Stress in health professionals

Chris McManus
University College London

Stress and burnout are inevitable problems for the highly committed, highly involved individuals who work in healthcare services, as they deal with the physical and emotional problems of seriously ill and sometimes emotionally disturbed patients, while also having to cope with running effective teams, dealing with complex management structures and conflicting demands at all hours of the day and night. Anyone working in such conditions will inevitably become stressed if enough such pressures are placed upon them. Having said that, not everyone in practice does become stressed, and that raises a host of questions about who becomes stressed, why people become stressed, what are the precipitating and protective factors and what are the causal processes underlying the separate but related conditions of stress and burnout. A brief review such as this can inevitably only present a personal view of a large research area. Several recent edited volumes are recommended as good starting places for studying the field further (Dollard et al., 2003; Cooper, 2005).

Defining and measuring stress and burnout

Stress

As p. 1 of Cox (1978) pointed out long ago, ‘the concept of stress is elusive… It is a concept which familiar to both layman and professional alike; it is understood by all when used in a general context but by very few when a more precise account is required…’. Stress suffers from the conceptual confusion of both referring to the external event and to the internal response (just as in engineering,
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Burnout

The concept of ‘burnout’ is less conceptually confused than that of stress, not least because of a clear articulation of the different components, and their ready measurement in a single, well-accepted measuring instrument, the Maslach Burnout Inventory (MBI) (Maslach & Jackson, 1986). Maslach has defined burnout as, “a psychological syndrome in response to chronic interpersonal stressors on the job” (Maslach et al., 2001). The three separate components, measured by the MBI are:

- Emotional Exhaustion (EE; a sense of being emotionally overextended and exhausted by one’s work)
- Depersonalization (DP; an unfeeling, impersonal response towards patients; cynicism)
- Personal Accomplishment (PA; a feeling of achievement and competence in working with patients; efficacy)
The cross relationship between stress and burnout

Many studies measure levels of stress and burnout in health professionals, and the consistent finding is that doctors with higher stress levels also report more emotional exhaustion, more depersonalization and less personal accomplishment. The correlations are undisputed: much more problematic is the causal relationships between the measures, and these are much less studied. Particularly problematic is that the inference of causation from cross-sectional data is not straightforward, where stress is correlated with lowered personal accomplishment and increased depersonalization (Graham et al., 2002). Proper longitudinal studies are rare, but in one study path modelling was used to interpret the relationships between stress and burnout measures in doctors assessed after a three-year interval (McManus et al., 2002a). Figure 1 shows that the engine which drives the relation between stress and burnout is the causal cycle from stress to emotional exhaustion and from emotional exhaustion to stress. However the other effects are less intuitive. Longitudinally, personal accomplishment acts not to protect against stress but to increase it, whereas depersonalization acts to reduce subsequent stress. A metaphor may perhaps help in understanding the relationships; the oxygen of high personal accomplishment may initially help to ignite the fire of engagement, but just as a fire runs out of fuel, so burnout results when mental resources are consumed. To burnout one has firstly to have burned brightly and high personal accomplishment both makes the fire burn and also burn out (McManus, 2002).

Stress, personality and working conditions

A frequent assumption in the stress literature is that working conditions, and in particular in the case of doctors, a heavy workload and long working hours, including work at night and sleeplessness, are the major cause of stress (see ‘Healthcare work environments’ and ‘Shiftwork and health’). Certainly it is the case that if one interviews doctors who are highly stressed then they will attribute their stress to working conditions. The problem, however, is that non-stressed doctors also describe similar working conditions. Systematic surveys of working conditions find a very poor, almost non-existent correlation, between working hours, patient load and

![Diagram showing causal relations between stress and burnout](image.png)

Fig 1 Causal relations between stress and burnout (for further details see text and McManus et al. (2002a)).
other variables describing working conditions, with stress levels (McManus et al., 2002b; Bovier & Perneger, 2003) or with burnout (Pines, 2000). Two possibilities are therefore raised: one, is that it is not workload per se which is stressful (and after all, many people find activation, exhilaration and excitement from working hard at a job they enjoy doing), but the imbalance between effort and reward (Tsutsumi & Kawakami, 2004): hard work for little reward, financial, psychological, social or professional, is stressful and results in burnout. The other possibility is that stress is as much a characteristic of the doctor or health professional as it is of the work environment.

Most studies are incapable methodologically of separating effects of the individual from effects of the environment, since they assess a single health professional in a single job, the person and the situation being completely confounded. A study which shows the separation of the two looked at a large group of British doctors in their pre-registration house officer (PRHO) posts, the first year after qualification (McManus et al., 2002b). The study was large enough to mean that many doctors had worked in the same post (i.e. for the same consultant firm, in the same hospital, which was a part of the same trust, which was supervised by the same postgraduate deanery). Such data can be analyzed by multi-level modelling, which allocates variance to different levels of the hierarchy. The analysis showed that many measures, such as reported working hours, number of patients, perceived quality of the job, etc. did indeed involve variance at the level of the consultant firm, or the hospital or trust. However, the most striking result was that stress and burnout only showed variance at the level of the individual doctor. In other words, two doctors working in precisely the same post showed no greater similarity of their stress levels than did two doctors working for different consultants, in different hospitals under different trusts and academic deaneries (McManus et al., 2002b). The strong implication is that stress is, to a large extent, an individual response of the health professional, rather than being directly driven by working conditions.

The clinical literature has long reported that the personality dimension of neuroticism is related to anxiety disorders (Matthews et al., 2003; Tyssen & Vaglum, 2002) and an obvious personality correlate for stress and burnout in health professionals is neuroticism (see ‘Personality and health’). Although personality is rarely measured in studies of stress, when it is there are clear correlations of neuroticism with stress levels (Deary et al., 1996a, b; Tyssen et al., 2002). Larger scale studies have found that other personality variables are also important in predicting stress, doctors with higher stress levels not only being more neurotic, but also being more introvert, and having lower levels of conscientiousness and agreeableness (McManus et al., 2003, 2004). Intriguingly these are precisely the same personality variables which in meta-analyses predict low levels of job satisfaction, life satisfaction and marital satisfaction (Heller et al., 2004). Particularly important is that in longitudinal studies, neuroticism measured at one time, when doctors are in a particular job, is predictive of stress and burnout levels five years later, when doctors are in an entirely different work environment (McManus et al., 2004). The effects of stress on the working environment are manifold, particularly when interacting with personality and study habits and learning styles, causing a surface-disorganized approach (Kirby et al., 2003) and a high sense of workload, but also a less supportive–receptive working environment, and less independence of choice in work (McManus et al., 2004) (see Fig. 2).

**The management of stress and burnout**

Whatever the disputes about the causes of stress in health professionals, there is little doubt that many health professionals are stressed and burned out and interventions to reduce that stress would be beneficial to the professionals themselves and probably also to their patients and their colleagues. Several broad sets of intervention can be distinguished.

**Stress-reduction techniques**

Stress-reduction techniques for the workplace have been classified into six broad groups: relaxation; physical fitness; cognitive

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**Fig 2** Summary of causal influences of personality and study habits (left-hand side) upon stress and of stress upon working styles and work environment (right-hand side). Solid lines indicate positive relationship, and dashed lines indicate negative relationships. For technical details see McManus et al. (2004).
Restructuring; mediation; assertiveness training; and stress inoculation (Bellarosa & Chen, 1997) (see 'Cognitive behaviour therapy', 'Relaxation training' and 'Stress management'). Experts in such techniques were most familiar with relaxation, rated it as the most practical and cheapest of the methods and along with physical activity, the most effective of the methods although its effects were seen to be short-lived, with cognitive restructuring having the most long-lasting effects. Properly conducted empirical trials of the effectiveness of stress-reduction techniques are rare, one review of such interventions for mental health professionals finding only three well-evaluated studies, which found that stress reduced after attendance at workshops linked to sustained consultation, after participation in an intensive programme and after interdisciplinary education (Edwards et al., 2002). A meta-analysis of stress-reduction methods, found that the most effective techniques are cognitive-behavioural (Cohen's $d = 0.68$; 95% confidence interval CI = 0.54 to 0.82), with relaxation techniques less effective ($d = 0.35$; 95% CI = 0.22 to 0.48), and organizational interventions without any significant effect ($d = 0.08$; 95% CI = −0.03 to 0.19) (van der Klink et al., 2001); the overall effects were described as 'small but significant' (van der Klink et al., 2001). Large-scale randomized trials are unusual, not least because they are expensive, but an important exception is a study in which healthcare professionals in oncology received 105 hours of training on attitudes and communication skills, with significant reductions in stress being found three and six months later (Delvaux et al., 2004).

### Lifestyle

Healthcare professionals are not only healthcare professionals, but also have lives outside of hospitals and other workplace institutions. In some cases it is events in those outside lives which have an impact on stress and burnout. In one study, many cases of stress identified by the GHQ-12 had problems outside work, including substantial health difficulties in close relatives, a past psychiatric history, marital difficulty and the lack of a confidant. These were more predictive of stress than were work problems (Weinberg et al., 1999). Family life can be a source of stress to doctors, particularly female doctors and those with children, with the problems of combining work and family being a common problem, which can result in continual compromises (Törey et al., 2004). Although having children was a source of stress for doctors, interestingly doctors with children reported lower levels of depersonalization and higher levels of personal accomplishment than those without children (Törey et al., 2004). GHQ scores were systematically lower in doctors who responded to stress at work by maintaining a balanced, healthy lifestyle (Graham et al., 2005).

### Selection for hardness

A recurrent suggestion, particularly from selectors for medical school, is that since neuroticism and other personality factors predict stress and burnout, then a sensible strategy is to select the hardiest of students, who will be the stable, conscientious extraverts. Although superficially attractive, such an approach has several problems. Firstly, it assumes that the selection ratio is sufficiently high to allow selection on multiple factors, but with only about two applicants for every medical school place, that is unlikely to be the case (McManus & Vincent, 1993). Secondly, the approach assumes that neuroticism, introversion and low conscientiousness have only negative correlates. However, that is unlikely to be the case. In the dangerous world in which early humans evolved, with the ever-likely possibility of predation and indeed in the dangerous modern technological world which modern humans have subsequently created, the risk of death or injury is always present. To have no anxiety about such possibilities is to run the risk of being eaten or run over. However, to be excessively anxious is also to run the risk of being paralyzed into inactivity. Moderate levels of neuroticism are therefore beneficial (and it is always worth remembering that, by definition, we are all the descendants of individuals who were sufficiently anxious as to make sure that they were not eaten by sable-toothed tigers before they had reproduced). It is likely also that moderate, or even high, levels of neuroticism have their benefits in medicine: we want doctors and nurses who do sometimes go home and worry that they may have made a diagnosis wrongly, may have carried out an operation less well than they might have, or did not communicate properly with a patient or their relative. If we need such reflective individuals who worry about their jobs (and it seems likely we do) then we also need counselling and other career support systems which help them to continue coping at doing the thing at which they are good, and for which they have been so expensively trained, which is practising as health professionals.

### References


