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Learned helplessness in children and adolescents with juvenile rheumatic disease☆

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Abstract

Objective: To examine a learned helplessness conceptualization of psychological sequela in children and adolescents with juvenile rheumatic diseases (JRD) via an experimental procedure utilizing behavior–outcome contingent and noncontingent feedback. **Methods:** Thirty-eight children and adolescents with JRD completed measures of transient affect, self-efficacy for functional ability, and causal attributions prior to and immediately following a computerized learned helplessness induction procedure. **Results:** Children across contingent and noncontingent feedback conditions experienced decreased positive affect with a slightly more pronounced decline in the noncontingent condition. Noncontingent feedback resulted in poorer internalization of success for problem solving, while contingent feedback resulted in greater internalization of success for problem solving. Additionally, posttreatment control self-efficacy was significantly greater for children in the contingent condition that initially endorsed higher levels of internal task attributions. **Conclusions:** Children with JRD who experience behavior–outcome contingency in their environment may develop increased perceptions of control over functional ability. Furthermore, environmental noncontingency may result in poorer internalization of success, whereas contingent reinforcement may enhance cognitive appraisal mechanisms (i.e., causal attributions) associated with favorable disease outcome. Despite a modest decline in positive affect for children in the noncontingent condition, mood dysfunction is not entirely explicable within the context of noncontingent reinforcement.
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Introduction

Juvenile rheumatic diseases (JRD) represent a heterogeneous group of chronic inflammatory disorders including juvenile rheumatoid arthritis (JRA), systemic lupus erythematosus (SLE), juvenile spondylarthropathies (JS), and juvenile dermatomyositis (JDMS). These debilitating chronic childhood illnesses affect more than 150 of every 100,000 children [1] and are characterized by joint inflammation and a variable and unpredictable disease course. The chronic episodic nature of these illnesses creates particular challenges for children to engage in pleasurable and valued activities as well as ordinary daily self-care and presents potential social challenges similar to those experienced by children with other chronic illnesses (e.g., Ref. [2]). Efforts to carry out normal and desired activities are also impacted by the high degree of functional disability often experienced throughout the disease course. Thus, it is not surprising that children affected by JRD often demonstrate psychological adjustment difficulties [3]. However, psychopathology in children with chronic illnesses, including JRD, cannot be completely explained by disease

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factors alone [4–6], but rather is likely influenced by multiple factors, both physiological and psychological in nature.

Individuals with JRD often undergo complex medical treatment regimens, which may involve multiple medications, long-term corticosteroid use, surgeries, and consequently, changes in physical appearance (e.g., cushingoid face, joint deformities, scarring, etc.). Understandably, children with JRD are at risk for developing comorbid psychological difficulties such as anxiety and depression [7–9]. Indeed, a recent meta-analysis showed that children and adolescents with chronic arthritis demonstrate psychological adjustment difficulties, particularly internalizing symptoms, compared with healthy controls, and these problems appear to be amplified in children with other JRD [10]. Prevalence rates of psychological comorbidity have been reported as high as 63% [11], with clinically elevated depression at 21% longitudinally [9] and greater depression, anxiety, withdrawal, and other internalizing problems compared with healthy controls [12,13]. Furthermore, children with JRD who demonstrate psychological comorbidity may be at long-term risk for cognitive dysfunction with respect to perceptions of functional ability [14]. Despite our understanding of the various risk factors inherent in this population, the mechanisms by which these children develop psychological/behavioral adjustment difficulties and cognitive distortion remain ambiguous.

One model of psychological adjustment (i.e., positive/negative affect, depression, etc.) that has received considerable attention in chronic illness research is learned helplessness theory. This model, particularly cognitive formulations of the theory (e.g., Ref. [15]), has been used to understand the development and maintenance of depression in adults with rheumatoid arthritis (RA; e.g., Refs. [16–18]). Briefly, this model posits that the manner in which individuals interpret or explain the causes of events can have negative effects on mood, particularly when individuals are faced with uncontrollable negative circumstances. Over time, a pessimistic causal explanatory style can lead individuals to develop negative outcome expectancies for future outcomes and the anticipation that their actions will be ineffective in producing desired outcomes (e.g., Ref. [19,20]). Proponents of this theory have suggested that as individuals make unsuccessful attempts to control their disease, they may come to view negative outcomes (e.g., pain and disability) as inevitable and subsequently discontinue efforts to manage their disease effectively [21,22].

Although this model has also been applied to pediatric chronic illness populations, and research has demonstrated that pessimistic attributions significantly predict depressive symptomatology in children with chronic illnesses [23], as well as depressed affect and poorer metabolic control in children with diabetes [24], these investigations have been limited by their correlational design. Indeed, Kuttner et al [24] note that it is difficult to determine without experimental examination whether poorer metabolic control was a result of learned helplessness effects or an antecedent thereof. Unfortunately, there have been very few empirical investigations of learned helplessness, particularly with pediatric chronic illness populations. In fact, only one known study (i.e., Ref. [25]) utilized an experimental design to examine the effects of learned helplessness in a pediatric asthma population. Results of this study demonstrated that an analogue learned helplessness procedure produced both affective and cognitive deficits, which resulted in poorer affect and performance deficits.

Because of the unpredictable and variable nature of JRD, these children may experience a high degree of environmental behavior–outcome noncontingency (i.e., efforts to control disease are met with inconsistent success and failure) and consequently develop increased expectancies for negative outcomes or learned helplessness (e.g., Ref. [15]). This persistent noncontingency experienced by JRD patients may have deleterious emotional and cognitive effects, which may, in turn, decrease motivation and perceptions of ability to engage in health promoting behaviors. The self-efficacy theory of Bandura [26] posits that expectations of personal ability to affect change in various behaviors determines the amount of effort expended and the length of time the effort will be sustained in the face of aversive experiences such as noncontingent environmental feedback. It is suggested that persistence in activities that are perceived as aversive or difficult, and subsequent mastery of those activities serves to enhance self-efficacy. Thus, self-efficacy theory may explain why individuals who experience noncontingent feedback and virtually no success experiences in a natural environment may demonstrate affective and cognitive dysfunction leading to a decrease in healthy, functional behaviors. For example, Dwyer [27] found that self-efficacy influenced variations in perceived physical functioning in individuals with RA. In addition, RA patients reporting higher levels of self-efficacy have exhibited lower levels of disability, pain, depression, and anxiety [28,29]. Although research has begun to examine self-efficacy in parents of and children with JRA (e.g., Refs. [30,31]) at the level of scale development, no known study has examined self-efficacy specifically as it relates to functional ability.

In general, children with JRD experience erratic disease fluctuations and psychosocial sequela throughout the course of their disease. It is plausible that the environmental noncontingency regularly encountered by these children may be one cause of this cognitive and affective comorbidity. However, learned helplessness conceptualizations of psychological comorbidity are scarcely addressed in the pediatric chronic illness literature and without empirical evidence supporting this theory, such conclusions are speculative. Thus, the primary goal of this study was to address limitations in the extant literature by empirically testing this model of psychological adjustment in JRD to more clearly articulate the factors that contribute to psychological dysfunction and perceptions of functional

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