

Critically assess the relationship between stress and illness

The causes of stress do not exist objectively and individuals differ in what they perceive as a stressor (Lazarus, 1966). The causes of stress include occupation-linked stressors such as the internal desynchronisation that results from shift work, major life changes such as divorce, bereavement or pregnancy, and everyday hassles. The link between such stress and illness is well established in research.

Selye's general adaptation syndrome (GAS) represents the body's defence against stress and comprises the alarm reaction, resistance and exhaustion. The alarm reaction involves the fight or flight response, in which the ANS-adrenal-medulla system is activated. The sympathetic branch of the ANS responds as a unit, causing a state of generalised, undifferentiated arousal. This was vital in our evolutionary past, as our ancestors' stressors were short-term, physical, life-threatening dangers and so the arousal, which includes increased heart rate for example, was necessary to fight or run away from the danger. However, this response is irrelevant to most of the stressors we face in modern life, which tend to be longer term and involve a higher psychological element. What may have been an adaptive response for our ancestors has probably become maladaptive today. The internal activity is sustained for longer periods of time than for our ancestors and this has damaging consequences for our health.

Chronic stress will involve repeated episodes of increases in heart rate and blood pressure, which, in turn, produce increases in plaque formation within the cardiovascular system. Stress also produces an increase in blood cholesterol levels, through the action of adrenaline and noradrenaline on the release of free fatty acids. This produces a clumping together of cholesterol particles, leading to clots in the blood and in the artery walls and occlusion of the arteries. In turn, raised heart rate is related to a more rapid build-up of cholesterol on artery walls. High blood pressure results in small lesions on the artery walls, and cholesterol tends to get trapped in these lesions (Holmes, 1994).

The study of the effect of psychological factors on the immune system is called psychoneuroimmunology. Goetsch & Fuller (1995) refer to studies that show decreases in the activity of lymphocytes among medical students during their final exams. Lymphocytes are a particular type of white blood cell, which normally fights off viruses and cancer cells. Lowe and Greenman (in Petit-Zeman, 2000) found that levels of immunoglobulin A increase immediately after an oral exam, if it appeared to go well, but not after a written exam. This suggests that with written exams, stress is not relieved until much later, when the results come out.

The general adaptation syndrome involves the release of cortisol into the bloodstream. But the immune system is also capable of triggering this stream of biological events as it has a direct line to the hypothalamus. When the immune system is activated to fight illness or infection, it sends a signal to the hypothalamus to produce its stress hormones, including cortisol. The flow of hormones, in turn, shuts off the immune response. This negative-feedback loop allows a short burst of immune activity, but prevents the immune system from overactivity. In this way, some stress can be beneficial for the individual. But chronic stress produces such a constant flow of cortisol that the immune system is dampened too much. This helps explain how stress makes us ill (Sternberg, 2000).

Personality is a moderating variable that interacts with exposure to stress to affect health outcome. In the past, research suggested that people who display the type A behaviour pattern (TABP) are at much greater risk of developing high blood pressure and coronary heart disease (CHD) compared with those displaying the type B behaviour pattern. Recent research is increasingly pointing towards hostility as the best single predictor of CHD, and

Dembrowski & Costa (1987) argue that 'potential for hostility' is a reasonably stable personality trait.

According to Temoshok (1987), type C personalities are cancer-prone. The type C personality has difficulty expressing emotion and tends to suppress or inhibit emotions, particularly negative ones such as anger. While there is no undisputed evidence that these personality characteristics can actually cause cancer, it does seem likely that they influence the progression of cancer and, hence, the survival time of cancer patients (Weinman, 1995).

Greer & Morris (1975) found that women diagnosed with breast cancer showed significantly more emotional suppression than those with benign breast disease (especially among those under 50) and this had been a characteristic for most of their lives. Cooper & Faragher (1993) reported that experiencing a major stressful event is a significant predictor of breast cancer. This was particularly so in women who did not express anger, but used denial as a form of coping.

Other personality variables can be protective. Kobasa (1979) describes the concept of hardiness, where some individuals show commitment and involve themselves fully in what they are doing; they perceive themselves as having control over their lives and view change as a challenge rather than a threat. According to Funk (1992), hardiness seems to moderate the stress-illness relationship by reducing cognitive appraisals of threat, and reducing the use of regressive coping strategies.

Stress is therefore a bodily response to what is often a long-term psychological threat. Because our stress response evolved as an adaptive mechanism for our ancestors who faced short-term physical dangers, the way in which it is prolonged because of our modern lifestyle means that it influences the development and/or progression of life-threatening illnesses including heart disease, high blood pressure and cancer. However, personality is a moderating variable that interacts with exposure to stress to such an extent that health outcome is affected significantly.