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THE RELATION BETWEEN CHILD COPING, PARENT COPING AND PSYCHOSOCIAL ADJUSTMENT IN CHILDREN AND ADOLESCENTS WITH ACUTE LYMPHOCYTIC LEUKEMIA

by

Dionne Elise Laslo

A thesis submitted in conformity with the requirements for the degree of Master of Arts
Department of Human Development and Applied Psychology
Ontario Institute for Studies in Education of the University of Toronto

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ABSTRACT

This study examines coping strategies employed by children and parents of children who have acute lymphoblastic leukemia (ALL), congruency of use of coping strategies between family members, and the impact of these strategies on child adjustment. The sample consisted of 35 families whose children were being treated for ALL at the Hospital for Sick Children in Toronto, Canada. Children completed one coping questionnaire, while parents completed the same coping questionnaire as well as a measure of child adjustment. Children reported using social support, cognitive restructuring, emotional regulation, and wishful thinking coping strategies most frequently, mothers and fathers reported using praying, wishful thinking, and cognitive restructuring. Child-parent dyads were significantly congruent in their use of praying, resignation, and problem solving. Problem solving reported by fathers alone and husband and wife pairs was predictive of poorer child adjustment and mothers' reported use of self-criticism was also predictive of poorer child adjustment. Implications and limitations of the study are discussed.
ACKNOWLEDGMENTS

There are many special people who have influenced the idea, development, and final completion of this thesis.

To my dear cousin Ariella, your battle against cancer and your determination to live a full and exciting life was one of the primary inspirations behind my chosen path.

The strength and determination of each and every child who participated in this research at the Hospital for Sick Children has deeply touched and changed me.

Dr. Michele Peterson-Badali is an outstanding supervisor, teacher, and individual, whose insight, comments and suggestions have been an integral component of every step of this thesis from inception to completion. She has continuously encouraged me both academically and personally. It is so rare to come across a supervisor who gives her heart and soul to her students. Michele, I owe you my deepest gratitude.

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Wolfe - like two peas-in-a-pod, we started our graduate endeavors together, and, although our Ph.D.'s will be in different areas, I believe that our friendship will last a lifetime.

To my dear brother, who I love very much. You have motivated me throughout my master's degree, I hope that we can continue to inspire each other in the years to come. Having you nearby makes me feel so grounded and has definitely contributed to the successful completion of this project.

Mom & Dad- it's hard squeeze all my thanks to you into a few words. You have influenced every aspect of my life and you have always taught me to shoot for my dreams. I thank you for being with me on my journey.
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INTRODUCTION

Overview

The diagnosis of cancer is often associated with fear, anxiety and frustration. The circumstances surrounding this diagnosis can be even more disturbing when the sick individual is a child. Despite the fact that childhood cancer is a relatively rare disease, it causes more deaths in children between the ages 2 through 14 than any other disease (Leukemia Society of America, 1997). The most common form of childhood cancer is Acute Lymphoblastic Leukemia (ALL). It is diagnosed at a median age of 3-4 years and 85% of the children diagnosed are between 2 and 10 years (Sather, 1986; Silverberg & Lubera, 1987; Kazak & Meadows, 1988, Hay et al, 1995). Before chemotherapy was used in the treatment of ALL, patients often died within 3-4 months and very rarely lived more than 1 year after diagnosis (Hay, Groothuis, Hayward, & Levin, 1995). Although the prognosis for survival has become increasingly more optimistic over the past twenty years (Kazak, 1993), it is nonetheless a difficult diagnosis for both the child and the child's parents to accept. At present, the overall cure rate for ALL is approximately 70% (Hay et al., 1995; Leukemia Society of America, 1997).

Treatment of leukemia in children often involves painful medical procedures, chemotherapy, radiation therapy, immunotherapy as well as other supportive treatments (Dollinger, Rosenbaum, & Cable, 1995). These invasive procedures combined with the chronic nature of the disease inevitably impact at many different levels both within the individual child and his or her family. For example,
neuropsychological consequences of the treatment can affect cognitive functioning (Williams, Ochs, Williams, & Mulhem, 1991; Cousens, Ungerer, Crawford, & Stevens, 1991; Mulhem, Crisco, & Kun, 1983), the treatment may directly or indirectly influence psychosocial functioning (Noll, Bukowski, Rogosch, LeRoy, & Kulkami, 1990), and these factors together may affect quality of life.

The literature suggests that the multi-disciplinary team approach to the treatment of cancer is the most optimal method and is commonly used in major treatment centres (Dollinger et al., 1995). This approach incorporates input from several disciplines and increases the likelihood that the psychological factors will be addressed.

Indeed, as medical treatments have been improving prognosis, psychological factors associated with the treatment of cancer have been gaining attention in the scientific literature. The focus of psychological treatment in the past was towards helping the family cope with the deterioration and probable death of the child. However, with the advances in biological treatment, the focus of psychological treatment has shifted away from preparation for the inevitable loss of the child to helping the family manage and cope with the rigorous treatment and accompanying emotional demands of the illness. These advances in medical treatment have been accompanied by a burgeoning of empirical investigation within the area of pediatric psychology.
PURPOSE OF THE PRESENT STUDY:

The purpose of the present investigation was to examine the types of coping strategies that are utilized both by parents and their child after the child has been diagnosed with ALL. Coping in this context refers to a reaction by an individual to a stressor (Kagan, 1988); the stressor in this case is the experience of living with ALL for the children, and having a child with ALL for the parents.

Correlational analyses were conducted to determine the demographic factors, diagnostic information and coping strategies (used by each parent as well as the child) that are correlated with adjustment in the child. Following these exploratory analyses, the investigator attempted to answer several questions (see Table 1): (1) What coping strategies are most frequently reported by children and parents?; (2) What is the relationship between demographic variables, disease factors, coping strategies reported by children, mothers and fathers, and the child’s adjustment? Each of these factors could contribute to the child’s ability to cope (Bearison and Mulhem, 1994) and could affect adjustment. Thus it was important to determine if any of these factors are correlated with adjustment in the child; (3) What are the overall differences in the use of coping strategies between mothers, fathers and children?; (4) What is the congruency in the use of coping strategies between mothers, fathers and children?; (5) Which demographic variables, disease-related variables and coping strategies predict behavioral adjustment of the children, as determined by the Sum T score on the Child Behavior Checklist for Ages 4-18?; and (6) Does congruency in the use of specific coping strategies
between mothers and children, fathers and children, or mothers and fathers better predict adjustment scores for the children?

Table 1: Research Objectives

<table>
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<th>Proposed Questions</th>
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<tr>
<td>1. What coping strategies are most frequently reported by children/parents?</td>
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<td>6. Does congruency in the use of specific coping strategies between mothers and children, fathers and children, or mothers and fathers better predict adjustment scores for the children?</td>
<td>Stepwise Regression Analysis</td>
</tr>
</tbody>
</table>
FACTORS THAT CAN AFFECT ADJUSTMENT:

Over the past two decades researchers have begun to examine a variety of factors that have been associated with adjustment in children diagnosed with cancer (Spinetta, 1977; Blotcky, Raczynski, Gurwitch, & Smith, 1985; Van Dongen-Meliman & Sanders-Woudstra, 1986; Kazak & Meadows, 1988; Brown, Kaslow, Madan-Swain, Doepke, Sexson, & Hill, 1993). Figure 1 illustrates a conceptualization of factors that may influence coping and adjustment in children and their parents in accordance with an ecological model (Bronfenbrenner, 1979). Although not every variable in the figure will be discussed in this review of the literature, a framework that illustrates the various contextual factors that likely affect children's adjustment in the face of a serious illness, such as cancer, is delineated. The ecological-systems theory (Bronfenbrenner, 1977) views the individual and the family in the context of their interactions with each other and the environment around them. By applying this model one can conceptualize the many levels that can affect the child and the family: the microsystem (family), the mesosystem (interactions between the family and the hospital, school, agencies), the exosystem (social support systems, parents' work environment, and other systems that indirectly affect the child), and the macrosystem (culture and policy). Each of these systems undoubtedly influences the family system, however, the focus of this review will be on the components of the microsystem that directly and indirectly affect the parents and the ill child.
Figure 1

Ecological model: Factors hypothesized to affect adaptive management of cancer in children (adapted from Bronfenbrenner, 1979):

**MACROSYSTEM**
- Culture
- Quality/model of health care

**EXOSYSTEM**
- Socioeconomic status
- Parent's employment
- Parent's peer group

**MESOSYSTEM**
- School

**MICROSYSTEM**

**ILLNESS KNOWLEDGE FACTORS**
- Beliefs
- Type
- Severity
- Experience
- Course
- Treatment

**FAMILY VARIABLES**
- Adaptability
- Cohesion
- Marital variables
- Parenting styles
- Communication
- Parent/sibling personality
- Size

**CHILD VARIABLES**
- Attitude
- Age
- Gender
- Temperament
- Locus of control

**PARENT COPING**
- Strategies

**CHILD COPING**
- Strategies

**CHILD'S ADJUSTMENT**
- Social
- Emotional
- Academic
- Physical
- Illness specific
Disease and Treatment Factors: Effects on Psychological Adjustment:

A multitude of factors can influence a child and his or her family's emotional responses to the diagnosis of cancer. For example, the rate of growth, stage of the malignancy, and the course of treatment will vary considerably depending on the type of cancer (Dollinger, Rosenbaum, & Cable, 1995). Psychological effects associated with the diagnosis or treatment may result in positive effects by prolonging life, while other effects may be negative or neutral (Kazak, 1988). For example, as noted earlier, neuropsychological deficits can result from radiation treatment or chemotherapy (Meadows et al., 1981, as cited in Kazak, 1988). Anxiety, grief, anger, hostility, guilt and disbelief are among the common responses observed in parents after their child has been diagnosed with cancer (Johnson, Rudolph, & Hartman, 1979; Kagan-Goodheart, 1977; Kupst & Schulman, 1980; Maguire, 1983; Powaxek, Schijving, Goff, Paulson, & Stagner, 1980).

The treatment and course of any type of cancer undoubtedly results in a significant disruption in the lives of the child and the family. Garralda (1994) indicated that a deterioration in the psychiatric status of a child might result from disruptions in daily life, for example, medical appointments, hospitalizations, or invasive medical procedures. These deteriorations may be most evident at diagnosis, during the radiation therapy, chemotherapy, or at relapse. Furthermore, Adams-Greenly (1991) reported that other psychosocial problems could develop during or following the treatment process.

There are many disease factors that could affect children and parents of children diagnosed with ALL. This study will focus on the treatment protocol as the disease-related stressor to determine how this affects behavioral adjustment. The two protocols used for
the treatment of ALL are: A/B and C. Protocol C is more intensive than Protocol A/B and is used for treating children with more aggressive diseases.

Knowledge:

Research indicates that children tend to have a good understanding of the seriousness of cancer (Spinetta, Rigler, & Karon, 1973; Dongen-Melman & Sanders-Woudstra, 1986) and, moreover, living with the disease and its accompanying physical and emotional demands provides the child with substantial information about the seriousness of their situation (Clafin & Barbarin, 1986). Investigators suggest (Chesler & Barbarin, 1987; Clafin & Barbarin, 1991; Mattson, 1977) that children are very intuitive and can detect clues about their disease from their parents' behaviour. Furthermore, the consequences of not informing children about their cancer and the treatment they will receive can cause increased anxiety and adjustment problems in those who acquired information by inference and did not discuss this information with others (Kellerman, Rigler, Siegel, & Katz, 1977; Spinetta, 1974, 1978, 1980; as cited in Van Dongen-Melman & Sanders-Woudstra, 1986, Clafin & Barbarin, 1991). Importantly, not informing children about their disease may result in unintentional assumptions about the morbid nature of their illness. The child might conclude, for example, that the secret is so terrible and dangerous that it should not be discussed (Clafin & Barbarin, 1991).

The child's ability to understand may vary as a result of his or her age and previous experience (Crisp, Ungerer, & Goodnow, 1996) but, withholding information can potentially exacerbate problems in coping and adjustment. Clafin and Barbarin (1991) reported that
parents tend to tell less information to younger children than older children (above age nine) and adolescents who have been diagnosed with cancer. Nevertheless, the investigators reported that when comparing children who had not been informed versus those who had, children who had not been informed reported experiencing as much disruption and distress over time as those who had been told about their disease. The literature suggests that providing the child with more information at any age is not correlated with sparing the individual from emotional distress (Clafin & Barbarin, 1991). Optimally, the family and the child should be well informed about the illness. Families can become an interactive, important part of the treatment team, and support programs should be encouraged for the whole family (Masera et al., 1993).

Family Variables:

The literature on adaptability and cohesion (Horowitz & Kazak, 1990; Daniels, Miller, Billings, & Moos, 1986; Fife et al., 1987) suggests that families that are able to adapt to the challenges of an illness are able to cope with their child's illness more effectively. Nonetheless, cancer undoubtedly creates a variety of additional stressors in the families of those who have children with cancer. Kaplan, Grobstein, & Smith (1976) reported a higher rate of marital discord in families of children diagnosed with leukemia. Rutter (1981) noted that family discord, parental rejection, communication, family size, psychiatric disturbance in the parent, and neglect have also been shown to have deleterious effects in children.

Fife, Norton, & Groom (1987) studied families' adaptation to childhood leukemia, and suggested that it is those families that were initially characterized by stable
relationships and supportive family members that were able to maintain stability throughout the treatment. Conversely, families that were characterized by premorbid instability and support problems within the family unit, showed deterioration in family life and experienced difficulties in coping. Walker, Manion and Coultier (1996) suggest that parents who show high levels of parenting stress are at greater risk of engaging in poorer parenting practices. The investigators developed a marital intervention aimed at decreasing marital distress and parental depression for couples with chronically ill children, including cancer. The results suggested that the intervention was effective at improving marital functioning and the effect was maintained at the 2-year follow-up. Furthermore, they purported that parents coping strategies may directly, or indirectly, influence the physical and psychological well being of the child.

Child Variables:

Kazak (1988) indicated that there has been a lack of consideration in the research given to the developmental status of the child. The literature suggests that one reason for this gap may be that parents and health care professionals have been reluctant to disclose information about cancer to children (Bearison & Mulhem, 1994; Claflin & Barbarin, 1990; Van Dongen-Melman & Sanders-Woudstra, 1986). As noted earlier, there is strong support for the contention that even young children are often aware of the possible terminal nature of cancer (Bearison & Mulhem, 1994; Claflin & Barbarin, 1990; Crisp, Ungerer & Goodnow, 1996; Van Dongen-Melman & Sanders-Woudstra, 1986). Children also have the capacity to sense the anxiety and fear that their parents and the people
close to them are experiencing (Claflin et al., 1990). Adaptive coping and adjustment may be jeopardized when the child does not understand why their parents' are anxious.

Although each independent factor that influences a child with cancer can be associated with positive or negative adjustment in some capacity, the literature suggests that it is the cumulative effects of many variables that ultimately predicts outcome. Thus, a child who is subject to more risk factors will likely show poorer adjustment. Rutter (1979, cited in Oatley & Jenkins, 1996) also purported that children who are faced with progressively more risk factors are at greater risk of developing a psychiatric disorder. Hay et al. (1995) indicated that pediatric oncology patients with low social competence and behavioral problems, physical problems, cranial radiation, older age at assessment, and single-parent families were at increased risk for developing psychosocial difficulties and that adolescent survivors presented with more symptoms of hypochondriasis and phobic disorders. In her review of the literature, Barrera (1996) indicated that children with cancer are at risk for social isolation, decreased social competence, as well as emotional and behavioural difficulties. Moreover, children and adolescents coping with cancer are also at risk for developing adjustment problems (Manion, 1996, Lavigne & Faier-Routman, 1992, Pless & Nolan, 1991, Koocher and O'Malley (1981).

Interestingly, Garralda (1994) noted that many children with chronic illness are actually well adjusted. Enhanced social and emotional supports are often available to the family. Family cohesion may also be strengthened through the process (Sabeth & Laventhal, 1984, as cited in Garralda, 1994) of treatment as a consequence of the desire to battle the disease as a family unit. For example, the results from research by Horwitz
and Kazak (1990) suggest that siblings and family members of oncology patients showed an increase in the rate of prosocial behaviour and level of adaptability when compared with normal controls. It is critical that the family that is at risk for developing short and long-term difficulties secondary to the cancer be identified (Fife et al., 1987) to prevent adjustment problems within the family unit.

**Resiliency and Protective Factors:**

Despite the fact that many children may face at least one or more of these risk factors, the literature suggests that there are protective factors that also affect adjustment. Resiliency has been conceptualized as individual variations in response to stress in which some people succumb to adverse situations while others are able to overcome these obstacles (Rutter, 1987). Resiliency and protective factors among individuals faced with severe adversity differ dramatically (Emmy, 1990). Rutter (1985) described constitutional differences that influence how the child reacts to environmental stressors. He suggested that resistance to stress is relative, not absolute, and that both environmental and constitutional factors can affect resiliency. The degree of resistance varies over time and with respect to the specific stressor that the individual is facing. He further suggested that it is not necessarily the psychological chemistry of the moment but the manner in which people cope with change and adversity and what they do about these circumstances that play a role in protective mechanisms. It is likely that protective factors, both genetic and experiential, contribute to a child’s reaction when he or she encounters a stressor (Plomin, 1983).
Coping:

There are a plethora of variables that can influence both the child's and parents' ability to cope with the diagnosis and treatment of ALL. The majority of research on coping behaviors in children with a chronic illness has focused on the type of strategies employed when the child is undergoing a painful medical procedure (Spirito et al., 1995). The coping strategies used by both children and their parents will likely have an impact on the adjustment of the child.

In the context of childhood illnesses coping is thought to change over time and is related to the type and degree of stressor encountered, as well as the effectiveness of the coping strategies employed to alleviate the stressful situation (Spirito, Stark, & Williams, 1988; Lazarus & Folkman, 1984). Kagan (1990) defines coping as a reaction to a stressor that resolves, reduces, or replaces the affect state classified as stressful. How an individual copes and specifically, the types of coping strategies used, can be affected by many factors (see Figure 1), but ultimately the child's antecedent conditions (personal and environmental) and his or her appraisal and interpretation of the situation will significantly affect coping (Bearison & Mulhem, 1994).

Bearison and Mulhem (1994) discuss several models of coping in children who have cancer. They describe the Developmental Model (Bearison & Mulhem, 1994) that incorporates illness factors that can affect children differently depending on their stage of development. Bearison and Mulhem discuss the Stress and Coping Model that is based on work by Lazarus (Lazarus, 1966, 1991; Lazarus & Folkman, 1984, as cited in Bearison
& Mulhern, 1994), which emphasizes the importance of situational factors (coping tasks) and how individuals manage these situations (coping strategies).

Coping in this context refers to what the individual does in a given situation (Lazarus, 1966, 1991; Lazarus & Folkman, 1984, as cited in Bearison & Mulhern, 1994). According to Lazarus, coping strategies are viewed in terms of the adaptation or adjustment of the individual to a given situation. The child and the family must learn (1) to manage distress; (2) to maintain a sense of personal worth; (3) to maintain rewarding interpersonal relationships; and (4) to use available resources to meet specific situational tasks (Spinetta, 1977; Koccher & O'Malley, 1981, as cited in Bearison & Mulhern, 1994).

The social ecology model, refer to Figure 1 (Bronfenbrenner 1979), suggests that the child develops in a family system that has both reciprocal and unidirectional relationships with a multitude of people and situations. For example, Illness factors such as the course of the disease may affect parent coping, child coping and child adjustment in a unidirectional manner whereas family variables, such as family cohesiveness, may have a reciprocal affect on family variables and parent and child coping and adjustment.

Following the diagnosis of cancer there will inevitably be significant demands placed on each parent as they both attempt to cope with the crisis (Dahlquist, Czyzewski, Copeland, Jones, Taub, & Vaughan, 1993). Depending on the age and maturity level of the child, he or she may be developing and using skills to conceptualize information that is offered to him or her from parents', medical personnel, siblings, or friends. For example, when the child is told about the diagnosis and treatment of ALL, he or she may develop a mental concept about the events that will unfold. This mental conceptualizing may trigger
coping strategies that have developed over the child's short life span and may also be influenced by the parents' coping strategies. The coping mechanisms that the child utilizes may be influenced by family variables such as parental depression, marital disharmony or separation, family size, socioeconomic status of the family (Rutter, 1979), social support (Kazak, 1987), or cohesiveness of the family (Kazak, 1988).

Spirito et al. (1995) reported on the stability of coping strategy responses in 177 chronically ill children ranging in age from 7 through 18 years. The types of illnesses included sickle cell disease, diabetes, cancer, migraine headache, congenital orthopedic problems, cystic fibrosis, ulcerative colitis, as well as other diagnoses. The children reported experiencing a variety of stressors that were more closely related to day-to-day issues pertaining to management and pain rather than disease-specific stressors. The authors noted that future research should look at the more broad disease-related stressors that children are faced with when diagnosed with a chronic illness.

Narayan (1996) reported that, in a normal population of children between the ages of 11 and 13, parental suggestions and parental coping styles were correlated with specific strategies used by their child. Specifically, Narayan (1996) indicated that parents' reported use of specific strategies was associated with their children's use of similar coping strategies. To date, the relationship between parent and child coping has not been investigated within a pediatric oncology population. However, this is an important relationship to study. Investigating the correlation between parent and child coping may reveal important information about how interventions could be tailored to help children and their families cope with the medical and emotional stressors associated with ALL.
Study Objectives:

Although there is a substantial body of literature that looks specifically at how parents (e.g., Dahlquist, Czysweski, & Jones, 1996; Dahlquist, Czysweski, Copeland, Jones, Taub, & Vaughan, 1993; Van Dongen-Melamn & Sanders-Woudstra, 1986), siblings (e.g., Horowitz & Kazak, 1990; Van Dongen-Melamn & Sanders-Woudstra, 1986), and affected children and adolescents (e.g., Van Dongen-Melamn & Sanders-Woudstra, 1986; Weisz, McCabe, & Dening, 1994) cope with the diagnosis of cancer, there is no research investigating similarities or differences in parent and child coping strategies employed by parents and their children who have been diagnosed with cancer.

As noted earlier, Narayan (1996) suggested that children tend to have similar coping strategies to their parents and that parents’ encouragement or discouragement of children’s coping strategies is positively correlated with the use of those strategies.

The variables being considered in this investigation extended the existing research by providing a better understanding of the impact that the types of coping strategies employed by parents and/or children have on childhood adjustment. The specific variables considered are listed in Table 2. The analyses included descriptive data as well as statistics that will investigate the overall differences between parents and children as well as congruency between family members in their reported use of coping strategies. Regression analyses were conducted to examine whether demographic, disease related variables, as well as specific coping strategies predicted child adjustment.

If the use of specific coping responses is correlated with adjustment, this may have significant implications for psychologic treatment interventions. When designing treatment
interventions, mental health providers may be able to use this empirically based information to select specific variables that have been shown to have an impact upon adjustment. By ascertaining whether the types of coping strategies reported by children, or the coping strategies reported by parents significantly predict adjustment in children, interventions could be developed that are more specific and tailored to specific strategies for both children and parents. The similarity or differences between parents and children may be useful in the intervention process as therapists will be able to assess parent and child coping styles and can use empirical information to focus specifically on those areas that are most salient for either the parent, child, or parent-child dyad. Moreover, involving parents and increasing their awareness of the potential effect that their coping styles have on their children may have positive effects on the management of the ALL treatment.

Child and adolescent coping was measured using Kidcope (Spirito et al., 1988). Kidcope (Spirito et al., 1988), is a well established, brief coping measure that is designed for use with a pediatric population. After reviewing the literature on coping, it was apparent there was no existing coping measure that would allow for a direct comparison of child and parent coping strategies. Therefore, Kidcope (Spirito, Stark, & Williams, 1988) was adapted for use with parents. This allowed for an examination of the correlation between parent and child coping with respect to a common set of specific strategies.
### Table 2: List of Variables

<table>
<thead>
<tr>
<th>Kidcope Categories-Independent Variables Same for Parent and Child Versions</th>
<th>Descriptive Data-Independent Variables</th>
<th>Child Behavior Checklist for Ages 4-18-Dependent Variables</th>
</tr>
</thead>
<tbody>
<tr>
<td>Distraction</td>
<td>Age</td>
<td>Total T Score (Total Behaviour Problems)</td>
</tr>
<tr>
<td>Social Withdrawal</td>
<td>Marital status</td>
<td></td>
</tr>
<tr>
<td>Cognitive Restructuring</td>
<td>Employment</td>
<td></td>
</tr>
<tr>
<td>Self-Criticism</td>
<td>Mother</td>
<td></td>
</tr>
<tr>
<td>Blaming Others</td>
<td>Father</td>
<td></td>
</tr>
<tr>
<td>Problem solving</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Emotional Regulation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wishful Thinking</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Social Support</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Resignation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Praying</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
METHOD

Sample:

The sample population included 35 families (see to Table 3) in which there was a child or adolescent who had been diagnosed with ALL. The child or adolescent was receiving treatment at the Hospital for Sick Children in Toronto, Ontario, Canada. The children or adolescents ranged in age from 7 through 15 years. The children were assigned to one of two treatment protocols: Protocol A/B (N=7) or Protocol C (N=28).

Participants must have been diagnosed with acute lymphoblastic leukemia not less than 1 year prior to completing the questionnaires and not more than 3 years post diagnosis. Thus, the induction would have been completed and the consolidation and maintenance therapy phases were underway (Hay et al., 1995). Typically treatment lasts between 2 and 31/2 years (Hay et al., 1995; POG, 1997). Treatment at the Hospital for Sick Children lasts three years, therefore, all the children were on maintenance therapy during their participation in the study.

The exclusion criteria included: Children who had relapsed, children or adolescents who were not receiving treatment under protocol A/B or C at the time of their involvement in the study; children who had undergone or were currently undergoing a bone marrow transplant, participants (children/adolescent and parent) who did not speak English at a sufficient level to understand the consent/assent forms, the instructions and instruments used in this investigation; and, children who were diagnosed with a learning disability or congenital neurodevelopmental disability prior to receiving the diagnosis of ALL (as reported by the parent).
Table 3: Demographic Characteristics of the Sample

<table>
<thead>
<tr>
<th></th>
<th>Sample Size (N)</th>
<th>Mean</th>
<th>Standard Deviation</th>
<th>Frequency (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>35</td>
<td>11.14 years</td>
<td>3.02</td>
<td></td>
</tr>
<tr>
<td>Gender</td>
<td>35</td>
<td></td>
<td></td>
<td>46% females</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>54% Males</td>
</tr>
<tr>
<td>Protocol</td>
<td>35</td>
<td></td>
<td></td>
<td>71% Protocol C</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>29% Protocol A/B</td>
</tr>
<tr>
<td>Time Since Diagnosis</td>
<td>35</td>
<td>2.07 years</td>
<td>2.78</td>
<td></td>
</tr>
<tr>
<td>Religion</td>
<td>33</td>
<td></td>
<td></td>
<td>82% Christian</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>9% Jewish</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>9% Other</td>
</tr>
<tr>
<td>Married/Not Married</td>
<td>35</td>
<td></td>
<td></td>
<td>66% Married</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>34% Not Married</td>
</tr>
<tr>
<td>Parent Employed</td>
<td>35</td>
<td></td>
<td></td>
<td>60% Working</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>40% Not Working</td>
</tr>
<tr>
<td>Part Time/ Full Time</td>
<td>23</td>
<td></td>
<td></td>
<td>61% Full Time</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>39% Part Time</td>
</tr>
<tr>
<td>Changes in Job as Result of Child's ALL</td>
<td>33</td>
<td>61% Made Changes</td>
<td>39 % Not Made Changes</td>
<td></td>
</tr>
<tr>
<td>Spouse Employed</td>
<td>28</td>
<td></td>
<td></td>
<td>93% Employed</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>7% Unemployed</td>
</tr>
<tr>
<td>Spouse Part Time/ Full Time</td>
<td>26</td>
<td>81% Working Full Time</td>
<td>19% Working Part Time</td>
<td></td>
</tr>
<tr>
<td>Spouse Made Changes in Job as Result of Child's ALL</td>
<td>25</td>
<td>40% Made Changes</td>
<td>60% Not Made Changes</td>
<td></td>
</tr>
</tbody>
</table>
Procedure:

The families who were eligible to participate were identified through the data manager and clinic nurse of the Division of Haematology/Oncology. The investigator discussed the study and the criteria for inclusion and exclusion with the child's physician prior to approaching the family. If the family was appropriate, the investigator was then introduced to the family and described the study, the consent/assent forms, the instructions to both the child/adolescent and the parent, as well as inform them of follow-up counseling services should they experience emotional distress as a result of participating in the study.

Both single parent and two parent families were included in the study. The investigator invited both parents (in two parent families) to complete three different questionnaires (Kidcope-Parent Form, Child Behavior Checklist-for ages 4-18 and the Child Health Questionnaire-28*). If the family agreed to participate, they were given a package that contained the consent and Assent Forms, Summary Sheet (see Appendix A), Kidcope-Child Form, as well as the three questionnaires mentioned above. Parents were asked to specify if they were the mother or father. Children were asked to complete the Kidcope. The parents were asked to complete three Questionnaires in total and the child was requested to complete one questionnaire in total. Every effort was be made to assist those children who had difficulty reading or understanding the questions.

* Not included in current data analyses, will be used in future analyses
Measures:

(1) Kidcope-Child Form (Spirito, Stark, & Williams, 1988).

The Kidcope-Younger Version is a brief self-report. The questionnaire was tested and validated for use within the pediatric setting for children with a variety of different chronic illnesses, including cancer (Spirito, A. et al, 1995). The 15 coping items that are presented on the Kidcope are broken down into 10 general cognitive and behavioral coping categories: distraction, social withdrawal, wishful thinking, self-criticism, blaming others, problem solving, emotional regulation, cognitive restructuring, social support, and resignation. Five of the 10 coping categories are comprised of two coping items, while five are represented by a single item (see Table 3). One item was added to the Kidcope in response to suggestions from the Ethical review Board of the Hospital for Sick Children. The item specifically asked if the child prayed and was scored in the same manner as the previous questions.
Table 4: Kidcope-11 Coping Categories

<table>
<thead>
<tr>
<th>Coping Category</th>
<th>Corresponding Question (refer to Kidcope questionnaire)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Distraction</td>
<td>1, 2</td>
</tr>
<tr>
<td>2. Social Withdrawal</td>
<td>3, 4</td>
</tr>
<tr>
<td>3. Cognitive Restructuring</td>
<td>5</td>
</tr>
<tr>
<td>4. Self-Criticism</td>
<td>6</td>
</tr>
<tr>
<td>5. Blaming Others</td>
<td>7</td>
</tr>
<tr>
<td>6. Problem solving</td>
<td>8, 9</td>
</tr>
<tr>
<td>7. Emotional Regulation</td>
<td>10, 11</td>
</tr>
<tr>
<td>8. Wishful Thinking</td>
<td>12, 13</td>
</tr>
<tr>
<td>9. Social Support</td>
<td>14</td>
</tr>
<tr>
<td>10. Resignation</td>
<td>15</td>
</tr>
<tr>
<td>11. Praying</td>
<td>16</td>
</tr>
</tbody>
</table>

If a child/parent uses either item in a category, then the child/adolescent is rated as having used that coping strategy.
Administration of the Kidcope:

To complete the Kidcope, the child/adolescent is presented with a standard problem that all children/adolescents and parents of children with ALL will be faced with: the experience of having ALL. The child/adolescent is then asked if this problem made him/her nervous, sad, and angry, each rated on a 5-point likert type scale ranging from ‘not at all’ to ‘very much’. Next, the child is asked to indicate whether or not he/she used any of the 16 strategies to help deal with the specified problem (Frequency Scale). If a child/adolescent answers ‘yes’ to using a particular strategy, the efficacy of that response is rated on a 3-point Efficacy Scale (not at all helpful, a little, or a lot). Only the frequency scores were used in this study.

Scoring the Kidcope:

As indicated above, the Kidcope questionnaire yields two scales: Frequency and Efficacy. For coping categories comprised of two items (see Table 3), a score of 1 is given in the Frequency Scale if either one of the items is answered ‘yes’. Thus, on a two-item coping strategy (e.g., social withdrawal) for the frequency score to be 0, both items included in the category would have to be checked ‘no’. If one or both of the items for the category is checked ‘yes’, then the subject would receive a score of 1 (Spirito et al., 1988). As mentioned above, the efficacy of each coping strategy is measured on a 3-point scale.

Test-retest correlation coefficients for Kidcope over 3 days, 7 days, and 10 weeks range from low to moderate correlations at the ten week interval (.15 to .43),
and from moderate (.41) to high (.83) for the 3 to 7 day interval (Spirito et al., 1988, 1991). Spirito et al. (1988) noted that the lower correlations at the 10 week point are consistent with the notion that coping is a process measure with only limited stability within individuals over time (Lazarus & Folkman, 1984). These findings are consistent with other measures of coping (Spirito et al., 1988).

The results from validity studies indicate moderate to high validity, with coefficients ranging from .33 to .77 when Kidcope items were correlated with another commonly used coping scale, the Coping Strategies Inventory (Spirito et al., 1988).

(2) Kidcope-Parent Form (adapted from the Kidcope-Child Form; Spirito, Stark, & Williams, 1988).

Administration and Scoring

The Kidcope-Parent Form is a self-report questionnaire that was adapted from the Kidcope-Child Form. The measure is the same as the child version with the exception of item number 14, in which the word 'grownups' was taken out as it would not apply to adults. The validity and reliability for the parent version is unknown as it has never been used with parents in the past.
(3) Child Behavior Checklist/4-18 (Achenbach, 1991)

Administration, Scoring, and Psychometric Properties

The CBCL Parent Form is a 120-item questionnaire that can be completed by most adults who have at least a grade five reading capacity. The completion time typically ranges from 10 to 17 minutes. The measure is intended to assess, in a standardized approach, children’s competencies and problems as reported by their parents.

Twenty competency items generate parents’ reports of the amount and quality of their child’s participation in sports, hobbies, games, activities, jobs and chores, social relationships, and school functioning. The competency items produce 3 competency scales (activities, social and school), as well as a Total Competence Score. The questionnaire also contains 118 specific problem items and two open-ended problem items, each of which is scored on a 3-point scale. Behaviour problems are subdivided into two broad-band scales, Internalizing and Externalizing, each comprised of several subscales. The test yields 4 summary scores: The Sum T-Score (Total Behavior Problem), the Internalizing T-Score, the Externalizing T-Score, and the Social Competence T-Score.

The form has separate norms for boys and girls in each age group. The mean inter-interviewer and test-retest reliabilities were reported to be in the 90s for mean item scores that were administered 7 days apart (Achenbach, 1991). The mean test-retest reliability across the three competency scales was reported to be .87. The mean test-retest reliability for the problem sub-scales was reported to be
.89 over a 7 day period. The interparent agreement ranged from .74 to .76 (for ages grouped 4-11 and 12-18 respectively) for the competence scales and .65 to .75 for the problem scales.

Correlations with the Conners (1973) Parent Questionnaire ranged from .59 (CBCL Attentional Problems with Conners Impulsive-Hyperactive), to .86 (CBCL Aggressive Behavior with Conners Conduct Problems). A correlation of .82 was reported when the CBCL and Conners total problem scores were compared. The criterion related validity tests show that all competence scales were scored higher and all problem scales were scored lower for nonreferred than referred children at \( p < .01 \). The clinically significant cutpoints on the scale scores were also shown to discriminate significantly between referred and nonreferred children.

Achenbach (1991) also noted the usefulness of using the CBCL with medical populations. Specifically, he suggested that using this measure with leukemia patients can help determine the types of adjustment problems that are often associated with this disease. Furthermore, this measure can be used to anticipate areas that may be difficult for families to cope with.

The Sum T score was the only score used as in the regression analysis for this investigation.
RESULTS

Data Analyses

To examine the differences in the reported use of coping strategies among children, mothers and fathers, Chi Square tests were conducted. In order to examine the congruency between children’s, mother’s, and father’s reported use of coping strategies, Cohen’s Kappa tests (Pagano, 1990) were performed. This test looks at the proportion of cases that result in agreement and is corrected for chance agreement. Pearson product-moment correlations were calculated between the following variables: demographic variables (age, gender, marital status, employment status, and religious affiliation), disease related variables (type of protocol and time since diagnosis), coping (Kidcope), and adjustment (CBCL). Predictor variables were selected from the correlation matrix for inclusion in the regression analyses. Due to the relatively small number of subjects in the sample, one demographic, one disease related, and one coping variable were selected for inclusion as independent variables for each regression.

A parallel set of regression analyses were conducted using either parent-child or mother-father congruency, with respect to the use of coping strategies, as a predictor of adjustment.

Seven step-wise regression analyses were conducted: the first included a maternal coping strategy together with demographic and disease-related predictors with mother-reported CBCL Sum T scores (total behavior problem) as the
dependent measure. Similarly, the second analysis included a paternal coping strategy and predicted father-reported CBCL Sum T scores. The third regression analysis included the same paternal coping strategy as the third and predicted mother-reported CBCL Sum T score. The fourth and fifth regression analyses included a child coping strategy and were identical except that one predicted mother-reported CBCL Sum T scores and the other predicted father-reported CBCL Sum T scores. The sixth analysis included father-child congruency in the use of problem solving, demographic and disease-related predictors with father-reported CBCL Sum T scores. The seventh analysis was identical to the sixth except that father-mother congruency in the use of problem solving was the predictor for father-reported CBCL Sum T score.

Each regression included the same demographic and disease variables. The child’s gender was the demographic variable chosen for inclusion in the regression analyses as it was found to be correlated with Mother-reported CBCL Sum T scores in the initial analyses. Age was not included in the regression as it was not significantly correlated with adjustment in the exploratory analyses. Treatment protocol was included as the disease-related variable as it was expected that the more aggressive protocol (protocol C) would be correlated with poorer psychosocial adjustment.
Frequency of Coping Strategy Use by Children and Parents

As Table 4 indicates, children reported using social support (91.4%), cognitive restructuring (91.4%), emotional regulation (88.6%), and wishful thinking (88.6%) most frequently and blaming others (2.9%) and self-criticism (17.1%) least frequently. The mothers reported using praying (93.9%), wishful thinking (93.8%), and cognitive restructuring (90.6%) most frequently and blaming others (9.1%) and resignation (30.3%) least frequently. Fathers reported using cognitive restructuring (100%), wishful thinking (87%) and praying (73.9%) most frequently and blaming others (4.3%) and resignation (8.7%) least frequently.

Differences in the Use of Coping Strategies Reported by Children and Parents

The results of the Chi Square tests suggested that mothers and children were significantly different in their reported use of several coping strategies. As Table 4 shows, significantly more children than mothers, reported using distraction ($\chi^2(1) = 7.39$, $p<.01$) and social withdrawal ($\chi^2(1) = 4.71$, $p<.05$). In contrast, significantly more mothers than children ($\chi^2(1) = 4.84$, $p<.05$) reported using praying.

Significantly more children than fathers reported using distraction ($\chi^2(1) = 12.05$, $p<.01$) and social withdrawal ($\chi^2(1) = 12.18$, $p<.01$).

Significantly more mothers than fathers reported using self-criticism ($\chi^2(1) = 6.53$, $p<.01$) as well as praying ($\chi^2(1) = 4.44$, $p<.05$).
Congruency in the Use of Coping Strategies Reported by Children and Parents

The Cohen's Kappa (Pagano, 1990) test examines matched pairs within the family. For example, it uses the upper left cell in a contingency table (child does not use strategy and mother does not use strategy) and the bottom right cell (child uses the strategy and mother also uses the strategy) in conjunction with a correction for chance agreement to provide a value of congruency. Results indicated that mothers and children were significantly congruent in their use of praying (κ = .29, p<.05) and resignation (κ = .39, p<.05). Seventy-two percent of mothers and their children indicated that they prayed as a means of coping with the illness, while in 6% of the mother-child dyads neither used praying as a coping strategy. With respect to resignation, 22% of mother-child pairs indicated that they used the strategy while in 50% of the cases neither mothers nor children used the strategy. Mothers and fathers were congruent in their use of problem solving (κ = .41, p<.05). Seventy percent of the mother-father dyads reported using problem solving as a coping strategy while 10% did not use it. Fathers were not significantly congruent with their children on any of the coping strategies.
Table 5: Frequency of Use For Each Coping Category

<table>
<thead>
<tr>
<th>Category</th>
<th>Mother</th>
<th>Father</th>
<th>Child</th>
</tr>
</thead>
<tbody>
<tr>
<td>Distraction</td>
<td>48.5%</td>
<td>34.8%</td>
<td>80.0%</td>
</tr>
<tr>
<td>Pray</td>
<td>93.9%</td>
<td>73.9%</td>
<td>74.3%</td>
</tr>
<tr>
<td>Self-Criticism</td>
<td>45.5%</td>
<td>13.0%</td>
<td>17.1%</td>
</tr>
<tr>
<td>Social Withdrawal</td>
<td>42.4%</td>
<td>21.7%</td>
<td>68.6%</td>
</tr>
<tr>
<td>Social Support</td>
<td>75.8%</td>
<td>69.6%</td>
<td>91.4%</td>
</tr>
<tr>
<td>Cognitive Restructuring</td>
<td>90.9%</td>
<td>100.0%</td>
<td>91.4%</td>
</tr>
<tr>
<td>Emotional Regulation</td>
<td>87.9%</td>
<td>78.3%</td>
<td>88.6%</td>
</tr>
<tr>
<td>Wishful Thinking</td>
<td>93.9%</td>
<td>87%</td>
<td>88.6%</td>
</tr>
<tr>
<td>Blaming Others</td>
<td>9.1%</td>
<td>4.3%</td>
<td>2.9%</td>
</tr>
<tr>
<td>Resignation</td>
<td>30.3%</td>
<td>8.7%</td>
<td>40.0%</td>
</tr>
<tr>
<td>Problem solving</td>
<td>81.8%</td>
<td>73.9%</td>
<td>68.6%</td>
</tr>
</tbody>
</table>
Regression Analyses:

1. **Demographic/Disease/Maternal Coping Strategy on Mother-Reported CBCL Sum T score**

   The stepwise regression included child’s gender, treatment protocol and one (mother) coping category, self-criticism. Self-Criticism was selected because it was found to be correlated with mother-reported CBCL Sum T scores ($r = .433, p < .05$).

   As table 7 shows, the results yielded an $R^2$ value of .270 for child’s gender ($F = 10.366, p < .01$) and $R^2$ value of .457 for mother’s reported use of self-criticism ($F = 11.355, p < .0001$). Thus, 27% of the variance in the mother’s CBCL Sum T score was accounted for by gender, while mother’s self-criticism predicted an additional 19% of the variance in children’s behavior problems (CBCL Sum T score). This would suggest that boys were reported as having more problems than girls and mothers’ use of self-criticism was a coping strategy predicted poorer adjustment (higher behavior problem scores).

2. **Demographic/Disease/Father Coping Strategy on Father-Reported CBCL Sum T score**

   The second regression analysis included child’s gender, treatment protocol, and the father’s reported use of problem solving on the Kidcope. Problem solving was selected because it was found to be significantly correlated with the father-reported CBCL Sum T score ($r = .470, p < .05$).
The results indicated that father's reported use of problem solving was the only factor in the regression that predicted psychosocial adjustment in the child's CBCL Sum T score (see Table 7). The $R^2$ value was .220 ($F = 5.362, p<.05$). Thus, fathers who reported using problem solving as a coping strategy reported having children who were more poorly adjusted.

3. Demographic/Disease/Father Coping Strategy on Mother-Reported CBCL Sum T score

The results from this analysis did not yield any significant results.

4. Demographic/Disease/Child Coping Strategy on Mother-Reported CBCL Sum T score

The third regression included the child's gender, treatment protocol and a coping category, praying. Praying was found to be commonly used by children and it was significantly correlated with father-reported CBCL Sum T score ($r = .548, p<.05$). The only significant predictor in this regression was gender ($R^2$ value was .502, $F = 9.431, p<.005$), as reported in the first regression analysis.

5. Demographic/Disease/Child Coping Strategy on Father-Reported CBCL Sum T score

The fifth regression analysis was identical to the fourth except that father-reported CBCL Sum T scores was the dependent measure. The results yielded an $R^2$ value of .301 ($F = 7.759, p<.01$) for child praying. Thus, 30% of the variance in the child's behavioral adjustment (Sum T score on the CBCL, as rated by the father)
was explained by the child’s use of praying. Children who used praying as a coping strategy, as reported by the father, were more poorly adjusted than children who did not report using praying.

6. **Demographic/Disease/Father-Child Congruency in Coping Strategy use on Father-Reported CBCL Sum T score**

The sixth regression analysis included child’s gender, treatment protocol, and the father-child congruently reported use of problem solving on the Kidcope. Father-child congruent Problem solving was selected because it was found to be significantly correlated with the father-reported CBCL Sum T score ($r=.464, p<.05$).

The results indicated that congruency between fathers and children in the use of problem solving was the only factor in the regression that predicted adjustment in the child’s CBCL Sum T score (see to Table 7). The $R^2$ value was .219 ($F = 5.046, p<.05$). When fathers and children were congruent in their reported use of problem solving, fathers reported having children with more difficulties in adjustment.

7. **Demographic/Disease/Father-Mother Congruency in Coping Strategy use on Father-Reported CBCL Sum T score**

The seventh regression analysis included child’s gender, treatment protocol, and the father-mother congruency in use of problem solving on the Kidcope. Father-mother congruent Problem solving was selected because it was also found
to be significantly correlated with the father-reported CBCL Sum T score ($r=.463$, $p<.05$).

The results indicated that congruency between fathers and mothers in the use of problem solving and protocol predicted adjustment in the father-reported CBCL Sum T score (see Table 7). The $R^2$ value was .211 for congruency in the use of problem solving ($F = 4.557$, $p<.05$) and the $R^2$ was .301 for protocol type ($F = 8.390$, $p<.003$). Thus, 21% of the variance in the father's CBCL Sum T score was accounted for by congruency between fathers and mothers on problem solving, while protocol type predicted an additional 9% of the variance in children's behavior problems (CBCL Sum T score). Parents who were both using problem solving and whose children were being treated under protocol C were more likely to report having a child who had a higher score on the measure of difficulties.
Table 6: Gender Distribution in CBCL Sum T Scores

<table>
<thead>
<tr>
<th>Gender</th>
<th>N</th>
<th>Mean</th>
<th>Standard Deviation</th>
<th>Range</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Father-Reported CBCL:</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Females</td>
<td>9</td>
<td>45.89</td>
<td>11.81</td>
<td>29-59</td>
</tr>
<tr>
<td>Males</td>
<td>13</td>
<td>48.23</td>
<td>9.65</td>
<td>38-73</td>
</tr>
<tr>
<td><strong>Mother-Reported CBCL:</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Females</td>
<td>15</td>
<td>43.13</td>
<td>11.39</td>
<td>29-65</td>
</tr>
<tr>
<td>Males</td>
<td>18</td>
<td>54.44**</td>
<td>9.49</td>
<td>41-70</td>
</tr>
</tbody>
</table>

Significant at p< .05 = *, p<.01 = **

Table 7: Results of The Multiple Regression Analyses: Factors Contributing to Children’s Psychosocial Adjustment

<table>
<thead>
<tr>
<th>Variables</th>
<th>R²</th>
<th>F</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mother CBCL Sum T score:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Demographic-Child’s Gender</td>
<td>.270</td>
<td>10.366</td>
<td>.003</td>
</tr>
<tr>
<td>- Disease-Protocol</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Coping-Mother Self-Criticism and Child’s Gender</td>
<td>.457</td>
<td>11.355</td>
<td>.000</td>
</tr>
<tr>
<td>2. Coping-Child Praying</td>
<td>ns</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Father CBCL Sum T score:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Demographic-Child’s Gender</td>
<td>ns</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Disease-Protocol</td>
<td>ns</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Coping-Father Problem solving</td>
<td>.220</td>
<td>5.362</td>
<td>.032</td>
</tr>
<tr>
<td>2. Coping-Child Praying</td>
<td>.301</td>
<td>7.759</td>
<td>.012</td>
</tr>
<tr>
<td>3. Father-Child Congruency-Problem Solving</td>
<td>.219</td>
<td>5.046</td>
<td>.037</td>
</tr>
<tr>
<td>4. Father-Mother Congruency-Problem Solving</td>
<td>.211</td>
<td>4.557</td>
<td>.048</td>
</tr>
<tr>
<td>Father-Mother Congruency -Problem Solving and Disease-Protocol</td>
<td>.301</td>
<td>8.390</td>
<td>.003</td>
</tr>
</tbody>
</table>
DISCUSSION

Childhood cancer is one of the most challenging and painful events that a family can face. The goal of this research was to examine the types of coping strategies employed by various family members after a child has been diagnosed with ALL. There have not been any published reports looking at the congruency between parents and children in their use of coping strategies and the impact of these strategies on child adjustment in a sample of children diagnosed with ALL.

In conducting this investigation it was evident that the participants displayed incredible will power and inner strength in managing their illness. In many families it was clear that the child played an integral, supportive role in helping their family through the treatment process. Moreover, children often attempted to either hide or minimize their pain or sorrow in the hopes of sparing their parents distress. One of the most remarkable observations was how well these children were coping and managing with their disease overall. Their strength and determination may have been one of the most salient components that enabled parents to get through this emotionally taxing time.
**What Types of Coping Strategies Do Family Members Use?**

**Children:**

Spirito et al (1988) studied coping strategies employed by pediatric patients who were diagnosed with various types of chronic and acute illnesses. The children in the earlier study used fewer coping strategies overall than the children in the current study. This may be accounted for by the smaller proportion of children diagnosed with cancer in the Spirito et al. study. Their sample consisted of children with a variety of medical problems including; abdominal pain (6), inflammatory bowel disease (5), headaches (7), cancer (3), encopresis (3), hemophilia (2), assorted complaints (5), and other problems such as sleep disorders and seizures. As ALL is an acute illness, the children in the current study had to undergo invasive medical procedures immediately following diagnosis. Moreover, ALL is a more life-threatening disease than some of the chronic illnesses included in the Spirito et al study.

Kupst, Penati, and Strother (1992, in Bearison & Mulhern, 1994) reported that both children and parents of children with central nervous system tumors reported using cognitive restructuring, wishful thinking, problem solving, and social support frequently, which is consistent with the findings in this study of children with ALL.

The finding that children tend to use distraction and social withdrawal significantly more than mothers and fathers may be a function of developmental factors that would be consistent with the developmental model (Drotar, 1991, in Bearison & Mulhern, 1994). These strategies are examples of action oriented,
avoidance type strategies that younger children may endorse. Younger children tend to think in more concrete ways and use behavioral strategies, whereas older children and adults would think in a more abstract fashion, using cognitive strategies enabling manipulation of one's inner world.

Behavioral adjustment scores (CBCL Sum T scores) in this study are relatively low overall, suggesting that this sample was relatively well adjusted (although there was a wide range of scores). This would infer that these children are utilizing those strategies that aid in coping with their problems at hand.

**Mothers:**

Mothers, who were often the primary caregivers and usually accompanied their child to the hospital, also reported frequent use of many of the coping strategies. This makes sense intuitively given that these mothers were the closest individuals to the child's experience of invasive medical procedures that often resulted in high levels of discomfort and pain (both emotional and physical).

It is interesting that mothers displayed a strong tendency toward using more internal methods of coping, such as praying, wishful thinking, and cognitive restructuring. These strategies may have been employed in an attempt to internalize the intensity of their emotions rather than display them outwardly. This may have constituted a deliberate attempt to remain strong by not demonstrating their emotions for the sake of their child. Alternatively, by looking to a "higher
source" for answers (wishful thinking and praying), they were seeking further strength that was not readily available to them from other sources.

Mothers often feel a sense of guilt when their child is ill (Adams & Deveau, 1993). This may be exacerbated when the control over healing their child is taken away. The role of mother within the family as caregiver, emotional healer, and protector of her children (Adams & Deveau, 1993) is consistent with the finding that mothers reported using self-critical coping strategies significantly more frequently than fathers. Although the endorsement for using self-criticism was slightly less than 50% for the mothers, it was still relatively high.

Fathers:

Although fathers did use several of the coping strategies, they reported using most of them with less frequency than their wives and children. This is consistent with society's expectations for fathers to deal with their emotions in silence and show a strong demeanor (Adams & Deveau, 1993). Chesler and Barbarin (1987) found that fathers reported using more denial techniques, while mothers actively sought information and answers to questions. Despite the fact that all three family members reported using cognitive restructuring frequently, every father in the study reported using it. This would suggest that fathers were "trying to see the good side of things", which is not unlike a form of denial. Cognitive restructuring is a strategy that, in a way, alleviates the negative emotions by actively seeking a more positive interpretation of and outlook on the situation.
**Congruency In The Use of Coping Strategies**

Family members did not show a high degree of congruency in the use of specific coping strategies. Mothers and children were significantly congruent in their use of praying and resignation. Both mothers and their children frequently reported using prayer as a coping strategy, while resignation was used relatively infrequently by mothers and their children. With respect to prayer, children may be modeling this technique from their parents, or it may be a strategy that is discussed or encouraged more often than other coping techniques. Mothers and fathers were congruent in their use of problem solving. Thus, parents may be jointly looking for answers and trying to gain a better understanding of what is taking place in their child’s treatment.

The finding that parents and children are not often congruent in their reported use of coping strategies is consistent with the developmental model, as children and parents are dealing with very different issues based on the current stages in their lives. Although Narayan (1996) reported correlations between children and parents in their reported use of certain coping strategies within a normal population, individual children and parents coping with ALL may resort to using very different strategies as a result of the addition of the stressor.

The task of forming peer relations, the emphasis placed on appearance, and the possibility of being teased as a result of the cancer might help explain why children tend to use more social withdrawal, support seeking, and wishful thinking strategies. For instance, issues pertaining to appearance and fear of being
ostracized may influence the tendency to withdraw socially. Likewise, in attempting to manage invasive treatments, such as chemotherapy and radiation, as well as the associated side effects, it follows that children often report using distraction coping strategies.

**How is Coping Related to Adjustment?**

The results suggest that fathers reported use of problem solving strategies were predictive of poorer behavioral adjustment in their children (father-reported CBCL). This may be a result of fathers attempting to take control of their child's cancer, when, in fact, it is out of their control. Fathers may be attempting to solve a problem that is beyond their ability. This may have produced frustration in the child, resulting in more adjustment problems. However, rather than reflecting children's actual behavior, this result could also be due to fathers *perceiving* their children as being more poorly adjusted as a result of the types of strategies they are employing to cope with their child's disease. This is supported by the findings that indicated mother-reported behavior problems (CBCL Sum T score) were not higher in children whose fathers used problem solving.

As mentioned earlier, mothers and fathers showed significant congruency in their use of problem solving. Moreover, this congruency was predictive of poorer adjustment in father-reported CBCL Sum T score. This might indicate that as parents attempted to control their child's disease by searching for answers that were not available, their child's behavioral functioning was not as high as those that do
not jointly endorse using this strategy. This may be due, in part, to the focus of their attention and possibly their disillusionment with the current situation. Parents may also be attempting to exert control over their child’s treatment, which could result in conflicts between the family and the hospital staff (Adams & Deveau, 1993). This could result in lower adjustment scores for these children either as a result of children sensing these problems, or fathers perceiving their child as more poorly adjusted. However, these conclusions must be taken in light of the fact that these results were based on relative differences between the scores. The actual mean scores suggest that these children were actually slightly better adjusted than the standardized normative sample. This result simply shows that those parents who endorse using problem solving either jointly (husband and wife) or father alone, the father may either perceive their child as less poorly adjusted than those who do not endorse using the strategy or, this strategy may itself be predictive of poorer adjustment.

The results from the regression analyses that mothers perceived sons as having more difficulty with behavioral issues than daughters. Again, these scores were in the normal range; the results simply suggest that, relative to girls, boys were seen as having more behavioral problems on mother-reported CBCL Sum T scores.

There were no correlations between the age of the child and the behavioral adjustment which is consistent with previous literature (Frank, Blount, & Brown, 1997).
The data from this investigation might be important for health care workers in their assessment and treatment of children and parents of children who have been diagnosed with ALL. It would not only be beneficial to know the types of coping most commonly reported by mothers, fathers and children in general, but also, the types of strategies that each family member has in common.

Although the sample is small and one could not necessarily make generalizations from these findings, the method used to obtain the information could be useful. For example, it may be beneficial to have families complete the Kidcope to see which strategies each family member uses and where they agree about the type of strategies they use. This information could also be useful in developing treatment interventions. This type of data would enable a therapist to develop psychological interventions that target specific strategies for each family member. This could be particularly effective in family therapy, having the family work together to develop an adaptive family unit that can function optimally when faced with difficult situations like childhood cancer.

Limitations of The Study

Although the analyses from the study yielded interesting and significant results, the sample size was relatively small and, therefore, the results must be interpreted with caution. Low power may have resulted in failure of results to reach statistical significance. In addition, because of the small sample, only three
variables were included in each regression. Therefore, the effects of many of the variables, as well as their interactions, were unknown.

The Kidcope was adapted for use with parents of children with cancer, thus, the psychometric properties are not known. In addition, the relatively small sample size limits the generalizability of the results to other samples of families who have a child with ALL.

**Future Directions**

The investigator will continue to analyze the data collected and study the impact of coping strategy used by each family member on child adjustment. Moreover, future analyses will include the Internalizing and Externalizing scores in addition to the Sum T scores in order to investigate behavioral outcomes more specifically. The investigator will also include data from the Child Health Questionnaire as a second measure of adjustment.

As there were no measures of coping that could be used to compare parent and child coping, an adapted form of the Kidcope was used to measure parental coping. Thus, the psychometric properties of the Kidcope-Parent form are not known, future analyses will also be conducted to examine the reliability of the Kidcope-Parent version with other measures of coping. It would be beneficial to conduct a similar study that simply looks at how parental coping (using a validated measure of coping) predicts adjustment in children with cancer.
As noted earlier the sample size was small and the data was collected at one institute. Future investigations could attempt to replicate these findings with a larger sample size at different institutions.

It would also be interesting to look at siblings’ coping styles to see if they are predictive of adjustment scores.
APPENDIX A: CONSENT FORM

Name:
Date of Birth:
HSC #:

The Relation Between Child Coping, Parent Coping and Psychosocial Adjustment in Children and Adolescents with Acute Lymphoblastic Leukemia

Investigators:
Primary Investigator:
Dionne Laslo, M.A. Student (OISE/University of Toronto) (416) 813-7397, ext. 7

Supervisors/Co-Investigators:
Dr. Maru Barrera (The Hospital for Sick Children) (416) 813-6784
Dr. Michele Peterson-Badali (OISE/University of Toronto) (416) 923-6641, ext. 2586
Dr. Ron Grant (The Hospital for Sick Children) (416) 813-5872
Dr. Mark Greenberg (The Hospital for Sick Children) (416) 813-5886

Purpose of the Research:
The diagnosis of acute lymphoblastic leukemia (ALL) in a child/adolescent is one of the most difficult events for a family to cope with. Psychologists have been working for a number of years to find ways of helping families cope with the stresses associated with the medical treatment and emotional demands of having a child or adolescent with ALL. The goal of this research is to better understand what types of coping strategies are helpful during treatment with the hope that we can aid the family and medical personnel during this difficult process.

Description of the Research:
The questionnaires included in this package will ask you and your child about the type of coping strategies (how people deal with challenging situations) each of you uses. Your child will be asked to complete one brief (19 questions) questionnaire (Kidcope, Child Form) about the types of strategies he or she uses to cope with having ALL. You will be asked to complete the same questionnaire (Kidcope, Parent Form), a survey that asks questions about your child’s behaviour (Child Behavior Checklist for Ages 4-18), as well as a survey that asks about your child’s health (Child health Questionnaire). The investigator will explain the instructions to you and may assist your child with reading and understanding the questionnaire that he or she is asked to complete. The families who choose to participate in the study will meet with the investigator on one occasion for approximately 30 to 40 minutes at a time of their convenience (for example, during a clinic visit).
**Benefits:** You and your child will not benefit directly from participating in this study, although you will both have an opportunity to talk about the experience of having ALL. Children and adolescents who may be diagnosed with ALL in the future may benefit from what we learn in this study.

**Risks:** Any concerns that may arise during your participation in the study can be directed to the investigator, who, under the supervision of a Registered Psychologist, can provide additional support.

**Confidentiality:** The information provided by you and your child will be kept confidential and will be pooled with information from other study participants. Confidentiality will be respected and no information that discloses the identity of the subject will be released or published without consent unless required by law. For your information, the research consent form will be inserted in the patient health record.

**Participation:** Participation in research is voluntary. If you choose to participate in this study it is important that you explain the goal of the research and the tasks involved to your child/adolescent. Furthermore, if you decide to participate it is also important that both you and your child agree to be involved in the study. If you choose not to participate, you and your family will continue to have access to the support, facilities and treatment through the Hospital for Sick Children. If you would like to receive a summary of the results of this study, please fill in your name and address in the area provided under the heading **Summary Request.**

**Consent:**
I acknowledge that the research procedures described above have been explained to me and that any questions that I have asked have been answered to my satisfaction. I have been informed of the alternatives to participation in this study, including the right not to participate and the right to withdraw without compromising the quality of medical care at The Hospital for Sick Children for my child and for other members of my family. As well, the potential harms and discomforts have been explained to me and I also understand the benefits (if any) of participating in the research study. I know that I may ask now, or in the future, any questions I have about the study or the research procedures. I have been assured that records relating to my child and my child’s care will be kept confidential and that no information will be released or printed that would disclose personal identity without my permission unless required by law.
I hereby consent for my child ____________________________ to participate.

__________________________________________  
Name of Parent

__________________________________________  
Signature of Parent

__________________________________________  
Name of person who obtained consent

__________________________________________  
Signature

__________________________________________  
Date

The Person who may be contacted about the research is:

Dionne Laslo, M.A. Student  
Psychology Graduate Student  
(416) 923-6641, ext. 2409

Dr. Maru Barrera, C. Psych.  
Supervisor  
(416) 813-6819

Department of Psychology  
Hospital for Sick Children
The Relation Between Child Coping, Parent Coping and Psychosocial Adjustment in Children and Adolescents with Acute Lymphoblastic Leukemia

**Investigators:**
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Dr. Mark Greenberg (The Hospital for Sick Children)  (416) 813-5886

**Why are we doing this study?**
When children or teenagers like yourself are told that they have acute lymphoblastic leukemia (ALL), sometimes they find it difficult to deal with all of the changes that might happen to them. We want to find out how you feel about having ALL and how you have been able to deal with your feelings. We will also be asking your mother or father how they have been able to deal with their feelings about you having ALL. People who work with children and teenagers who have ALL want to help families deal with their thoughts and feelings about having ALL and help them manage the medical treatment. We hope that by doing this study we will learn more about how children and teenagers who have ALL deal with their feelings and how we, the staff, can help people like yourself.
What will happen if you decide to take part in the study?
You will be asked to fill out one questionnaire that asks you how you feel about having ALL and what types of things you do to help deal with your feelings. Your mother or father will be asked to fill out the same questionnaire as well as another questionnaire about what type of person you are and how you have been acting recently and a third questionnaire that asks about your health.

Who will know about you taking part in this study?
If you decide to take part in this study, your name and address will not be given to anyone. Only the staff working on this project will know what you and your mother or father did in this study.

Can I decide if I want to take part in this study?
It is up to you to decide if you want to participate in this study. No one will be upset or disappointed if you decide that you do not want to participate. If you do decide to take part in the study now, but change your mind as you are filling out the questionnaire, that’s O.K., just let us know. Your mother or father are also reading about this study and will complete two questionnaires if you and your mother or father decide to participate. They will talk to you about it. You can ask your parents or the staff any questions that you don’t understand.
ASSENT
I was present when ______________________________ read this form and gave his/her verbal assent.

_______________________________________________________
Name of person who obtained assent

_______________________________________________________
Signature

_______________________________________________________
Date
**SUMMARY REQUEST:**
If you wish to receive a summary of the results from this study please include your full name and address below.

Name:____________________________________

Address: Street__________________________ Apt. No.__________

City____________________Province______________Postal Code______________

**HISTORY:**
1. Has your child been diagnosed with a learning disability? Yes____ No____
   If so, what was he/she diagnosed with.

<table>
<thead>
<tr>
<th>Type of Disability</th>
<th>Date Diagnosed</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

2. Has your child been diagnosed with a psychological/emotional problem?

Yes____ No____
If so, what was he/she diagnosed with? Date Diagnosed

<table>
<thead>
<tr>
<th>Type of Problem</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
</tbody>
</table>

**FAMILY**
Marital status:

i) Single parent______
ii) Married (living together)______
   Separated______ Divorced______

iii) Common law______

**EMPLOYMENT**
1. Are you working right now? Yes____ No____
If ‘Yes’, are you working: Part time______ Full time______
What type of job?_________________________________________

Have you had to make any changes at your job as a result of your child being diagnosed and/or treated for ALL? Yes____ No____
If 'Yes', please explain: _____________________________________________________________

______________________________________________________________________________

2. Is your spouse working right now? Yes_______  No_______
If 'Yes', is he or she working: Part time_______  Full time_______
What type of job?______________________________________________________________

Have you had to make any changes at your job as a result of your child being diagnosed and/or treated for ALL?  Yes_______  No_______
If 'Yes', please explain: __________________________________________________________

______________________________________________________________________________

RELIGION
1. What is your religion?_______________________________________________________

Do you practice your religion:

☐ Regularly (e.g., attend church or synagogue on a regular basis)

☐ Once in a while

☐ Never
APPENDIX B

Kidcope: Parent Form (Adapted from Spirito, Stark, & Williams, 1988)

First Name: ___________________________ Date: ______________________

Relation to Child: ______________________

Instructions: We are trying to find out how parents/guardians deal with different problems after their child has been diagnosed with acute lymphoblastic leukemia. Below is a situation that may be difficult for you to deal with. Please read the situation and answer the following questions.

SITUATION:

THE EXPERIENCE OF HAVING A CHILD WITH ACUTE LYMPHOBLASTIC LEUKEMIA IN GENERAL

Please answer the following questions by circling your response:

1. Does this situation make you nervous?
   Not at all   A little   Somewhat   Pretty much   Very much

2. Did this situation make you sad?
   Not at all   A little   Somewhat   Pretty much   Very much

3. Did this situation make you angry or mad?
   Not at all   A little   Somewhat   Pretty much   Very much

Now please turn over this sheet and circle whether you have used any of the following ways to help deal with this situation.
<table>
<thead>
<tr>
<th>Did you do this?</th>
<th>How much did it help?</th>
</tr>
</thead>
<tbody>
<tr>
<td>I just tried to forget it.</td>
<td>yes</td>
</tr>
<tr>
<td>I did something like watch TV or played a game to forget it.</td>
<td>yes</td>
</tr>
<tr>
<td>I stayed by myself.</td>
<td>yes</td>
</tr>
<tr>
<td>I kept quiet about the problem.</td>
<td>yes</td>
</tr>
<tr>
<td>I tried to see the good side of things.</td>
<td>yes</td>
</tr>
<tr>
<td>I blamed myself for causing the problem.</td>
<td>yes</td>
</tr>
<tr>
<td>I blamed someone else for causing the problem.</td>
<td>yes</td>
</tr>
<tr>
<td>I tried to fix the problem by thinking of answers.</td>
<td>yes</td>
</tr>
<tr>
<td>I tried to fix the problem by doing something or talking to someone.</td>
<td>yes</td>
</tr>
<tr>
<td>I yelled, screamed, or got mad.</td>
<td>yes</td>
</tr>
<tr>
<td>I tried to calm myself down.</td>
<td>yes</td>
</tr>
<tr>
<td>I wished the problem had never happened.</td>
<td>yes</td>
</tr>
<tr>
<td>I wished I could make things different.</td>
<td>yes</td>
</tr>
<tr>
<td>I tried to feel better by spending time with others like family or friends.</td>
<td>yes</td>
</tr>
</tbody>
</table>
15. I didn't do anything because the problem couldn't be fixed.

16. I prayed
Kidcope: Child/Adolescent Form (Spirito, A.)

First Name: ___________________________ Date: ___________________________
Age__________ Grade: ____________ Boy_________ Girl_________

Instructions: We are trying to find out how children and teenagers deal with different problems after they have been diagnosed with acute lymphoblastic leukemia. Below is a situation that may be difficult for you to deal with. Please read the situation and answer the following questions.

SITUATION:

THE EXPERIENCE OF HAVING ACUTE LYMPHOBLASTIC LEUKEMIA IN GENERAL

Please answer the following questions by circling your response:

1. Does this situation make you nervous?
   Not at all   A little   Somewhat   Pretty much   Very much

2. Did this situation make you sad?
   Not at all   A little   Somewhat   Pretty much   Very much

3. Did this situation make you angry or mad?
   Not at all   A little   Somewhat   Pretty much   Very much

Now please turn over this sheet and circle whether you used any of the following ways to help deal with this situation.
Kidcope, Child/Adolescent Form (Spirito, A.)

<table>
<thead>
<tr>
<th>Did you do this?</th>
<th>How much did it help?</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. I just tried to forget it.</td>
<td>yes</td>
</tr>
<tr>
<td>2. I did something like watch TV or played a game to forget it.</td>
<td>yes</td>
</tr>
<tr>
<td>3. I stayed by myself.</td>
<td>yes</td>
</tr>
<tr>
<td>4. I kept quiet about the problem.</td>
<td>yes</td>
</tr>
<tr>
<td>5. I tried to see the good side of things.</td>
<td>yes</td>
</tr>
<tr>
<td>6. I blamed myself for causing the problem.</td>
<td>yes</td>
</tr>
<tr>
<td>7. I blamed someone else for causing the problem.</td>
<td>yes</td>
</tr>
<tr>
<td>8. I tried to fix the problem by thinking of answers.</td>
<td>yes</td>
</tr>
<tr>
<td>9. I tried to fix the problem by doing something or talking to someone.</td>
<td>yes</td>
</tr>
<tr>
<td>10. I yelled, screamed, or got mad.</td>
<td>yes</td>
</tr>
<tr>
<td>11. I tried to calm myself down.</td>
<td>yes</td>
</tr>
<tr>
<td>12. I wished the problem had never happened.</td>
<td>yes</td>
</tr>
<tr>
<td>13. I wished I could make things different.</td>
<td>yes</td>
</tr>
<tr>
<td>14. I tried to feel better by spending time with others like family or friends.</td>
<td>yes</td>
</tr>
</tbody>
</table>
15. I didn’t do anything because the problem couldn’t be fixed.

<table>
<thead>
<tr>
<th></th>
<th>yes</th>
<th>no</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Not at all</td>
<td>A little</td>
</tr>
</tbody>
</table>

16. I prayed

<table>
<thead>
<tr>
<th></th>
<th>yes</th>
<th>no</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Not at all</td>
<td>A little</td>
</tr>
</tbody>
</table>
APPENDIX C

THE HOSPITAL FOR SICK CHILDREN

RESEARCH ETHICS BOARD

Approval & Terms of Agreement

APPLICANTS: Ms. D. Laslo, Drs. M. Peterson-Badali, M. Barrera, R. Grant, M. Greenberg

PROJECT TITLE: The Relation Between Child Coping, Parent Coping and Child Psychosocial Adjustment in Children With Acute Lymphocytic Leukemia

FILE NUMBER: 98/003

MEMBERS OF THE BOARD*:

Dr. A. Moore, Chair
Dr. B. Stevens
Mr. C. DeBono
Dr. A. Taddio
Dr. D. Bagli
Dr. B. McCrindle
Dr. M. Crawford
Ms. S. Doyle

Dr. M. Dennis
Ms. R. Bessner
Mrs. B. Benoliel
Ms. M. Rowell
Ms. C. Cirilli
Dr. S. Baruchel
Dr. A. Feigenbaum
Dr. M. Rossi

*Meeting may not have been attended by all members.

I agree to carry out the proposed research involving human subjects in accordance with the protocol approved by the Research Ethics Board using the approved consent form/s. I shall notify the department/division chief and the Research Ethics Board prior to implementing any modifications in the protocol and of any adverse or unexpected events as soon as possible.

SIGNATURE (INVESTIGATOR)

DATE April 14/98

I agree to monitor the protocol on an ongoing basis, and to notify the Research Ethics Board as appropriate.

SIGNATURE (DEPARTMENT/DIVISIONHEAD)

DATE April 14/98

The Research Ethics Board of the Hospital for Sick Children has reviewed and approved the above-named project.

Chair, Research Ethics Board

DATE 15-4-98

DATE OF APPROVAL APR 15 1998

EXPIRY DATE APR 15 1999
REFERENCES


