COMORBIDITY IN PSYCHIATRIC AND CHRONIC PHYSICAL DISEASE: AUTOCOGNITIVE DEVELOPMENTAL DISORDERS OF STRUCTURED PSYCHOSOCIAL STRESS

Rodrick Wallace

The New York State Psychiatric Institute, New York, NY, USA.
Address correspondence to: R. Wallace, PISCS Inc., 549 W. 123 St., Suite 16F, New York, NY, 10027. Telephone (212) 865-4766, rdwall@ix.netcom.com. Affiliation is for identification only.

Received 15-V-2003

ABSTRACT

Applying a ‘necessary condition’ communication theory formalism roughly similar to that of Dretske, but focused entirely on the statistical properties of long sequences of signals emitted by the interacting cognitive modules of human biology, we explore the regularities apparent in comorbid psychiatric and chronic physical disorders using an extension of recent perspectives on autoimmune disease. We find that structured psychosocial stress can literally write a distorted image of itself onto child development, resulting in a life course trajectory to characteristic forms of comorbid mind/body dysfunction affecting both dominant and subordinate populations within a pathogenic social hierarchy.

Keywords: chronic disease, cognition, comorbidity, developmental disorder, hierarchy, information theory, mental disorder, psychosocial stress, punctuated equilibrium.

1. INTRODUCTION

Certain mental disorders, for example depression and substance abuse, and many physical conditions like lupus, coronary heart disease, hypertension, breast and prostate cancers, diabetes, obesity, and asthma, show marked regularities at the community level of organization according to the social constructs of ‘race’, ‘ethnicity’ and ‘socioeconomic status’. Indeed, a virtual research industry has emerged in the United States to address the ‘mystery’ of such ‘health disparities’. Population-level structure in disease permits profound insight into etiology because, to the extent these are ‘environmental’ disorders, the principal environment of humans is other humans, moderated by a uniquely characteristic embedding cultural context (e.g. Durham, 1991). Thus culturally-sculpted ‘social exposures’ are likely to be important at the individual and critical at the population levels of organization in the expression of certain mental disorders and a plethora of chronic diseases.
Further, mental disorders are often comorbidly expressed, both among themselves and with certain kinds of chronic physical disorder: Picture the obese, diabetic, depressed, anxious patient suffering from high blood pressure, asthma, coronary heart disease, and so on. Such comorbidity is the rule rather than the exception for the seriously ill and is the central focus of this work.

As Cohen (2000) describes for autoimmune disease, however, the appearance of comorbid and anticomorbid conditions is, given the possibilities, rather surprisingly constrained to a relatively few often-recurring patterns. We will find this to be a central point.

Here we study how a long list of ‘cognitive submodules’ may become synergistically linked with embedding, culturally structured, psychosocial stress to produce comorbid patterns of illness associated with mental disorder and chronic disease. We will further suggest that many such disorders either have their roots in utero, as a stressed mother communicates environmental signals across the placenta, and programs her developing child’s physiology, or else are initiated during early childhood. This pattern may affect underlying susceptibility to chronic infections or parasitic infestation as well as more ‘systemic’ disorders (e.g. Wallace and Wallace, 2002).

We are, then, particularly interested in the effects of ‘stress’ on the interaction between mind and body over the life course. ‘Stress’, we aver, is most frequently a socially constructed cultural artifact, a very highly organized ‘language’ having both a grammar and a syntax. That is, certain stressors are ‘meaningful’ in a particular developmental context, and others are not, having little or no long-term physiological effect. We first argue that rational thought, emotion, immune function, related physiological processes like the hypothalamic-pituitary-adrenal (HPA) axis, blood pressure regulation, and sociocultural network function are, in fact, formally, if often weakly, cognitive systems. Each is associated with a ‘dual information source’ which may also be expressed as a kind of language. It is the punctuated interpenetration of these ‘languages’ which we will find critical to an understanding of how structured psychosocial stress affects the mind-body interaction, and, ultimately, writes a literal image of that structure upon that interaction. This process begins in utero or early childhood, and determines a life-course trajectory to inherently comorbid disease.

We begin with a recitation of some formally cognitive submodules of human biology, in a large sense, which we believe interact both with each other and with structured psychosocial stress. Next we explore cognition as ‘language’, and infer the existence of a ‘generalized cognitive homunculus’ analogous to that explored by Cohen (2000) as the basis of autoimmune disease. Ultimately we propose a model based on autoimmune disease to account for a life trajectory of chronic comorbid psychiatric/physical disorder as involving a usually transient excited state of that homunculus which becomes a pathologically and recurrently ‘permanent’ zero-mode.

What we attempt is, in fact, surprisingly consonant with a current of mainstream thinking in cognitive science, what Adams (2003) characterizes as ‘the informational turn in philosophy’, i.e. the relatively recent application of information-theoretic perspectives to the long, arduous, intellectual quest to understand ‘mind’. One of the first comprehensive syntheses was that of Dretske (1981, 1988, 1992, 1993, 1994), who put the matter thus (Dretske, 1994: 59-70):