

Modern psychosomatic medicine: the emergence of an experimental discipline

PSYCHOSOMATIC medicine has been with us for a long time. The influence of mental processes on health and illness has been recognized since classical times, while the first major theoretical exposition of psychosomatics was undertaken more than 40 years ago by Alexander, Dunbar and others. Yet little of this activity has had any impact on contemporary notions of disease aetiology. Although many physicians might acknowledge the role of stress in certain cases, the implications for prognosis and management have seemed remote. This situation is now changing, as concepts of psychosomatic illness undergo radical reformulation.

The first significant change is that psychosomatic medicine is no longer an isolated field. As the understanding of brain mechanisms regulating peripheral physiological function has advanced, so have related specialties such as behavioural medicine, psychophysiology, health psychology and psychoneuro-immunology mushroomed. These disciplines are beginning to provide psychosomatics with an adequate scientific basis. They demonstrate that emotion and behaviour are intimately bound up with the central nervous processes governing autonomic, endocrine and immunological activity. Organisms respond to the social and physical environment in an integrated fashion, and dualistic models of mental and physical processes cannot be maintained.

One result of this scientific development is that psychosomatic concepts of disease have been reshaped. Traditional psychosomatics were bound up with psychodynamic theories, in which organic disease emerged as a result of conflict in the psychic domain. These processes were thought relevant to a few major psychosomatic disorders such as essential hypertension, bronchial asthma and ulcerative colitis. The poverty of this theoretical framework, with its lack of consistency, empirical support or predictive power, has now been amply demonstrated.¹ Modern psychosomatic models argue that emotion, behaviour and the social environment are

not merely important in a few isolated conditions, but that there is a spectrum of influence on medical disorders. In some circumstances, psychological processes may be involved in the initiation of disease, but they more commonly affect the course, severity and prognosis of the pathology, to an extent that varies between patients.

The evidence for these views illustrates another major strand in modern psychosomatic medicine, namely the emergence of an experimental science. This began with the identification of the pathophysiological pathways responsible for psychosomatic influences, progressed with the analysis of these mechanisms in human experimental studies, and culminated in the objective documentation of psychosocial factors in clinical cases. Studies in animals have shown how sympathetic nervous stimulation, accompanied by release of catecholamines from adrenal medullae, can lead to sustained cardiovascular dysfunctions, including hypertension, myocardial necrosis and ventricular fibrillation.² Activity in these pathways is provoked by a variety of psychosocial challenges, such as aggressive social exchanges in primate and rodent colonies. For example, Kaplan and his co-workers have reported a more rapid progression of coronary atherosclerosis among adult male Macaque monkeys housed in small colonies with regularly changing membership compared with animals maintained in stable colonies.³ Effects were independent of conventional risk factors such as serum cholesterol, high density lipid or arterial pressure, but were related to aggressive, non-affiliative behaviour patterns. Another neuroendocrine pathway that responds to emotional disturbance is the pituitary–adrenocortical axis, and the resultant elevations in circulating corticosteroids may have a variety of pathological consequences.⁴ One of the most exciting recent developments has been the demonstration of psychological influences over immunological function in experimental models. Not only can immunological responses be conditioned using Pavlovian techniques, but tumour growth and infections may be promoted or retarded as a function of the psychosocial environment.⁵

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Understanding of these processes in human disease has been enhanced by experimental studies with volunteer subjects. These show that factors such as the predictability and controllability of environmental threats, and the mobilization of psychological coping resources, critically influence physiological reaction patterns. For example, it has been found that when essential hypertensive patients are confronted with tasks that require active and alert responding they demonstrate heightened sympathetically mediated cardiovascular reactions in comparison with normotensive patients.⁶ Similar effects are observed in the normotensive offspring of hypertensive parents, indicating that the pattern is not simply an effect of disease, but predates onset. The hypothesis currently being pursued is that some cases of hypertension develop through chronic exposure to social and personal environments that provoke a pathogenic autonomic and neuroendocrine activation pattern. Immunological function may also be disturbed by psychosocial events. Kiecolt-Glaser has reported that the transformation of B lymphocytes by Epstein-Barr virus is altered in healthy students during the period immediately preceding an important examination, while also being influenced by loneliness ratings.⁷ Several researchers have now shown that lymphocyte stimulation by phytohaemagglutinin is suppressed in healthy people following bereavement, without changes in lymphocyte, B- or T-cell numbers.⁸

Laboratory studies are being supplemented by increasingly sophisticated methods of quantifying and evaluating psychosocial pressures in the real world. The assessment of 'life events' and the analysis of the basic dimensions underlying occupational stress have enabled aetiological hypotheses to be tested more precisely.⁹ In the area of ischaemic heart disease, the notion of type A coronary-prone behaviour has attracted the greatest interest. This pattern of time-pressured, aggressively competitive, achievement-oriented behaviour has been associated with an increased risk of myocardial infarction and other ischaemic manifestations, independently of known risk factors, in a number of prospective and cross-sectional studies.¹⁰ Although the concept appears to have greater validity within the white urban middle-class culture of the USA than elsewhere, it has considerable importance for the understanding and management of individual patients.

The influence of emotional factors on the course of established disease is also being documented with greater refinement. Greer and his colleagues conducted an important study relating psychological responses to breast cancer with long-term prognosis.¹¹ The type of psychological response was associated with survival at five years (controlling for other factors), and women who showed stoic acceptance or helplessness and hopelessness in the face of disease were likely to have a less favourable outcome. In the case of coronary rehabilitation, a grow-

ing body of evidence suggests that psychological and social factors account for much of the variance in recovery rate and long-term outcome.¹² The relevance of psychosocial factors to the stability of conditions such as bronchial asthma and diabetes mellitus^{13,14} and to the management of chronic pain¹⁵ is also becoming established on a firmer basis. Nevertheless, the claims of psychosomatic medicine must not be overstated. The painstaking efforts of responsible researchers should not be confused with the exaggerated assertions of alternative medicine propagandists. It is only with a cautious and critical appraisal of methodologically sound investigations that the role of psychological factors in aetiology and management will be clarified. Over the next few years, it may become feasible to capitalize on this experimental foundation and develop firm recommendations for patient care.

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