. By comparison, it was 15% (95%CI 11-20%) in teaching professionals as a whole, 18% (95%CI 10-26%) in secondary school teachers and 19% (95%CI 9-30%) in primary school teachers. Similar or higher rates than these were reported, however, across a broad range of other occupations, including: caterers, clerks, secretaries, general managers in government and large organisations, bar staff, waiters and welfare workers. In the Adult Psychiatric Morbidity Survey (Stansfeld *et al.*, 2013), odds of CMD in a group defined as "teaching and research professionals" were not elevated relative to all occupations (odds ratio (OR) 0.96, 95%CI 0.61-1.53).

33. A study, based on the Epidemiologic Catchment Area Program (EPCA) survey in the US, involved the structured Diagnostic Interview Schedule and assessed the prevalence of DSM-diagnosed major depression in a large sample of people of working age (Eaton *et al.*, 1990). The overall prevalence of depression was 4%. A nested case-control analysis compared the job titles of 505 cases with 4,627 randomly chosen controls. Table 1 presents the findings in teaching occupations. It may be seen that only in one group labeled "teachers other and counselors (not college)" were risks as much as doubled, and that they were not much elevated or even reduced in elementary, secondary and post-secondary school teachers. In several analyses, confidence intervals were wide however, compatible with a range of results, and indicating much statistical uncertainty in the data. For comparison, other occupations where risks were at least doubled or were significantly elevated statistically (P<0.05) are also listed. These included data entry and computing staff, typists, secretaries, waiters, waitresses, sales workers and lawyers. (Many other occupational groups were considered, over a hundred coded groups in all, but only one other met these criteria as detailed in paragraph 49.)

Table 1: Major depression in teaching and selected other occupations in the EPCA study (adapted from Eaton *et al.*, 1990)

	OR	95%CI
Teaching:		
Teachers, elementary	1.12	(0.54-2.35)
Teachers, secondary school	0.25	(0.04-1.84)
Post-secondary teachers	0.96	(0.38-2.42)
Teachers other + counselors (not college)	2.21	(1.10-4.42)
Teachers not elsewhere classified	1.27	(0.37-4.10)
Other occupations where OR>2 or P<0.05:		
Data entry keyers	3.30	(1.47-7.42)
Typists	3.18	(1.60-6.33)
Computer equipment operators	2.76	(1.19-6.45)
Lawyers	2.36	(0.88-6.32)
Waiters/waitresses	2.15	(1.14-4.06)
Sales workers	1.85	(1.04-3.30)
Secretaries	1.72	(1.18-2.53)

34. Occupational risk factors for suicide have been the subject of several research reports. One such study, from Denmark, compared the job titles of 3,195 cases with those of 63,900 controls, with data obtained from routine registers (Agerbo *et al.*, 2007). In all, 55 occupations were investigated. The report did not indicate a particular risk among teachers. Analysis used primary education teaching professionals as its comparison group. Relative to this group, other teaching professionals had a very similar risk of suicide (RR 0.99). However, the majority of the assessed occupations had higher risks, including: machine operators, bricklayers, drivers, painters, cooks, construction workers, plumbers, carpenters, sales workers, cleaners and clerks. Suicide risk may relate to social class, but among professional and managerial occupations (e.g. general managers, secretaries business professionals), risks were generally similar to those in teachers, although in a few groups, such as corporate managers and financiers, they were lower.

35. Finally, a substantial number of other studies have assessed mental health in teachers using scores based on self-reported symptoms, with the various limitations highlighted in paragraph 8.

36. In the Belgian Health Interview Study (Van Droogenbroeck *et al.*, 2015), for example, personal interviews were conducted with 7,381 individuals from randomly chosen private households and mental health was assessed using the General Health Questionnaire (GHQ12) and Symptom-List-90-Revised (SCL-R-90-R). Rates of 'anxiety' and 'depression' were not found to be higher among teachers from primary, secondary, university and special-needs education than in other occupations.

37. In the Community Health Survey conducted by Statistics Canada, over 77,000 employed individuals were assessed using a single question about self-

reported mental health (Marchand, 2007). The overall prevalence of "poor mental health" was 24%, ranging from 8.3% in managers in art, culture, recreation and support to 43.1% in machine operators. Teachers did not feature in the ten highest or lowest list of occupations, but the OR for poor mental health was significantly lower for "secondary and elementary school teachers and counselors" than for legislators as the comparison group (OR 0.75, 95%CI 0.63-0.89). Odds of "poor mental health" were doubled only for crane operators, drillers and blasters.

38. In France, a postal survey of members of a large healthcare insurance fund assessed mental health using a self-completed version of the CIDIS-A (Composite International Diagnostic Interview self-administered version) (Kovess-Masfety *et al.*, 2006). Responses were received from 3,679 teachers and 1,817 non-teachers. The estimated lifetime prevalence of major depressive disorder and anxiety disorder differed by sex, but varied only marginally between teachers and non-teachers in the sample.

39. In Korea, over 8,500 workers from a nationwide sample completed a self-administered questionnaire that assessed depressive symptoms using the well-known CES-D (Center for Epidemiologic Studies Depression Scale (Cho *et al.*, 2008). Low mood was defined by a scale score of 21 or more and risks were compared by employing industry. With business services as the comparator, lower risks were found for education, although the findings were not statistically significant (OR 0.8, 95%CI 0.50-1.26).

40. In the US National Medical Expenditure Survey (Grosch *et al.*, 1998), which involved interviews with a national probability sample of 8,486 employees, low mood was assessed using the General Mental Health subscale from the Medical Outcomes Survey. Mean scores for 'depression' in pre-kindergarten, kindergarten, elementary school, secondary school and special education teachers were similar to, and in some cases lower than that for all occupations combined.

41. A paper by Van Droogenbroeck *et al* (2015) critically reviewed some of the foregoing evidence base, stating that "the idea that teachers have worse mental health than other professionals is less conclusive than often assumed".

Healthcare professionals

42. Several of the above reports included risk estimates for healthcare professionals. Thus, the study by Wieclaw *et al* (2006) (paragraph 27) also explored risks of affective and anxiety disorders in both sexes, overall and separately for doctors, midwives, nurses, nursing aids and home nursing aids.

43. Risks of affective disorder were significantly elevated, with HRs of 1.56 in female health professionals overall and 1.79 in their male counterparts; they were more than doubled for several male occupations (doctors, HR 2.10;

nurses, HR 3.46; home nurse aids, HR 3.15), but only one female group (midwives/head nurses, HR 2.08).

44. Risks for anxiety disorder were also elevated and statistically significant, but smaller than for affective disorder (1.15 in women and 1.29 in men overall) with little evidence for a doubling of risks in any individual occupation.

45. A parallel report from the same study was less positive in its findings (Wieclaw *et al.*, 2005 (paragraph 28). RRs of affective disorder among health professionals ranged from 1.14 in men to 1.53 in women, and those of health-associated professionals from 0.80 to 1.23. The corresponding risk estimates for anxiety disorder were 0.58, 0.76, 0.66 and 0.97. These lower figures apparently arise because the coding of healthcare professionals in Wieclaw *et al.*, 2005 did not include nurses, nurse-aids and home nurse-aids (J-P Bonde, personal communication).

46. In the Danish study of incident hospital-treated mood disorders described in paragraph 29, SIRs for affective disorder were 1.42 in male hospital workers and 0.98 in female hospital workers; 1.47 and 0.95 in male and female general practitioners and dentists; and 1.28 and 0.95 in "healthcare workers not elsewhere classified". Risks were higher, however, in male nursing home and child care workers (SIR 2.11 and 1.91) than in their female counterparts (1.29 and 1.11).

47. In the Danish study of incident antidepressant prescription described in paragraph 30, the OR for healthcare sector workers was elevated at 1.70, a finding that was statistically significant, based on 31 healthcare workers with treated depression.

48. In the ONS survey (paragraph 31), the prevalence of CMD was higher in health and related occupations (19% (95%CI 13-25%) than in all occupations (13%), and was 19% (6-33%) in nursing auxiliaries. Relative to managers and administrators, however, the OR of CMD in health associate professionals was significantly lower (OR 0.50, 95%CI 0.29-0.88) (Stansfeld *et al.*, 2011). In the Adult Psychiatric Morbidity Survey (paragraph 32), the OR among health professionals was 1.55 and 0.81 in health and social welfare associate professionals, neither finding being statistically significant. However, odds of CMD were significantly higher in caring personal service occupations (OR 1.73, 95%CI 1.16-2.58) (Stansfeld *et al.*, 2013).

49. In the US EPCA survey (paragraph 33), no increase in risk was seen in registered nurses and licensed practical nurses (ORs 0.99 and 0.88), but an increased risk in nursing aids, orderlies and attendants (OR 1.63) and health aids other than nurses (OR 2.63, 95%CI 0.97-7.10). Data were not presented on doctors.

50. In the Canadian Community Health Survey (paragraph 37), registered nurses and nurse supervisors had a significantly reduced risk of self-reported poor mental health (OR 0.76). No data were presented on doctors.

51. In the US National Medical Expenditure Survey (paragraph 40), scores for low mood in physicians, registered nurses, dentists and pharmacists were similar to that for all occupations combined.

52. Suicide in doctors has been a particular focus of investigation. In the report by Agerbo *et al.* (paragraph 34), with primary education teaching professionals as the comparison group, the RR in doctors was 2.73 (95%CI 1.77-4.22); and in the same study a doubled risk was also found among nursing associate professionals (RR 2.04, 95%CI 1.34-2.11).

53. In a systematic review of studies of suicide in doctors, conducted between 1958 and 1993 (Lindeman *et al.*, 1996), rates were increased relative to the general population in all reports, although in a few studies differences were not statistically significant. The risk seemed to be considerably more increased in female (RR 2.5 to 5.7) than in male doctors (RR 1.1 to 3.4). In keeping with this, a British cohort study of medical suicides in NHS service between 1979 and 1995 found a Standardised Mortality Ratio (SMR) of 2.0 (95%CI 1.0-3.0) for women doctors but a reduced rate for male doctors (SMR 0.67) (Hawton *et al.*, 2001); and an American study, based on obituary listings in a major US medical journal, placed RRs at 3.0 in female physicians but only 1.15 in male physicians versus the general population (Steppacher et al., 1974). Other reports, from Finland (Rimpela *et al.*, 1987) and the US (Frank *et al.*, 2000) put suicide risks in male doctors rather higher, at 1.7-2.0 times background rates.

54. In a nested case-control study, based on data from the Danish national registers for 1981-2006, risk of suicide was assessed across a range of healthcare professions, using teachers and the general population as reference groups (Hawton *et al.*, 2011). Rates of suicide were doubled or more in physicians, nurses, and dentists of both sexes, and raised 2.59-fold and 1.82-fold respectively in female and male pharmacists. No corresponding increases were found in use of psychiatric services.

55. Although an increased risk of suicide is generally recognised in healthcare workers, its cause has been debated. One possibility relates to their high work pressures and responsibilities, and regular exposure to human distress and suffering. On the other hand, it has been suggested that medical professionals, without necessarily being more predisposed to suicidal ideation, have access to drugs and knowledge of how to use them, and so are more successful in executing their intentions than others who attempt to take their own lives. One old study, for example, has indicated that barbiturate overdose was a leading method of suicide in doctors, more so than in other professions (Lindeman *et al.*, 1997). In another study, self-poisoning with drugs was more than twice as common in British doctors than in general population suicides (Hawton *et al.*, 2000); of note was the finding that anaesthetic agents featured in half of the suicides of anaesthetists but only 4.5% of suicides in other working doctors.

Other professions

56. Several of the reports summarised above presented data across a range of occupations or industries, in some instances involving large numbers of groupings. For example, in the Danish report mentioned in paragraph 34, 55 occupations were analysed; in that summarised in paragraph 37, 15 industries and 32 occupations were considered; in Eaton's study (paragraph 33) data were presented for 104 occupational titles; and in Grosch's study (paragraph 40) 239 titles were used. There were substantial differences between reports both in coverage and the grouping and labeling of job titles, and these hinder comparison of findings.

57. Nonetheless, it was evident that – beyond reports in the teaching and healthcare professions – risks of mental ill health (depression, anxiety, anxiety-depression, affective disorder, CMD, etc.) were seldom as much as doubled for other considered occupations.

58. For example, in the report by Wieclaw *et al* (2005), among 52 risk estimates in 26 occupations, the highest were those for affective disorder in teachers and healthcare professionals (RR 1.53-1.58); as mentioned in paragraph 45, in the study by Hannerz *et al* (2009), RRs approach two only for male nursing home and child care workers; in the Danish study of incident prescription of antidepressants (paragraphs 30 and 47), risks, although not doubled, were higher for healthcare and education than for several other industries; in a British study by Stansfeld *et al* (2013), the highest RR for CMD was in caring personal service occupations (1.73); and in the report by Agerbo *et al* (2007), risks of suicide in Denmark only exceeded two for doctors, nurses and people with no registered occupation.

59. There were a few exceptions to this generalisation. However, in these instances the Council was not able to corroborate the consistency of findings by reference to other reports.

60. Thus, for example, in the study by Wieclaw *et al* (2006), risks of affective disorder were increased 2.73-fold and those of anxiety disorder 2.48-fold in male social workers (with HRs of 1.47 in women social workers). However, in the study by Eaton *et al* (1990) risks in social workers were less elevated (1.64-fold) and not statistically significant. Reports by Stansfeld *et al* (2013) and Cho *et al* (2008) cited ORs of 0.81 and 1.43 in groups that mixed social workers with other types of welfare, community and health professional. In Stansfeld *et al* (2011), in one analysis, more than doubled risks of CMD were found in 'buyers and mobile salespersons' and 'general managers in government and large organisations', and in Eaton *et al* (1990) the OR for major depression was 1.85 in sales workers; but other studies classified sales staff and managers differently and did not indicate an important elevation in risk of the mental health outcomes studied. As itemised in Table 1, Eaton *et al* (1990) found more than doubled risks in typists and an OR of 1.73 for secretaries; but in Stansfeld *et al* (2013) odds of CMD were somewhat reduced (OR 0.78) in secretarial and related occupations. In general,

therefore, there was a lack of consistency and depth of reporting on risks of anxiety and depression in most occupations.

Summary and conclusions

61. The Council has identified a significant international evidence base on depression and anxiety in teachers and healthcare professionals, albeit with various limitations.

Teachers

62. On balance, the evidence in teachers (paragraphs 22 to 41) does not indicate a more than doubling of risks, the usual threshold for prescription under the IIDB Scheme, although indicating that teaching can be perceived as a stressful occupation.

Healthcare workers

63. The data on anxiety and depression in healthcare professionals make a stronger case for prescription – specifically, the findings on affective disorder presented by Wieclaw *et al* (2006) (paragraphs 42-43) when allied to those on suicide risk (paragraphs 52-54). A challenge in assessing the literature on healthcare workers lies in the possibility that they may be more willing users of mental health services (e.g. more aware of treatment possibilities and pathways to access them) than other occupations. Evidence on this is mixed, much of it indicating for example that nurses have higher rates of medical attendance overall but doctors have lower rates. In any event, most reports suggest an increased risk of mental health problems in healthcare workers.

64. However, the balance of evidence (paragraphs 43-51) does not suggest a more than doubling of risks of anxiety or depression, diagnosed in life, in healthcare professionals, while the evidence on suicide risk is difficult to interpret for the reasons set out in paragraph 55. The Council has concluded that prescription of anxiety and depression in healthcare workers cannot presently be recommended.

Other occupations

65. Risks of anxiety and depression are less well reported for other occupations than for teachers and healthcare professionals. There are some indications that risks are generally lower, but also insufficient evidence to be confident on this point. The evidence reviewed by the Council does not provide a sufficient case for recommending prescription at present.

Call for evidence

66. Further evidence on the questions covered by this report is welcome. Details can be sent to the Council's Secretariat at any time (IIAC Secretariat, Caxton House, Tothill Street, London, SW1H 9NA, iiac@dwp.gsi.gov.uk).

Prevention and support

67. In the workplace, exposure to occupational stressors can be controlled through good management practice and the introduction of effective interventions, such as the training of managers to recognise mental health concerns.

68. Employers have a duty of care to protect the health, safety and welfare of all employees while at work and to assess the risks arising from hazards at work, including mental ill-health caused by working conditions (Management of Health and Safety At Work Regulations 1999). HSE has produced a set of management standards to help employers carry out effective risk assessments in relation to several factors: job demands; the amount of control and support employees have at work; working relationships; and organisational role and change and how this is managed. The process provides a means of assessing workplace performance, and how to make continued improvements in management policy. Further information and practical guidance is available via HSE's website – see http://www.hse.gov.uk/stress/index.htm.

69. Common mental disorders may not be caused by work at all, as highlighted above. Nonetheless, simple adjustments in the workplace (for example, flexibility in starting times, to allow for side effects of drugs, allowing the employee to record training if their memory is poor, allowing additional training time for new duties and providing a mentor for daily guidance) may still help affected individuals to cope better with their symptoms. These obligations (along with others relating to working methods, practices or conditions) may well fall within the obligation on the part of employers to provide reasonable adjustments to disabled employees under the Equality Act 2010.

70. Effective clinical interventions are also available for the clinical management of people with common mental disorders. When delivered in an adequate course by trained experts, psychological therapies, such as cognitive behavioural therapy (CBT), improve function and a person's ability to manage symptoms. However, despite efforts to reduce the stigma of mental health problems, many people, especially men, are reluctant to engage with treatment, and should be encouraged to come forwards at an earlier stage.

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Glossary

Types of study

Cohort study: A study which follows up a population of individuals (usually defined by a workplace) over time and compared the rate of disease or mortality among those within the cohort or with an external comparison population. The outcome is expressed as a Rate Ratio or **Relative Risk**, **Standardised Incidence Ratio**, **Standardised Mortality Ratio**, or **Hazard Ratio** depending on the type of analysis and the disease outcome being studied.

Case-control study: A study which compares people who have a given disease (cases) with people who do not (non-cases, also known as controls) in terms of exposure to one or more risk factors of interest. Have cases been exposed more than non-cases? The outcome is expressed as an **Odds Ratio**, a form of **Relative Risk**. In a **nested-case control study**, cases and controls are sampled from the members in a cohort study – often, all the cases occurring in the cohort and a sample of non-cases.

Cross-sectional study: A study which classified people at a point in time as having a given disease (or characteristic) or not (controls), and then compares them in terms of exposure to one or more risk factors of interest. Is disease more frequent in those with exposure than in those without? The outcome can be expressed as an **Odds Ratio**, Prevalence Ratio or **Relative Risk**.

Measures of association

Statistical significance and P values: Statistical significance refers to the probability that a result as large as that observed, or more extreme still, could have arisen simply by chance. The smaller the probability, the less likely it is that the findings arise by chance alone and the more likely they are to be 'true'. A 'statistically significant' result is one for which the chance alone probability is suitably small, as judged by reference to a pre-defined cut-point. (Conventionally, this is often less than 5% ($P < 0.05$)).

Relative Risk (RR): A measure of the strength of association between exposure and disease. RR is the ratio of the risk of disease in one group to that in another. Often the first group is exposed and the second unexposed or less exposed. *A value greater than 1.0 indicates a positive association between exposure and disease.* (This may be causal, or have other explanations, such as bias, chance or **confounding**.)

Odds Ratio (OR): A measure of the strength of association between exposure and disease. It is the odds of exposure in those with disease relative to the odds of exposure in those without disease, expressed as a ratio. For rare exposures, odds and risks are numerically very similar, so the OR can be thought of as a **Relative Risk**. *A value greater than 1.0 indicates a positive association between exposure and disease.* (This may be causal, or have other explanations, such as bias, chance or confounding.)

Standardised Mortality Ratio (SMR): A measure of the strength of association between exposure and mortality; a form of **Relative Risk (RR)** in which the outcome is death. The SMR is the ratio of the number of deaths (due to a given disease arising from exposure to a specific risk factor) that occurs within the study population to the number of deaths that would be expected if the study population had the same rate of mortality as the general population (the standard).

By convention, SMRs (and standardised incidence rates (SIR) as described below) are usually multiplied by 100. Thus, an SMR (or SIR) of 200 corresponds to a RR of 2.0. For ease of understanding in this report, SMRs (or SIRs) are quoted as if RRs, and are <u>not </u>multiplied by 100. Thus, *a value greater than 1.0 indicates a positive association between exposure and disease.* (This may be causal, or have other explanations, such as bias, chance or confounding.)

Standardised incidence ratio (SIR): An SIR is the ratio of the observed number of cases of disease (e.g. cancer) to the expected number of cases, multiplied by 100. The ratio is usually adjusted to take account of differences in the population evaluated with the comparison or "normal population", due to age, gender, calendar year, and sometimes geographical region or socioeconomic status.

Hazard Ratio: A form of **Relative Risk** used in survival analysis (a branch of statistics that deals with analysis of the elapsed time until events occur); the ratio of the hazard rate in the exposed to the unexposed (where a hazard rate represents the event rate at a given time, assuming survival until that time or beyond).

<u>Other epidemiological terms</u>

Risk: The probability that an event will occur (e.g., that an individual will develop disease within a stated period of time or by a certain age).

Prevalence: The proportion of a defined group or population who share a characteristic (e.g. disease) in common at a specific point in time.

Incidence rate: The rate of occurrence of a new event of interest (e.g. cancer) in a given population over a given time period. (The rate is often expressed in terms of cases per year of 'person-time', and so incorporates the numbers at risk of the event, the time for which they are at risk and the numbers that go on to develop that event.)

Confidence Interval (CI): The **Relative Risk** reported in a study is only an *estimate* of the true value of relative risk in the underlying population; a different sample may give a somewhat different estimate. The CI defines a plausible range in which the true population value lies, given the extent of statistical uncertainty in the data. The commonly chosen 95% CIs give a range in which there is a 95% chance that the true value will be found (in the absence of bias and confounding). *Small studies generate much uncertainty and a wide range, whereas very large studies provide a narrower band of compatible values.*

Appendix

Experts supplying evidence

Professor Jens-Peter Bonde, Clinical Professor, Department of Public Health, University of Copenhagen
Professor Stephen Stansfeld, Professor of Psychiatry, Centre for Psychiatry, Wolfson Institute of Preventive Medicine, Queen Mary University of London
Dr Max Henderson, Consultant Liaison Psychiatrist, Leeds and York Partnership NHS Foundation Trust

Other experts contacted in search of evidence

Professor Eira Viikari-Juntura, Dr Teija Kivekäs and Dr Marianna Virtanen, Finnish Institute of Occupational Health; Professor Kjell Torén, Dr Gunilla Wastensson and Professor Kristina Alexanderson, University of Gothenburg

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