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HEALTH LOCUS OF CONTROL OF CHILDREN WITH A CHRONIC HEALTH
CONDITION

by
Margo K. Shevchenko

A Thesis

Submitted in partial fulfillment of the requirements of the
Master of Arts Degree
of
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at
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Approved by

Advisor

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ABSTRACT

Margo K. Shevchenko

HEALTH LOCUS OF CONTROL OF CHILDREN WITH A CHRONIC HEALTH CONDITION

2006/07

Dr. Roberta Dihoff

Master of Arts in School Psychology

The purpose of this study was to determine the health locus of control among a group of pediatric patients ($n = 15$) at Cooper University Hospital between the ages of 10 and 17 (mean age = 13.93) with chronic health conditions. The Multidimensional Health Locus of Control Scale, form C, was used to determine whether children with a chronic health illness had an internal health locus of control (health was self-controlled) or if their health was determined by external factors, such as chance or fate or by their doctors or other people. Mean scores showed the highest health locus of control among the doctor and other people subscale as having the most control over the children's health. In addition, a positive correlation was found among the two external health locus of control subscales, chance and fate and doctors and other people. The needs for further research on this subject are discussed.

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TABLE OF CONTENTS

Acknowledgements	ii
List of Figures	vi
List of Tables	vii
CHAPTER	PAGE
I. Introduction	1
Need	1
Purpose	1
Hypothesis	1
Theory/Background	2
Definition of Terms	3
Assumptions	4
Limitations	4
Summary	5
II. Review of Literature	6
Introduction	6
General Research on Children and Chronic Illness	6
Quality of Life of Children with a Chronic Illness	7
Quality of Life Perceptions of Chronically Ill Children	8
Self-Image of Chronically Ill Adolescents	10
Coping among Children with a Chronic Illness	10
Mental and Psychological Risks of Children with a Chronic Illness	11
Effects of Chronically Ill Children on Family Members	13

	Locus of Control	15
	Locus of Control and Health	16
	The Multidimensional Health Locus of Control Scale	16
	Children and Health Control Beliefs	17
	Children with Asthma and Locus of Control	18
	Children with Attention Deficit Hyperactivity Disorder and Locus of Control	19
	Children with Diabetes and Locus of Control	20
	Special Education Children and Locus of Control	21
	Summary	22
III.	Design	23
	Sample	23
	Materials	23
	Reliability/Validity of Scales	24
	Method	24
	Independent and Dependent Variables	25
	Analysis of Data	25
	Summary	25
IV.	Results	27
	Introduction	27
	Results	27
	Summary	29
V.	Discussion	30
	Review of Results	30

Limitations	31
Conclusion	32
Implications for Further Research	33
List of References	34

LIST OF FIGURES

FIGURE		PAGE
Figure 1	Mean Scores for the Health Locus of Control Subscales	29

LIST OF TABLES

TABLE		PAGE
Table 1	Correlation between the Health Locus of Control Subscales	28

CHAPTER I: INTRODUCTION

Need

Childhood is a time in life we only get to experience once. It is a time for children to play and live care-free lives, free of “adult” responsibility. Cherishing childhood is important since everyone eventually grows up and enters a new world of responsibilities, obligations and worries.

Yet, the innocence of childhood can drastically change once a child is diagnosed with a chronic illness. The responsibilities and worries often surface too soon for any child to experience. Studies show that between 10% and 20% of children suffer from a chronic illness (Midence, 1994). Each child with a chronic illness experiences it differently through its symptoms, consequences of the illness, coping strategies and eventual adjustment, or lack thereof (Phillips, 1998). The need to understand the extent to which children with a chronic illness feel they can or cannot control their health, or the necessity to put it in the hands of fate, or others, such as a physician, may be a crucial piece of information for anyone in the healthcare field.

Purpose

The purpose of this study was to examine the health locus of control of children with a chronic illness. The health locus of control among children with a chronic illness was found to be either internal (self-controlled), external (controlled by fate and/or chance or by others, such as a physician), or a combination of both internal and external factors.

Hypothesis

It was hypothesized that an external health locus of control would be more prevalent among children with a chronic illness. Specifically, children with a chronic illness felt others, such as physicians, had more control over their health.

Theory/Background

Locus of control is a concept in psychology originally developed by Julian Rotter. Rotter initially focused on the application of the Social Learning Theory (SLT) which incorporated principles of learning such as reinforcement, punishment, extinction and imitation of models (Stone, 1998). The ideas from the SLT eventually led him to his locus of control idea (Stone, 1998).

In 1966, Julian Rotter wrote a scholarly book named “Generalized Expectancies for Internal Versus External Control of Reinforcement” which examined if people could influence the reinforcements they receive, or have control over their behavior (Doorey, 2006). With this theory, Rotter characterized a person’s location of control as either internal or external. Those with an internal locus of control would believe reinforcements are due to their own behavior. Individuals with an external locus of control would be on the opposite side of the spectrum by thinking reinforcements are due to luck, fate, chance or powerful others (Doorey, 2006).

As a result, Rotter developed his Internal-External Locus of Control Scale to measure these differences for any individual (Doorey, 2006). To this day, Rotter’s Locus of Control Scale is widely used, and the subject has generated a number of studies (Gershaw, 1989).

Since its introduction by Julian Rotter, the locus of control construct has influenced many context-specific uses. One popular application of the locus of control

concept was developed by Dr. Kenneth Wallston to which he and his colleagues called the Multidimensional Health Locus of Control (MHLC) Scales. As noted on Vanderbilt University School of Nursing (2003) website, Wallston used the MHLC scales to assess “beliefs about control over a person’s health status” which will generate outcomes that are specifically related to health and illness, such as staying well or becoming ill (Research & Scholarly Activity section, para. 2). Among the most widely used are the following three scales: A, B and C. Scales A and B are the “general” health locus of control scales, while scale C is more specific for a certain health condition (Black, 2006).

Developed for a condition-specific locus of control scale that could be easily used for any health-related condition, Form C has proven to hold the validity that is required when measuring individuals in a particular state of health (Wallston, Stein & Smith, 1994). In a study conducted by Wallston, Stein and Smith, it was found that the data collected from Form C was easily interpreted much due to its four (more or less) relatable subscales of “Internality, Chance, Doctors and Other (powerful) People” (Wallston, et al., 1994).

Definition of Terms

1. Chronic illness- Refers to an illness that can last for an extended period, at least 3 months, often for life, and cannot be cured.
2. Locus of control- Refers to how individuals attribute their outcomes to internal or external forces. People can be classified along a continuum from very internal to very external.

3. Health locus of control- Refers to the perception that a health outcome will be largely determined by the individual's own actions (internal LOC) or by outside forces (external LOC) beyond the individual's control.
4. Health locus of control scale- This scale measures people's beliefs in the external and internal controlling agents of their physical health.
5. External locus of control- The belief that events in life are controlled by luck, chance, or powerful others. Therefore, they see little impact of their own efforts on the amount of reinforcement they receive.
6. Internal locus of control- The belief that events result primarily from their own behavior and resources. Internals believe that success or failure is due to their own efforts.

Assumptions

In this experiment, it was assumed that all of the children with a chronic illness were not influenced by any outside source prior to answering the questionnaire, that each child understood their prognosis, and the children all received professional treatment from a physician. It was also assumed that all of the children answered the questionnaire honestly and accurately, and understood the questions being asked.

Limitations

This experiment had several limitations that should be noted. The sample size and diversity were limitations, as was the population since only those who could afford regular, professional treatment were used in the experiment. Finally, the length of the study could be considered a limitation being only three weeks long, resulting in a smaller sample size than what was expected.

Summary

Chapter II includes a review of the research and ideas that relate to chronic illness and locus of control. This research includes a number of studies that reflect on children with a chronic illness as well as their self-concepts of locus of control. Chapter III includes details about the design of the experiment. Chapter IV includes a review of the results of the experiment. Chapter V includes any conclusions that could be drawn from the experiment. This chapter also includes a discussion on research suggestions for the future.

CHAPTER II: REVIEW OF LITERATURE

Introduction

The research discussed below consists of general as well as some very specific information as related to the current study. General information includes data on chronic illness among children, their quality of life, self-image, coping strategies and locus of control. More specific research includes studies in all the fields listed above, as well as in mental health, effects on family members and particular studies on locus of control in childhood chronic conditions such as asthma, attention deficit hyperactivity disorder, diabetes and the learning disabled.

General Research on Children and Chronic Illness

Childhood is supposed to be a time of well-being or at worst, a period of limited transient illness (Stein, 1983). Although childhood mortality rates have fallen, reductions of the prevalence of childhood chronic illness have not been as dramatic (Newacheck & Taylor, 1992).

Nearly 120 million Americans have one or more chronic illnesses (Coleman & Newton, 2005). Upsettingly, data estimates nearly ten million children under the age of 18 in the United States have some form of chronic illness (Goble, 2004). Worldwide, it is predicted by the year 2015, 623 million children under the age of 5, and 1.2 billion children between the ages of 5 and 14 will have some sort of significant chronic disease (Judson, 2004).

According to Lorie Judson (2004), a child with a chronic illness will experience one or more of the following six criteria: limitation of functions appropriate for age and development; disfigurement; dependency on medical technology for functioning; dependency on medication or special diet for normal functioning or control of condition; need for more medical care or related services than usual for the child's age; and special ongoing treatments at home or in school.

Research suggests that childhood chronic conditions have a great impact on children's activities and their use of health care. The National Health Interview Survey (NHIS) included a special supplement on child health, resulting in a sample of 17,110 children under the age of 18 to study the recurrent or chronic conditions of children. A panel of eight physicians reviewed the supplement checklist of chronic conditions among the children studied to find 31% of children under the age of 18 were reported to have one or more chronic conditions in 1988. The most commonly reported childhood chronic conditions included respiratory allergies, asthma, eczema and severe headaches. On average, children with a chronic illness reported missing 7 or more school days, and 62% were reported by their parents to have used medications. In conclusion, the impact of a chronic condition on a child vary based upon the type of condition, number and severity (Newacheck & Taylor, 1992).

Quality of Life of Children with a Chronic Illness

Quality of life is defined as the subjective perception of health in physical, emotional, mental, social and functional domains (Bullinger, Schmidt & Peterson, 2002). Although this may be a term that is commonly used among adults, it is rarely studied among children, and is often an area of neglect.

Health-related quality of life is a newer term, especially in the health care field, that focuses on patient views and concerns (Bullinger et al., 2002). Although attempts to study and understand quality of life among chronically ill children has improved, the need to develop its methodology is still apparent.

In an attempt to assess the quality of life in children and adolescents with chronic disease and disabilities, Monika Bullinger and associates (2002) studied children and adolescents aged 4-16 in three age groups: 4-7, 8-12, 13-16 and three degrees of severity to form 196 focus groups. The children studied had a chronic condition of asthma, severe cerebral palsy, epilepsy, juvenile diabetes, juvenile rheumatoid arthritis, cystic fibrosis and serious skin disease. To assess quality of life, a questionnaire such as the American child health questionnaire (CHQ) was used. Results found that quality of life assessments should be included, as well as children's self-report and parental perceptions of routine health care planning, in the treatment and evaluation of children and adolescents with a chronic illness or disability.

Quality of Life Perceptions of Chronically Ill Children

According to L. B. Meuleners, C. W. Binns, A. H. Lee and A. Lower (2002), teachers, parents, and health care professionals all share a common interest in the care and development of a chronically ill adolescent but may have different views. Parental perceptions often do not match those of the ill child or adolescent, and Viet et al. (Viet, as cited in Meuleners et al., 2002) found health care professionals typically lack an understanding of adolescent issues. Other research conducted by McCarthy et al. showed teachers were often not well informed of the chronic conditions of their students, nor did

they possess the specific knowledge needed to adequately integrate them into the classroom (McCarthy et al., as cited in Meuleners et al., 2002).

Using a three-round Delphi method, which is a means of determining the extent to which a consensus exists among a group of people, Meuleners et al. (2002) found a small group of teachers, health care professionals and parents who have dealt with adolescents with a chronic illness. Eighteen teachers, 17 parents and 14 health care professionals were used in the study. Sixteen items were included in the Delphi questionnaire relevant to chronically ill adolescents' quality of life. Results showed there were differences among the three groups, but most significantly was the importance of physical health. Physical health to the chronically ill adolescent's quality of life was deemed very important by health care professionals and parents only. In addition, parents were the only group to note 'managing medical care and making decisions about the illness' as extremely important. Teachers only rated 'making plans for the future' as extremely important, possibly because they work in the education field. Meuleners et al. believes it is necessary to increase awareness on the importance and impact of a chronic illness on an adolescent's quality of life.

Further research suggests parents may perceive a chronically ill child's illness to have a greater impact than that of their child. Eiser and Morse state that many may assume parents are equipped to give information on the impact of a disease on their child, yet the child's perspective may be very different, but equally as important (2001). In order to study this possible difference, Eiser and Morse reviewed ratings of the health-related quality of life (HRQOL) identified in 14 current literature pieces. However, the research did not result in any clear conclusions, but there was some support for the view

that parents are more able to judge a child's HRQOL in terms of the physical aspects rather than the emotional and social areas.

Self-Image of Chronically Ill Adolescents

Throughout the years, there has been an advancement of medicine which has changed the view of formerly lethal conditions to chronic conditions (Moons & Norekval, 2006). Yet, psychosocial adjustment and quality of life remain areas that need development for children and adolescents with a chronic illness (Erkolahti, Ilonen & Sarrijarvi, 2003).

To determine if there were differences between the self image among adolescents with two chronic illnesses – diabetes mellitus type-1 and rheumatoid arthritis – and those who were non-ill, Erkolahi et al. (2003) used the Offer Self-Image Questionnaire (OSIQ). A total of 74 adolescents, 23 with diabetes mellitus, 25 with rheumatoid arthritis and 26 control subjects were compared by means of the OSIQ. All adolescents were from Turku, Finland. The OSIQ focused on 10 content areas including impulse control, emotional tone, body image, social relations, vocational and educational goals, sexual attitudes, family relations, mastery of the external world, emotional health and superior adjustment. Their results indicated that there was not a significant difference between the groups, and in most areas, the chronically ill adolescents managed considerably well as compared to the non-ill control group. However, the chronically ill adolescences did score lower on body image, which indicated they were aware of their physical condition and were most likely worried about their condition and were not very proud of their bodies.

Coping among Children with a Chronic Illness

Barbara Katz noted that families are faced with a number of challenges when a child is diagnosed with a chronic illness (2005). These children not only have to face developmental tasks, but also illness-related stressors, restrictive treatment regimens, frequent hospitalization, painful medical procedures and social rejections (Hampel, Rudolph, Stachow, Lab-Lentzsch & Petermann, 2005).

A study conducted by Hampel et al. investigated the differences between coping styles among healthy children and children with a chronic illness, such as asthma, atopic dermatitis and cancer (2005). A total of 158 participants with a chronic illness were recruited from two inpatient clinics in Germany, as well as 158 healthy control subjects recruited from elementary and high schools among three different states in Germany. All of the children ranged in age from 8 to 13 years old.

Coping styles were measured by using the German Coping Questionnaire for Children and Adolescents which rated different coping strategies on a 5-point Likert scale. It was found that the chronically ill patients used less passive avoidance coping styles than the control group. Based upon other supporting findings by Spirito et al., there was an increase in maladaptive coping in chronically ill adolescents (Spirito et al., as cited in Hampel et al., 2005). Therefore, it was assumed adolescents with a chronic illness run an increased risk of developmental psychological maladjustment as a result of poor coping skills.

Despite all of the additional stressors chronically ill children have to deal with, some research has found that they are able to adapt to their disease and cope with its implications very well (Midence, 1994).

Mental and Psychological Risks of Children with a Chronic Illness

As to be expected, children with a chronic illness are subjected to a multitude of emotionally stressful situations that can pose great psychological threats for these children (Mattsson, 1972). From previous research, there are indications of approximately a two-fold increase in mental health problems involving children with chronic illness (Patterson & Geber, 1991).

A study by Key, Brown, Marsh, Spratt and Recknor (2001), showed depression was a common factor among children and adolescents with a chronic illness. However, the severity of the health condition may also be a contributor to psychological adaptation (Key et al., 2001).

In order to examine chronically ill adolescents and their symptoms of depression, Key et al. recruited 125 adolescents with various chronic illnesses including sickle cell disease, cystic fibrosis, insulin-dependent diabetes, spina bifida and asthma. A comparison control group of adolescents without a history of chronic illness or psychiatric disorders were also recruited. All of the participants ranged in age from 13 to 18 years of age.

Commonly used as a screening instrument for various symptoms of depression, the researchers administered the Beck Depression Inventory (BDI) to each adolescent over a 6 month period. Medical providers ranked the severity of the adolescent's illness as mild, moderate or severe.

The study's findings unveiled adolescents with a chronic illness had nearly twice the prevalence of moderate to severe depressive symptoms than that of the healthy group. This was found to be consistent with findings from the Ontario Child Health Study by Cadman, Boyle, Szatmari, & Oxford that children with chronic illness were found to have

a risk of psychopathology nearly two times that of healthy children (Cadman et al., as cited in Key et al., 2001). In addition, it was found that adolescents with chronic illness had a high risk of internalizing problems, such as depression, relative to their healthy peers.

Patterson and Geber (1991) commented on the importance of preventing mental health problems in chronically ill children. Specifically they noted five different strategies to tackle this issue by encouraging normal life experiences, increasing coping skills, increasing the use of social support, coordinating the delivery of care and empowering families.

There was also research that showed camps have been proven to be beneficial for children with a chronic illness (Winfree, Williams, & Powell, 2002). Research showed camp teaches children, including chronically ill children, many useful skills necessary to face the difficult challenges they will face throughout their lifetime (Winfree, Williams, & Powell, 2002). Camps may be a way to help chronically ill children overcome obstacles, learn coping skills and develop many other skills that will help guide their way through any circumstance (Winfree et al., 2002).

Effects of Chronically Ill Children on Family Members

It has been shown that a chronic illness can have many negative affects on children. Studies show having a child with a chronic illness is a stressful experience for parents as well (Melnyk, Moldenhouer, Feinstein, & Small, 2001). Stein and Jessop (1989) found that families with a chronically ill child face many challenges including long-term care burdens, strains on family resources, and interaction and communication problems within the household (Stein & Jessop, as cited in P. Williams, A. Williams,

Craff, Hanson, Stanton, Hafeman, Liebergen, Leuenberg, Setter, Ridder, Curry, Barnard & Sanders, 2002).

In a study by Edna Menke (1987), families with a chronically ill child experience a great deal of changes and worries since living with a chronically ill child can be extremely stressful for everyone. As a result, siblings often feel angry, jealous and even resentful toward the child with a chronic illness, as well as the parents. Some research has shown some siblings may experience trouble in school, nightmares, poor adaptive behaviors and psychosomatic complaints.

To better understand the impact of a child's chronic illness on school-aged siblings in the family environment, Menke compiled a sample of 72 children and their parents from children's hospitals. The children were between the ages of 6 and 12 and had a sibling with a chronic illness including cancer, cystic fibrosis, congenital heart disease, myelomeningocele and/or severe burns. Data was collected via interviews to be analyzed using a qualitative methodology regarding the child's perspective of living with a chronically ill sibling.

Results of Menke's study showed siblings of a chronically ill child worried a great deal about their ill siblings, especially if the ill sibling had cancer or cystic fibrosis, which generally have a poor prognosis. In addition, the school-aged children were found to cope well with living with a chronically ill sibling.

Other interesting findings by Ladonna Goble (2004) focused on the impact of childhood chronic illness had on fathers. Goble's findings found fathers are affected in many ways by having a child with a chronic illness, particularly because today's fathers play a much larger role in the care of their children. This is also true when it comes to a

child's care that is chronically ill. However, findings found fathers have great difficulty coping with their situation of having an ill child and needed family support to adapt (Goble, 2004).

Support is an important factor involving families living with a child with a chronic illness. As described by Morison, Bromfield and Cameron (2003), the Pediatric and Adolescent Support Service (PASS) is a counseling service for children and family members living with a child with a chronic illness. The PASS model works to combat the long-term effects of traumatic stress for families of children and adolescents living with a chronic illness (Morison et al., 2003).

Locus of Control

The Locus of Control (LOC) theory was developed by Julian Rotter in 1966 and is often used to “offer an account of self-management behavior in chronic illness (Gillibrand & Flynn, 2001). Locus of control is also noted as being the perceived source of control over an individual's behavior (Gershaw, 1989). Julian Rotter's Locus of Control theory, which is derived from his theory of social learning, has an internal versus external construct (Boyle & Harrison, 1981). Individuals who indicate internal expectancies for control believe that their own behaviors determine their destiny and that their skills, abilities and efforts determine the majority of their life experiences (Boyle & Harrison, 1981; Gershaw, 1989). In contrast, individuals who indicate external expectancies for control attribute their outcomes to fate, change and luck (Boyle & Harrison, 1981). Externals believe their lives are mostly determined by outside sources, including powerful others (Gershaw, 1989).

To measure one's locus of control, Rotter created the Internal-External Locus of Control Scale, which remains widely used to this day.

Locus of Control and Health

Since there was difficulty predicting health behavior simply by using Rotter's Internal-External Locus of Control Scale, the Health Locus of Control (HLC) scale was designed with the objective of improving prediction of health-related behavior (Boyle & Harrison, 1981).

The Health Locus of Control scale was developed by Wallston, Wallston, Kaplan and Maides in 1976, however, the idea of this being a unidimensional construct may not have been theoretically sound (Boyle & Harrison, 1981). Wallston et al. realized the supporting evidence and utility of the multidimensionality, and therefore created the Multidimensional Health Locus of Control Scale (MHLC).

The Multidimensional Health Locus of Control Scale

The MHLC scale could "not only identify one's tendency toward internal or external behaviors, but further divide those who perceived control as coming from somewhere other than from within as blaming fate and luck or what became known as 'powerful others' (Graffeo & Silvestri, 2006). MHLC refers to an individual's belief over where his or her health lies (Wallston, Stein, & Smith, 1994).

Specifically, Form C of the MHLC scales is used as a condition-specific locus of control scale that could "easily be adapted for use with any medical or health-related condition (Wallston et al., 1994). To justify the validity of Form C, Wallston et al. took data from five sources: one individual with rheumatoid arthritis; one of chronic pain patients; one of type I and II diabetes and two of cancer patients. Form C was

administered to the subjects where “powerful others” were noted as, for example, doctors, other health professionals and other people. Results showed Form C showed considerable reliability and remains a measure that can be utilized for general or condition-specific for any medical or health-related condition.

However, a study conducted by Helen Winefield (1982) tested the reliability and validity of the Multidimensional Health Locus of Control Scale reported different results. According to Winefield, the MHLC scale failed to predict future health-relevant behavior and may need to be used with caution (1982).

Children and Health Control Beliefs

Research has indicated children and teenagers show no differences in the way they perceive the underlying causes of health (Bernardes & Lima, 2006). In addition, they show a high perceived control over their own health, although this declines once they reach late adolescence. This decline may be associated with an increasing awareness of the complexity of health, which is harder to control (Bernardes & Lima, 2006). On the other hand, although children may be aware of the many external factors that may cause disease, they may not be able to fully grasp the internalization process or the body’s role in producing or fighting disease (Bernardes & Lima, 2006).

Sartain, Clarke and Heyman (2000) conducted a study that focused on chronically ill children’s perceptions about their illness and health care experiences. Semi-structured interviews were conducted, augmented with a drawing technique, with six children between the ages of eight and fourteen who were hospitalized for a minimum of three days. Questions included the children’s opinions about “being in the hospital” compared

to “being at home,” as well as biographical questions about family, school, friends and their broader social environment.

The research findings conveyed children are capable of giving an opinion and that their views can lead to a significantly greater understanding of biography of childhood chronic illness (Sartain et al., 2000). Additionally, allowing chronically ill children to have a “voice” is necessary because each child copes and reacts differently to their illnesses, and also because they can communicate competently on their experiences of ill health and health care (Sartain et al., 2000).

Children with Asthma and Locus of Control

The leading chronic disease in children is asthma, which results in 25% of school absences (Heermann & Wills, 1992). Being able to control and prevent asthma symptoms is important, but also presents a challenge. Findings showed promoting self-management of asthma through problem-solving and decision-making skills did help, but often required a time commitment for proper education (Heermann & Wills, 1992).

The concept of self-management signified individuals can and should take responsibility for their own health, and the Health Locus of Control method has been used as an indicator to evaluate this (Heermann & Wills, 1992). Thus, if individuals act to control asthma and assume responsibility for their own health, they are noted as having an internal locus of control, especially after participating in asthma education programs (Heermann & Wills, 1992).

Heermann and Wills (1992) designed a quasi-experimental study to determine if there would be an effect from direct instruction on problem solving and asthma education on the health locus of control scales for children and their parents. The researchers

recruited children who were 15 years old or younger and were accompanied by a parent. The children all had a diagnosis of asthma and attended the allergy clinic from which they were recruited. Seventy-three families agreed to participate and were divided to be a part of the control group, or the group that received problem-solving instruction (PSI).

The Multidimensional Health Locus of Control scales and Children's Health Locus of Control scales were used to gather the data. Results of the study concluded the problem-solving instruction did not shift the parents' or children's health locus of control toward internality, which contrasted the researcher's prior studies, possibly because the instruction given was short and brief.

Further research on children with asthma by Patricia Burkhart and Mary Kay Rayens (2005) indicated children's self-concept and health locus of control made an impact on their daily asthma routine, especially those who had a higher internal locus of control. Burkhart and Rayens believed this was significant because children that showed a low self-concept and external locus of control may not be as willing to adhere to an asthma regimen, which is valuable information for any health care provider trying to improve their patient's condition.

Children with Attention Deficit Hyperactivity Disorder and Locus of Control

Attention deficit hyperactivity disorder (ADHD) remains one of the most common behavioral disorders of childhood. Despite its awareness, between one third and two thirds of children will continue to have ADHD symptoms (Gonzalez & Sellers, 2002).

According to research, ADHD children often show a much higher external locus of control, therefore viewing what happens to them as being a result of fate, or anything

that is beyond their control (Gonzalez & Sellers, 2002). Gonzalez and Sellers (2002) conducted a study to determine if a stress-management program effected self-concept, locus of control and coping strategies for school-aged children with ADHD.

Forty-two ADHD children were selected from private schools, a private outpatient mental health clinic and a summer day camp. They were then assigned to a control group, an experimental group where stress-management techniques were taught by a child therapist or another experimental group where stress-management techniques were taught by the children's parents at home. All of the children were pre- and post-tested for self-concept, locus of control and coping strategies. The children's Locus of Control Scale was used to measure locus of control and the Children's Self-Concept Scales was used to determine how each child felt about themselves. Finally, the Stress and Coping Questionnaire was used to determine what the child reported as stressful and what coping strategies were used.

Possibly due to the short period of time the techniques were taught, there were no significant differences found in the locus of control scores from the pretest to posttest. However, the study did note that children who displayed a higher external locus of control and lower self-concept may believe they can make an impact on the stressors in their lives, and therefore may require different training for stress-management.

Children with Diabetes and Locus of Control

Diabetes is one of the most prevalent illnesses among children that may lead to failure of the eyes, kidneys, nerves, heart and blood vessels (Gillibrand & Stevenson, 2006). Research conducted by Aalto and Uutela, who used the Diabetes Locus of Control Scale with four subscales: belief in diabetes control is internally driven, by chance, by

significant others or by health care professionals, determined patients with control determined by health care providers combined with internal control to be most beneficial (Aalto & Uutela, 1997, as cited in Gillibrand & Stevenson, 2006).

Following the dimensions of Aalto and Uutela (1997), Gillibrand and Stevenson (2006) obtained 118 participants between 16 and 25 years of age from a medical facility. The individuals all had diabetes and answered and returned a questionnaire.

Results of the study showed the participants considered the control of their diabetes to be moderate to poor, and that their quality of life would be better if they did not have their chronic condition. High internal locus of control beliefs indicated the participants would find the benefit of a self-care regime.

Special Education Children and Locus of Control

Health education is an important field for all children, particularly special education children, who are often ignored in this subject (Noland, Riggs, & Hall, 1985). As indicated by Noland et al. (1985), health knowledge, health locus of control and health status are all intertwined, but little is known about their relationships among the mentally retarded or learning-disabled children.

In order to study the relationship between the three variables among learning-disabled and mentally retarded high school students, Noland et al. randomly selected 51 school districts in Kentucky to find 181 high school special education students ranging in age from 14 to 20 years. A health knowledge test, the Children's Health Locus of Control scale and a health status measurement were used to obtain their data.

Their findings showed a significant relationship between health locus of control and health knowledge. Health knowledge was most strongly predicted by internal and

powerful other beliefs. In addition, those who were health internals tended to seek more information than those who were health externals. It was suggested health instructional programs based on health locus of control could be beneficial to promote taking responsibility for one's own health, or having peers and/or parents involved in the health learning process to change negative health behaviors.

Summary

In summary, there are many aspects of a child that are effected by chronic illness including quality of life, self-image, coping strategies, mental health, effects on family members as well as locus of control. According to recent research, most chronically ill children indicate an internal locus of control, although this has not always been supported, possibly due to age differences as well as the state of the child's condition.

CHAPTER III: DESIGN

Sample

The subjects in this study consisted of fifteen pediatric patients from Cooper University Hospital in Camden, New Jersey. The subjects ranged in age from 10 to 17, with a mean age of 13.93. All of the children involved in the study had an appointment at Cooper University Hospital during a three week period to receive care for their chronic health condition of asthma, diabetes or leukemia.

The sample was composed of 5 girls and 10 boys of all races. Two participants had diabetes, 12 had asthma and 1 had leukemia.

Materials

The Multidimensional Health Locus of Control (HLOC) scale, developed by Wallston et al. (1976), was used to assess health locus of control. Specifically, Form C of the HLOC scale, which is particular to subjects with an existing medical condition, was used. The questionnaire consisted of a scale which ranged from strongly agree (1) to strongly disagree (6) followed by 18 brief statements about one's thoughts of their own health condition. The HLOC scale contained one internal (self-controlled) and two external scales (fate and/or chance, doctors and/or other people). The statements were mixed in random form. Instructions were noted at the top of each questionnaire, and subjects were free to ask the investigator or his/her doctor for clarification at any time.

The internal statements, questions 1, 6, 8, 12, 13 and 17, dealt with the child's belief that he/she does or does not control his/her own health and health behavior. The possible range of scores for the internal locus of control questions were 6 (low internal

locus of control) to 36 (high internal locus of control). The chance and/or fate statements referred to the child's belief his/her health status is or is not in the hands of luck or fate, while doctors or other people (such as parents, etc.) referred to the child's belief his/her health status is controlled or not controlled by doctors and/or other people. The chance/fate statements, questions 2, 4, 9, 11, 15 and 16, had a possible range from 6 (low external locus of control) to 36 (high external locus of control). The doctor and/or other people statements, questions 3, 5, 7, 10, 14 and 18, also had a possible range from 6 (low external locus of control) to 36 (high external locus of control). All items were scored so that the children with strong internal beliefs received a high internal locus of control score, and children with strong beliefs in chance and/or fate or doctors and/or other people received a high external locus of control score on those subscales.

Reliability/Validity of Scales

Wallston et al. reported acceptable levels of reliability, internal consistency and construct validity for the HLOC scale.

Form C has proven to be a relatively easy instrument to administer, and is a valid measure of condition-specific locus of control beliefs that has been successfully designed to be readily adapted in a standardized manner for the study of virtually any pre-existing medical or health-related condition (Wallston et al., 1994).

Method

A list of scheduled appointments for a pediatric physician at Cooper University Hospital during a three-week period was reviewed to determine eligibility of possible subjects. Once a possible subject was identified, the patient was located with the

assistance of the physician or the physician's nurse educator in the waiting room or exam room.

The investigator was introduced and presented a detailed explanation of the study, its purpose, and possible findings to the child and his/her parent. Upon agreement to participate, a consent form was reviewed and signed by the child and his/her parent.

The child was then given the 18-statement questionnaire to complete about his/her own beliefs about his/her own chronic health condition. Subjects were free to ask questions at any time and were given as much time as needed to complete the questionnaire, but time normally did not exceed 15 minutes. Once a subject finished his/her questionnaire, it was returned to the investigator or the physician.

Independent and Dependent Variables

The independent variable was the subject's chronic health condition (asthma, diabetes or leukemia). The dependent variable is the subject's health locus of control score. It was hypothesized that children with a chronic health condition would have an external locus of control, specifically a higher score among the doctor and/or other people subscale.

Analysis of Data

After the three-week period, all of the questionnaires were scored. A Pearson Correlation was used on this data at the .05 level to determine if there was a statistically significant correlation between the questionnaire's health locus of control subscale scores.

Summary

Children with chronic health conditions were sampled to measure their health locus of control. The Health Locus of Control Scale, Form C, developed by Wallson et al. (1976) was used to determine the subjects' health locus of control. All subjects answered an 18-statement questionnaire once identified as an eligible participant with a chronic health condition. Data was analyzed using a Pearson correlation with a .05 statistical significance. It was hypothesized that children with a chronic health condition would have an external locus of control, particularly with the belief that their doctor or other people had the most influence on their health.

CHAPTER IV: RESULTS

Introduction

The purpose of this study was to explore the locus of control of chronically ill children regarding who or what controls their health. It was hypothesized that the chronically ill children that participated in the study would score a high external health locus of control, emphasizing the belief that their doctor or other people had the most control over their health. This would be supported by a higher score in the external locus of control subscales than in the internal locus of control subscale.

Results

During the course of the study, each participant was asked to complete an 18-statement questionnaire regarding their health locus of control. Fifteen children with chronic health conditions participated.

A Pearson Correlation test indicated a positive correlation between the two external health locus of control subscales chance and/or fate and doctor and/or other people ($r_{15} = .581, p \leq .02$). Thus, meaning as a subject's health locus of control score in the external subscale doctor and/or other people increased, the score for the external subscale chance and/or fate also increased (see table 4.1). As expected, the health locus of control score in the internal subscale, self-controlled, was not significant with either of the two external health locus of control subscales, doctor and/or other people and chance and/or fate.

Table 4.1 Correlation between the health locus of control subscales.

Correlations		SELF	FATE	DOCTOR
SELF	Pearson Correlation	1	.035	-.319
	Sig. (2-tailed)	.	.901	.246
	N	15	15	15
FATE	Pearson Correlation	.035	1	.581(*)
	Sig. (2-tailed)	.901	.	.023
	N	15	15	15
DOCTOR	Pearson Correlation	-.319	.581(*)	1
	Sig. (2-tailed)	.246	.023	.
	N	15	15	15

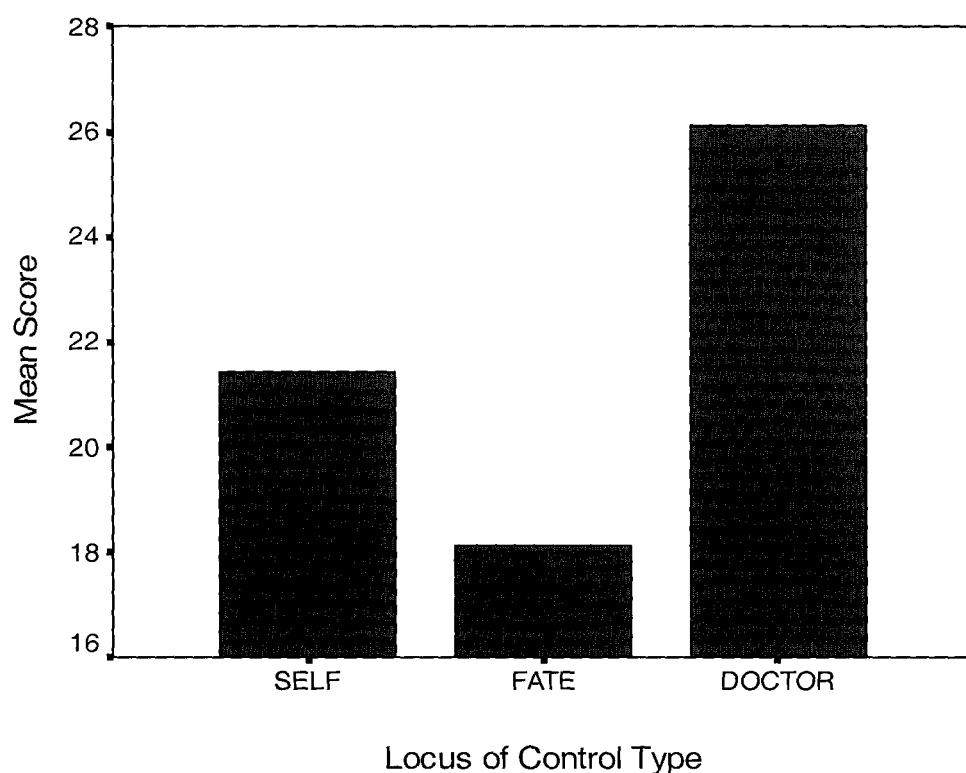
* Correlation is significant at the 0.05 level (2-tailed).

The 18-statement questionnaire that was given to each of the fifteen participants to complete was compiled of three health locus of control subscales: internal or self-controlled, chance and/or fate as well as doctors and/or others. Each subscale ranged from a low score of 6 and a high score of 36. The highest score among the subscales indicated the subject's strongest health locus of control belief.

In regard to the mean health locus of control subscale scores, it was apparent the external health locus of control subscale of doctor and/or other people obtained the highest scores among the study's participants with a mean of 26.13.

The mean scores of the two other subscales were below the doctor and/or other people external health locus of control subscale with a mean score of 18.13 for the chance and/or fate subscale and a mean score of 21.4 for the internal, or self-controlled, subscale (see figure 4.1).

Figure 4.1 Mean scores for the health locus of control subscales.



Summary

In summary, a positive correlation among the two external health locus of control subscales, doctor and/or other people and chance and/or fate, was found to be significant. Therefore, as the score for the doctor and/or other people subscale increased, so did the score for the other external subscale regarding chance and/or fate.

In addition, the doctor and/or other people health locus of control subscale was most prevalent among the participants by having the highest mean score of 26.13. It is important to note that the children with a chronic health condition in this study were most likely to believe their health was determined by their doctor and/or other people.

CHAPTER V: DISCUSSION

Review of Results

After reviewing the data, it was found that the children with a chronic health condition scored highest as having an external health locus of control, particularly among the doctor and/or other people subscale as having the most control over their health. This finding supports the hypothesis that an external health locus of control with the belief that doctors and/or other people have the most control over one's health would be most prevalent among children with a chronic illness. This finding also supports the current research on the decline of perceived control of one's health as a child reaches adolescence. As children grow into adolescence, they become more aware of external factors controlling their health (Bernards & Lima, 2006).

Although a positive correlation was found to be significant among the two external health locus of control subscales, doctors and/or other people and chance and/or fate, their mean scores differed by eight points (mean score of doctor and/or other people subscale was 26.13, where the mean score of chance and/or fate was 18.13). Even though the positive correlation supports the hypothesis of this study, the wide difference between the two scores are most likely due to the different meanings of the two external health locus of control subscales. The belief that one's doctor and/or other people have control over one's health is completely different from feeling one's health is determined by chance and/or fate.

Despite having a positive correlation between the two external health locus of control factors, the mean score of the internal health locus of control subscale being 21.4

was still slightly higher than the chance and/or fate external factor that had a mean score of 18.13. This shows us that although the children in this study felt their physician and/or other people had the most control of their health, it was also apparent some felt they had self-control over their health. This finding supports the research from Aalto and Uutela (1997) in which participants with higher internal locus of control beliefs believed they would benefit by having a self-care regime.

Since the current study dealt mainly with children with asthma, and despite not promoting a self-management and problem-solving skills for asthma patients as in the research by Heermann and Wills (1992), similar findings were reported. Although Heerman and Wills provided education on self-management and problem-solving skills for their asthma participants, there was no shift in their health locus of control towards internality. As in the current study involving 12 asthma patients, the findings suggest a higher external health locus of control, emphasizing control by their doctor and/or other people, rather than findings toward an internal health locus of control.

Limitations

One limitation of the current study was the length of the study. Due to time constraints, the duration of the study was limited to a three-week period. This length of time did cut back on the amount of participants. Unfortunately, this short amount of time produced only 15 eligible participants.

This led to another limitation of the study, which was having an extremely small sample size of fifteen participants. Again, due to time constraints, the study was only conducted for a three-week period. Thus, had the study been able to extend longer, surely more participants would have been included.

Another limitation of the study involved both diversity and population. All of the subjects were able to afford regular and professional treatment, and were all patients at Cooper University Hospital in Camden, New Jersey mostly treated by one Pulmonary Pediatrician. In addition, the majority of the population in this area was Spanish-speaking and of Hispanic decent, therefore not all races were represented equally.

This brings us to another limitation, which again deals with the Spanish-speaking participants. Although all of the participants spoke English, many may speak Spanish as their primary language. Therefore, there was a possibility some of the participants did not fully understand the meaning of the questions being asked.

One final limitation may have been who administered the questionnaire. Although the purpose of the study was explained in detail by the experimenter, and participants were free to ask questions at any time, the children may have felt uncomfortable or awkward answering questions for someone they did not know. Therefore, this possible issue could have negatively affected the results of the experiment.

Conclusion

In conclusion, the results of the study showed a positive correlation between the two external health locus of control factors among children with a chronic health condition. Specifically, the results indicated children with a chronic illness were more likely to believe their physician and/or other people had the most control over their health. Although the mean scores among the health locus of control subscales were fairly

close, it has been determined that further research is needed to assess the health locus of control of children with a chronic health condition.

Implications for Further Research

There is a need for more research on the health locus of control of children with a chronic illness among all diagnoses, ages, races and health care facilities throughout the country. It would be interesting to compare the health beliefs of children with a wider range of diagnoses, and how results may or may not differ between gender.

As stated by Sartain et al., (2000) children are capable of giving an opinion and their views can lead to significantly greater understanding of childhood chronic illness. Additionally, allowing chronically ill children to have a “voice” is necessary because each child copes and reacts differently to their illnesses, and it is important for each health care provider to understand the feelings and beliefs of their patients.

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