AN EXAMINATION OF EXPERIMENTALLY INDUCED LEARNED HELPLESSNESS IN CHILDREN AND ADOLESCENTS WITH JUVENILE RHEUMATIC DISEASE

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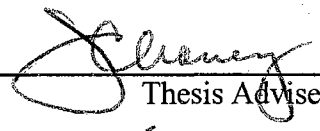

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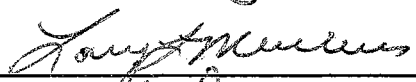

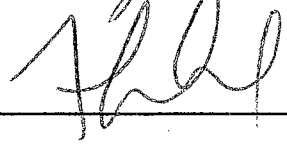

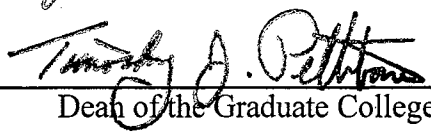

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CHAPTER I

INTRODUCTION

Juvenile Rheumatoid Disease Descriptions and Epidemiology

Juvenile rheumatoid arthritis (JRA) is a chronic autoimmune disease characterized by persistent inflammation of the synovial tissue, restricted functional ability, and pain, and is of unknown origin (Singsen, 1993). Various environmental influences have been implicated in the onset of JRA in that they may trigger or maintain the disease in genetically susceptible individuals. These environmental triggers include viruses, bacteria, nutrition, and/or toxins (Albert, Woo, & Glass, 1990). Onset of inflammatory arthritis usually occurs before sixteen years of age (Kewman, Warschausky, & Engel, 1995). JRA is one of the most common chronic illnesses of children, affecting approximately 65,000 to 70,000 children in the United States, with girls being affected more often than boys (Singsen, 1993). The age and sex ratios are varied across the three subtypes of JRA: Systemic, Polyarticular, and Pauciarticular.

Systemic JRA onset can occur at any age during childhood, and affects approximately 10% of children with JRA, with the ratio of boys to girls about equal. Children with this form of JRA often develop rashes and fever spikes one or more times

per day. In addition to potentially having to endure multiple systemic episodes, approximately 50% of children with systemic JRA develop polyarthritis that endures long after systemic manifestations have subsided (Singsen, 1993).

Polyarticular JRA onset can also occur at any age during childhood, and affects approximately 40% of children with JRA, with girls being affected about three times more often than boys. This subtype of JRA often presents with low-grade fever, weight loss, malaise, and growth retardation. Children with polyarticular JRA develop arthritis in five or more joints, and any joint can be affected; three-fourths of these children have symmetric joint involvement (Singsen, 1993).

Pauciarticular JRA onset occurs in approximately 50% of children with JRA, and can occur at various ages during childhood (Singsen, 1993). Although the prevalence of this subtype presents various sex ratios depending upon the symptomatic presentation, it has been suggested that the ratio of boys to girls may be as high as 5:1 (Kewman, Warschausky, & Engel, 1995). Pauciarticular JRA affects four or fewer joints, and about one-half of children with this subtype have only one joint affected.

Several concomitant disorders may occur in children with pauciarticular or polyarticular JRA; abnormalities of the eyes such as cataracts, glaucoma, and even blindness may develop (Singsen, 1993). In addition, skeletal abnormalities, infections, hematological disorders, and iatrogenic effects may develop and further complicate treatment (Woo, 1990).

Systemic lupus erythematosus (SLE) is a systemic inflammatory disease potentially affecting multiple organ systems in individuals. Typical symptoms of SLE

include fever, lymphadenopathy, and nephritis, and almost every child with this disease has some form of renal disease. Central nervous system involvement and cognitive dysfunction may also be present. In addition, pulmonary symptoms are present in approximately 20% of individuals with SLE. Further, arthritis and arthralgia are common symptoms of SLE. Incidence of SLE is approximately 0.6/100,000 and increases with age until adulthood, with a female to male ratio of 4.3:1 in children affected (White, 1993).

Juvenile spondylarthropathies represent a subclass of juvenile rheumatic diseases that are frequently manifest as asymmetric lower extremity or large joint arthritis. Spondylarthropathies generally occur more often in boys than girls, with the ratio depending on the specific disease. One of the spondylarthropathies, juvenile ankylosing spondylitis (JAS) may affect approximately 10% of children with arthritis. This disease affects more boys than girls with a 7:1 ratio. Disease onset occurs from late childhood to adolescence. Peripheral arthritis usually develops prior to back involvement, and large joints of the lower extremities, particularly hips, are most often affected. Roughly 25% of individuals with JAS will develop polyarticular arthritis. Other difficulties such as acute iritis, pulmonary disease, and aortic valve insufficiency may develop in these individuals (Singsen, 1993).

Another juvenile spondylarthropathy, psoriatic arthritis, affects approximately 10% to 15% of children with chronic arthritis, with girls affected twice as often as boys. Nail pitting, ridging, and atypical rash behind ears, at the scalp line, or umbilicus are common early symptoms of this form of arthritis. One-half of individuals with psoriatic

arthritis have pauciarticular arthritis onset. Involvement of toes and small single joints is common (Singsen, 1993).

Juvenile dermatomyositis (JDMS) is an idiopathic inflammatory disease of the skin and muscle, characterized by vasculitis in the skin, muscle, and gastrointestinal tract. This disease occurs most commonly in individuals aged 5-14 years, and is more common in girls than boys. Although the etiology is unknown, both genetics and infectious agents are believed to contribute. Most children with JDMS present with proximal muscle weakness that interferes with the child's ability to run, climb stairs, or get up from the floor. Further, up to 20% of children with JDMS exhibit arthritis. Pulmonary difficulties, myocarditis, and gastrointestinal comorbidity are not uncommon in individuals with this disease, the latter of which may cause difficulties in absorption of medications (White, 1993).

Disability and Pain

Synovial atrophy, muscle weakness and atrophy, contractures, and decreased activity and endurance contribute significantly to disability in JRA (Henderson, Lovell, Specker, & Champaigne, 1995; Singsen, 1993). Disability and pain have been the focus of several investigations involving rheumatic diseases. These studies have mostly focused on the psychosocial correlates and predictor variables associated with functional disability and pain.

For example, individuals with adult rheumatoid arthritis with dysphoric symptomatology exhibit more pain compared to those without dysphoria (Fifield,

Tennen, Reisine, & McQuillan, 1998). In addition, psychological (i.e., depression, self-efficacy, and arthritis helplessness) and physical impairment variables have been associated with increased functional disability both cross-sectionally and longitudinally (Holm, Rogers, & Kwoh, 1998; Lorish, Abraham, Austin, Bradley, & Alarcon, 1991).

Similar findings have been presented in the JRA literature. Greater emotional distress in children with JRA has been significantly correlated with higher reported pain; mother's distress was also associated with pain (Ross, Lavigne, Hayford, Berry, Sinacore, & Pachman, 1993). Higher reported pain has also been positively correlated with age, and inversely correlated with disease duration (Hagglund, Schopp, Alberts, Cassidy, & Frank, 1995). In addition, there is some evidence to suggest that behavioral problems in children with arthritis contribute to disease activity and severity (Daltroy et al., 1992). Finally, the issue of disability and pain measurement has been a focus of research in JRA. Generally, the results of these studies indicate that both child and parental ratings of disease activity are reliable assessments, and there is good concordance between the two ratings (Rapoff, Lindsley, & Purviance, 1991; Duffy, Arsenault, & Duffy, 1993).

Disability is also a major factor for individuals with SLE because of the common incidence of arthritis in this disease. Indeed, these individuals may present very similarly to JRA patients with regard to arthritis symptoms (White, 1993). The large joint arthritis inherent in juvenile spondylarthropathies makes disability a salient aspect for these individuals as well (Singsen, 1993). Similarly, JDMS presents afflicted individuals with disability due to muscle weakness and/or inflammation and arthritis (White, 1993).

Psychosocial Factors

The role of psychosocial factors in JRA has been the focus of much research. For example, Vandvik (1990) found that 63% of children with JRA demonstrated some difficulties in psychological functioning, and 51% met criteria for at least one DSM-III diagnosis. In addition, compared to healthy controls or children with mild or inactive rheumatic disease, children with severe JRA have exhibited higher levels of depression, anxiety, and other forms of psychological distress (Billings, Moos, Miller, & Gottlieb, 1987). These results were supported by David and colleagues (1994) who found that 21% of individuals who had lived with JRA for several years (i.e., 10-39 years) were clinically depressed, and the rate of depression and anxiety increased with the severity of their disability. Psychological adjustment factors combined with family functioning and disease parameters have been salient predictors of functional status such as activities of daily living, involvement in activities, and school and social functioning (Varni, Wilcox, Hanson, & Brik, 1988).

There is also evidence to suggest that children with JRA experience difficulty in negotiating personal relationships. For example, both children and parents have reported that the experience of JRA presented substantial difficulty in peer relationships (Taylor, Passo, & Champion, 1987; Ennett et al., 1991). These psychosocial difficulties can manifest as overt behavioral problems as well. Indeed, Daltroy and colleagues (1992) found that boys, aged 12-16 demonstrated more behavioral problems than a normative sample, and these behavioral problems were associated with mild disease activity. Similarly, psychological functioning and disease activity have been associated with

adjustment difficulties in both primary and high school children (Ungerer, Horgan, Chaitow, & Champion, 1988). There is some evidence to suggest that such adjustment difficulties do not negatively affect family functioning, but rather lead to higher levels of cohesion and expressiveness, and lower levels of conflict compared to normal families (Thompson, Varni, & Hanson, 1987).

Similar psychosocial issues may exist for SLE, juvenile spondylarthropathies, and JDMS. However, psychosocial research with these disease populations is scant. Moreover, the extant research lacks well-controlled clinical studies with these other pediatric rheumatic disease populations (Chaney & Youll, 1994).

Learned Helplessness and Attributional Style

Cognitive appraisal mechanisms have become the focus of many investigations in chronic illness research as salient predictors of disease outcome (Chaney et al.,1996; Hommel et al., 1998; Smith, Christensen, Peck, & Ward, 1994; Mullins, Chaney, Pace, & Hartman, 1997). A central tenet of learned helplessness theory (Abramson, Seligman, & Teasdale, 1978), attributional style (i.e., the way in which individuals explain causes for events) is of particular interest to the study of chronic illness (e.g., Peterson, 1988). This form of cognitive appraisal has been linked to disease outcome across various diseases.

For example, individuals with recently diagnosed spinal cord injury who demonstrated internalized attributions of responsibility exhibited poorer life satisfaction during rehabilitation (Richards, Elliott, Shewchuk, & Fine, 1997). Associations between attribution of responsibility and disease duration have also been demonstrated in patients

with rheumatoid arthritis (Anderson & Ekdahl, 1992). Other studies have found that individuals with chronic illnesses tend to attribute positive outcomes internally and negative outcomes externally (Lowery & Jacobsen, 1985). There is also support for the indirect influence of causal attributions on illness factors. For example, Wiebe (1999) demonstrated the moderating role of attributions on the relationship between illness-related distress and depressive symptomatology. In addition, parental attributions for children's illnesses have been associated with children's overall adjustment, medical visits, and hospitalizations (Dadds, Stein, & Silver, 1995). Unfortunately, many of the studies examining attributional influences on illness outcomes have neglected child chronic illness populations, particularly with respect to pediatric rheumatic diseases.

Self-Efficacy

Another cognitive appraisal mechanism that has received support in the chronic illness literature is self-efficacy, or an individual's assessment of his/her ability to perform a specific behavior. Self-efficacy beliefs have been researched in several chronic illnesses. Generally, the findings of this body of research have demonstrated an association between perceived self-efficacy and disease outcome and health related quality of life (Holden, 1991; Kempen, Jelicic, & Ormel, 1997).

For example, self-efficacy significantly predicted initiation and maintenance of disease management behaviors in individuals with diabetes mellitus (Shortridge-Baggett, van der Bijl, 1996). Perceived self-efficacy has also been indicated as a salient variable in chronic pain patients. Indeed, higher self-efficacy has been associated with better overall

functioning and response to treatment (Kores, Murphy, Rosenthal, Elias & North, 1990). In addition, patients' perceived self-efficacy has been inversely correlated with pain and disruption of daily activities (Lin, 1998; Karoly & Lecci, 1997). Further, the mediational role of self-efficacy has been demonstrated as a predictor of depression and disability, both of which are common problems in rheumatic diseases such as JRA. With respect to rheumatic diseases, self-efficacy has been found to impact treatment outcome in self-management programs (Holman & Lorig, 1992). In addition, self-efficacy has been shown to be a salient indicator of individual variations in perceived functional status (Dwyer, 1997). Unfortunately, similar to the literature on attributional style, research on self-efficacy has largely neglected pediatric chronic illness, particularly JRD.

Outline of Dissertation

Children with JRD encounter a host of medical and psychosocial obstacles while managing their diseases on a daily basis. Along with the persistent pain and disability associated with these illnesses, many children develop behavioral and/or affective disorders. Some common psychological symptoms observed in these children are decreased self-efficacy, increased anxiety, and depression. Unfortunately, the precise mechanism or process behind which these children develop adjustment difficulties is unclear. Given the unpredictable and variable nature of these diseases, it is not unlikely that affected children may experience a high degree of environmental behavior-outcome noncontingency (i.e., efforts to control disease are met with inconsistent success and failure). Consequently, psychological sequela may develop from this learned helplessness

phenomenon. However, research has yet to examine the effects of learned helplessness on affective variables in children with JRD.

The present study examines the effect of experimentally induced learned helplessness on transient affect and self-efficacy for functional ability in children and adolescents with JRD. To accomplish this, a comprehensive review of the literature is presented. First, a concise review of the literature pertaining to the treatment (i.e., both medical and psychological) of JRD is presented. Second, literature regarding the psychological comorbidity and the relationship between psychological factors and disease outcome (e.g., disability) in JRD is discussed. Next, the theory of learned helplessness and attributional style is discussed, particularly with respect to chronic illness. Then, similar to the presentation of learned helplessness theory, self-efficacy theory is reviewed, specifically with regard to chronic illness. Finally, a study is presented that examines the direct effects of experimentally induced learned helplessness on affect and self-efficacy for functional ability in a sample of children and adolescents with JRD.

CHAPTER II

REVIEW OF THE LITERATURE

Treatment Issues in JRD

Medical Treatment

Singsen (1993) provides an overview of the primary medical treatment considerations for patients with JRA. One of the first factors in treating JRA is to educate the patient, family, community, and the health care team. This includes schools, therapists, coaches, and any other extra-curricular organizations in which the child is involved. The primary immediate goals of treatment include relieving symptoms and maintenance of joint range of motion and muscle strength for those patients seen early in their disease, and rehabilitation for those seen later in their disease. Medical treatment focuses on symptom management, as there is no cure for the disease (McCracken, 1991).

Aspirin remains the most effective and least expensive anti-inflammatory medication for treating JRA. Unfortunately, aspirin use in children is associated with the development of Reye's syndrome. Almost as common is the use of nonsteroidal anti-inflammatory drugs (NSAIDs). These drugs include ibuprofen, tolmetin, naproxen, and fenoprofen. Because of the variable and unpredictable nature of JRA, it is recommended that these drugs be continued for 12 to 18 months after symptoms subside. Intramuscular

gold treatments or oral methotrexate therapy can also be used if NSAID therapy is ineffective or only partially effective after several months of treatment. In cases of severe polyarthritis or systemic arthritis, corticosteroids may be used. However, because of adverse side effects associated with use of systemic corticosteroids, this form of treatment is often used after others have failed.

Treatment plans must be adopted by the child, parents, and community (e.g., school, other caregivers, organizations, etc.), should reflect the child's maturity, and should become part of the child's normal daily routine. Children with JRA often experience morning stiffness. Warm baths and/or electric blankets are particularly effective in relieving stiffness. Children are encouraged to remain active throughout their disease process. Inactivity ultimately contributes to prolonged stiffness, pain, and functional disability. These children should be encouraged to be self-reliant and responsible for maintaining their treatment regimens to an age-appropriate extent. Finally, vocational and/or psychological treatments are often beneficial by helping children, adolescents, or families affected by JRA through adjustment periods, or to treat affective sequela resulting from the experience of JRA.

As with JRA, treatment for any other JRD must include education of the patient, family, and community, and effective disease management (as opposed to a cure) is the primary goal. Medical treatment for individuals with SLE involves managing the systemic involvement (e.g., renal disease) and arthritis symptoms. Treatment for arthritis is similar to that for JRA, whereas treatment for the renal disease often involves intravenous injections of cyclophosphamide (White, 1993). Pharmacotherapy treatment

for juvenile spondylarthropathies most often involves the use of aspirin or ibuprofen, and tolmetin sodium, sulfasalazine, methotrexate, or corticosteroids may be used in more severe disease manifestations (Singsen, 1993). Finally, treatment for JDMS consists of prednisone pharmacotherapy with a slow tapering over two years once muscle enzymes have normalized. In addition, physical therapy is often implemented once muscle inflammation decreases to prevent or improve muscle contractures.

Psychological Treatment

Medical management is usually sufficient for controlling JRA disease and any concomitant difficulties. However, comprehensive treatment of JRA often involves assessment of and addressing psychosocial issues related the JRA disease experience. Indeed, a significant minority of individuals require adjunctive psychological intervention. Numerous psychotherapeutic treatment approaches have been considered for various rheumatic diseases.

In general, cognitive-behavioral treatments for affective comorbidity in chronic debilitating illnesses have received empirical support (O'Leary, Shoor, Lorig, & Holman, 1988; McCracken, 1991; Loscalzo, 1996; Schanberg, Lefebvre, Keefe, Kredich, & Gil, 1997). This type of psychological intervention promotes optimal functioning by encouraging active participation in treatment decisions, and the acquisition of skills that enhance and maintain self-efficacy (Loscalzo, 1996). Cognitive-behavioral treatments have aided individuals with rheumatoid arthritis by reducing depressive symptomatology and overall distress, demonstrating more effective coping with respect to their illness,

improving sleep quality and quantity, and enhancing self-efficacy (O'Leary et al., 1988). Subsequent research has provided support for these findings in that individuals with RA participating in a cognitive-behavioral intervention demonstrated significantly improved disease knowledge and self-efficacy posttreatment (Davis, Busch, Lowe, Taniguchi, & Djkowich, 1994). Kraaimaat, Brons, Geenen, and Bijlsma (1994) found similar posttreatment effects with cognitive-behavioral treatment for disease knowledge; these authors also demonstrated improved pain coping behavior. Other beneficial effects of cognitive-behavioral treatments such as decreased pain and functional impact have also been observed (McCracken, 1991; O'Leary et al., 1988). Further, behavioral interventions aimed at reducing RA disease activity have received empirical support as well (Radojevic, Nicassio, & Weisman, 1992). In general, the extant literature on cognitive-behavioral treatments in RA has demonstrated sufficient efficacy (e.g., Parker, Iverson, Smarr, & Stucky-Ropp, 1993), however, long-term maintenance of treatment effects need to be empirically demonstrated (Keefe & Van Horn, 1993).

Cognitive-behavioral treatments have also been used with success in children with JRA. Varni, Walco, and Katz (1989) proposed a cognitive-behavioral treatment model for pain management emphasizing pain perception regulation (e.g., progressive muscle relaxation, meditation, etc.) and pain behavior modification (i.e., environmental modification of factors that influence pain expression and rehabilitation). Results of a treatment outcome study for pain in children with JRA demonstrated that cognitive-behavioral techniques such as relaxation training and biofeedback were moderately successful in reducing pain (Lavigne, Ross, Berry, Hayford, & Pachman, 1992). Other

adjunctive psychotherapy approaches to treating chronic illnesses, particularly JRA, have included an emphasis on social support. Results of one study investigating the effects of social support in a variety of chronic illnesses demonstrated that children with high social support from both family and peers evidenced significantly better adjustment than those who demonstrated low social support (Wallander & Varni, 1989). These interventions are not limited to treating patients specifically; parents may benefit from social support. For example, a social support intervention utilizing a mentoring system in which mothers of young adults with JRA were paired with mothers of children with recently diagnosed JRA demonstrated decreases in number of reported mental health symptoms compared to untreated controls (Ireys, Sills, Kolodner, & Walsh, 1996).

Another form of social support has become popular in recent years. Arthritis camps (e.g., summer camps, family retreats, etc.) have demonstrated beneficial effects for children with JRA including overall improvements in emotional functioning and caregiver strain (Hagglund et al., 1996). In addition, children involved in these camps have shown improvements in self-concept, and more externalized locus of control (Stefl, Shear, & Levinson, 1989). Further, Stefl and colleagues (1989) found the effects of arthritis camps to be maintained at six-month follow-up. Finally, family-systemic and behavioral systems approaches have been used to treat psychological comorbidity in JRA and other diseases (e.g., Finney & Bonner, 1992; Sharpe, Brown, Thompson, & Eckman, 1994).

Like JRA, comprehensive treatment for SLE often involves psychological treatment interventions. Treatment research with this specific population is sparse,

although there is some evidence to suggest that client-centered psychotherapy may reduce psychological symptomatology in SLE (Maisiak, Austin, West, & Heck, 1996). However, Chaney and Youll (1994) provide an inclusive outline of effective psychological treatment in children with SLE. These authors suggested that adjunctive psychological treatment in pediatric SLE should include education, self-management, and behavioral-systems management. More specifically, interventions should involve modification of patient/family expectancies of the illness, increasing self-management skills (i.e., self-efficacy/competency), and modification of environmental contingencies to capitalize on extant competencies. Finally, although there is no known research examining psychological treatment issues in juvenile spondylarthropathies or JDMS, it is likely, given the biological and functional factor similarities among these diseases, that the treatment approaches outlined for JRA and SLE would adequately address the major psychosocial issues involved in juvenile spondylarthropathies and JDMS.

Psychological Comorbidity in JRD

Adjustment to chronic illness can produce stress on individuals, their family and friends, and can include a significant economic strain. With all of these factors, it is not surprising that people with chronic disease often experience emotional difficulties. Research has indicated that people who suffer from chronic illness are at increased risk for psychological symptoms such as depression, anxiety, and decreased self-esteem (Ireys, Werthamer-Larsson, Kolodner, & Gross, 1994; Patterson, 1988; Chaney et al., 1996, 1999).

Lavigne and Faier-Routman (1993) present a meta-analytic review of the literature pertaining to psychological adjustment issues in pediatric chronic illnesses. These authors reviewed thirty-eight studies that included the following diseases: asthma, cardiac disorders, cancer, cystic fibrosis, diabetes, neurological disorders, JRA, and several others. The results of this study suggest that there are several variables contributing to overall adjustment to chronic illnesses such as disease severity, family adjustment/support/cohesion, self-concept, coping, IQ, prognosis, and functional ability. Moreover, child characteristics (e.g., self-concept, temperament, etc.) demonstrated the strongest relationship with adjustment, compared to family characteristics and disease factors.

Psychological comorbidity has also been examined in terms of positive and negative affect in adult rheumatic disease populations (e.g., Smith & Christensen, 1996). These researchers found that increased depression was associated with low-positive and high-negative affect. In addition, pain, daily hassles, and cognitive distortion were associated with negative affect. Based on these findings Smith and Christensen suggested that increased specificity is needed for identifying and understanding the potentially complex affective comorbidity observed in chronic illness populations, particularly patients with rheumatic diseases (1996).

Family Adjustment to JRD

Families with one or more children experiencing a chronic illness must negotiate a plethora of adjustment issues, much like the affected children. Parents, in particular, are

at risk for developing emotional difficulties while adapting to the impact of their child's chronic condition (Patterson, 1988). For example, regardless of the disease, parents often experience significant guilt regarding the cause of the illness (e.g., bad genetics, nutrition, medical care, etc.). In addition, financial strain placed on the family and parental distress may lead to marital conflict, parents blaming each other for the cause of the disease, and/or parental doubt about their own ability to provide for their children, or create viable children (Midence, 1994; Patterson, 1988). Further, parents often empathize with their affected children to an extent that they feel considerable helplessness about their ability to control the disease, thus compromising perceived competence and self-esteem (Patterson, 1988).

Adjustment difficulties are not limited to parents with affected children. Well siblings of children with chronic illnesses face a host of adjustment challenges as well. For example, similar to parents, siblings may begin to feel guilt about not being the ill child, or perhaps they think they did something to cause the illness. They may also feel fearful about potentially contracting the illness themselves (Patterson, 1988). Older well siblings may also take a parental role, particularly in single-parent families. This may demand increased care taking of the ill child, increased family responsibilities and contributions to family income, and sacrificing personal wants. Further, these siblings may serve as a significant emotional support for the parent (Patterson, 1988). All of these factors may cause significant distress in well siblings, and families in general with children affected by chronic illnesses.

The experience of having a child with JRA presents its own familial adjustment challenges. The findings of JRA psychosocial effects on the family are somewhat mixed (Reisine, 1995). Harris, Newcomb, and Gewanter (1991) found that JRA was not associated with negative psychosocial outcome. However, this study utilized and drew conclusions based on a considerably small sample (12 children with various rheumatic diseases and 12 healthy controls). In contrast, more properly designed and controlled investigations have demonstrated that psychological factors do indeed affect families managing JRA. For instance, parents of children with JRA have demonstrated the impact of the disease by expressing increased guilt, anxiety, anger, frustration, helplessness, powerlessness, and isolation (Barlow, Harrison, & Shaw, 1998). This study also found that parents' ability to cope with their child's pain and disability was compromised by inadequate support and lack of knowledge. Further, social barriers (e.g., school environment) were a significant source of distress for parents. Other social factors such as socioeconomic status (SES) may also be associated with poorer psychological adjustment in rheumatic diseases (Myones, Williams, Billings, & Miller, 1988). In addition, maladaptive family functioning has been associated with poorer patient medication compliance in children with JRA (Chaney & Peterson, 1989).

Internalized psychological maladjustment is not uncommon in parents with children experiencing JRA. For example, mothers of children with recent onset of rheumatic disease (median duration = 7 months) exhibited increased state anxiety, which was associated with the number of affected joints in their children (Vandvik & Eckblad, 1991). In addition, Timko, Stovel, and Moos (1992) found differential reporting of

depressive symptomatology between parents of children with rheumatic disease, with mothers reporting higher levels of depression compared to fathers. More importantly, children's pain, psychosocial difficulties, and functional disability contributed to poorer psychological functioning among both mothers and fathers. Other cross-sectional investigations of JRA have supported these findings. Lustig, Ireys, Sills, and Walsh (1995) found that maternal psychological functioning was significantly associated with biological and functional indices of severity. Further, these researchers emphasized the importance of mothers' cognitive appraisals of their children's disease impact on the family in determining maternal mental health.

Parental adjustment has also been related to child adjustment in several investigations. For example, Frank and colleagues (1998) found that maternal depression and parental distress was associated with child behavior problems. In addition, parental personality characteristics have been associated with child adjustment in children with JRD (Hagglund, Vieth, Sadler,Johnson, & Hewett, 2000). These researchers found that parental neuroticism was associated with poorer emotional and behavioral functioning, whereas parental conscientiousness was associated with lower reported pain and better emotional functioning in these children. Further, Varni Wilcox, and Hanson (1988) found that increased family social support significantly predicted decreased internalizing and externalizing behavior problems in children with JRA.

These findings were supported by a four-year longitudinal investigation in which mother's and father's distress and depressed mood were associated with poorer psychological adjustment in children with juvenile rheumatic disease over the study

period (Timko, Baumgartner, Moos, & Miller, 1993). Moreover, fathers' risk factors contributed independently of mothers' to predict children's outcome. In a nine-year longitudinal study, mothers of children with JRA demonstrated: 1) increased emotional distress, 2) lower marital relationship satisfaction, and 3) increased parental criticism toward their children (Aasland, Novik, Flato, & Vandvik, 1998). Thus, a review of the extant literature indicated that cross-sectional research has indicated a number of psychological factors in parents, siblings, and children with rheumatic disease that influence disease outcome in affected children, and these findings have been supported via longitudinal assessment as well. Unfortunately, there is a lack of research examining psychosocial adjustment in families affected by SLE, juvenile spondylarthropathies, or JDMS

Child Adjustment to JRD

It has been suggested that psychological comorbidity in individuals with chronic illnesses may occur because these individuals view their illness as negatively affecting most aspects of one's life (Ireys et al., 1994). Indeed, these authors found that young adults with chronic illness reported high levels of psychological symptomatology. Explanations as to why this population is at increased risk for psychological maladjustment have varied. One study that offers a plausible explanation for the etiology of emotional maladjustment examined the role of inevitable uncontrollable negative outcomes in the formation of psychological symptomatology (Andersen & Lyon, 1987). Results indicated that this type of contingency produced increases in anxiety and

depressive symptomatology. Moreover, increases in anxiety tended to co-occur with increases in depression.

Research examining juvenile rheumatic diseases has yielded results that are consistent with chronic illness in general. For example, a study examining the effects of severe versus mild rheumatic illness on psychosocial and disease outcome revealed that individuals in the severe group were more socially impaired by missing more school days and participating in fewer social activities (Billings et al., 1987). When assessing psychiatric diagnosis and dysfunction, Vandvik (1990) found that half of a sample of children with rheumatic disease met diagnostic criteria for psychiatric diagnosis, and 64% of patients demonstrated at least mild psychosocial maladjustment. However, a significant limitation to this study was that children who only had a tentative (i.e., unconfirmed) diagnosis of JRA were included. In a more controlled evaluation, Timko, Stovel, Baumgartner, and Moos (1995) provided adequate support for these findings. These researchers found that children with rheumatic disease who experienced acute negative events reported more depressive symptomatology and dysfunctional behavior. Further, after these negative life events were statistically controlled, chronic interpersonal stressors predicted the aforementioned negative outcomes. In addition, after both acute and chronic stressors were statistically controlled, social functioning was still predictive of depressed mood. In another study, Timko, Stovel, Moos, and Miller (1992) found that JRA patients with moderate to severe functional losses demonstrated more psychological and social difficulties than did patients with mild functional losses. Further, the more affected subgroup continued to engage in fewer physical activities than the less severe

subgroup over a one-year period. Moreover, it has been suggested that JRD patients with more severe disease activity may experience increased physical and psychological difficulties than those with less active disease (e.g., Jaworski, 1993).

Thus, it appears that children with JRA are also at risk for developing various psychosocial difficulties. Indeed, these children have been found to express perceptions of diminished competency in athletic abilities, poorer peer relations, feeling less attractive, and poorer self-worth, particularly if they reported many negative disease experiences (Ennett et al., 1991). Children with JRA have also been shown to internalize psychological difficulties more than externalize them (Daltroy et al., 1992). These findings were supported by David and colleagues (1994) who found that 21% of a sample of 43 JRA patients was clinically depressed, and the rate of depression and anxiety increased with the degree of disability. Similarly, in a sample of 78 JRA patients, children's psychological distress significantly predicted greater reported pain beyond the influence of disease parameters (Ross et al., 1993). Further, Varni and colleagues (1988) demonstrated the significant predictive utility of internalizing (i.e., anxiety and depression) and externalizing (i.e., acting out) behavior problems in determining functional status in children with JRA. These findings demonstrate the association between psychological comorbidity and JRA disease-specific outcome.

Perceptions of functional ability may have lasting effects on children with JRA. Indeed, adults who had JRA as children have reported significant lasting effects such as greater disability, pain, and fatigue, and poorer health and physical functioning in addition to long-term psychosocial impairment (Peterson, Mason, Nelson, O'Fallon,

Gabriel, 1997). Importantly, the long-term psychosocial effects of JRA has yet to be demonstrated without some debate. Aasland, Flato, and Vandvik (1997) found no significant psychological difficulties in a sample of JRA patients in a nine-year longitudinal investigation. However, this study was only able to retain 17% of the original sample, resulting in examination of only 9 patients over the study period. Thus, it appears that children with JRA are at risk for experiencing a wide range of psychological and social difficulties. These problems are often associated with disease-specific outcomes such as pain and disability, and may have long-term effects, lasting well into adulthood.

The literature examining the psychological comorbidity in other juvenile rheumatic diseases is negligible. In general, prior research has demonstrated that individuals with SLE may experience increased distress in the form of anger, guilt, depression, and anxiety (Emery, 1986). However, other research has failed to identify significant levels of overall distress in SLE patients (e.g., Mitchell & Thompson, 1990). Given the general disagreement and lack of well-controlled research examining psychological concomitants of SLE, there is clearly a need for further research in this area. There is no known literature examining child psychological adjustment in juvenile spondylarthropathies or JDMS. However, based on the numerous similarities across the JRD diseases, it is likely that individuals with these latter two diseases experience psychological comorbidity no unlike that in JRA and SLE.

Learned Helplessness Theory

The theory of learned helplessness (Abramson et al., 1978) has been used to explain motivational and cognitive deficits resulting from the experience of uncontrollable outcomes. This theory states that, when an organism makes continuous unsuccessful attempts at escaping aversive outcome, the organism eventually learns that no response in its behavioral repertoire will result in positive outcome. Thus, the organism learns that the aversive outcome is unavoidable and subsequently discontinues efforts to affect change in the environment.

Abramson and colleagues (1978) proposed a cognitive reformulation of this theory to account for the unique human experience of learned helplessness. This reformulation utilized attribution theory to explain learned helplessness in humans. Briefly, the model posits that once humans perceive noncontingency in the environment, they attribute the experience of helplessness to a cause. This cause is assessed across three primary dimensions: 1) internal/external, which refers to the degree to which an individual perceives that an event is caused by personal factors, 2) stable/unstable, which refers to the degree to which causes are attributed to temporal or transient factors, and 3) global/specific, which refers to the degree to which causes are attributed to a variety of contexts versus specific situations (e.g., Peterson et al., 1982). According to this theory, the attribution made by the individual will inform whether expectations of future helplessness will be chronic or acute, broad or narrow, and whether helplessness will produce deficits in self-esteem or other cognitive appraisal mechanisms (Abramson et al., 1978).

There has been a plethora of research examining learned helplessness theory utilizing attributional style to predict psychological and cognitive outcome. The results of these investigations have overwhelmingly supported the predictions of the reformulated model, which suggests that individuals who display a pessimistic attributional style (i.e., internal, stable, and global attributions for negative events) are at risk for developing depressive symptomatology (Alloy, Peterson, Abramson, & Seligman, 1984). Indeed, a meta-analysis of the relationship between attributional style and depression including 104 studies with over 15,000 participants supported this association (Sweeney, Anderson, & Bailey, 1986). In addition, individuals with a pessimistic attributional style have demonstrated learned helplessness effects through increased rates of depression after experiencing academic failure (Metalsky, Abramson, Seligman, Semmel, & Peterson, 1982). Further, young adults with both a pessimistic attributional style and depression have demonstrated deficits in academic performance (Fazio & Palm, 1998). These performance deficits have also been demonstrated in children. Indeed, in a longitudinal study of 168 children, Nolen-Hoeksema, Girgus, and Seligman (1986) found that children who exhibited internal, stable, and global attributions for negative events or external, unstable, specific attributions for positive events demonstrated higher rates of depression and more achievement difficulties. Thus, there is a clear relationship between pessimistic attributional style and susceptibility to depression and performance deficits.

Learned helplessness, and the necessary component attributional style, has also been examined as a risk factor for illness and chronic disease sequela. For example, Peterson (1988) found that individuals who demonstrated stable and global attributions

for negative events subsequently experienced more days of illness and more visits to their physician. Moreover, these individuals also reported more unhealthy habits, lower self-efficacy to change bad habits, and more stressful life events than participants who exhibited unstable and specific causes for negative events. These findings suggest that individuals who experience a higher incidence of illness may express a pessimistic attributional style, and that such an attributional style may negatively influence health-maintaining behaviors.

Research examining the role of causal attributions in chronic illnesses has generally supported the theory of learned helplessness. In a study of maternal attributions of children's illness, Dadds and colleagues (1995) found that mothers' attributions were related to children's overall adjustment, medical visits, and hospitalizations. The results of this study offer support for the systemic influence of attributions on chronic illness outcomes. However, most of the extant literature has examined the role of attributions of the affected individual in determining disease outcome. For example, Wiebe (1999) found that attributional style moderated the influence of illness-related stress on depressive symptomatology. In addition, internal attributions for spinal cord injury have been associated with poorer short-term adjustment (Richards et al., 1997). Further, the relationship between internal and global attributions for negative events and depression in rheumatoid arthritis has been demonstrated cross-sectionally with perceived control serving as a moderator of this relationship (Chaney et al., 1996). Further, Hommel and colleagues (1998) conducted a prospective, direct comparison of the predictive utility of attributional style and arthritis-specific helplessness in rheumatoid arthritis. These

researchers found that internal, global, and composite (i.e., combined influence of internal, stable, and global) attributions for negative events predicted subsequent variation in depressive affect beyond the influence of disease parameters and arthritis helplessness.

Helplessness has also been found to influence disease outcome in other rheumatic diseases such as fibromyalgia and systemic lupus erythematosus. For example, lupus patients who report a higher degree of helplessness have been found to report greater comorbid depression (Tayer, Nicassio, Radojevic, & Krall, 1996). In addition, helplessness has been demonstrated as a mediator of the relationship between pain/disability and depression in individuals with fibromyalgia (Nicassio, Schuman, Radojevic, & Weisman, 1999). Learned helplessness effects on depression have also been investigated in children with diabetes (Kuttner, Delamater, & Santiago, 1990). These researchers examined the relationship between attributional style and depressive symptomatology in a sample of 50 children with diabetes. The results of this study are consistent with the extant literature in that a pessimistic attributional style was significantly associated with depressed affect. More importantly, these results also demonstrated that this maladaptive attributional style was associated with poorer metabolic control. Thus, Kuttner and colleagues (1990) found that learned helplessness was associated with behaviors that influence functional outcome in diabetes. However, as the researchers note, it is difficult to determine without experimental examination whether poorer metabolic control was a result of learned helplessness effects or an antecedent thereof.

Finally, in the only known experimental study of learned helplessness effects in chronic illness, Chaney and colleagues (1999) utilized a computerized induction procedure to examine the effect of noncontingent environmental feedback in older adolescents and young adults with asthma. These researchers examined 39 individuals with asthma and 94 healthy (i.e., no chronic illnesses) individuals. The results of this study indicated that individuals with long-standing asthma are at risk for 1) depressive symptomatology, and 2) learned helplessness effects in the form of performance deficits. This latter finding is quite important in understanding a disease such as asthma that requires a high degree of monitoring and behavioral disease management. Behavioral management is very important for individuals with JRD as well. Moreover, the unpredictable nature of disease exacerbations in JRD provides a conceptual link to learned helplessness theory. Thus, there are a few primary considerations for conducting the present investigation.

Self-Efficacy Theory

Unfortunately, children with JRD and comorbid psychological maladjustment often do not engage in behaviors that may improve physical and psychological functioning. As previously suggested, it may be that the experience of noncontingency in the natural environment has deleterious effects, both emotionally and cognitively. These cognitive effects may decrease motivation and perceptions of ability to engage in health promoting behaviors. A theory that proposes and explanation for this phenomenon has received considerable attention in chronic illness literature.

Bandura (1977) examined the theory of self-efficacy as an explanation of psychological motivation and change. Briefly, this model posits that expectations of personal efficacy for various behaviors determine 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. Further, expectations of personal efficacy are derived from four primary sources of information: performance accomplishments, vicarious experience, verbal persuasion, and physiological states. 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.

Health benefits of enhanced self-efficacy have been reported in various studies (Holden, 1991). For example, an inverse relationship between self-efficacy and pain intensity and interference has been observed in chronic pain and cancer populations (e.g., Karoly & Lecci, 1997; Lin, 1998). Moreover, personal efficacy has been found to predict variations in health related quality of life (Kempen et al., 1997), and initiation and continuation of disease management behaviors (Shortridge-Baggett & van der Bijl, 1996). In addition, in a study examining the impact of self-efficacy on disease management behaviors revealed that this construct was a significant prospective predictor of regimen adherence, stress management, diet adherence, and physical activity (Clark & Dodge, 1999). Penninx and colleagues (1998) also reported the favorable impact of

greater self-efficacy on depressive symptomatology in individuals with various chronic illnesses. Further, perceptions of individuals' ability to manage disease functioning have been demonstrated as a significant predictor of the extent to which chronic pain patients become functionally disabled (Arnstein, Caudill, Mandle, Norris, & Beasley, 1999).

Support for this finding has been offered by several studies including those examining rheumatic diseases. For example, Dwyer (1997) found that self-efficacy influenced variations in perceived physical functioning in individuals with rheumatoid arthritis. In addition, individuals with rheumatoid arthritis exhibiting higher levels of self-efficacy have had lower levels of disability, pain, depression, and anxiety (Beckham, Rice, Talton, Hems, & Young, 1994; Lefebvre et al., 1999). Further, Schiaffino and Revenson (1992) examined the mediational and moderational role of perceived self-efficacy, perceived control, and attributional style in rheumatoid arthritis. The results of this investigation revealed that cognitive appraisals demonstrated moderational processes in determining disease outcome. Indeed, self-efficacy mediated the relationship between perceived control and disability.

Thus, there is ample evidence in the chronic illness literature to suggest that self-efficacy is a salient cognitive appraisal mechanism in understanding disease outcome. However, less attention has been given to the study of self-efficacy in rheumatic diseases. Moreover, very little research has examined this construct in pediatric populations, particularly children with JRD.

Summary

JRD is a set of debilitating chronic illnesses characterized by joint inflammation and variable and unpredictable disease courses. Individuals with these illnesses often undergo complex treatment regimens, and may also develop comorbid psychological difficulties (Ross et al., 1993). In addition, psychological maladjustment may develop in healthy family members such as parents and siblings (Timko et al., 1993). Further, children with JRD who demonstrate psychological comorbidity may be at long-term risk for cognitive dysfunction with respect to perceptions of functional ability (Peterson et al., 1997).

Because of the persistent unpredictable nature of JRD, affected children may develop a decreased sense of control over their disease, or learned helplessness (Abramson et al., 1978), and diminished sense of personal agency in effecting desired outcomes (i.e., lower self-efficacy). Subsequently, they may discontinue their efforts to effectively manage disease processes. Unfortunately, little research has examined the effects of learned helplessness in pediatric chronic illnesses, and no research has experimentally examined this theory in children with JRD. In fact, only one known investigation has utilized an experimental induction procedure to examine the effects of learned helplessness and utilized a pediatric illness population (Chaney et al., 1999). These researchers demonstrated that an analogue learned helplessness procedure can produce both affective and cognitive deficits resulting in more negative affect and poorer performance.

Self-efficacy (Bandura, 1977), or the extent to which an individual perceives that he/she can produce desired outcome in the environment, has been examined as a predictor of disease management behavior in chronic illnesses (e.g., Clark & Dodge, 1999). Generally, research has shown that lower perceived self-efficacy is associated with poorer disease outcome (e.g., greater pain and disability), and higher self-efficacy is associated with lower disability, pain, depression, and anxiety (e.g., Beckham et al., 1994).

In general, little research has examined the role of learned helplessness or self-efficacy in pediatric chronic illnesses. Moreover, there are no known experimental investigations of learned helplessness and its effects on self-efficacy and affective comorbidity in chronic illness populations. Further, JRD represents an understudied chronic disease population, particularly with respect to the two aforementioned cognitive variables. Thus, there are numerous reasons for empirically examining learned helplessness and self-efficacy in children with JRD.

CHAPTER III

THE PRESENT STUDY

The present study was designed to experimentally examine the effects of learned helplessness on two disease outcome variables (i.e., negative affect and self-efficacy for functional ability) in children with JRD. An analogue learned helplessness induction procedure was utilized to conduct the experiment. This procedure involved a computerized concept-formation task similar to the one utilized by Chaney and colleagues (1999). Pretreatment and posttreatment measures of positive and negative affect and self-efficacy for functional ability were given to participants to determine the effects of the learned helplessness induction procedure. Further, the effects of the learned helplessness induction procedure on internal causal attributions were examined.

Primary Hypotheses

Hypothesis One

Participants assigned to the noncontingent feedback condition will demonstrate significant pre-posttreatment differences in negative affect. Specifically, posttreatment negative affect scores will be significantly greater than pretreatment scores.

Hypotheses Two and Three

Participants assigned to the noncontingent feedback condition will demonstrate significant pre-posttreatment differences in self-efficacy for functional ability as will participants assigned to the contingent feedback condition. Specifically, for children in the noncontingent condition, posttreatment self-efficacy scores will be significantly lower than pretreatment scores. Further, for children in the contingent condition, posttreatment self-efficacy scores will be significantly higher than pretreatment scores.

Hypothesis Four

Participants assigned to the contingent feedback condition will demonstrate significant pre-posttreatment differences in positive affect. Specifically, posttreatment positive affect scores will be significantly greater than pretreatment scores.

CHAPTER IV

METHOD

Participants

A total of 55 prospective participants were solicited for inclusion in the present study. Two prospective participants declined to participate, one was unable to demonstrate adequate comprehension of the measures or experimental procedure involved in the study, one demonstrated a random response style on the posttreatment measures (i.e., the participant was observed providing responses to the majority of the posttreatment questions without first reading them), and one exhibited an acute increase in anxiety prior to the onset of the experiment. Data on these participants were not included in the final sample.

The final study sample was comprised of 50 children and adolescents (30 female, 20 male) between the ages of 8 and 21 ($\underline{M}$ = 15.12, $\underline{SD}$ = 3.16) who had been diagnosed with juvenile rheumatoid arthritis (JRA; N = 27), systemic lupus erythematosus (SLE; N = 13), juvenile spondylarthropathies (N = 6), and juvenile dermatomyositis (JDMS; N = 4), collectively referred to as juvenile rheumatic diseases (JRD). The sample consisted of 42% Caucasians (N = 21), 20% African American (N = 10), 20% American

Indian (N = 10), 10% Hispanic (N = 5), and 8% biracial (N = 4). Descriptive statistics for key study variables are presented in Table A1 (see Appendix A).

Participants were recruited from the pediatric rheumatology clinic located in the Children's Hospital of Oklahoma. Inclusion criteria for participation were as follows: 1) the child had a diagnosis of a JRD, 2) the child was between the ages of 7 and 21 years, and 3) the duration of the child's disease symptoms had been at least six months. Exclusion criteria for participants were as follows: 1) the child had comorbid cognitive deficits (e.g., mental retardation) that precluded him/her from understanding the protocol tasks, and 2) the child had a comorbid chronic illness. The primary physician verified inclusion criteria before participants were contacted for solicitation. Exact illness duration ($\underline{M}$ = 2.32, $\underline{SD}$ = 2.42) was calculated by subtracting date of diagnosis from date of participation. Participants were compensated monetarily with $5.00 for their participation.

Information pertaining to inclusion criteria was obtained for prospective participants from the pediatric rheumatologist. Parents of patients meeting inclusion criteria were contacted by telephone and informed of the proposed study, its objectives, and potential benefits to those who have JRD. They were given the opportunity for participation upon their upcoming scheduled visit to the rheumatology clinic. Each participant was scheduled for an individual session, which immediately followed a scheduled outpatient appointment with the rheumatologist.

Instruments

Background Information Questionnaire

A questionnaire was designed to obtain the following information: age, gender, ethnicity, education level, marital status, parents' occupation, parent's education level, living arrangement, psychoactive medication information, psychotherapy treatment status, JRD-related therapy, health care utilization, and interference of disease with school/work. Subjective assessments of severity and control over the participants' JRD, subjective assessments of other individuals' control over the participants' JRD, importance of performing activities of daily living (ADL), and disease activity was assessed by a series of questions utilizing a 7-point Likert scale (see Appendix B). A number of these data points were gathered as part of a larger study. Only age was included in the present analyses.

Provider Questionnaire

A questionnaire was designed to obtain patient information from the physician regarding diagnoses, date of diagnoses, and current medication regimen. Current disease activity, regimen adherence relative to other patients, and coping efficacy relative to other patients was assessed by a series of questions utilizing a 7-point Likert scale (see Appendix C). Similar to the Background Information Questionnaire, only a portion of these data were examined in the present study (i.e., diagnoses, date of diagnoses, and current disease activity).

Children's Depression Inventory (CDI)

The CDI (Kovacs, 1983; 1992) is a 27-item instrument used to assess the severity of major depression symptomatology in children. Each of the items on the CDI is a group of three statements that combine to measure the severity of a single depressive symptom on a 0 to 2 scale. Scores are derived by summing the 27 items for an overall index of depressive symptomatology. The CDI has been shown to be a reliable (internal consistencies ranging from .71 to .89) and valid measure of depressive symptomatology in children. Internal consistency (Cronbach, 1951) for the present sample was .88 (see Appendix D).

Functional Ability Self-Efficacy Scale for Children (FASE-Child)

The FASE-Child was developed from a measure of perceived self-efficacy for adult arthritis patients (e.g., Lorig, Chastain, Ung, Shoor, & Holman, 1989). The FASE-Child is a 15-item instrument divided into two subscales: function (i.e., performance) (9 items) and other symptoms (i.e., control) (6 items) used to assess respondents' perceived self-efficacy in performing tasks related to functional ability. Respondents are asked to rate the extent to which they feel confident in their ability to perform tasks related to functional abilities at the present moment on a 10 point Likert scale ranging from 1 (very unconfident) to 10 (very confident). Scores are derived by summing the items in each subscale. Mean scores for each subscale can be used as an alternate scoring option. The FASE-Child was used as a pretest/posttest measure to assess the effects of the

computerized concept-formation task on perceived self-efficacy in performing tasks related to functional ability. Internal consistencies in the present sample for Time 1 and Time 2 performance self-efficacy were .90 and .93, respectively. For Time 1 and Time 2 control self-efficacy, internal consistencies were .88 and .91, respectively (see Appendix E).

Positive and Negative Affect Schedule (PANAS)

The PANAS (Watson, Clark, & Tellegen, 1988) consists of 20 mood descriptors (e.g., interested, distressed, irritable, etc.). Respondents are asked to rate the extent to which they experience each mood for a specific time period (e.g., at the present moment, during the past week) on a 5-point Likert scale ranging from 1 (very slightly or not at all) to 5 (extremely). Ten items on the scale assess negative affect, and 10 items assess positive affect. Scores are derived by summing the items for each subscale (i.e., positive affect and negative affect). The PANAS has been shown to be a reliable (i.e., internal consistencies range from .86 to .90 for the positive affect subscale, and from .84 to .87 for the negative affect subscale) and valid measure of transient mood. Internal consistencies in the present sample for Time 1 and Time 2 positive affect were .88 and .90, respectively. For Time 1 and Time 2 negative affect, internal consistencies were .88 and .88, respectively. The PANAS was used as a pretest/posttest measure to assess the effects of the computerized concept-formation task on transient mood (see Appendix F).

Internal and External Attribution Scale (ATTRIB)

A single-item question measured on a 7-point Likert scale was used to assess the degree to which participants explain success/failure internally versus externally for their performance on the computer task. Participants were asked, "Do you think that your performance on the (upcoming/previous) task (will be/was) due to something about you or something about other circumstances?" The design of this measure corresponds to items on the Attributional Style Questionnaire (Peterson et al., 1982). Responses can range from 1 (totally due to other circumstances) to 7 (totally due to me). Higher scores indicate more internal attributions for computer task performance. This measure was used as a pretest/posttest measure to determine if the participant experienced a change in locus of control as a function of the experimental manipulation. Previous experimental studies on chronically ill youth have demonstrated the utility of this measure (e.g., Chaney et al., 1999) (see Appendix G).

Experimental Task

The experimental treatment procedure utilized was a computerized version of a standard concept-formation task (e.g., Levine, 1971), similar to the task originally used by Hiroto and Seligman (1975) and others (e.g., Benson & Kennelly, 1976). The task was similar to that used in Chaney et al. (1999) with the following modifications: 1) the original DOS version was changed to a Windows compatible version utilizing point-and-click responses, 2) the letters in the stimuli were changed to be less ambiguous, and 3) the instructions were modified such that they could be better understood by children. During

this procedure, participants were seated at a computer terminal in a private room and given the following standardized instructions:

> In this task you will be presented with several problems. Each problem consists of a series of displays like the one in the bottom right-hand corner of the screen. Each display will contain a letter "Y" and a letter "Z." You will also see that one letter will be surrounded by a square and the other by a circle, and that one background will be red and the other will be blue. Every display will be like this one except that the letters, the surrounding shapes, and the background colors will be combined in different ways.
>
> One of the two patterns, either the top or the bottom, has been chosen to be the right pattern. For each display, you are to indicate which of these two you think is the right pattern and the computer will tell you whether you are "right" or "wrong." Then you go on to the next display, again you make a choice, and again the computer will tell you whether you are "right" or "wrong."
>
> In this way you can learn the reason for the computer saying "right" or "wrong." The reason may be because of the letter, the surrounding shape, or the background color. The object for you is to figure this out as fast as possible so that you can choose correctly as many times as possible.
>
> For each display you are to indicate which of the two patterns you think is right and the computer will tell you whether you are "right" or "wrong."
>
> To choose a pattern, click on it once.

Participants were given examples of how the task is to be performed. Then participants were presented with a series of 40 stimulus patterns on the computer screen; the patterns were grouped into four sets of problems, with 10 trials for each problem. At the end of the tenth trial, the stimulus dimension (e.g., the letter Z) associated with a correct response changed automatically, requiring participants to determine the new correct stimulus dimension (e.g., the color blue).

As part of the standardized instructions, all participants were given the perception that the task was solvable and that determining the correct dimension (i.e., letter, color, shape) of the stimulus pattern is attainable. However, only half of the participants

received solvable problems with response-contingent correct and incorrect feedback on their performance. In other words, participants in this experimental condition were given feedback that allowed them to eventually discover the correct stimulus pattern. Participants in the response-noncontingent treatment condition received unsolvable problems with response-noncontingent correct and incorrect feedback on their performance. Participants in this condition were unable to determine the correct stimulus pattern due to random performance feedback and, subsequently, were not able to correctly identify any of the patterns across the four blocks of 10 trials.

Upon completion of the experimental concept formation task, the participant's score was displayed and the researcher commented to the participant about his/her performance. For participants receiving the contingent condition, the researcher said, "Hmm, it looks like you did very well. You got [x] correct. That's one of the highest scores I've seen. The average score is about [x-5]." For participants receiving the noncontingent condition, the researcher said, "Hmm, it looks like you didn't do very well. You got 15 correct. I guess you're just not very good at this sort of thing. The average score is about 20." The researcher was blind to the experimental condition until the test was scored.

Procedure

Prior to arrival for their appointment, participants were randomly assigned to one of two experimental conditions (i.e., response-contingent or response-noncontingent feedback) on the computerized concept-formation task; the experimenter remained

uninformed of the participant's condition assignment. At the beginning of each appointment, the participant and his/her parent(s) (depending on the participant's age) were given an informed consent form to read and sign. The individual session was subsequently conducted in three or four phases, depending on condition assignment.

Phase 1 – Pretreatment Phase: The participant completed the background information questionnaire, CDI, FASE-Child-T1, PANAS (Immediate)-T1, and the ATTRIB-T1; the physician simultaneously completed the Provider Questionnaire.

Phase 2 – Treatment Phase: The participant completed the computerized concept-formation task on which he/she received either response-contingent or response-noncontingent feedback for their performance.

Phase 3 – Posttreatment Phase: The participant again completed the FASE-Child-T2, PANAS (Immediate)-T2, and ATTRIB-T2.

Phase 4 – Reversal Phase: For participants in the noncontingent feedback condition, a fourth phase was added. Although research has demonstrated that experimental induction of learned helplessness in children results in no deleterious side effects (Silverman, 1986), and does not generalize to other situations post-induction (Tuffin, Hesketh, & Podd, 1985), it is important to rule out the possibility of negative effects due to noncontingent feedback. Thus, in order to reverse the potentially negative effects of noncontingent feedback, participants in this condition completed an additional, abbreviated (i.e., 20 items) concept formation task prior to debriefing in which the

feedback was contingent. This was similar to other research utilizing a post-induction reversal procedure, which demonstrated that reversal effects persisted indefinitely (e.g., Nolen-Hoeksema et al., 1986). During this additional phase, the researcher stayed with the participant and coached him/her in making correct choices. In addition, participants were verbally praised for responses.

Phase 5 – Debriefing Phase: Participants in both conditions and their parent(s) were informed of the experimental manipulation, the objectives of the study, and potential benefits of the study immediately following the experimental session. The researcher reviewed possible reactions and negative feelings that the participants might have experienced as a result of the study. Referral sources were provided to participants who demonstrate negative effectivity post-debriefing. The total amount of time for each individual session was approximately 45 minutes to one hour.

CHAPTER V

RESULTS

Data Entry Procedure and Instruments

Preliminary and primary statistical analyses were conducted utilizing the Statistical Package for the Social Sciences (SPSS) program, version 7.0. Data entry was performed in a manner that allowed for cross-validation. Two separate databases were created by two separate researchers to provide for comparison of data entry accuracy. Verification of data entry was conducted using the SPSS Data Entry Builder program, which identified inconsistencies between the two databases under comparison. These inconsistencies were resolved and analyses were subsequently conducted. Thus, precautions were taken to ensure the accuracy of data entry for the present study.

Preliminary Analyses

Preliminary analyses were conducted to examine the effectiveness of random assignment of participants to contingent or noncontingent feedback conditions on the experimental induction procedure. A one-way Multivariate Analysis of Variance (MANOVA) test was conducted to examine potential differences in condition assignment on pretreatment levels of positive affect, negative affect, self-efficacy for functional

ability (performance and control), internal task attributions, and depression. Results of this test yielded no significant differences in these variables as a function of condition assignment [$F(6,43) = .75$, $p = .62$], as did univariate tests for positive affect ($F = .95$, $p = .33$), negative affect ($F = .01$, $p = .94$), performance self-efficacy for functional ability ($F = .05$, $p = .83$), control self-efficacy for functional ability ($F = .48$, $p = .49$), internal task attributions ($F = .14$, $p = .71$), and depression ($F = .27$, $p = .61$). A second MANOVA was conducted to examine potential differences between participants in each condition on demographic and disease-related variables (i.e., age, illness duration, and physician-rated illness severity). Results of this test yielded no significant differences in these variables as a function of condition assignment [$F(3,46) = 1.15$, $p = .34$], as did univariate tests for age ($F = .63$, $p = .43$), illness duration ($F = 2.69$, $p = .11$), and physician-rated illness severity ($F = .01$, $p = .93$).

Bivariate correlational analyses were also conducted to examine potential significant relationships between CDI depression and the primary outcome variables. Results of these analyses revealed that depression was significantly associated with pretreatment levels of positive affect [$r(49) = -.40$, $p < .01$], negative affect [$r(49) = .42$, $p < .01$], and control self-efficacy for functional ability [$r(49) = -.39$, $p < .01$], and posttreatment levels of positive affect [$r(49) = -.39$, $p < .01$], negative affect [$r(49) = .40$, $p < .01$], and control self-efficacy for functional ability [$r(49) = -.36$, $p < .01$]. In addition, illness severity was significantly associated with pretreatment levels of performance self-efficacy for functional ability [$r(49) = -.38$, $p < .01$]. Zero-order correlations are presented in Table A2. Because 30% of the sample demonstrated clinically elevated levels of

depression and both depression and illness severity were significantly correlated with several of the primary outcome measures, these variables were utilized as covariates in the primary analyses. Further, because there was considerable range in participants' age, it was also covaried in the primary analyses.

Primary Analyses

Hypothesis One

Participants assigned to the noncontingent feedback condition will demonstrate significant pre-posttreatment differences in negative affect on the PANAS. Specifically, it was hypothesized that posttreatment negative affect scores would be significantly greater than pretreatment scores. A mixed design 2 X 2 (Condition X Time) Multivariate Analysis of Covariance (MANCOVA) was conducted to test this hypothesis by examining the effect of Condition on pre-posttreatment levels of negative affect while statistically controlling covariance effects of depression, illness severity, and age on negative affect. Results revealed no significant Condition X Time interaction effects [$F(1,48) = .40$, $p = .53$] or main effects for Condition [$F(1,45) = .01$, $p = .91$] or Time (i.e., pretreatment to posttreatment) [$F(1,48) = .13$, $p = .72$].

Hypotheses Two and Three

Participants assigned to the noncontingent feedback condition will demonstrate significant pre-posttreatment differences in self-efficacy for functional ability as will participants assigned to the contingent feedback condition. Specifically, for children in

the noncontingent condition, it was hypothesized that posttreatment self-efficacy scores would be significantly lower than pretreatment scores. Further, for children in the contingent condition, it was hypothesized that posttreatment self-efficacy scores would be significantly higher than pretreatment scores. Two mixed design 2 X 2 (Condition X Time) MANCOVAs were conducted to test these hypotheses by 1) examining the effect of Condition on pre-posttreatment levels of performance self-efficacy for functional ability, and 2) examining the effect of Condition on pre-posttreatment levels of control self-efficacy for functional ability. Covariance effects of depression, illness severity, and age on the dependent variables (i.e., performance self-efficacy and control self-efficacy, respectively) were statistically controlled. Results of the first analysis revealed no significant Condition X Time interaction effects [$F(1,48) = .01$, $p = .91$] or main effects for Condition [$F(1,45) = .03$, $p = .87$] or Time [$F(1,48) = .01$, $p = .91$]. Results of the second analysis revealed no significant Condition X Time interaction effects [$F(1,48) = .43$, $p = .52$] or main effects for Condition [$F(1,47) = 1.21$, $p = .28$] or Time [$F(1,48) = .22$, $p = .64$].

Hypothesis Four

Participants assigned to the contingent feedback condition will demonstrate significant pre-posttreatment differences in positive affect. Specifically, it was hypothesized that posttreatment positive affect scores would be significantly greater than pretreatment scores. A mixed design 2 X 2 (Condition X Time) MANCOVA was conducted to test this hypothesis by examining the effect of Condition on pre-

posttreatment levels of positive affect while statistically controlling covariance effects of depression, illness severity, and age on positive affect. Results of this analysis revealed that, although positive affect did not change as a direct function of Condition [$F(1,47) = .54$, $p = .47$], there was a significant main effect for Time [$F(1,48) = 4.70$, $p < .05$]. However, this main effect was qualified by a significant Condition X Time interaction [$F(1,48) = 4.15$, $p < .05$]. Examination of group means indicated that, whereas positive affect levels remained relatively stable across Time in the contingent condition, positive affect decreased across Time in the noncontingent condition (see Figure 1).

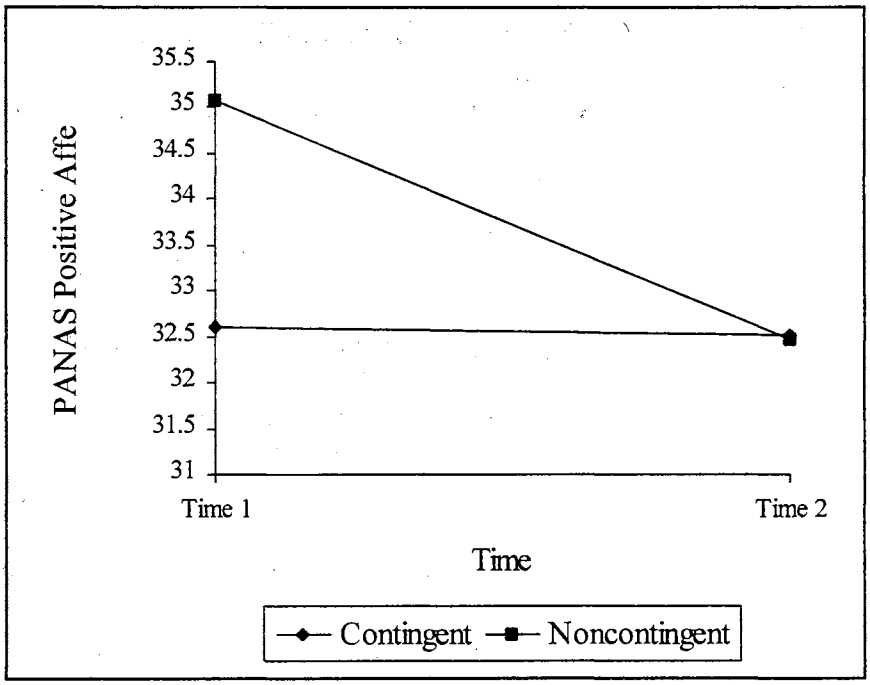

Figure 1. Interaction of Condition X Time on Positive Affect.
Note: PANAS = Positive and Negative Affect Schedule;
Time 1 = pretreatment; Time 2 = posttreatment.

Exploratory Analyses

Based on the preliminary findings of this study, several exploratory questions were examined. Because significant reductions in positive affect occurred for individuals in the noncontingent feedback condition, and prior research (e.g., Chaney et al., 1999) has demonstrated the effects of noncontingency on performance expectancies, it was speculated that similar Condition effects might occur for pre-posttreatment internal task attributions. In addition, based on the significant correlation between depression and control self-efficacy, it was thought that depression might serve as a moderator in the relationship between type of feedback and self-efficacy for functional ability. Further, the primary analyses provided for the examination of noncontingent feedback effects across the entire sample. Unfortunately, this did not take into account the possibility that some of the participants (e.g., those whose disease was more severe) may have experienced a greater degree of noncontingent environmental feedback than others, and thus be more susceptible to the experimental induction procedure. It was anticipated that those participants who demonstrated greater disease severity would exhibit poorer transient affect and lower self-efficacy for functional ability following exposure to noncontingent experimental feedback.

Thus, four additional research questions with respect to learned helplessness conceptualizations of chronic illness adjustment were developed. The first exploratory research question addressed the extent to which the interaction of Condition X illness severity contributed to poorer transient affect and lower self-efficacy for functional ability. The second exploratory research question addressed the extent to which

contingent/noncontingent feedback conditions affected attributions for experimental task performance. The third and fourth exploratory research questions concerned examination of the potential moderating roles of depression and internal task attributions in the relationship between contingent/noncontingent feedback conditions and self-efficacy for functional ability (performance and control).

Exploratory Analysis One

Two separate hierarchical multiple regression equations were constructed to examine the interaction of Condition X illness severity on Time 2 performance and control self-efficacy for functional ability. On Step 1 of the first equation, Time 1 performance self-efficacy for functional ability, depression, age, and illness severity were entered. Condition and Time 1 internal task attributions were entered on Step 2, followed by the Condition X illness severity interaction term on Step 3. Results revealed that the interaction of Condition and illness severity did not contribute significant variance to Time 2 performance self-efficacy for functional ability (see Table A3).

In the second regression equation, Time 1 control self-efficacy, depression, age, and illness severity were entered on Step 1. Steps 2 and 3 were the same as in the first regression (see Table A3). Consistent with the first regression, results indicated that the interaction of Condition and illness severity did not contribute significant variance to Time 2 control self-efficacy for functional ability [F change = .00, p = .97]. Two additional hierarchical multiple regression equations were constructed to examine the interaction of Condition X illness severity on Time 2 positive and negative affect. On

Step 1 of the first equation, Time 1 positive affect, age, and illness severity were entered. Condition and depression were entered on Step 2, followed by the Condition X illness severity interaction term on Step 3. Results revealed that the interaction of Condition and illness severity did not contribute significant variance to Time 2 positive affect (see Table A4).

In the second regression equation, Time 1 negative affect, age, and illness severity were entered on Step 1. Steps 2 and 3 were the same as in the first regression (see Table A4). Consistent with the first regression, results indicated that the interaction of Condition and illness severity did not contribute significant variance to Time 2 negative affect [F change = 2.81, p = .10].

Exploratory Analysis Two

A mixed design 2 X 2 (Condition X Time) MANCOVA was conducted to test the effect of Condition on pre-posttreatment levels of internal task attributions, while statistically controlling covariance effects of depression, illness severity, and age on internal task attributions. Results revealed that internal task attributions did not change as a direct function of Condition [F(1,45) = 1.90, p = .17] or Time [F(1,48) = .03, p = .86]. However, a significant Condition X Time interaction was observed [F(1,48) = 4.37, p < .05]. Examination of group means indicated that, whereas internal task attribution ratings remained relatively stable across Time in the noncontingent condition, attribution ratings increased across Time in the contingent condition (see Figure 2).

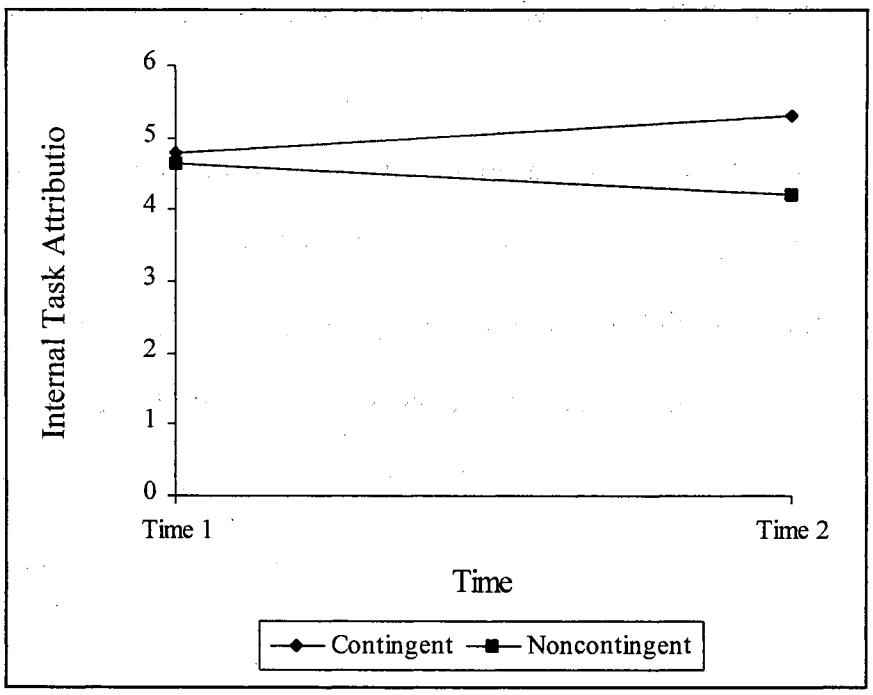

Figure 2. Interaction of Condition X Time on Internal Task Attributions. Note: Time 1 = pretreatment; Time 2 = posttreatment.

Exploratory Analysis Three

Two separate hierarchical multiple regression equations were constructed to examine the interaction of Condition X depression on Time 2 performance and control self-efficacy for functional ability. On Step 1 of the first equation, Time 1 performance self-efficacy, illness severity, and age were entered. Condition and depression were entered on Step 2, followed by the Condition X depression interaction term on Step 3. Results revealed that the interaction of Condition and depression did not contribute

significant variance to Time 2 performance self-efficacy for functional ability (see Table A5).

In the second regression equation, Time 1 control self-efficacy, illness severity, and age were entered on Step 1. Steps 2 and 3 were the same as in the first regression (see Table A5). Consistent with the first regression, results revealed that the interaction of Condition and depression did not contribute significant variance to Time 2 control self-efficacy for functional ability [F change = .15, p = .70].

Exploratory Analysis Four

Two separate hierarchical multiple regression equations were constructed to examine the interaction of Condition X Time 1 internal task attributions on Time 2 performance and control self-efficacy for functional ability. On Step 1 of the first equation, Time 1 performance self-efficacy, illness severity, depression, and age were entered. Condition and Time 1 internal task attributions were entered on Step 2, followed by the Condition X Time 1 internal task attribution interaction term on Step 3. Results revealed that the interaction of Condition and Time 1 internal task attributions did not contribute significant variance to Time 2 performance self-efficacy for functional ability (see Table A6).

In the second regression equation, Time 1 control self-efficacy, illness severity, depression, and age were entered on Step 1. Steps 2 and 3 were the same as in the first regression (see Table A6). In contrast to the first equation, results revealed a significant Condition X Time 1 internal task attribution interaction effect on Time 2 control self-

efficacy for functional ability [F change = 4.28, p < .05]. Examination of group means indicated that, whereas posttreatment control self-efficacy remained relatively stable under both low and high levels of pretreatment internal task attributions in the noncontingent condition, posttreatment control self-efficacy was significantly greater for individuals who initially endorsed higher levels of internal task attributions in the contingent condition (see Figure 3).

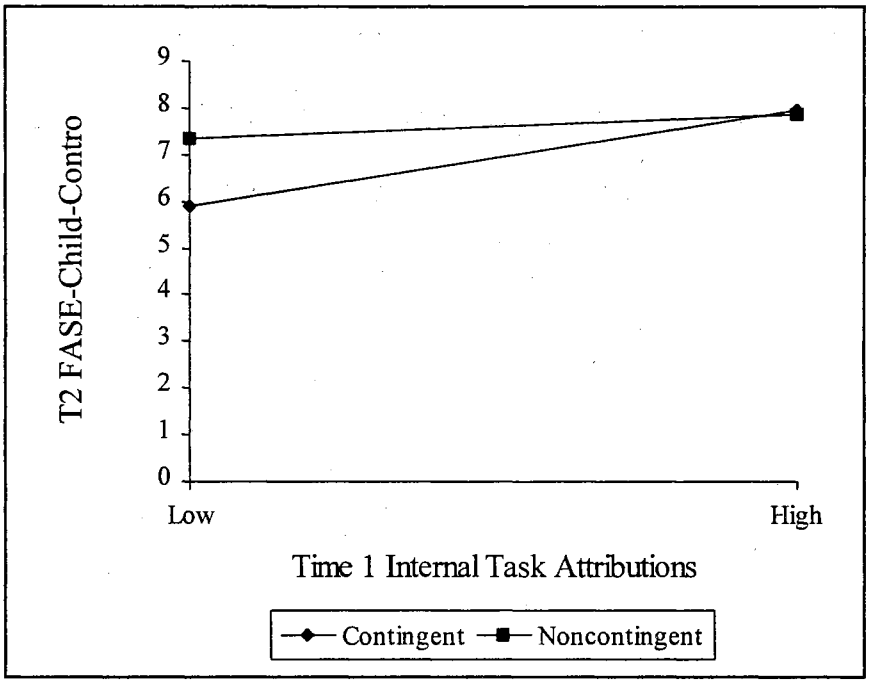

Figure 3. Interaction of Condition X Time 1 Internal Task Attributions on Time 2 Control Self-efficacy for Functional Ability. Note: T2 FASE-Child-Control = posttreatment functional ability self-efficacy-control; Time 1 = pretreatment; Time 2 = posttreatment.

CHAPTER VI

DISCUSSION

The purpose of the present study was to examine the effects of a computerized learned helplessness induction procedure on transient affect and self-efficacy for functional ability in children and adolescents with juvenile rheumatic diseases (JRD). Two hypotheses regarding the effects of learned helplessness on both positive and negative affect and two regarding its effects on performance and control self-efficacy for functional ability were examined. In addition, several exploratory research questions that developed in response to the findings of the primary analyses were examined to determine the effects of learned helplessness on other salient outcome variables in JRD.

Summary of Findings

Primary Hypotheses

Analyses for Hypothesis 1 revealed that contingent/noncontingent feedback did not produce significant changes in negative affect from pretreatment to posttreatment. Similarly, analyses for Hypotheses 2 and 3 revealed that contingent/noncontingent feedback did not produce significant changes in pre-posttreatment levels of performance or control self-efficacy for functional ability. In contrast, analyses for Hypothesis 4

revealed a significant Condition X Time interaction effect, indicating that, whereas positive affect levels remained relatively stable across Time in the contingent condition, positive affect decreased across Time in the noncontingent condition.

There are several potential reasons why significant changes in negative affect were not observed in participants in the noncontingent feedback condition. First, it may be that the measure of negative affect was not sensitive enough to highlight subtle, yet salient changes in affect. Perhaps a more comprehensive measure of affectivity would have been able to detect such changes. However, more detailed measures with significantly more items may have produced fatigue in participants, potentially resulting in confounded relationships among other variables of interest. Moreover, this may highlight the need to assess more specific emotions such as depression or anxiety rather than general levels of positive/negative affect. Second, it may be that the duration of the induction procedure was insufficient to produce the hypothesized changes in negative affect. Finally, it may be that the noncontingent feedback experienced in the procedure was not interpreted by the children as relevant or representative of the noncontingency experienced in their natural environment. That is, the experimental procedure utilized in this study has been shown to affect other processes (e.g., problem-solving; see Chaney et al., 1999) that may not have relevance to expectancies for performing activities of daily living. In short, the induction procedure may not result in the types of deficits consistent with the experience of noncontingent feedback in the natural environments of children with JRD, such that negative affect is experienced.

There are similar possible reasons for the observed nonsignificant effects of contingent/noncontingent feedback on performance and control self-efficacy for functional ability. First, the short-term duration of the induction procedure and the potential lack of representativeness to naturally experienced noncontingency may have resulted in nonsignificant changes in self-efficacy for functional ability. Second, the items on the FASE-Child may represent more stable characteristics of functional ability that are developed over time and are less amenable to short-term fluctuations as a result of brief exposure to noncontingency.

The significant Condition X Time interaction for positive affect represents a noteworthy conceptual distinction. This interaction effect indicated that positive affect levels were stable across Time in the contingent condition, but decreased across Time in the noncontingent condition. Whereas it may initially seem likely that noncontingent experience would produce increases in negative affect (as was proposed in Hypothesis 1), examination of the positive affect construct would suggest that decreases in positive affect may be just as likely. Indeed, Watson and colleagues (1988) proposed that, although one might expect positive and negative affect to be negatively correlated, they are in fact orthogonal constructs. These authors distinguished high negative affect from low positive affect as representing states of general distress and aversive mood (e.g., anger, contempt, disgust, guilt, fear, etc.) and sadness and lethargy, respectively. Thus, although results of the present study did not support the position that learned helplessness creates a state of negative affect as defined by Watson and colleagues (1988), it does support the notion that learned helplessness induces a state of lower positive affect (i.e.,

sadness, lethargy, etc.), which is conceptually consistent with prior investigations of the effects of learned helplessness on affect (e.g., Andersen & Lyon, 1987; Alloy et al., 1984; Sweeney et al., 1986, Metalsky et al., 1982; Fazio & Palm, 1998), particularly in children and adults with chronic illnesses (e.g., Chaney et al., 1999; Richards et al., 1997; Hommel et al., 1998).

Exploratory Research Questions

In an effort to thoroughly examine the effects of learned helplessness in this chronic illness population, exploratory analyses were conducted to: 1) determine the interaction effects of Condition and illness severity on transient affect and self-efficacy for functional ability, 2) determine the extent to which contingent/noncontingent feedback differentially affected internal attributions related to performance and 3) determine the potential moderating roles of depression and internal task attributions in the relationship between contingent/noncontingent feedback conditions and self-efficacy for functional ability (performance and control).

Results of Exploratory Analysis 1 revealed that the interaction of Condition and illness severity did not produce significant variance in posttreatment performance/control self-efficacy or positive/negative affect. There are a couple of reasons why this may have occurred. First, it may be that there was little variation in the degree of natural noncontingency experienced across the participants in the present study, rendering the Condition X illness severity interaction term incapable of producing significant change in the outcome variables. Secondly, the lack of variance observed in the outcome variables

in these regression analyses may have resulted from the large amount of variance consumed by the predictor variables entered in Step 1 of each equation (e.g., Time 1 counterparts to each outcome variable). Indeed, for each equation, the first set of predictors accounted for at least 80% of variance in the outcome variable, leaving scant opportunity for other predictors to significantly influence those variables (see Tables A3 and A4).

Results of Exploratory Analysis 2 revealed that contingent/noncontingent feedback did not directly affect internal task attributions. However, there was a significant Condition X Time interaction, indicating that, whereas internal task attributions remained stable across Time in the noncontingent condition, attribution ratings increased across Time in the contingent condition. Thus, internal attributions increased across time as a function of successful problem solving and behavior-outcome contingency. This finding is consistent with attribution theory indicating that endorsement of greater internal attributions under conditions of success represents more adaptive coping responses in the face of chronic stressors (e.g., Abramson et al., 1978, Alloy et al., 1984; Chaney et al., 1996). Moreover, this finding is consistent with the general hypothesis that individuals who experience contingent reinforcement for their behavior will demonstrate positive/adaptive outcome over time.

Results of Exploratory Analysis 3 indicated that the interaction of contingent/noncontingent feedback and depression did not produce significant variance in posttreatment performance or control self-efficacy for functional ability. Thus, depression failed to emerge as a significant moderator in the Condition-self-efficacy relationship.

There are a couple of reasons this relationship was not observed in the present study. First, as previously mentioned, the FASE-Child may represent more stable characteristics of functional ability, and thus be less sensitive to subtle fluctuations due to short-term induction procedures as the present study utilized. Related to this is the possibility that, since there was so little variation between pre-and-posttreatment scores on the FASE-Child, the overwhelming majority of variance in posttreatment scores was carried by pretreatment levels of self-efficacy for functional ability, leaving negligible room for other variables to influence posttreatment levels.

Similarly, results for Exploratory Analysis 4 revealed a nonsignificant interaction effect for contingent/noncontingent feedback and Time 1 internal task attributions on posttreatment performance self-efficacy for functional ability. Possible reasons for nonsignificant results are consistent with those mentioned for the results of Exploratory Analyses 2. In contrast, the interaction of contingent/noncontingent feedback and Time 1 internal task attributions demonstrated a significant effect on posttreatment control self-efficacy for functional ability, indicating that whereas posttreatment control self-efficacy did not vary as a function of pretreatment internal task attributions in the noncontingent condition, posttreatment control self-efficacy was significantly greater for individuals who demonstrated higher pretreatment levels of internal task attributions in the contingent condition. Thus, results indicated that children who attributed performance expectancies to internal factors endorsed greater control over the functional aspects of their arthritis under conditions of behavior-outcome contingency. This finding is consistent with that of Exploratory Analyses 2, indicating that individuals who

1) generally attribute successful experiences to internal causes and 2) experience natural reinforcement that is contingent upon their behavior will demonstrate adaptive outcome over time (e.g., greater self-efficacy for functional ability).

Taken together, these two findings suggest that both the nature (i.e., contingent or noncontingent) and consistency of reinforcement as well as the cognitive interpretations (e.g., causal attributions) regarding that reinforcement may be salient to the maintenance of effective comprehensive disease management.

Treatment Implications

The results of the present study have several important treatment implications. First, the finding that noncontingent feedback contributed to decreases in positive affect suggests the need to focus on behavioral reinforcement principles in psychotherapeutic treatments. For example, it is likely that providing opportunities for contingent reinforcement involving success in mastery-oriented experiences (e.g., educational games, homework, chores such as washing the dishes or doing the laundry, etc.) in the natural environment would maintain positive affect in these children. Moreover, the short-term duration of the intervention in this study highlights the delicate and fluctuating nature of positive affect in this population, and thus the need to sustain consistent reinforcement over time.

Similarly, the finding that contingent feedback contributed to increases in internal attributions suggests that providing opportunities for behavior-outcome contingency in mastery-oriented experiences would increase the likelihood for internal attributions for

positive outcomes in the natural environment. Further, providing these types of experiences may promote favorable interpretations of disease-related experiences in this population as well.

Related to this is the finding that, under conditions of behavior-outcome contingency, internal attributions for success affect increases in control self-efficacy for functional ability. This suggests that providing opportunities for engagement in mastery-oriented activities in which outcome is contingent upon one's behavior may contribute to sustained enhancement of self-efficacy directly related to physical ability. Obviously, these types of interventions would require significantly more than weekly group or even individual therapy. Indeed, other health care providers, parents, and perhaps even schools, coaches, etc. would likely need to be consistent with their approach to reinforcing the child's behavior.

In general, the findings in the present study suggest that cognitive-behavioral interventions involving engagement in experiences that provide successful outcome that is contingent upon the child's behavior may be beneficial to various aspects of disease-related and psychosocial outcome in children with JRD. Moreover, the present study supports the continued use of cognitive-behavioral treatments emphasizing disease and psychosocial education, family/social support, relaxation training, and behavior modification (e.g., Davis et al., 1994; Lavigne et al., 1992; Radojevic et al., 1992; Varni et al., 1989). Further, perhaps a two-phased approach to psychological treatment involving cognitive interventions at or around the time of diagnosis aimed at preventing further generalization of pessimistic attributions and/or enhancement of internal

attributions for positive outcome, followed by behavioral modification involving multisystemic intervention may ultimately reduce the risk of decreased positive affect and self-efficacy related to functional ability.

Methodological Considerations

The findings and implications of the present study should be considered in light of several methodological considerations. First, the findings are based on a relatively small sample size (N = 50). However, the experimental nature of the study design allowed for all participants to experience the experimental condition (i.e., N = 25 in the contingent condition, N = 25 in the noncontingent condition). In addition, the present study utilized a clinical population consisting of a broad range in age of children and adolescents with JRD, and virtually every patient in the clinic that met inclusion criteria was recruited for participation. Related to this is the fact that data collection was conducted at only one site, potentially limiting the generalizability of the findings to other JRD populations. However, the final sample on which conclusions were derived was representative of the broader JRD population in terms of gender (30 female, 20 male) and ethnicity (42% Caucasians, 20% African American, 20% American Indian, 10% Hispanic, and 8% biracial). Nevertheless, generalization to other JRD populations should be made with caution.

Another methodological consideration in the present study is the fact that no control group consisting of healthy age and/or gender matched participants was utilized for comparison purposes. Inclusion of such a comparison group would have allowed for

the examination of how learned helplessness differentially affects healthy individuals versus those with JRD. However, the purpose of the present study was to determine whether inducing learned helplessness in children and adolescents with JRD produced deficits in affect and self-efficacy related specifically to JRD functional ability. Although comparisons could have been made between groups on transient affect, comparisons between groups on self-efficacy for functional ability would have been meaningless, as healthy individuals should not experience the same degree of functional deficits. Thus, the present study should be viewed as an initial investigation of the role of learned helplessness in this population.

Next, the primary outcome measures utilized in this study (i.e., FASE-Child and PANAS) were originally developed for use in adult populations. Although the instructions were slightly modified to be more easily understood by children, the individual items were left virtually the same so that the construct validity of the instruments was not compromised. Unfortunately, no other known instruments assess transient affect or self-efficacy for functional ability in children and adolescents. Further, although there were few instances in which a participant did not understand an item, they were encouraged to ask the researcher the meaning of a questionnaire item if it was unclear. Thus, measures were taken to insure the validity of the items on each of these questionnaires. In addition, the measure of internal task attributions (i.e., ATTRIB) was a single-item instrument, thus providing a limited observation of the effects of learned helplessness on causal attributions. However, previous researchers have utilized such measures of attributions successfully (e.g., Chaney et al., 1999). Further, it may have

been beneficial to incorporate a performance-related outcome measure such as a word game (e.g., creating as many words as possible from a random group of letters in a given time period) to determine the effect of the learned helplessness induction procedure on cognitive performance. However, given the number of outcome measures already included in the study, the duration of the experiment, and the mean age of the sample, the possibility that the participants would become fatigued precluded such examination.

Finally, biological indices of disease severity such as erythrocyte sedimentation rate (ESR), antinuclear antibodies (ANA) status, joint counts, and radiographs were not included. However, because research suggests that these measures are not consistent predictors of disease status (e.g., Reeve, Loftus, Hesp, Ansell, Wright, & Woo, 1993; Wallace, Sherry, Mellins, & Aiken, 1993; Hertzberger-ten Cate, de Vries-van der Vlugt, van Suijlekom-Smit, & Cats, A. 1992) and we focused primarily on key cognitive factors associated with JRD, we selected measures that reflected the illness experience of JRD. Evidence suggests that such process measures are valid and salient indices of functional status and disease impact in individuals with rheumatic diseases (Gerber, 1988; Smith et al., 1995). Further, objective ratings of disease severity based on the current physical examination were obtained by the pediatric rheumatologist at the time of participation.

Recommendations for Future Research

There are a couple of objectives on which future research should focus: 1) further articulating the effects of contingent and noncontingent reinforcement on disease related variables, and 2) developing more effective, economical, and empirically supported

psychotherapeutic treatments utilizing cognitive-behavioral interventions. First, as with any initial empirical investigation with a given population, replication of this experiment and its findings is warranted. Larger sample sizes from multiple, diverse sites would be preferable in such replication studies. Further, longitudinal examination of variables such as depression, self-efficacy for functional ability, and attributional style may help better explain long-term adjustment in children with JRD as well as factors likely to improve as a function of behavior-outcome contingent reinforcement.

Restricting the age range for a given sample may prove beneficial. For example, utilization of affect measures containing anchors composed of figures of faces representing various moods would be more appropriate (and perhaps more sensitive to subtle fluctuation in mood) for younger children, whereas such a measure would be less appropriate for use when examining adolescents. In addition, since a brief measure of attributions regarding performance expectancies was used in this study, future experimental investigations may profit by using a more comprehensive causal attribution measure. Other factors that should be considered subject for this type of experimental scrutiny include self-esteem and measures of performance outcome (e.g., puzzles, anagram tasks, etc.) to determine the extent to which differential reinforcement affects perceptions of self and cognitive abilities.

Treatment outcome research should examine cognitive-behavioral interventions aimed at increasing opportunities for successful mastery experiences under conditions of behavior-outcome contingency in a multisystemic manner. These interventions would be ideal for examining the effects of psychological treatment on salient outcome variables

such as positive/negative affect, self-efficacy, self-esteem, perceptions of disability, functional status, perceptions of control/attributional style, regimen adherence, etc. Treatments should also be examined on an individual therapy versus group therapy basis. Such research would likely prove beneficial to the comprehensive health care of JRD patients.

Overall, the present study provides initial evidence for the salient role of differential reinforcement in cognitive/affective factors related to JRD. It is suggested that future research examine these variables in more detail, as they appear to be salient factors in this chronic illness population. It is anticipated that further articulation of the precise role of differential reinforcement on other psychosocial and JRD-related variables will ultimately improve the comprehensive treatment and reduce psychological comorbidity in children and adolescents with JRD.

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APPENDIXES

APPENDIX A

TABLES

Table 1

Descriptive Statistics for Psychosocial, Demographic, and Disease-Related Variables

Variable	M	SD	Range
Depression	9.38	7.28	0-31
Positive Affect (T1)	33.84	8.98	15-50
Positive Affect (T2)	32.50	10.11	14-50
Negative Affect (T1)	18.20	7.88	10-40
Negative Affect (T2)	18.04	8.35	10-46
FASE-Child-P (T1)	7.90	2.04	1.44-10
FASE-Child-P (T2)	7.89	2.23	1-10
FASE-Child-C (T1)	7.25	1.97	1.33-10
FASE-Child-C (T2)	7.30	2.13	1.17-10
ATTRIB (T1)	4.72	1.49	1-7
ATTRIB (T2)	4.76	1.79	1-7
Age	15.12	3.16	8-21
Illness Duration	2.32	2.42	.02-9.52
Illness Severity*	3.38	1.59	1-7

Note. T1 = pretreatment; T2 = posttreatment; FASE-Child-P = functional ability self-efficacy-performance subscale; FASE-Child-C = functional ability self-efficacy-control subscale; ATTRIB = internal task attributions; Illness Severity was rated on a 7-point Likert scale by asking the physician, "Currently, how active is the patient's illness?"

Table 2

Zero-Order Correlations for Study Variables

	1	2	3	4	5	6	7	8	9	10	11	12	13
1. Age													
2. Illness Duration	.06												
3. Illness Severity	-.18	.03											
4. Depression	.26	.05	.19										
5. P.A. (T1)	-.22	.09	.06	-.40**									
6. P.A. (T2)	-.19	.02	.08	-.39**	.90**								
7. N.A. (T1)	-.23	.01	.09	.42**	.16	.25							
8. N.A. (T2)	-.32*	-.05	.08	.40**	.16	.18	.93**						
9. FASE-Child-P (T1)	.11	.09	-.38**	-.10	.00	.00	-.25	-.29*					
10. FASE-Child-P (T2)	.09	.06	-.35*	-.13	.05	.04	-.24	-.27	.97**				
11. FASE-Child-C (T1)	-.07	.08	-.27	-.39**	.06	.04	-.33*	-.34*	.73**	.74**			
12. FASE-Child-C (T2)	-.18	.05	-.19	-.36**	.06	.00	-.32*	-.29*	.68**	.72**	.94**		
13. ATTRIB (T1)	-.23	-.14	.03	-.12	-.06	-.16	.02	.08	.10	.12	.13	.16	
14. ATTRIB (T2)	-.27	-.08	.00	-.27	.01	.07	-.07	-.02	.08	.11	.14	.14	.49**

Note. Illness Severity = physician-rated illness severity; T1 = pretreatment; T2 = posttreatment; P.A. = positive affect, N.A. = negative affect; FASE-Child-P = functional ability self-efficacy-performance subscale; FASE-Child-C = functional ability self-efficacy-control subscale; ATTRIB = internal task attributions.

* $p < .05$; ** $p < .01$.

Table 3

Hierarchical Multiple Regression Analyses Examining the Contribution of Condition X Illness Severity on Time 2 Performance and Control Self-Efficacy for Functional Ability

Dependent Variable	Step	Variables	*t* for within step predictors	R^2 Change for Step	F Change
T2 FASE-Child-Performance	1	T1 FASE-Child-Performance	26.14**	.95**	198.52**
		Illness Severity	.61		
		Age	-.41		
		Depression	-.82		
	2	Condition	-.04	.00	.18
		T1 ATTRIB	.59		
	3	Condition X Illness Severity	.50	.00	.25
T2 FASE-Child-Control	1	T1 FASE-Child-Control	17.24**	.89**	90.75**
		Illness Severity	.74		
		Age	-2.18*		
		Depression	.54		
	2	Condition	.86	.00	.40
		T1 ATTRIB	.26		
	3	Condition X Illness Severity	-.04	.00	.00

Note. T1 = pretreatment; T2 = posttreatment; FASE-Child-Performance = pretreatment functional ability self-efficacy-performance; FASE-Child-Control = pretreatment functional ability self-efficacy-control; T1 ATTRIB = pretreatment internal task attributions.

* $p < .05$; ** $p < .01$

Table 4

Hierarchical Multiple Regression Analyses Examining the Contribution of Condition X Illness Severity on Time 2 Positive and Negative Affect

Dependent Variable	Step	Variables	t for within step predictors	R^2 Change for Step	F Change
T2 Positive Affect	1	T1 Positive Affect	13.30**	.80**	62.09**
		Illness Severity	.52		
		Age	.12		
	2	Condition	-1.95	.02	2.19
		Depression	-.50		
	3	Condition X Illness Severity	1.60	.01	2.55
T2 Negative Affect	1	T1 Negative Affect	16.69**	.87**	105.06**
		Illness Severity	-.33		
		Age	-2.02*		
	2	Condition	1.16	.01	1.05
		Depression	.82		
	3	Condition X Illness Severity	1.68	.00	.00

Note. T1 = pretreatment; T2 = posttreatment.

* $p < .05$; ** $p < .01$.

Table 5

Hierarchical Multiple Regression Analyses Examining the Contribution of Condition X Depression on Time 2 Performance and Control Self-efficacy for Functional Ability

Dependent Variable	Step	Variables	t for within step predictors	R^2 Change for Step	F Change
T2 FASE-Child-Performance	1	T1 FASE-Child-Performance	26.32**	.95**	266.37**
		Illness Severity	.45		
		Age	-.69		
	2	Condition	-.05	.00	.33
		Depression	-.81		
	3	Condition X Depression	.22	.00	.05
T2 FASE-Child-Control	1	T1 FASE-Child-Control	18.27**	.89**	122.78**
		Illness Severity	.83		
		Age	-2.12*		
	2	Condition	.86	.00	.52
		Depression	.46		
	3	Condition X Depression	.39	.00	.15

Note. T1 = pretreatment; T2 = posttreatment; FASE-Child-Performance = pretreatment functional ability self-efficacy-performance; FASE-Child-Control = pretreatment functional ability self-efficacy-control.

* $p < .05$; ** $p < .01$.

Table 6

Hierarchical Multiple Regression Analyses Examining the Contribution of Condition X Time 1 Internal Task Attributions on Time 2 Performance And Control Self-efficacy for Functional Ability

Dependent Variable	Step	Variables	t for within step predictors	R^2 Change for Step	F Change
T2 FASE-Child-Performance	1	T1 FASE-Child-Performance	26.14**	.95**	198.52**
		Illness Severity	.61		
		Depression	-.82		
		Age	-.41		
	2	Condition	-.04	.00	.18
		T1 ATTRIB	.59		
	3	Condition X T1 ATTRIB	-1.03	.00	1.07
T2 FASE-Child-Control	1	T1 FASE-Child-Control	17.24**	.89**	90.75**
		Illness Severity	.74		
		Depression	.54		
		Age	-2.18*		
	2	Condition	.86	.00	.40
		T1 ATTRIB	.26		
	3	Condition X T1 ATTRIB	-2.07*	.01*	4.28

Note. T1 = pretreatment; T2 = posttreatment; FASE-Child-Performance = pretreatment functional ability self-efficacy-performance; FASE-Child-Control = pretreatment functional ability self-efficacy-control; T1 ATTRIB = pretreatment internal task attributions.

* $p < .05$; ** $p < .01$.

APPENDIX B

BACKGROUND INFORMATION QUESTIONNAIRE

1. Age: _____

2. Gender: M F

   1 2

3. Ethnicity:
   1 Caucasian
   2 African American
   3 Native American
   4 Hispanic
   5 Asian
   6 Biracial; Specify: _____
   7 Other; Specify: _____

4. Highest level of education attained:
   1 Elementary School
   2 Middle School
   3 High School
   4 Some College; Specify number of years: _____

5. Marital Status:
   1 Never married
   2 Married
   3 Divorced
   4 Cohabitation (living with partner)
   5 Widowed
   6 Other: _____

8. Parent's Occupation: Father: _____ Mother: _____

9. Parent's highest level of education:

Father:	1	Middle School
	2	High School
	3	Some College; Specify number of years: _____
	4	College Degree
	5	Post-Graduate Degree
Mother:	1	Middle School
	2	High School
	3	Some College; Specify number of years: _____
	4	College Degree
	5	Post-Graduate Degree

10. Living Arrangement:

	1	Live alone
	2	Live with both parents
	3	Live with one parent; Specify which parent:_____
	4	Other; Specify:_____

11. Are you currently taking any psychoactive medication (e.g., antidepressants, anti-anxiety)?

Yes	No
1	2

12. Have you ever received any type of psychological counseling/therapy?

Yes	No
1	2

13. Have you ever received counseling directly related to your JRD?

Yes	No
1	2

14. Please indicate the number of visits to your physician due to your JRD in the past 6 months: _____

15. How severe do you think your JRD has been in the past year?

1	2	3	4	5	6	7
Not Active or In Remission		Mild		Moderate		Severe

16. How much control do you think **you** have over the **daily symptoms** of your JRD?

1	2	3	4	5	6	7
No Control		A Little Control		A Great Deal Of Control		Complete Control

17. How much control do you think your **physician** has over the **daily symptoms** of your JRD?

1	2	3	4	5	6	7
No Control		A Little Control		A Great Deal Of Control		Complete Control

18. How much control do you think **you** have over the **long-term course** of your JRD?

1	2	3	4	5	6	7
No Control		A Little Control		A Great Deal Of Control		Complete Control

19. How much control do you think your **physician** has over the **long-term course** of your JRD?

1	2	3	4	5	6	7
No Control		A Little Control		A Great Deal Of Control		Complete Control

20. How important to you is the ability to perform, by yourself, activities of daily living such as dressing yourself?

1	2	3	4	5	6	7
Not at all Important		A Little Important		Somewhat Important		Very Important

21. Currently, how active are the symptoms of your JRD?

1	2	3	4	5	6	7
Not Active or In Remission		Mild		Moderate		Severe

22. Please indicate the number of school and/or work days you have missed in the last 6 months: _____

APPENDIX C

PROVIDER QUESTIONNAIRE

1. Patient's name: _____

2. Patient's Diagnosis (if multiple diagnoses, please list rheumatic illness first; please indicate if patient is seropositive or ANA-positive):

   _____

   _____

   _____

3. When was the patient diagnosed with the above rheumatic illness?

   Date of diagnosis: _____

4. What is the patient's current medication regimen?

   _____ _____
   _____ _____
   _____ _____
   _____ _____

5. Currently, how active is the patient's illness?

1	2	3	4	5	6	7
Not Active or In Remission		Mild		Moderate		Severe

6. Compared to other patients, how well does this patient adhere to his/her treatment regimen?

1	2	3	4	5	6	7
Adheres Very Poorly		Worse than Most Patients		Better than Most Patients		Adheres Extremely Well

7. Compared to other patients, how well does this patient cope with his/her illness?

1	2	3	4	5	6	7
Copes Very Poorly		Worse than Most Patients		Better than Most Patients		Copes Extremely Well

APPENDIX D

CHILDREN'S DEPRESSION INVENTORY (CDI)

Kids sometimes have different feelings and ideas.

This form lists the feelings and ideas in groups. From each group, pick one sentence that describes you best for the past two weeks. After you pick a sentence from the first group, go on to the next group.

There is no right answer or wrong answer. Just pick the sentence that best describes the way you have been recently. Put a mark like this X next to your answer. Put the mark in the box next to the sentence that you pick.

Here is an example of how this form works. Try it. Put a mark next to the sentence that describes you best.

EXAMPLE:

_____ I read books all the time

_____ I read books once in a while

_____ I never read books

Remember, pick out the sentence that describes your feelings and ideas in the PAST TWO WEEKS.

1. _____ I am sad once in a while
   _____ I am sad many times
   _____ I am sad all the time

2. _____ Nothing will work out for me
   _____ I am not sure if things will work out for me
   _____ Things will work out for me O.K.

3. _____ I do most things O.K.
   _____ I do many things wrong
   _____ I do everything wrong

4. _____ I have fun in many things
   _____ I have fun in some things
   _____ Nothing is fun at all

5. _____ I am bad all the time
   _____ I am bad many times
   _____ I am bad once in a while

6. _____ I think about bad things happening to me once in a while
   _____ I worry that bad things will happen to me
   _____ I am sure that terrible things will happen to me

7. _____ I hate myself
   _____ I do not like myself
   _____ I like myself

8. _____ All bad things are my fault

_____ Many bad things are my fault

_____ Bad things are not usually my fault

9. _____ I do not think about killing myself

_____ I think about killing myself but I would not do it

_____ I want to kill myself

10. _____ I feel like crying every day

_____ I feel like crying many days

_____ I feel like crying once in a while

11. _____ Things bother me all the time

_____ Things bother me many times

_____ Things bother me once in a while

12. _____ I like being with people

_____ I do not like being with people many times

_____ I do not want to be with people at all

13. _____ I cannot make up my mind about things

_____ It is hard to make up my mind about things

_____ I make up my mind about things easily

14. _____ I look O.K.

_____ There are some bad things about my looks

_____ I look ugly

15. _____ I have to push myself all the time to do my school work

_____ I have to push myself many times to do my school work

_____ Doing school work in not a big problem

REMEMBER, DESCRIBE HOW YOU HAVE BEEN IN THE PAST TWO WEEKS.

16. _____ I have trouble sleeping every night

_____ I have trouble sleeping may nights

_____ I sleep pretty well

17. _____ I am tired once in a while

_____ I am tired many days

_____ I am tired all the time

18. _____ Most days I do not feel like eating

_____ Many days I do not feel like eating

_____ I eat pretty well

19. _____ I do not worry about aches and pains

_____ I worry about aches and pains many times

_____ I worry about aches and pains all the time

20. _____ I do not feel alone

_____ I feel alone many times

_____ I feel alone all the time

21. _____ I never have fun at school

_____ I have fun at school only once in a while

_____ I have fun at school many times

22. _____ I have plenty of friends

_____ I have some friends but I wish I had more

_____ I do not have any friends

23. _____ My school work is all right

_____ My school work is not as good as before

_____ I do very badly in subjects I used to be good in

24. _____ I can never be as good as other kids

_____ I can be as good as other kids if I want to

_____ I am just as good as other kids

25. _____ Nobody really loves me

_____ I am not sure if anybody loves me

_____ I am sure that somebody loves me

26. _____ I usually do what I am told

_____ I do not do what I am told most times

_____ I never do what I am told

27. _____ I get along with people

_____ I get into fights many times

_____ I get into fights all the time

THE END

THANK YOU FOR FILLING OUT THIS FORM

APPENDIX E

FUNCTIONAL ABILITY SELF-EFFICACY SCALE

FOR CHILDREN (FASE-CHILD)

We would like to know how confident you are RIGHT NOW in performing certain daily activities. For each of the following questions, please circle the number which best describes how confident you are in your ability to perform the tasks as of RIGHT NOW WITHOUT assistance from devices or another person.

As of NOW, how confident do you feel in your ability to:

1. Walk 100 feet on flat ground in 20 seconds?

1	2	3	4	5	6	7	8	9	10
Very Unconfident				Moderately Confident					Very Confident

2. Walk 10 steps downstairs in 7 seconds?

1	2	3	4	5	6	7	8	9	10
Very Unconfident				Moderately Confident					Very Confident

3. Get out of an armless chair quickly, without using your hands for support?

1	2	3	4	5	6	7	8	9	10
Very Unconfident				Moderately Confident					Very Confident

4. Button and unbutton 3 medium-size buttons in a row in 12 seconds?

1	2	3	4	5	6	7	8	9	10
Very Unconfident				Moderately Confident					Very Confident

5. Cut 2 bite-size pieces of meat with a knife and fork in 8 seconds?

1	2	3	4	5	6	7	8	9	10
Very Unconfident				Moderately Confident					Very Confident

6. Turn an outdoor faucet all the way on and all the way off?

1	2	3	4	5	6	7	8	9	10
Very Unconfident				Moderately Confident					Very Confident

7. Scratch your upper back with both your right and left hands?

1	2	3	4	5	6	7	8	9	10
Very Unconfident				Moderately Confident					Very Confident

8. Get in and out of the passenger side of a car without help from another person and without physical aids?

1	2	3	4	5	6	7	8	9	10
Very Unconfident				Moderately Confident					Very Confident

9. Put on a long-sleeve front-opening shirt or blouse (without buttoning) in 8 seconds?

1	2	3	4	5	6	7	8	9	10
Very Unconfident				Moderately Confident					Very Confident

In the following questions, we'd like to know how confident you are in your ability to control your arthritis RIGHT NOW. For each of the following questions, please circle the number which describes how confident you are in your ability to perform the following activities or tasks RIGHT NOW.

1. How confident are you in your ability that you can control your fatigue?

1	2	3	4	5	6	7	8	9	10
Very Unconfident				Moderately Confident					Very Confident

2. How confident are you in your ability to regulate your activity so as to be active without aggravating your arthritis?

1	2	3	4	5	6	7	8	9	10
Very Unconfident				Moderately Confident					Very Confident

3. How confident are you in your ability to do something to help yourself feel better if you are feeling sad?

1	2	3	4	5	6	7	8	9	10
Very Unconfident				Moderately Confident					Very Confident

4. As compared with other people with JRA like yours, how confident are you in your ability to manage arthritis pain during your daily activities?

1	2	3	4	5	6	7	8	9	10
Very Unconfident				Moderately Confident					Very Confident

5. How confident are you in your ability to manage your arthritis symptoms so that you can do the things you enjoy doing?

1	2	3	4	5	6	7	8	9	10
Very Unconfident				Moderately Confident					Very Confident

6. How confident are you in your ability to deal with the frustration of arthritis?

1	2	3	4	5	6	7	8	9	10
Very Unconfident				Moderately Confident					Very Confident

APPENDIX F

POSITIVE AND NEGATIVE AFFECT SCALE (PANAS)

This scale consists of a number of words that describe different feelings and emotions. Read each item and then mark the answer that indicates how you feel **RIGHT NOW** in the space next to that word. Use the following scale to record your answers.

1	2	3	4	5
Very slightly Or not at all	a little	moderately	quite a bit	extremely

_____ interested	_____ irritable
_____ distressed	_____ alert
_____ excited	_____ ashamed
_____ upset	_____ inspired
_____ strong	_____ nervous
_____ guilty	_____ determined
_____ scared	_____ attentive
_____ hostile	_____ jittery
_____ enthusiastic	_____ active
_____ proud	_____ afraid

APPENDIX G

INTERNAL AND EXTERNAL ATTRIBUTION SCALE

(ATTRIB)

Please circle one number for the following question; DO NOT circle the words.

Do you think that your performance on the upcoming task will be due to something about you or something about other circumstances?

1	2	3	4	5	6	7
Totally due To Other Circumstances						Totally due to Me

APPENDIX H

INSTITUTIONAL REVIEW BOARD

APPROVAL FORM

OKLAHOMA STATE UNIVERSITY
INSTITUTIONAL REVIEW BOARD

Date: May 7, 1999 IRB #: AS-98-070

Proposal Title: "COPING BEHAVIOR AND QUALITY OF LIFE IN YOUNG ADULTS WITH CHRONIC ASTHMA"

Principal Investigator(s): John Chaney
Kevin Hommel

Reviewed and Processed as: Continuation

Approval Status Recommended by Reviewer(s): Approved

Signature:

Carol Olson, Director of University Research Compliance

May 7, 1999
Date

Approvals are valid for one calendar year, after which time a request for continuation must be submitted. Any modification to the research project approved by the IRB must be submitted for approval. Approved projects are subject to monitoring by the IRB. Expedited and exempt projects may be reviewed by the full Institutional Review Board.

VITA 2

Kevin A. Hommel

Candidate for the Degree of

Doctor of Philosophy

Thesis: AN EXAMINATION OF EXPERIMENTALLY INDUCED LEARNED HELPLESSNESS IN CHILDREN AND ADOLESCENTS WITH JUVENILE RHEUMATIC DISEASE

Major Field: Psychology

Biographical:

Education: Graduated from Putnam City High School, Oklahoma City, Oklahoma in May, 1992; received a Bachelor of Arts degree in Psychology from the University of Central Oklahoma, Edmond, Oklahoma in May, 1996; received a Master of Science degree with a major in Clinical Psychology at Oklahoma State University in May, 1999; completed the requirements for the Doctor of Philosophy in Psychology, Health Psychology Specialization at Oklahoma State University in August, 2002.

Experience: Research assistant in the Department of Psychology at the University of Central Oklahoma for Jill Devenport, Ph.D. and Lorraine K. Youll, Ph.D., 1995-1996 and 1995-1997, respectively; research assistant in the Department of Pediatrics at the Children's Hospital of Oklahoma for Mary Beth Logue, Ph.D., 1999-2000; research assistant in the Department of Psychology at Oklahoma State University for John M. Chaney, Ph.D., 1997 to present, employed by Oklahoma State University, University, Department of Psychology as a teaching assistant and graduate instructor, and Associate Director of the Psychological Services Center; Oklahoma State University, Department of Psychology, 1997-2001 and 2000-2001, respectively; Clinical Psychology Residency at Cincinnati Children's Hospital, O'Grady Residency in Pediatric Psychology, 2001-2002.

Professional Memberships: American Psychological Association (APA), APA Division 54, Society for Pediatric Psychology, APA Division 38 Health Psychology, Association for the Advancement of Behavior Therapy.