



## LOCUS OF CONTROL, NEUROTICISM, AND STRESSORS: COMBINED INFLUENCES ON REPORTED PHYSICAL ILLNESS

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**Summary**—The extent to which locus of control beliefs influence reported physical illness may depend on the moderating effects of neuroticism and stressors. In a test of this theory, 173 community-dwelling 35–55 year-old men and women completed self-report questionnaires assessing general locus of control, neuroticism, stressors, coping behaviors, and a symptom-free illness scale. Results showed that external locus of control was associated with high levels of neuroticism, experiencing many stressors, using more emotion-directed and fewer problem-directed coping behaviors, and experiencing high levels of perceived stress. Cross validation hierarchical regression analyses demonstrated that the strongest predictor of reported illness was a complex interaction term of nonlinear neuroticism, nonlinear locus of control, and stressors. The main effect of stressors added further independent variance to the illness prediction. There appears to be a reliable influence on illness of extremely external locus of control beliefs, high levels of neuroticism that is independent of symptoms that overlap with illness, and stressors. Copyright © 1996 Elsevier Science Ltd.

### INTRODUCTION

How we humans view and interact with our environment appears to play a role in our psychological and physiological well-being. One of the many cognitive products that have been demonstrated to facilitate human functioning is the belief that we are able to control at least some of our personal experiences. Since Rotter's (1966) monograph describing the generalized expectancy of internal-external control of reinforcement, it has been acknowledged that the perception of control (or lack of control) has a pervasive influence on one's life. At the internal end of the continuum, individuals expect situations to be under their own control and utilize many cues to interpret ambiguous situations thus rendering the situation potentially controllable. These persons are challenged by their environment and tend to view it positively (Phares, 1976). At the other end of the control continuum, persons with an external locus believe that they have little control over reaching goals and over personal experiences, most of which occur by fate, luck, or because of someone else's influence. In general, having a belief in internal control has been found to be more effective in mobilizing one's resources to reach goals successfully (Strickland, 1989).

There is much evidence that the locus of control construct is both a situational variable and a cross-situational generalized trait (Lau, 1982; Ormel & Schaufeli, 1991; Rodin, 1986; Strickland, 1989; Wallston & Wallston, 1981). Individuals with an internal locus of control for health, for example, take an active role in implementing a health-promoting lifestyle, in performing illness-prevention behaviors, and in actively seeking treatment for illness (Wallston & Wallston, 1981). Some of the evidence in support of the generalized trait suggests that the more extreme one's measure on the continuum, the more areas of life such as health, are incorporated into the control domain (Coombs & Schroeder, 1988).

#### *Control and illness*

Phares (1976) proposed that individuals who have an extreme internal locus of control may be vulnerable in uncontrollable situations because their coping efforts are neutralized by a sense of responsibility that is so extreme that they become anxious and depressed. Krause and Stryker (1984) tested this theory on more than 2000 middle-aged men, studied prospectively over a period of three

years and divided into four locus of control groups based on their scores over the course of the study: extreme or moderate externals or internals. Using an 18-item reduced version of Rotter's (1966) I-E scale, they found noteworthy effects of work stressors on physiological and effective symptoms both between the internal and external locus of control groups and within the internal group. More specifically, men with a moderately internal locus of control coped more effectively, both affectively and physiologically, with work stressors than did the extreme internal group or the moderate or extreme external groups. Krause (1986) extended the investigations to a community sample of men and women over the age of 65 in whom he found that moderately internal persons were significantly more resistant to the effects of stress than were the moderately external, or extremely external groups. Results for the extremely internal group were mixed: Individuals in this group tended to avoid stressors, but experienced self-blame in the face of unavoidable stressors.

For individuals with an extreme belief in internal control, helplessness experienced in uncontrollable situations may have wide-ranging effects. In a review of perceived personal control, for example, Burger (1989) concluded that unless individuals with a strong desire to control situations relinquish control to other forces in potentially dangerous and/or painful situations, having the perception of responsibility for the situation is likely to bring about an increase in physiological reactivity and negative affect. Baum, Cohen and Hall (1993) demonstrated that the sense of helplessness experienced by some persons who have an internal locus of control can have far-reaching physiological consequences. They followed for several years, individuals living close to the damaged nuclear reactor on Three Mile Island and found that, for individuals who had a need to control most of their experiences, the sense of a lack of control was associated with significantly high levels of stress. Some of the physiological measures of stress were elevated in these individuals for more than five years after the disaster.

Thus, it appears that having a moderate belief in personal control may be more adaptive than are the extremes of belief in complete personal control or no personal control. This conclusion derives from the psychological distress demonstrated for individuals at either extreme. There may be some persons, however, with very extreme internal beliefs who select environments that are as controllable as possible and accept the uncontrollability of those that are not (Rothbaum, Wiesz & Snyder, 1982). The positive impact on adaptation of accepting uncontrollable situations has been demonstrated for men who were recently blinded and had beliefs in internal control (Ferguson, Dodds, Ng & Flannigan, 1994). Conversely, refusal to accept the existence of breast cancer at the time of surgery led a group of women to experience increased postsurgical distress and a spiralling escalation of denial, thoughts of giving up, and further distress up to one year later (Carver, Pozo, Harris, Noriega, Scheier, Robinson, Ketcham, Moffat & Clark, 1993).

### *Affective modification*

Moderating the influence of locus of control, there appears to be another personality dimension that drives one's interpretation of and response to his/her environment. That dimension is arguably neuroticism. Neuroticism is a much-studied psychological characteristic that is both cause and effect of maladaptive behavior. Neuroticism has been variably described as emotional instability (Eysenck, 1985), negative affect (Watson & Clark, 1984), and psychological distress (Florian, Mikulincer & Taubman, 1995), and has a strong negative relation with resilience (Horner, 1991). Regardless of its definition, neuroticism has been shown to relate to physical symptoms, some of which derive from the affect itself while others can be attributed to existing physical illness (Costa & McCrae, 1989).

In addition to contributing to an increase in physiological symptoms, there is growing evidence that neuroticism can exert a harmful indirect influence on physical illness (Barefoot, Beckham, Peterson, Haney & Williams, 1992; Costa & McCrae, 1989). Neuroticism has been shown to be temporally and situationally stable, for example, and to be a marker for vulnerability, through stable coping behaviors that increase distress (Bolger, 1990). Moreover, individuals high in neuroticism are vulnerable even when not in stressful situations (Bolger & Schilling, 1991; Costa & McCrae, 1989). Ormel, Sanderman and Stewart (1988) investigated vulnerability in a study that spanned one year. They labeled as 'vulnerable' individuals with extreme scores (upper- or lower-third of the distributions) in measures of neuroticism, locus of control, or self-esteem and demonstrated temporal

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