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Emotional Dysregulation and Adaptive Skills Among Siblings of Bipolar Children

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Abstract

Emotional Dysregulation and Adaptive Skills Among Siblings of Bipolar Children

by

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MSW, Barry University, 2004

BSW, Florida Atlantic University, 1999

Dissertation Submitted in Partial Fulfillment

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Abstract

The purpose of this study was to understand the effects of pediatric bipolar disorder on child siblings. A quantitative quasi-experimental research design was used. According to family systems theory, which was used in the formation of this study, all family members are interconnected and affect each other in a variety of ways. The research questions investigated whether children demonstrated more emotional dysregulation and fewer adaptive skills when a bipolar sibling was living in the home than when there was no bipolar sibling. The matched comparison study used 2 groups of children: those with bipolar siblings and those without bipolar siblings. Parents completed the BASC-2 Parent Rating Scale in order to measure adaptive skills and emotional dysregulation in their non-bipolar children. Parents were recruited via social media parent support sites. Thirty-four families included in the study group had 1 bipolar child and at least 1 nonbipolar child living in the home; 31 families in the comparison group had no bipolar children. All children were under the age of 18, living together full time, had a biological or legal relationship, and did not have any other mental health diagnosis. A multivariate analysis of variance was used to test the hypotheses. The study found that children with bipolar siblings demonstrated significantly higher levels of emotional dysregulation (both externalization and internalization) than did children without bipolar siblings. There was no significant difference in reported adaptive skills between the 2 groups of children. This study has social change implications as it identifies the emotional needs of sibling children who are routinely overlooked as needing assistance. This study provides the groundwork for clinicians and educators working in the pediatric mental health field to begin exploring potential treatments and programs for siblings of bipolar children.

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Dedication

With pride and love, I dedicate my dissertation to my family. Each of you have helped me accomplish this goal. Suzie, without you I would have never begun. Mom, without you I could have never finished. Brett, your love, motivation and belief that you have in me kept me going when I wanted to stop. Allie, your strength and passion help me understand. I help people the way that I do, because of you. I am able to help others create a generation of well children because you are so amazing. Donavan, without you, this dissertation would not have been written. You have inspired me to see a whole set of children that were unseen. You are why, and I love you all more than words can say.

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Chapter 1: Introduction to the Study

Pediatric bipolar illness can be a painful condition for parents to control. Sibling children of a juvenile diagnosed with bipolar illness may have needs that are overlooked by their parents and community. Learning about the emotional and social needs concerns of siblings of bipolar children should help families by giving mental health professionals the information they need in order to develop sound interventions that can positively impact this population. Within this chapter, the pathology of early onset bipolar disorder is defined, the background of the condition reviewed, and the problem statement identified. Furthermore, the nature of the study, the research questions, hypothesis and theoretical nature was constructed and reviewed.

Early onset bipolar disorder is also known as pediatric bipolar disorder (PBD), juvenile bipolar disorder and bipolar disorder not otherwise specified (Biederman, Mick, Faraone, & Wozniak, 2004; Brent, Ryan, Dahl & Brimaher, 2000; Findling, Kowatch, & Post, 2003). It is a mood dysregulation problem affecting approximately 3,000,000 children in the United States (Merikangas, et. al, 2010). Many researchers that study PBD find that this condition can be present in children as young as 5 years old (Findling, Kowatch, & Post 2003; Pavuluri, Brimaher, & Naylor, 2005). Psychiatrists and researchers find that PBD can produce extremely disruptive externalizing behaviors that can occur with rapid onset (within seconds) and last for hours (Fristad, Gavazzi & Soldano, 1999; Weckerly, 2002). Parents or primary family caregivers focus so much on stabilizing the behaviors of the bipolar child that they may overlook the needs of the siblings living in the home.

Symptoms of PBD include severe ultradian mood cycling and rage that cause a child to behave in an animalistic and destruction manner, lasting up to four hours (Gellar & DelBello, 2003; Papolos & Papolos, 2002). Further symptoms include chronic irritability, sleep

disturbances, hyperactivity, grandiose behavior, periods of increased productivity, poor impulse control and oppositional behavior (Pavuluri, 2008). Additionally, children diagnosed with PBD can have very vivid or graphic dreams, poor sleep patterns, cravings for food, difficulty with decision making, and a preoccupation with inappropriate or gruesome content that may be hyper sexual in nature (Findling et al., 2003; Gellar, Kai, et al., 1995; Papolos & Papolos, 2002, Weckerly, 2002; Wozniak et al.,1995).

The rage component, which is a prime symptom of the condition, appears to be the most difficult for parents to maintain. Rages are usually triggered by common parenting strategies to limit a behavior or when a parent uses the word "no" (Papolos & Papolos, 2002). The resulting rage is something that that is seen in a violent movie, with the child becoming animalistic and emotionally unreachable. Once the rage sets in, the family may experience an array of violent behaviors including the child screaming at everyone, hitting objects and people, throwing objects, destruction of property, biting, hurting pets and in some cases strangling others (Geller et al., 1995; Wozniak et al., 1995;). During the rage they may also try to hurt themselves, mutilate their skin, bang their heads, and grab the steering wheel while a parent is driving or even attempt to jump out of a moving car, regardless of speed (Pavuluri et al., 2005). Often, non bipolar siblings are the victims or witnesses of the violence in the home (Biederman et al., 2000). The siblings are sitting next to the bipolar child when they are grabbing the steering wheel or jumping out of the car. The bipolar child sees them as being a family favorite (Biederman et al., 2000). They can be targeted or abused by the bipolar sibling or by other children who think that the bipolar sibling is "odd" or "weird" (Biederman et al., 2000). Researchers have not studied the emotional or social toll on a sibling child.

Once the bipolar child's rage behavior is stabilized or diminishes, the child usually shows a period of regret or sadness (Weckerly, 2002). This behavior can occur several times a month, several times a week or several times a day, punctuated by periods of time (that may seem to other family members to be very short or nonexistent) during which the child exhibits "well" or "normal" behavior (Pavuluri et al, 2005). The sibling child may be expected to "forgive" or "understand" a behavior that in most cases would be considered criminal. There is no research regarding the emotional and social impact that witnessing this type of behavior on an ongoing basis has on a non bipolar sibling.

Thoughts of suicide may occur in one fourth of bipolar children (Gellar et al., 1995). Siblings of children with bipolar disorder watch listen and learn about suicide, homicide, police involvement, mental health hospitals and baker acts. The symptoms of the condition are so severe that the family lives in a constant state of disruption with feelings of fear, confusion, anxiety and exhaustion (Fristad & Arnold, 2004).

Families find PBD difficult to manage. When help is in place, parents are often given different and conflicting diagnoses and medication that is not helpful. Often, parents are blamed for their inability to control their bipolar child's actions (Biederman et al., 2000, Pavuluri et al, 2005.) On some occasions parenting the well sibling does not happen due to the difficulty managing the bipolar child. The illness is costly, and the reactions that occur are extreme and at times unexpected. Family members find themselves unable to cope and in a frequent state of crisis (Pavuluri, 2008). Families often need the help of mental health professionals to intervene and assist in stabilizing the bipolar child.

This study attempted to understand the degree of emotional dysregulation and the level of adaptive skills of a non bipolar child living with a bipolar sibling in order to begin to understand the needs of this population.

Background

There were several bodies of research that helped inform this study, including studies involving bipolar children, their siblings and their families and studies involving how children function within the family when a sibling has a diagnosis of chronic or severe medical illness. While many useful conclusions can be concluded from the studies reviewed, the conclusions can only give some insight into the needs of children with bipolar siblings as each study had different variables that were being studied.

Research has examined the effects on parents with bipolar children points toward the serious effects that PBD can have within the home environment. Considerable research has addressed the parents of children with bipolar disorder, finding that the parents are at risk for depression, self-blame, criticism by others, and feelings of living in a combat zone (Biederman et al., 2000; Fristad & Arnold, 2004; Papolos & Papolos, 2002; Pavuluri et al., 2004; Pavuluri et al., 2005). Other research examined the effects of children who have schizophrenia, autism and depression on parents have found similar outcomes (Heru, 2000; Kazak, 1989; Lukens, Thorning & Lohrer, 2004).

Studies of adults with siblings suffering from bipolar disorder have informed this research as well in so far as they help describe the physical and emotional effects of bipolar disorder on adult siblings. One study examined the genetic link within families with bipolar disorder (Craddock & Jones, 1999). This study was able to describe the genetic link between siblings and mental illness but was not able to outline the emotional impact of bipolar disorder

on siblings. Research involving adults also include Gerace, Camilleri, and Ayers, (1993) who explored an adult perspective to having a bipolar sibling. In this study, which looked at the relationships and responsibilities of one sibling to the other, the siblings did not live in the same home. The siblings in this study were adults and provided first person data. The proposed study was different in that it was ascertaining information from parents about the child sibling's behaviors.

Research in the area of childhood bipolar disorder also included Shepardson, (2007) who conducted a qualitative study examining the childhood experience of living with a bipolar sibling. The study found themes of abandonment, victimization, fear, isolation, repression of painful memories and trauma, suggesting that the children who live with this phenomenon may have untreated posttraumatic stress disorder. This study provided a strong indication that there are problems for siblings of children suffering from PBD, the study was qualitative, did not use a standardized measure and lacks parent perspective.

Kinetic family drawings examined how children with bipolar disorder perceived their family in comparison to children who do not have bipolar disorder. The findings of this study showed that children with bipolar disorder do not perceive differences in their families and overall saw their families as healthy and well-functioning (LaJudice, 2012). However, this study did not include siblings and was from the perspective of a child with a bipolar diagnosis rather than the parents view. The study did show that bipolar children do not see the difficulties within their families inclusive of the problems that their brothers or sisters are having.

The other bodies of research that shed light on the functioning of children with bipolar siblings were those studies that address siblings of children with chronic physical, medical illnesses. Studies of children with physically ill siblings have considered school issues, emotional

issues, physical issues and social peer relationships. These studies have established best practices for siblings of children with medical conditions (Bluebond-Langner, 1996; 1978; Kreitler & Arush, 2004; Lobato & Kao, 2005; Martinson & Cohen, 1998; Patternson, Holm & Gurney, 2004; Sloper, 2000). Findings from these studies indicated a range of responses in siblings from feelings of fear, confusion and sadness to being well-adjusted and having very few or no concerns at all. The common factor in this area of research was the knowledge children have about their siblings' medical conditions and whether or not they played a role in helping the family care for their sibling (Bluebond-Langner, 1996; 1978; Lobato & Kao, 2005; Kreitler & Arush, 2004; Martinson & Cohen, 1998; Patternson, Holm & Gurney, 2004; Sloper, 2000). However, because of the wide range of issues and the nature of children with PBD being traumatic, it was difficult to generalize studies to a particular situation that a family with a bipolar child in the home.

Often the behavior of a child with pediatric bipolar disorder is symptomatically complicated and can create an emotionally consuming and traumatic environment (Goldstein, 2012). This trauma results from situations such as violent episodes lasting hours, cases of police coming to the home and taking the bipolar child away in handcuffs (Pavuluri, personal communication, January 22, 2010) and incidents of involuntary hospitalizations of the bipolar children. Furthermore, rage occurrences that cause public embarrassment and humiliation happen without warning (Gellar, Kai, Zimmerman, Frazier, Williams, 1995; Gellar & DelBello, 2003). Additionally, instances of little to no sleep in the home or the perception by the bipolar child of favoritism on the part of the parents for the non bipolar children can also create further tensions for these families (Shepardson, 2007).

The nature of these symptomatic characteristics of PBD sets these families apart from those with physically ill child. Siblings of children with early-onset bipolar disorder are an understudied population in terms of research and subsequent intervention, particularly from the parents' perspective (Faul, Erdfelder, Lang, & Buchner, 2007), resulting in a gap in research-based services for these children. In families with bipolar children, significant emotional and financial resources are often put into the bipolar child in order to attempt to control the symptoms (Pavuluri, 2011, personal communication, January 22, 2010). For example, we know that bipolar children financially incur double the medical costs of a child without bipolar disorder (Centers for Disease Control and Prevention, 2012) creating significant financial burden for these families. This unbalanced distribution of family resources often leaves a non bipolar sibling who lives in the home open to being inadvertently overlooked in terms of his or her emotional needs. Introducing new research within the bipolar sibling population should begin to outline the needs of this population providing a gateway for eventual best practice services and programs.

Problem Statement

Children who have siblings diagnosed with early-onset bipolar disorder are an understudied population. Current research regularly addresses siblings of children with chronic medical illness or autistic spectrum disorders (Barak-Levy, Goldstein, & Weinstock, 2010; Bluebond-Langner, 1996; 1978; Kreitler & Arush, 2004; Lobato & Kao, 2005; Martinson & Cohen, 1998; Patternson, Holm & Gurney, 2004; Sloper, 2000). However, the findings of these studies cannot be generalized to the bipolar sibling population due to the types of chronic symptoms (rages, oppositional behavior, violence, incidents of the severe defiance, public humiliation and incidents of police involvement) that are generated by the bipolar illness. There is a critical level of disruption that this illness can cause within a family unit.

Current sibling studies address self-esteem and the ability to cope with a sibling's medical condition. Unfortunately, the findings of the studies are not consistent with one another in that the sibling's emotional responses were dependent upon the medical condition that the family was enduring. For example, siblings of children with cancer were found to have a need for attention, need to understand the condition, and had prolonged worries and fears about the illness. Siblings of children with autism and mental retardation were found to be "well-adjusted" (O'Shea, Shea, Robert, & Cavanaugh, 2012; Pilowsky, Doppelt, Gross-Tsur, & Shaley, 2004). Researchers routinely explore both medical and emotional treatments that siblings of children with medical problems or autism receive and the impact that treatment has on both the identified patient and the child sibling (Lobato, Kao, & Plante, 2006). Current research estimates that approximately 3.7 to 4.7 percent of the child population is affected with bipolar illness (Merikangas, et.al., 2010), which roughly translates into 3 million children. These children financially incur double the medical costs of a child without bipolar disorder (Centers for Disease Control and Prevention, 2012), the cost of raising the siblings of a bipolar child is unknown. Often, the behavior of a mentally ill child in the home is emotionally draining for a family (Goldstein, 2012) and the financial and emotional expenditures often leave a sibling of a bipolar child overlooked in terms of their emotional needs (Pavuluri, 2008). The potential emotional effect and the possible degree of impact on emotional regulation and social skills of a child living with a bipolar sibling are currently unknown. The studies previously discussed show how the emotional responses of children depend upon two factors, the medical condition of the sibling and the rate at which the child receives information about the sibling's condition. Therefore, the study outcomes cannot be generalized as to the impact on the family, especially

the impact on siblings when a child has bipolar disorder. This gap opens the door for siblings of bipolar children to be further researched.

Purpose of the Study

The study was quantitative and quasi-experimental in nature. The purpose of this study was two-fold. First, the study sought to determine whether children exhibit more emotional dysregulation when they have a bipolar sibling as compared to children who do not have a bipolar sibling in the home. Second, this study examined whether children exhibit fewer adaptive skills when they have a bipolar sibling compared to children who do not have a bipolar sibling in the home.

Research Questions and Hypotheses

RQ1: Do non bipolar children demonstrate more emotional dysregulation when they have a bipolar sibling as compared to children who do not have a bipolar sibling in the home as measured by the BASC-2?

$H_0$1: There is no statistical difference in the degree of internalization and externalization (as measured by the BASC-2) of a child living with a bipolar sibling as compared to children who do not have a bipolar sibling in the home.

H_a1: There is a statistical difference in the degree of the internalization and externalization of a child living with a bipolar child sibling as compared to children who do not have a bipolar sibling in the home.

RQ2: Do non bipolar children display fewer adaptive skills when they have a bipolar sibling as compared to children who do not have a bipolar sibling living in the home as measured by the BASC-2?

$H_0$2: There is no statistical difference in the adaptive skills of children living with a bipolar child sibling as compared to children who do not have a bipolar sibling living in the home.

H_a2: There is a statistical difference in the adaptive skills of children living with a bipolar sibling as compared to children who are living in the home without a bipolar sibling.

Theoretical Foundation

Creating a relevant conceptual framework was achieved by examining family systems theory. First created by Bowen (Papero, 1990), family systems theory focuses on the family as one emotional unit in which members are constantly interacting and affecting each other on a multidimensional level. The emotional atmosphere in the home often affects everyone in the family causing the members to react to emotional family turmoil in much the same manner (Martin, Pescosolido, Olafsdottir, & McLeod, 2007). Often, interdependencies emerge between family members (Papero, 1990). According to this theory, one family member's level of functioning can depend upon another member's level of functioning (Papero, 1990). On one hand, this situation within the home acts as a protective measure for the family unit. On the other hand, it can also act as a catalyst for dysfunction within the unit. Simply put, one family member's personal situation can affect each member of the family in a positive or negative manner.

Overall, this theory provided an explanation for how one sibling's medical condition or mental health issues may affect another sibling within the home. This study used the family systems theory to help explain how pediatric bipolar illness can affect individual siblings within a family unit. This study specifically examined the adaptive skills and emotional dysregulation of sibling children who are living with a bipolar sibling. These children were compared to children

who are living in a home without a bipolar sibling. One could predict, using this theory, that the bipolar child in the home would have an unknown impact on the study group (Papero, 1990). The family systems theory outlines how one sibling's behaviors changes another (Papero, 1990). The effect, positive or negative, seems to depend upon the nature of the situation in the home (Barak-Levy, Goldstein, & Weinstock, M, 2010; Bluebond-Langner, 1996; 1978; Kreitler & Arush, 2004; Lobato & Kao, 2005; Martinson & Cohen, 1998; Patternson, Holm & Gurney, 2004; Sloper, 2000).

Nature of the Study

This study was quasi-experimental in nature, with quantitative analysis designed to identify significant differences based on the previously stated research questions. The purpose of the research was to explore and quantify the emotions and behaviors of a non bipolar sibling living in a home with a child who has been diagnosed with bipolar disorder as compared to children in a matched sibling group who do not have a bipolar sibling using a parent rating scale. Data was collected via a survey of parents in order to assess similarities and differences in emotions and behaviors of the study group as compared to the comparison group. There were two dependent variables in this study. One was the degree of emotional dysregulation found in the siblings. The other was the level of adaptive skills of the siblings as reported by the parents within the study and comparison groups. The independent variable was whether or not there is a bipolar child living in the home.

The study population was non bipolar siblings living in a home full time with a bipolar child. The study sample of non bipolar siblings was matched as closely as possible to the control sample of non bipolar siblings. To the best of the researcher's ability, the sample group and the

comparison group was matched on the basis of age, gender, birth order, ethnicity and socioeconomics.

A parent rating scale was used to assess the children's emotions and behaviors defined as emotional dysregulation and adaptive skills. Advertisements were placed to recruit families from national locations that are known to treat children with bipolar illness.

Prior to data collection, informed consent was obtained from the parent respondents of this study. The informed consent outlined in detail the study's purpose and procedures. Identifying information of participants was kept confidential.

Definitions

Adaptability: The ability one has to embrace change in different conditions (Reynolds & Kamphaus, 2004).

Behavioral Assessment Scale for Children, Second Edition (BASC-2) parent rating scale: An assessment tool that measures the internal and external characteristics of children, examining fifteen emotional and behavioral traits (Reynolds & Kamphaus, 2004).

Bipolar disorder: A psychiatric condition marked by mood swings, depression, irritability, irrational behavior, poor decision making and periods of mania (American Psychiatric Association, 2000).

Adaptive skills: One's level of positive behaviors such as social skills, adaptability, activities of daily living, functional communication and leadership (Reynolds & Kamphaus, 2004).

Early-onset bipolar disorder: Diagnosis of bipolar symptoms in children prior to the age of eighteen (Pavuluri, 2008).

Emotional dysregulation: The presence of internalization and externalization of emotional difficulties i.e.: lack of ability to control and express emotion, specifically examined anxiety, depression, hyperactivity, conduct problems, somatization and aggression (Reynolds & Kamphaus, 2004).

Family system: The family unit as a single emotional entity wherein individual family members are constantly interacting and affecting each other; family systems can include nuclear family unit, extended family units or blended family units who are living with one another (Papero, 1990).

Functional communication: The manner that a child has learned to understand or respond to their environment (Reynolds & Kamphaus, 2004).

Leadership: The ability of a child to act in a manner that influences peers in a positive manner(Reynolds & Kamphaus, 2004).

Psychosocial profile: The combined scaled score of adaptive skills and emotional dysregulation within the BASC-2 (Reynolds & Kamphaus, 2004).

Assumptions, Limitations and Scope of the Study

There were three major assumptions with this study. First, the BASC-2 is assumed to be a sufficiently sensitive measurement tool that it provided an accurate representation of a child's degree of emotional dysregulation and one's adaptive skills. Second, it was assumed that the parent reporting the information is reporting it in an accurate manner and that the said report is a true reflection of the child's behaviors. Lastly, it was assumed that the sample is an accurate representation of the population of children that are living in the home with a bipolar sibling.

There were identifiable limitations to this study. Literature regarding siblings of chronically medically ill children is prevalent, the outcomes of those studies varied, citing

differences based upon the medical condition studied (Ballard, 2004; Barak-Levy, Goldstein, & Weinstock, 2010; Bluebond-Langner, 1978, 1996; Cuskelly & Gunn, 2003; Fisman, et. el., 1996; Gardner, 1998; Kazak, 1989; Kreitler & Arush, 2004; Lobato, Kao, Plante, 2005, 2006; Mates 1990; Oshea, Shea, Robert & Cavanaugh, 2012; Pilowsky, Yirmiya, Dopelt, Gross-Tsur & Shalev, 2004; Sloper, 2000; Streisand, Kazak, Tercyak, 2003; Williams, Ridder, Lavonne, Setter, Liebergen, Curry, Ubolrat, & Williams, 2009).

Generalizability was a further limitation of this study. The sample for this study was open to the general public within numerous places throughout the country; however, it is difficult to say that the results of the study are a pure representation of the general population of the siblings of bipolar children throughout the entire United States. The study sample was a convenience sample. Convenience samples can limit generalizability to the population it can inadvertently exclude a portion of the population. This study sample excluded siblings with bipolar disorder themselves, which leaves the question of what impact certain factors, such as the genetic component or the number of bipolar children in the home, have on the non-clinical siblings. Limitations of this study can be used to facilitate future research.

Significance of the Study

Currently, a lack of understanding exists about the siblings of bipolar children resulting in a lack of research-based strategies that address the emotional impact on siblings of bipolar children. The immediate study group is the first group of siblings of bipolar children that provided researchers with an understanding of the emotional makeup of this particular population. Understanding the emotional impact as it relates to the siblings of bipolar children should help researchers, clinicians, parents and educators create strategies that potentially reduce the negative impact on the family unit, including the reduction of treatment expenses and the

prevention of negative emotional consequences of the non bipolar siblings. Additionally, this study provides clinicians and researchers preliminary tools to design interventions that can address the needs of the siblings within the home. The study allows for further research and the creation of innovative clinical treatments and interventions geared toward not only the bipolar child, but the siblings and other family members as well.

Summary

Pediatric bipolar illness can be a painful condition for parents to control. Children who live in the home with a child diagnosed with bipolar illness have needs to address by their parents and the community. Learning more about the community of siblings of bipolar children should help families by giving professionals the information they need in order to develop sound interventions that can positively affect this population. In Chapter 2, the researcher explored the current literature as it relates to understanding pediatric bipolar disorder and understanding the family systems theory. Additionally, research pertaining to the current known effects that pediatric bipolar disorder has on families and the effects of siblings of children with medical illnesses and the use of the BASC-2 was explored.

Chapter 2 of this study reviews the literature that is related to the population that is being studied. Chapter 3 of this study outlines the research methods in this study. Chapter 4 and 5 provides a comprehensive overview of the study findings and results of the study.

Chapter 2: Literature Review

Introduction

This study used the BASC-2 parent rating scale to determine whether or not non bipolar children who are living with siblings diagnosed with bipolar illness demonstrate more emotional dysregulation when they have a bipolar sibling living in the home with them than children who do not have a bipolar sibling in the home with them. The study further sought to determine whether or not non bipolar children who have a bipolar sibling in the home have more or less adaptive skills than children who do not have a bipolar sibling in the home.

Chapter 1 restated the problem and purpose of this quantitative study. It additionally outlined the current literature in this area, the literature search strategy, and the theoretical framework of the study. This chapter provides an overview of pediatric bipolar disorder and the related literature, sibling literature, siblings with medical issues literature, and family systems theory. Because pediatric bipolar illness can be a difficult condition for parents to manage many children who live in the home with a child that has bipolar illness may have their needs overlooked by their parents and the community. Learning more about the population of children age siblings of bipolar children should help children and families by giving professionals the initial information they need in order to develop sound interventions that can positively begin to impact this population.

One might assume that a sibling having a chronic medical condition might have a negative impact on the healthy children within the home, but that is not always the case. Sibling studies find the type of illness and severity of symptoms are determining factors with regards to sibling reaction (Barak-Levy, Goldstein, & Weinstock, M, 2010; Bluebond-Langner, 1996;

1978; Kreitler & Arush, 2004; Lobato & Kao, 2005; Martinson & Cohen, 1998; Patternson, Holm & Gurney, 2004; Sloper, 2000).

Siblings who live with a bipolar child are living with and witnessing sibling myriad of mental health symptoms. The severity of bipolar symptomology is different between families as is the duration of the symptoms causing an environment that is almost war like in many ways. Ongoing and chronic child bipolar symptoms include rages, oppositional behavior, violence, incidents of severe defiance, public humiliation and incidents of police involvement. These behaviors are directed toward family members or the non bipolar sibling (Biederman et al., 2000, Birmaher, 2004; Brent, Ryan, Dahl, Birmaher, 2000; Fristad & Arnold, 2004, Gellar & DelBello, 2003; Gellar, Kai, Zimmerman, Frazier, & Williams, 1995; Papolos & Papolos, 2006; Pavuluri et al., 2004; Pavuluri et al., 2005; Pavuluri, 2008). Children living with a bipolar sibling are experiencing these symptoms daily, for hours on end, leaving a degree of impact on the emotional regulation and social skills of a bipolar sibling unexplored.

Literature Search Strategy

Electronic database searches and book chapter reviews made up the database search.. Major sources for this search were through PsychARTICLES, Thoreau, Google Scholar and Academic Search Premier. The keywords used for the search included bipolar disorder, bipolar disorder and siblings, early-onset bipolar disorder, early-onset bipolar disorder and siblings, child bipolar disorder, bipolar disorder and children, bipolar disorder and children and siblings, families and bipolar disorder, pediatric bipolar disorder, sibling rivalry and mental illness, sibling rivalry and pediatric bipolar disorder, sibling rivalry, cancer and children and siblings, autism and children and siblings, autistic children and siblings, mental illness and children, mental illness and siblings. A total of 7,167 articles were located using these

keywords. Due to the large number or articles that did not apply to the study, the search was further scaled. The search was scaled down to find articles that were written in the last 5 years and looked specifically at relationships that chronically ill children had with their siblings or families. A systematic search of the literature resulted in relative few articles under 5 years old that matched the search criteria. There were 2 dissertations that researched the effects of bipolar children on the families. Both dissertations were over 5 years old. Scaling the keywords found 112 articles that were appropriate to this study. Many articles used older than 5 years provided relevant information that was not available. Two dissertations, 1 qualitative, was used. Furthermore, 22 books were used to help with this study. The books that are referenced in this study all pertained to pediatric bipolar disorder and the impact on the family.

Theoretical Foundation

The family systems theory formed the theoretical foundation for the proposed study. From the family systems theory perspective, the family is identified as an entity with interrelated members that are emotionally tied to one another through their everyday interactions (Bowen, 1978). Members of the family impact one another through the way that they react to one another's desires, successes, opportunities and anguish (Miklowitz, 2000). Family systems theorists feel that the way that the family members interconnect to one another affects each of the members within the family system individually and as a whole unit (Johnson, 1998). Furthermore, family theorists propose the way the family system functions can promote either positive or negative abilities (Miklowitz, 2000.) This theory has been used in previous studies to provide an overview on how family systems impact the functioning of the family when there is an illness or emotional situation.

Illness within Family Systems

Problems within the family occur when member of the family is ill or unable to function well (Meissner, 1970). An ill family member not only affects the family unit as a whole, but affects each of the individual family members within the unit as well (Marsh, 1992; Marsh, Dickens, Koeske, Yacovich, Wilson, Leichliter, et al., 1993). The family systems theory supports the hypotheses of this study. It acknowledges the difficulty within a family when one family member is living with a medical or emotional condition. The effects emerge within the family system causing the group to have psychopathological component that disjoints them (Miklowitz & Goldstein, 1997). Sometimes when these issues occur, one family members take on additional roles within the unit to compensate for the lack of ability of another family member (Miklowitz, et al.,, 1998). Unfair distribution of family responsibilities can cause increased negative emotional responses on the part of that family member (Johnson, 1998). Research shows that the members of the family that take on additional long-term responsibilities are at risk themselves for developing psychopathological problems (Guttman & Laporte, 2002). The family systems theory is an appropriate choice as a theoretical model as this particular study because it supports the hypothesis within this study.

Family systems can be tied to emotions and emotional regulation (Johnson, 1998). Family theorists call this the "nuclear family emotional system" (Papero, 1990). Four difficulties in the system are identified: conflict within the marital team, functioning or lack of functioning of one of the spouses within the marital team, emotional or physical impairment of a child within the system, and emotional detachment on the part of one or more of the members of the family. These four issues play a part in the emotional makeup of the family, and any one of these problems can lead to significant difficulties within the unit (Miklowitz & Goldstein, 1990; 1997).

Family Boundaries

Family boundaries, both external and internal, are an important part of how a family operates within a community. Hartman (1979), found that families create lines that are not necessarily visible to others in a traditional sense (Papero, 1990). These lines separate the family internally and externally. External boundaries describe the relationship of the family with the community (such as in schools, church or other members of the extended family) and tend to be more physical in nature. The use of fences, shrubs, walls and other tools is useful in the creation of formal separations of the family from others (Papero, 1990). Within the living space, examples of external family boundaries are the use of separate bedrooms and doors on the bathrooms or common living spaces such as the kitchen. Internal boundaries set up within the family are emotional in nature (Papero, 1990), including the interactions that one member of the family has with another and intergenerational interactions. Grandparents, for example, might have a different relationship with their children than with their grandchildren. Internal boundaries are important to understand and respect in terms of the family system and the operation of such a system.

Family Roles

Family rules, family roles and how those roles are organized help set up and define the contracts between family members (Papero, 1990). Usually, the rules that families set up are not openly or formally displayed but are nonetheless well-known to the members of the family, similar to contracts that are agreed upon silently. Other rules need voicing so that each member of the family understands them and the consequences for breaking them. Rules help normalize the family system providing it with safe and predictable outcomes. Rules govern communication within the group, establish family roles, determine expectations between family members and

create cohesiveness within the family. New rules are sometimes added to the family system because of situations that have been brought to the attention of the governing system of the family. New rules that work for the family must follow, and the new situations are integrated into the family's experience in order to pull the family back into cohesiveness.

Family roles and the distribution of power within the family drive how families decide what acceptable and unacceptable behavior is for themselves (Papero, 1990). Cultural traditions play a large part in these decisions. Within the family, there must be someone in a leading position with the ability to not only protect their own personal interests but also the interests of the family as a whole (Papero, 1990). A parent within the family usually takes on this role. Although the family does have a leader within the unit, each member's have their own power. For example, someone in the family might have more financial knowledge than another member, thus making them in control of that aspect of the family. This power variation is seen throughout the family in many different ways. With families that are managing a member of the household with a mental illness, these roles become essential to family cohesiveness and positive family functioning (Frisad, Goldberg-Arnold, 2002). When one member of the family has too much power, the family can be unbalanced and disjointed.

Family Communication

Communication between family members and the communication characteristics that occur within the family are crucial to explore. Communication within the family can be verbal, nonverbal or behavioral. Even no communication is communication. A key indicator of how families manage conflicts within the family system is their communication style (Papolos, 1990). Power can complicate the family system when it comes to communication if there is a struggle or disagreement within the group.

Sibling Relationships within Family Systems

Sibling relationships have been found to provide a positive experience in the development of our abilities as humans to achieve other positive social interactions (Yale, Ester & Weinstock, 2010). Sibling interactions allow children to learn to express their feelings, learn about loyalty and competition, and develop a lifelong friendship (Barak-Levy, Goldstein, & Weinstock, (2010). Siblings are an informal tool to learn positive ways to resolve conflicts learn mutual respect and form long-lasting relationships (Kluger, 2006). Kluger (2006) found that many siblings spend as much as one-third of their awake time with siblings. Siblings, as adults, provide each other with a sense of companionship, a shared history, shared understandings, a shared homestead and a long-lasting friendship that starts at birth (White & Riedmann, 1992; Rossi & Rossi, 1990).

Knott et al., (1995); Stoneman and Rivers (2008), found that when one sibling has a disability, the sibling relationships usually do not develop at a normal developmental rate. Family roles have been found to change when one person in the home has a chronic medical condition (Branstetter et al., 2008; Williams, Lorenzo & Borja, 1993). Children with autistic siblings had higher rates of anger, frustration, and difficulty with peers. They were also found to have a higher rate of externalizing their feelings but no difficulty with adaptive skills (Breslau, Weitzman & Messenger, 1981). In 1992, Jaffe published a first person account of the relationship that he had with his brother, a schizophrenic who died of an overdose at 27 years old (Jaffe, 1992). Jaffe (1992) cited sadness, misunderstanding and a longing to find the brother he knew at childhood.

Siblings Coping with Medical Conditions

Current research explores the needs of siblings of children who have long-term medical issues such as cancer or Down Syndrome (Ballard, 2004; Bluebond-Langner, 1978; Bluebond-Langner, 1996; Kazak, 1989; Pilowsky, et al., 2004; Rabiner, 2000; Streisand et al., 2003; Williams et al., 1999). There are many studies that address the needs of siblings of children with autism (Fisman et al., 1996; Gardner, 1998; Lobato, Kao, & Plante, 2006, Mates, 1990). These studies investigate an array of topics including the sibling child's self-esteem, locus of control and coping skills. Children with autistic siblings were found to have a lower rate of attendance in extracurricular activities than children with healthy siblings and were found by their parents to be considered more helpful than children without autistic siblings (Yael, Goldstein & Weinstock, 2010). While parents in this study found these traits to be advantageous, the healthy children in this study found these traits to be negative (Yael, Goldstein & Weinstock, 2010). It seems that parents in these studies perceived information differently than the children, many times in the most beneficial way as oppose to the view that the children had. Information and generality make when you are taking information from a parent vs. a child is limited.

Cancer and cystic fibrosis have been found to have a serious emotional toll on families (Brabstetter et al., 2008; Bluebond-Langner, 1996; 1978; Cunningham et al., 1981; Hoekstra-Weebers et al., 2001; Keegan-Wells et al., 2002; Kramer & Moore, 1983; Kreitler & Arush, 2004; Lobato & Kao, 2005; Martinson & Cohen, 1998; Patternson, Holm & Gurney, 2004; Sidhu et al., 2006; Sloper, 2000; Williams, 1997). Siblings of children diagnosed with cancer had different outcomes. Labay and Walco (2004) found that siblings of children diagnosed with cancer did not have behavioral issues, but did seem to have issues with academics, with birth order and closeness of siblings contributing to the adjustment rate. Murray (2001) examined how

empathy, sibling gender and age affected siblings' interactions and emotional wellbeing as it relates to their siblings' cancer treatments. Further research found that the parents' need to care for their medically ill child has caused stress and negative outcomes on siblings (Williams et al., 2003).

In 2009, Abrams completed a research study on well siblings who have a sibling with a mental illness. She found at that time that siblings were an understudied group. She used adult siblings in her study with the goal of learning interventions to help unaffected siblings cope with future relationships. She found that adult siblings are often not engaged in treatment despite their willingness and their lack of education regarding the course of their sibling's illness. She found that "well" siblings at times become caregivers to others who are ill outside of the family, can become confused about relationships with others, feel guilty, neglected and frequently worry about their parents and friends (Abrams, 2009). Adoption research has indicated that a child who has biological parents that have bipolar disorder show a greater risk of developing of the condition even when adopted by parents that are not bipolar their entire life (Andreason, 2001). Twin studies show that if one twin starts to manifest symptoms of a mood disorder, there is a 70% correlation to the second identical twin's begin to have symptoms of bipolar disorder (Gellar & Luby, 1997; Papolos & Papolos, 2006; Craddock & Jones, 1999). Fraternal twins were found to have a lower rate of onset (Gellar & Luby, 1997; Papolos & Papolos, 2006). Research on siblings of children diagnosed with bipolar disorder is scarce and does not currently address the positive social skills or emotional dysregulation of this population. Research in this area should assist with improving and understanding family dynamics and wellness within this population.

Understanding Early-onset Bipolar Disorder

Bipolar disorder is a chronic affective disorder that affects approximately 1% to 2% percent of the world community (Birmaher, 2004; The Child and Adolescent Bipolar Foundation, 2007). It is important to understand the etiology and symptoms of juvenile bipolar disorder in order to understand the sibling child's environment. With difficulty or inability to alleviate temperament disparities, those who are living with mood disorders find themselves in significant despair (Corrigan, Watson & Barr, 2006). Siblings many times do not understand the difficulty that a bipolar child has in regulating symptoms. Bipolar illness is one of the most common reasons for disability around the world, being number six in America, (Merikangas, He, Burstein, Swanson, Avenevoli, Cui, Benjet, Georgiades, Swendsen (2010), placing a significant burden on families (CDC, 2012).

Bipolar disorder causes neurological distortions and variations of the neurotransmitters located in the brain which causes minor to severe mood discrepancies (Zide & Gray, 2001). The mood phases are mania, hypomania and depression. Mania or hypomania are experienced in adults differently than in children. As an adult, mania or hypomania is an episode of time during which a bipolar individual has unending amounts of energy, or a time-limited amount of energy during which there is a burst of creativity or potentially negative behaviors (Diagnostic and Statistical Manual of Mental Disorders, 2013). In children, mania is a little different and is often seen as chronic agitation or severe hyperactivity (Papolos, 2006). Children may also experience rages, oppositional behavior, or severe cycling in moods, night terrors or fluctuations in their internal temperatures (Papolos, 2006, Biederman, Klein, Pine & Klein, 1998; Neiderman, Mick, Faraone, Wozniak, 2004). At times, symptoms of bipolar disorder begin to evolve slowly and then advance rapidly. Diagnosing bipolar disorder in children is difficult as other childhood

conditions need to be ruled out prior to a proper diagnosis of bipolar disorder (Carlson, 2005; Gellar, Zimmerman, Frazier & Williams, 1995; Goldstein, 2012).

Debate within the medical community surrounds the issues of the legitimacy of the diagnosis and the variety of treatments that are helpful for children and adolescents with affective disorders. Statistics indicates that the number of children who are managing mood disorders appears to be growing at a noteworthy rate (Findling, Kowatch & Post, 2003). Current statistics has shown that out of every ten children, one of them has a diagnosable emotionally-related condition and that one out of every five of those children having a prolonged mental illness (National Alliance for the Mentally Ill, 2007).

Many research studies have found that children diagnosed with pediatric bipolar disorder display more chronic and severe behavior (Geller, Bolhofner, Craney & Williams, 2000). Parents of children diagnosed with bipolar disorder often share stories of animalistic rages that can turn violent, that appear to be seizures and consist of tantrums that continue for hours, feral noises, snarling and spitting (Greenspan & Glovinsky, 2002). Schenkel, West, Harral, Patel, and Pavuluri (2008), found that parenting interactions within this population are characterized by less affection and warmth with more incidents of forceful punishment (Greenspan & Glovinsky, 2002). Children who manage bipolar illness have symptoms of sadness, crying for no reason, long-lasting crankiness, carbohydrate desires, distractibility, anxiety and grandiosity (Kowatch & DelBello, 2006). They appear distracted and have separation trouble from parents and caregivers. Many children with bipolar disorder have difficulty with circadian cycles such as waking in the morning or sleeping at consistent times (Kowatch, DelBello, 2001; Wozniak, Biederman, Kiely, Ablon, Farone, & Mundy, 1995). Children diagnosed with bipolar disorder are inclined to

participate in risky or sexually unsuitable conduct for their age (Kahn, Ross, Printz & Sachs, 2000; Weckerly, 2002, Weller, Calver, & Weller, 2003).

Many studies regarding bipolar children are excellent resources that can help clinicians understand this condition better and develop a solid treatment plan for the child (Danielson, Feeny, Findling & Youngstrom, 2004; Faedda, Baldessarini, Glovigski, & Austin, 2004; Fink, 2005; Hyde, 2001; Isaac, 2001, Kahn, Ross, Printz & Sachs, 2000; Johnson & Leay, 2004). Current studies mention that intervening at a clinical level as early as possible has a crucial influence on the outcome (Glovinsky, 2002; James & Javaloyes, 2001; Lofthouse & Fristad, 2004; Mcintosh, & Trotter, 2006; Milkowitz & Johnson, 2006; Miklowitz, 2007; Miller, Keitner, Ryan & Solomon, 2000; Robertson, Kutcher, Bird & Grasswich, 2001; Stillman, 2005; Stauss & Johnson, 2006; Uebelacker, Beevers, Battle, Strong, Keitner, Ryan & Solomon, 2006; Weller, Calvert, Weller, 2003).

Bipolar disorder can be competently diagnosed in children and adolescents as young as three years old (Pavuluri, 2008). Often behaviors that children exhibit, as a result, of mental illness are thought to be a result of poor parenting (Churly, 2012). Children in general have difficulty controlling impulses and moods when they have no mental health disorders; the presence of a mental health disorder that affects the ability to control mood and behavior can wreak havoc not only on the child, but on the family unit (Papolos, 2008). Aggression, oppositional behavior, ongoing rages and at times psychosis affect a family living with a bipolar child (Churly, 2012; Zide & Gray, 2011). It is not uncommon for children with bipolar disorder to become aggressive with both the adults and the other children in the home (Pavuluri, 2008). Birmaher (2004) found a deficiency in the ability to regulate the limbic structure, amygdala and frontal lobes. Pavuluri and Bogarapu (2008) found dysfunction in the manner in which the

frontal limbic system is wired causing an exaggeration in the emotionally-charged stimulus that a child is enduring which then impedes the ability to problem solve. Birmaher (2004) also concluded that these imbalances are one of the leading causes of the behavioral component and the physiological symptoms seen with bipolar disorder (Birmaher, 2004). Cognitive processing skills, which manifest as learning disabilities in children, are theorized to be tied to a fluctuation in the cerebrum (Fink, 2005). Hypothalamus and thalamus dysregulation are thought to have a role in sleep difficulties, eating issues and inappropriate sexual or hypersexual behavior (Thompson, Ritchie, & Young et al. (2006).

Birmaher (2004) found that ecological and environmental issues can contribute to the onset of bipolar disorder in children. Ecological factors are influences that occur in one's surroundings and include one's relationships within their social networks inclusive of family and friends. External factors, also known as environmental influences, are circumstances such as ailments or medical conditions, exposure to the elements, or substances in the external environment or are ingested. Additional influences that affect mood for those with bipolar illness include sleeping and eating patterns, weather systems or extraneous sound.

Family studies indicate that a diagnosis of bipolar disorder in children is more likely when there is a family member who also has the condition (Birmaher, 2004; Saunders 2003). Geneticists have resolved that there is a parent-child connection when it comes to the onset of bipolar illness in children. Doctors who study genetics have found that a child who has a parent with a true case of bipolar disorder is ten to thirty percent more at risk of developing early-onset bipolar disorder. The risk of a child on setting with bipolar illness rises to sixty percent when the child has two biological parents that have a mood disorder (Birmaher, 2004; Rosenfarb, Miklowitz, Goldstein, Harmon, Nuechterlein & Rea, 2001).

Pediatric bipolar disorder affects the family system in different ways. The family itself can either function protectively or as a risk factor when it comes to rearing the bipolar child (Schenkel, West, Harral, Patel, & Pavuluri, 2008). Numerous studies have found a correlation between chronically medical conditions in childhood and the physical, emotional and financial stress on the entire family (Patterson et al., 2004; Young et al., 2002). Strong and stable systematic supports are important to develop within both the extended and nuclear family (Saunders, 2003; Simonea, Milowitz, Richards, Saleem & George, 1999). Family discord is triggered by bipolar fluctuations of both the depression phases and manic phases (Weinstock, Keitner, Ryan, Solomon & Miller, 2006). Many studies on psychosocial treatments created to improve family functioning have been developed with a significant focus on psychoeducation, family functioning and treatments that involve cognitive enhancements and behavioral modification (Fristad, 2006, Fristad & Goldberg-Arnold, 2003, Fristad, Gavazzi & Mackinaw-Koons, 2003, Fristad, Goldberg-Arnold & Gavazzi, 2002; Miklowitz et al., 2004; Pavuluri et al., 2004; West, Henery & Pavuluri, 2007).

Siblings Within a Bipolar Home

Despite several studies and investigations, sibling functioning within these homes is not a prominent factor when identifying issues to address within the home of bipolar children (Schenkel, West, Harral, Patel, & Pavuluri, 2008). Strengthening the family unit is a key factor in developing a healthy support system for a child with bipolar disorder. At times, children with bipolar disorder need to be hospitalized. Hospitalization can cause a child to become angry and hostile towards their primary caregivers and often the primary caregiver of the bipolar child feels sad and guilty due to the hospitalization and the outward verbal aggression of the child. Cognition concerns may arise due to the bizarre behavior or learning disabilities that are evident

causing frustration or confusion within the family. One study that relates to pediatric cognition in 2005 found that there were varying degrees of impairment related to cognition that occurred throughout and just after a bipolar occurrence (Glahn, Bearden, & Caetano, 2005). All of these factors lead to stress and confusion for each family member. Currently, there are no research studies regarding the effects of hospitalization or the fluctuation in moods on the non bipolar children that live in the home with a child who has bipolar disorder.

Adaptive Skills

Adaptive Skills are learned skills that that benefit or enhance the life of others (Riley, SanJuan, Klinkner & Ramminger, 2008). These skills are referred to as positive social interactions that make others feel warm and welcome. The BASC-2 classifies them as adaptive skills (Reynolds & Kampaus, 2004). Adaptive skills are often linked to positive social intelligence in a child. Examples of adaptive skills vary dependent upon the researcher and range from the ability to calm down without assistance to the ability to make and hold eye contact (Riley, SanJuan, Klinkner & Ramminger, 2008).

Adaptive skills are the foundation for the long-term relationships that children form when they become adults, and a child who has positive adaptive skills are able to make and keep friendships more easily than those who do not have this ability. Within this study, the specific Adaptive skills examined are adaptability, functional communication, activities of daily living, social skills and leadership. These sub-scales are grouped as adaptive skills within the BASC-2 (Reynolds & Kamphaus, 2004).

Adaptability is the ability that one has to be comfortable with change. Functional communication is the ability to express needs openly through spoken, written or nonverbal communication. Leadership is the ability to influence others to follow an idea or action. The

BASC-2 divides the parent rating scale into two sections, adaptive scales and clinical scales. The adaptive scales on the BASC-2 include activities of family living, adaptability, functional communication, leadership, social skills and study skills. The domain of "study skills" was excluded from this study due to the lack of information found regarding the effect of an ill sibling on a well sibling's academic ability.

Emotional Dysregulation

Emotional dysregulation is tied to the manner in which someone responds to stimuli. Someone with emotional dysregulation issues may have a difficult time with calming themselves down, may have mood swings, be anxious, depressed or engage in tantrums (Beauchaine, Gatzke-Kopp, Mead, 2007). These emotional outbursts can last from seconds to hours depending on the ability to modulate emotion. Emotional regulation specialists theorize that the frontal cortex of the brain has deficits that cause difficulty with self-soothing.

Emotional dysregulation can lead to maladaptive behavior, a term referring to someone using negative behaviors to help control a situation that they feel uncomfortable in. People may develop maladaptive skills to compensate for or manage uncomfortable feelings. Psychologists look at several types of behavior in order to determine the ability of a child to regulate his or her emotions. Within this study, researchers looked at the levels of anxiety, depression, conduct, somatization, attention, atypically, hyperactivity and aggression in a child in order to determine their level of emotional dysregulation. These domains were selected from the BASC-2 to study due to the literature regarding bipolar children having difficulty with controlling these particular domains.

Chapter 3 of this study outlines research methods within this study. Chapter 3 also summarizes research design and approach, the population, and sampling procedures. Chapter 3

furthermore reflects the instrumentation and operationalization of constructs, validity and ethical procedures.

Chapter 3: Research Method

Introduction

Pediatric bipolar disorder can have a significant impact on the family. This study provided information regarding the specific impact that pediatric bipolar disorder has on non bipolar children in the home. This chapter outlines the research design, the instrumentation and the sample that was being used. The chapter begins with research design and approach review, a description of the population, the method and the instruments used in the study. The chapter concludes with the procedures that were put into place in order to protect the rights of those that participated in the study.

Research Design and Approach

This study was designed to be quasi-experimental and quantitative in nature. Within the proposed study were two dependent variables, emotional dysregulation and adaptive skills. The data in research question number one, emotional dysregulation (internalization and externalization) was analyzed using a one-way multivariate analysis of variance (MANOVA) to test the hypotheses. MANOVA was used when more than one dependent variable being studied. This type of analysis evaluates the general effects between variables that are being studied (Gravetter & Wallnau, 2008). A MANOVA differs from an ANOVA due to the ability to analyze more than one dependent variable without the risk of a Type-1 error (Gravetter & Wallnau, 2008).

Data on the siblings within this study was collected using the BASC-2 parent rating questionnaire. The BASC-2 addresses 15 emotional and behavioral traits of children (Reynolds & Kamphaus, 2004). These 15 traits are grouped into 4 domains within the BASC-2. The 4 domains within the BASC-2 are externalizing problems, internalizing problems, behavioral

symptoms index and the adaptive skills domain (Reynolds & Kamphaus, 2004). For the purpose of this study, three of the domains, externalizing problems, internalizing problems and adaptive skills were used to understand the emotions and behaviors of a sibling of a bipolar child. The individual traits within the externalizing domains are hyperactivity, aggression and conduct problems (Reynolds & Kamphaus, 2004). The individual traits within the internalizing domain are anxiety, depression and somatization (Reynolds & Kamphaus, 2004). The composite scale T scores from the domains of internalization and externalization are called emotional dysregulation. Adaptive skills have been grouped by the BASC-2 (Reynolds & Kamphaus, 2004), as “adaptive skills." The individual traits within that domain are functional communication, social skills, leadership and adaptability. The fourth domain of behavioral symptoms is not being used in this study because the individual traits that it is assessed (atypicality, hyperactivity, aggression, depression, withdrawal and attention problems) duplicates the information in the internalization and externalization domains (Reynolds & Kamphaus, 2004).

The scoring software that is provided by the BASC-2 publishers analyzed the raw data that was collected from the parent rating scale and provide a T-SCORE score for each trait assessed. The scoring software issued a composite-scale T-SCORE score for each domain assessed (internalization, externalization, and adaptive skills). The composite scores for internalization, externalization and adaptive skills were be entered into SPSS-20. A MANOVA was conducted to determine the main effects between the independent variable, (whether there was a bipolar sibling in the home) and the dependent variables (emotional dysregulation). Research question one explored whether or not non bipolar children demonstrated more significant emotional dysregulation (internalization and externalization) when they have a

bipolar sibling as compared to children who do not have a bipolar sibling in the home. A MANOVA was conducted for this question, and examined the differences between the independent variable, whether or not there is a bipolar sibling in the home and the dependent variable measuring emotional dysregulation (internalization and externalization).

The second research question explored whether or not non bipolar children display fewer significant adaptive skills when they have a bipolar sibling as compared to children who do not have a bipolar sibling living in the home. The MANOVA for this research question examed the differences between the independent variable, whether or not there is a bipolar sibling in the home and the dependent variables measuring desired social behaviors.

Methodology

This study used a matched comparison design. The match was based, as closely as possible, on age, gender, birth order, and socioeconomics. The study group consisted of siblings that have a bipolar child living with them in the home full time. The comparison group did not have a bipolar child living in the home. Recruitment of participants occurred from various clinics and agencies that service bipolar children throughout the United States. Recruitment for the comparison group was completed through ads in online sites such as parent listservs, parent magazines and parent forums. Due to the wide range of agencies targeted for the sample, the sample demographics should have provided an ample representation of the target population. Target children were selected according to similarity in age and birth order to those children in the study sample.

Setting and Sample

The population that this study targeted was children who have siblings diagnosed with early-onset bipolar disorder. Current research estimates that approximately 3.7% to 4.7% of the

child population is affected with bipolar illness (Merikangas, He, Burstein, Swanson, Avenevoli, Cui, Benjet, Georgiades, & Swendsen, 2010). Roughly, the child population of the United States affected with bipolar illness translates into 3 million children. The 2010 U.S. census report showed that there are approximately 74 million children under the age of 18 living in the United States (US Census, 2010). Sixty-four percent of children living in the United States live with two or more siblings (US Census, 2004). The study population is from the United States. There was not be any limitations with regards to where the family is living within the United States.

Sample size estimation was completed using G*Power 3.1 (Erdfelder, Faul, & Buchner, 1996). Assuming a medium effect size (.25), IV = 1, DV =2, power of .95 and an alpha of .05, approximately 64 families (32 families in the comparison group and 32 families in the study group) was be necessary to complete this study. The families chosen had no more than four children within the home. The researcher attempted to match families in the comparison and study groups as closely as possible based upon age, gender, ethnicity, birth order, and socioeconomics. Children were not matched on grade level as there are a high number of bipolar children retained in school (Papolos, 2012). The BASC-2 data from these families was analyzed using SPSS 20 to address the specific research questions. Data was summarized using descriptive statistics (e.g., means, standard deviations, and percentages). The primary variables of interest (emotional dysregulation and adaptive skills) of non bipolar siblings of a bipolar child was tabulated, compared and tested for statistical significance to the comparison group using a MANOVA.

Procedures for Recruitment and Participation

The proposed research population was non bipolar siblings living in a home with a bipolar child on a full-time basis. Advertisements to recruit families occurred at the Center for a

Balanced Mind Foundation, local child psychiatrists' offices in Palm Beach, Broward and Dade Counties within Florida, and social networking groups.

As respondents to the advertisements, parents were asked to call a telephone number or send a message via email for more information. The researcher explained to the parents the nature of the study. The parents were asked to complete a brief telephone interview that determined whether the family met the inclusion criteria for the study. Information that determined whether or not a sibling child meets the inclusion criteria was collected orally via phone or via Skype, whichever was more convenient for the family.

In order to be included in the study, the children involved in the study were younger than 18 years old. There were already studies that have addressed neurological and genetic issues, startle response, pathology, and personality traits in siblings with bipolar disorder. No studies have been found involving sibling children under the age of 18 (Almeida, Nery, Moreno, Gorenstein, & Lafer, (2011), Doughty, Wells, Joyce, Olds, & Walsh, (2004); Giakoumaki, Bitsios, Frangou, Roussos, Aasen, Galea, & Kumari, (2010); Kulkarni, Jain, Janardhan Reddy, Kumar, & Kandavel, (2010). There must have been at least one parent living in the home. Further, the inclusion criteria limited the study group to families with a bipolar child in the home as determined by a formal diagnosis made by a licensed psychiatrist, licensed psychologist or licensed psychotherapist. Exclusions from the study occurred if families had more than one bipolar child living in the home or had a family member with complicated medical issue as it could complicate the dynamics of the family beyond the scope of the study, confounding scientific reliability.

The number of children living within the home was an important inclusion criterion. Families with more than four children living within the home (inclusive of the bipolar sibling)

was excluded from the study. Having more than four children living within the home limited the generalizability of the results as there could have been numerous other external factors that can cause outcomes in families with large numbers of siblings (Downey, 1995).

Exclusion occurred if siblings and half-siblings did not live together full time or if there was no formal legal or biological relationship between the siblings. Once inclusion or exclusion to the study was completed, informed consent was collected to proceed with the actual study. Demographic information was collected after consent was obtained. Demographic information collected included ethnic group, age, gender, place of birth, whether or not the family was living in a two-parent household, and whether or not the siblings were biologically or legally related. Additional information requested was the grade of the children included in the study, current geographical location, household income, description of the area that they live in (urban, rural, suburban), whether or not the bipolar child was in treatment, and whether treatment included the sibling.

Recruitment of the comparison group occurred via national online web forums that catered to general parenting topics. The comparison group was restricted by the same exclusion criteria with the exception that these families did not have any bipolar children living within the home. Parents were provided with informed consent forms once inclusion in the study was confirmed. Consent forms were sent electronically via email, fax or electronic survey. The forms outlined in detail the study's purpose and procedures. The consent form were e returned via email, mail or fax. Once the consent was received the parents were be mailed or had on-line access to the demographic questionnaire and Behavioral Assessment Scale for Children (BASC-2) parent rating scale. The parent was asked to complete the survey. The sibling that was closest in age to the bipolar child was selected for the study due to the developmental similarities that

are present. Upon completion of the study, participants were be thanked and were provided information on when the results of the study are available. The results of the study were published on the researcher's website (www.nikkiwoller-research.com).

Instruments and Materials

The Behavior Assessment System for Children, Second Edition (BASC-2), was used to assist in gathering the data for this study. The BASC-2 was authored by Kamphaus and Reynolds (2009). The BASC-2 is used to assess the emotional and behavioral strengths and weaknesses of children from ages two years old to twenty-one years old. The BASC-2 has rating scales for children, parents and teachers. The BASC-2 parent rating scale can be easily completed by parents due to it's seventh grade level reading level. The rating scales have approximately 160 questions per form which take about ten to twenty minutes to complete (Reynolds & Kamphaus, 1992). The BASC-2 is a reliable assessment using test-retest reliability over a one month time frame, with test-retest reliability ranging from .70 to .90 on all forms (Reynolds & Kamphaus, 1992). The BASC-2 has established validity within the targeted age range, and internal consistency for children is .80 and an internal consistency for adolescents is .90 (Doyle, Skare, Crosby, & August, 1997). The BASC-2 is normed using the U.S. census information from 2000 (Reynolds & Kamphaus, 1992). The BASC-2 has been compared to the Conners' Teacher Rating Scale-Revised, the previous version of the BASC, and the Achenbach System of Empirically Based Assessment Caregiver-Teacher Report Form subscales correlations were found to be in the .70s and .80s (Barber et al., 2011).

The BASC-2 was an appropriate measure for this study as it is designed to measure the behavior and personality traits of children. It was designed to examine 15 separate emotional and behavioral traits. The BASC-2 provides individual T scores for each trait. It also groups the 15

individual traits into four clusters (adaptive skills, externalizing problems, internalizing problems and behavioral symptoms). A composite scale T-SCORE score was calculated for each cluster. The specific traits that were taken from the BASC-2 for examination are selected based upon researched aggregate indication markers for both emotional dysregulation and adaptive skills (Riley, SanJuan, Klinkner & Ramminger, 2008). The individual traits categorized as emotional dysregulation within this study are anxiety, somatization, depression, conduct problems, aggression, hyperactivity. The BASC-2 calculated individual T scores for the domains of anxiety, somatization, and depression. It also computed a composite scaled T score for the combined domain titled "internalizing problems." Furthermore, the BASC-2 provided individual T scores for the domains of conduct problems, aggression and hyperactivity. The BASC-2 provided a composite scaled T-SCORE score for these domains titled "externalizing problems." The traits functional communication, social skills, leadership, activities of daily living and adaptability are adaptive skills. The BASC-2 provided individual T scores for each of these domains. It also provided a composite scaled T score for the entire domain which is titled in the BASC-2 as "adaptive skills."

Scoring software, was provided by the publishers. The scoring software allowed the researcher to input the answers of the individual questionnaires into the computer system which then calculated the raw score and provide a composite and scaled score that was imported into SSPS for comparison (Reynolds & Kamphaus, 2004). The participants had the choice to use the online version or a paper version for administration. Purchasing the BASC-2 questionnaires from the publisher allowed for the use of the BASC-2 online or paper assessment.

The BASC-2 parent rating scale uses a Likert scale. The parents answer questions about their children using the answers "never," "sometimes," "often" or "almost always." Scaled

scores for the target variables were determined using ASSIST. ASSIST computer software is available through the test publisher and generates these scores. Once completed the data set was be placed into SPSS. Data was then summarized using descriptive statistics (e.g., means, standard deviations, and percentages). The primary variables of interest (emotional dysregulation and adaptive skills) of non bipolar siblings of a bipolar child was tabulated, compared, and tested for statistical significance to the comparison group using two-tailed MANOVA.

Threats to Validity

The internal validity of a research project refers to whether or not an experimental treatment or condition makes a difference within the study. Internal validity also looks to determine if there are enough indications that were found to support the study's findings. Active threats to internal validity in this study included the selection of subjects. In some areas of the country, the diagnosis of pediatric bipolar disorder is limited. The limited diagnosis makes it plausible that there were a lot of participants from a particular age group or area of the United States. In order to keep the matched data equalized, it is possible that there was a large number of children from a particular age group in the matched group. Should this occur, it would make it more difficult to generalize the findings to all children. However, saying that, matching the group assignment in the study group and the comparison group should provide an additional level of validity in the outcomes. Equalizing the match using age can help psychometrically limit the possibility of confounding variables arising and safeguard that the children within the study are developmentally in the same fundamental ranges. On the other hand, matching in general can also cause a selection bias within the research project. In order to address selection bias, the children are going to be matched by age and potentially gender. Another potential threat to validity is experimental mortality or the potential loss of subjects prior to the conclusion of the

study. In order to address this potential issue, the researcher attempted to over sample. The BASC-2 has also identified potential internal threats to validity. Authors of the BASC-2 cited inadequate attention to content items leading to carelessness, parent bias, untruthfulness and inability to understand the content as the top threats to test validity (Reynolds & Kamphaus, 2003).

In order to address these threats, Reynolds and Kamphaus (2003) have placed internal controls to identify threats to internal validity. The authors use identification indexes (F, L and V) that showed up when the computer scoring system identifies a problem with the validity. The F index showed actual validity and flag excessively negative ratings in a participant. The L index showd an elevated positive rating. The V rating was used to show implausible statements (Reynolds & Kamphaus, 2003). Questionnaires identified as "invalid" by the scoring software were excluded.

Ethical Procedures

The risk of harm to the participants in this study was minimal. Although the study is assessing children, the study is doing so from a parent's perspective. The parents of the children who were identified as study participants answered a parent questionnaire. The risk to the parents within the study was minimal. There has been no information found within the BASC-2 manual that states that there is harm caused by filling out the BASC-2 questionnaire. The questionnaires have been standardized and normed to the general population. The questionnaires are culturally sensitive and are worded on an average reading level and available in multiple languages (Reynolds and Kamphaus, 2003).

The researcher collecting the data maintained confidentiality and anonymity of participant information. Due to numerically encoding the data, the participant information cannot

be tracked back to the participant. Records that were collected and used for the study are being kept in a locked file for five years. The primary effort in regards to locating and using participants conformed to the federal statutes, policies of the institutions or centers that participated in the recruitment of participants and the American Psychological Association ethics procedures and standards regarding the use of humans in research (Sales & Folkman, 2000). An IRB application was submitted to ensure protection of human subject rights. IRB approval was received from Walden's University IRB prior to contacting any participants. Permission from social forums and clinical groups was obtained to advertise the study. Informed consent was obtained from the parent respondents prior to data collection. The informed consent outlined in detail the study's purpose and procedures. Identifying information of participants was redacted from the study paperwork and kept confidential. The study results were be posted on the researcher's website (www.nikkiwoller-research.com) once the dissertation is approved.

Summary

Chapter 3 discussed the design and approach that the researcher intends to use when conducting this study. This chapter included explanations and descriptions of how the study and comparison samples were collected, the types of materials used in this study, and the potential problems or threats to the validity of the study. Additionally, this chapter outlined the measures that were put into place in order to protect the participants of this study. Chapter 4 of this study outlined the findings of this study as it relates to the studies hypotheses. Chapter 4 provided an overview of the data, tables and figures, and provided a summary of the outcome of the findings of the study.

Chapter 4: Results

Introduction

This quantitative quasi-experimental study provided information regarding the specific impact that pediatric bipolar disorder has on non bipolar children who were living in the home. This chapter outlined the data collection, description of the sample, and the results of the analyses. This study was a comparison study and matched the siblings primarily on gender and on age when possible. Secondary identifiers such as ethnicity, geographic location, income status, sibling placement, and the number and type of parents in the household were used when possible to match the two study groups (Table 1). The data was collected using the BASC-2 parent questionnaire and analyzed using basic descriptive statistics, multivariate analysis of variance (MANOVA) to test the hypotheses.

There were two research questions being evaluated in this study. The first explored whether or not non bipolar children demonstrate more significant emotional dysregulation (internalization and externalization) when they have a bipolar sibling as compared to children who do not have a bipolar sibling in the home. The second research question explored whether or not non bipolar children display fewer significant adaptive skills when they have a bipolar sibling as compared to children who do not have a bipolar sibling living in the home.

Data Collection and Screening

Data collection occurred over a period of 6 months. Recruitment of participants occurred online through approved social networking groups. The data for the study were obtained using the BASC-2 (Reynolds and Kamphaus, 2003) parent questionnaire. The questionnaire was provided to parents of children with or without a bipolar sibling in the home. The Walden University IRB approved this study (approval #03-23-15-0119825). Prior to data collection,

consent forms were provided to the prospective participants via email. These forms outlined the study along with the limitations, benefits, and study risks. Upon return of the consent form, a demographic form and a BASC-2 parent questionnaire were provided to the parent to complete online.

Prior to analyzing the data, it was screened for missing information, outliers, and violation of assumptions. In total, 81 participants completed the BASC-2 questionnaire. Eight of the participants were excluded due to failure to complete the questionnaire. Three participants were excluded because the siblings did not live in the home together full time. The BASC-2 has an internal validity scale built into the questionnaire. Two of the participants' composite T-scores were considered "invalid" by the BASC-2 instrument. Those two participants were excluded. Three outliers were identified through box plots and excluded.

The final sample size was reduced from 81 to 65, which is consistent with the recommended GPower amount of 64 participants. Of the 65 participants, 53% of them lived in a home with a bipolar sibling (n = 34) and 47% lived in a home without a bipolar sibling (n = 31), which is one participant under the GPower recommendation of 32 participants in each group. Female children represented 43.1% (n = 28) of the sample and male children represented 56.9% (n = 37). In order to participate in the study, the age of each participant's child needed to be under the age 18 years old. The overall mean age of the children was 11.85 years. The mean income of participants was between $50,000 - $75,000. The 2012 median United States household income is $51,371 (Noss, 2013). Geographically, participants were divided into suburban, urban and rural areas based upon where they reported living. The majority of participants (87.7%, n = 57) lived in suburban areas. A majority of the siblings were the oldest children within the sibling group 38.5% (n = 25). Families with two biological parents

represented 49.2% (*n* = 32) of the sample. Participants who identified themselves as Caucasian represented 75.4% *(n* = 49) of the sample. In summary one can conclude that subsamples were equivalent in demographic characteristics of the population of interest.

Statistical Assumptions

MANOVA

There are nine assumptions that need to be met in order for a MANOVA to be considered valid. First, dependent variables must be measured in an interval level. Secondly, there are minimally two categories of independent groups. Third, is no participant is in more than one group and all of the participants are different. All of these assumptions were met during data organization and set up. The next assumption is that sample size is adequate. The final sample size was 64 participants which was consistent with the recommended sample size of 64. Although the final sample size met the GPower recommendation, there was one less participant in the comparison group (n = 31).

Assumption 5 refers to the absence of univariate or multivariate outliers. The presence of univariate outliers was assessed with boxplots. There were no univariate outliers identified in the externalization data, as assessed by inspection of a boxplot. There were three univariate outliers identified in the internalization data, specifically in the data marked siblings of non bipolar children. The outliers were removed via a listwise deletion. Univariate outliers were assessed again after removal by inspection of a boxplot. No univariate outliers were found. In order to test for multivariate outliers Mahalanobis distance is applied. There were no multivariate outliers in the data, as assessed by Mahalanobis distance (*p* = 14.36).

Assumption 6 is that multivariate normality is present in the data. Emotional dysregulation was normally distributed (n = 64), with an internalization skewness of .78 (SE =

0.3) and kurtosis of .44 (SE = 0.59), externalization skewness of 1.03 (SE = 0.3) and kurtosis of .81(SE = .59). Adaptive skills was normally distributed with a skewness of -.41 (SE = .30) and kurtosis of -.61 (SE = .59).

Assumption 7 is that the relationship between the dependent variables and independent variables is linear. There was a linear relationship between internalization, externalization and adaptive skills in both the study group and the comparison group, as assessed by scatterplot.

Assumption 8 is that there is variance-covariance matrices have homogeneity. There was a violation of homogeneity of variance-covariances matrices, as assessed by Box's test of equality of covariance matrices (p = .000). Due to this violation, Pillai's Trace was used to determine significance instead of Wilks' Lambda (Λ). There was homogeneity of variances in adaptive skills, as assessed by Levene's Test of Homogeneity of Variance (p = .04).There was no homogeneity of variances in externalization (p = .00), or in internalization (p = .00). as assessed by Levene's Test of Homogeneity of Variance. Due to this violation a lower level of statistical significance (α level .025) was used for the MANOVA result (Laerd Statistics, 2016).
Assumption nine is that there is no multicollinearity within the data. There was no multicollinearity between internalization, externalization (r = .321, p = .01), and adaptive skills (r = -.620, p = .00). as assessed by Pearson correlation.

Emotional Dysregulation

The externalization composite T-score is a standard score that reflects the participant's responses on items measuring hyperactivity, aggression, and conduct problems in the BASC-2. There were a total of 65 (N = 65) parent's who answered the BASC-2 questionnaire about their children (siblings) in the study. The composite T-score total range was 39 with a minimum score

of 32 and a maximum score of 71. The mean of externalization was 44.23with a standard deviation of 8.29. The skewness was 1.03. The kurtosis of this data set was .814.

The internalization score is the total composite T-score of anxiety, depression and somatization provided by the BASC-2 scoring software. The range of T-scores was 34, with a minimum T-score of 31 and a maximum T-score of 65. The mean was 45.20. The standard deviation was 7.85. The skewness was .78 and the kurtosis was .44.

Adaptive Skills

The adaptive skills score is the total composite T-score of adaptability, social skills, leadership, activities of daily living, and functional communication (Reynolds & Kampaus, 2004). There were a total of 65 (N = 65) parent surveys that represented the siblings in the study. The composite T-score total range was 36 with a minimum score of 32 and a maximum score of 68. The mean of adaptive skills was 54.86. The standard deviation was 8.72. Variance was 76.06. Skewness was -.41. The kurtosis of this data set was -.61.

Analyses of Hypotheses

SPSS 22 (IBM, 2013) was utilized to determine the statistical significance among the data collected. Analyses of variance were used to analyze the variables in the first and second hypotheses. The independent variable within this study was the presence or absence of a bipolar sibling in the home. The dependent variables in this study were the levels of emotional dysregulation and adaptive skills. The results of the test were significant, Pillai's Trace = .331, $F(3, 61) = 10.07$, $p = .000$; partial $\eta 2 = .331$. Power to detect the effect was .95, with a significance level of .025.

A test of the between-subjects effect was also completed on the bipolar status of a child and internalizing problems. There was statistical significant difference in internalization between

children with bipolar siblings and children without bipolar siblings $F(1, 63) = 21.29$, $p = .00$ partial $\eta 2 = .025$.

A test of the between-subjects effect was completed on the bipolar status of a child and externalizing problems. There was statistical significant difference in externalization between children with bipolar siblings and children without bipolar siblings $F(1, 63) = 5.41$, $p = .023$ partial $\eta 2 = .079$.

A test of the between-subjects effect was completed on the bipolar status of a child and adaptive skills. The results of the test were not significant, $F(1, 63) = .051$, $p = .822$. Due to these results, the null hypothesis for research question two cannot be rejected. This suggests that there was not an effect on a child's adaptive skills when there is a bipolar sibling in the home.

Due to these results, the null hypothesis for research question one was rejected. This suggests that there was an effect on a child's emotional regulation when there is a bipolar sibling in the home, specifically in the areas of internalization and externalization. Table 1 shows the means and standard deviations of internalization, externalization, and adaptive skills for the children in the study.

Table 1

Means and Standard Deviations of BASC-2 Emotional Regulation and Adaptive Skills for Children with a Bipolar Sibling and Those Without a Bipolar Sibling

Variable	Children with a bipolar sibling *M (SD)*	Children without a bipolar sibling *M SD)*
Externalization	46.44(9.81)	42.03(5.30)
Internalization	48.94(8.63)	42.71(6.59)
Adaptive Skills	54.91(9.83)	54.42(8.72)

Summary

Chapter 4 discussed the results of the data analysed as they relate to the research questions and the hypothesis that were being reviewed. Parents reported significant emotional dysregulation in children with bipolar siblings than parents with children who do not have a bipolar sibling, thus the null hypothesis to research question one was rejected. The study also found that parents reported the adaptive skills of children with bipolar siblings did not differ from those of children without bipolar siblings, thus the null hypothesis to research question two could not be rejected.

In Chapter 5, the results were reviewed, limitations were discussed and the potential impact for social change was explored. The chapter also contained a discussion of the study, the conclusion and interpretation of the study and recommendations for further research.

Chapter 5: Discussion, Conclusions and Recommendations

The purpose of this study was to understand the effects of pediatric bipolar disorder on child siblings living in the home. Understanding the emotional and social needs of children who have siblings with bipolar disorder is important in order for these children to develop positive emotional regulation and adaptive skills. Until this study, potential difficulty with emotional dyregulation and adaptive skills within siblings of bipolar children was not understood. Understanding how pediatric bipolar disorder affects the siblings in the home provides parents, providers and educators with the beginning knowledge to provide interventions that can help this population.

At the time of the study, there were no quantitative studies that had investigated how pediatric bipolar disorder impacted the adaptive skills or emotional regulation of siblings (under the age of 18). There are several studies that investigated the impact of pediatric medical conditions such as cancer, cystic fibrosis, autism, and diabetes on the emotional, behavioral and educational impact of sibling children in the home. However, the degree of impact on the siblings emotional, behavioral or educational issues was dependent upon the medical condition that the family was dealing with and the involvement of the sibling child in the treatment (Bluebond-Langner, 1996; 1978; Kreitler & Arush, 2004; Lobato & Kao, 2005; Martinson & Cohen, 1998; Patternson, Holm & Gurney, 2004; Sloper, 2000). The unique symptomology of pediatric bipolar disorder make it difficult to say that the research findings of the other physical medical conditions that have been studied in the past can be applied to the siblings of bipolar children.

There were two research questions. The first research question sought to understand whether or not there were differences in the emotional dysregulation of children who lived with

bipolar siblings from children who did not live with bipolar siblings. The second sought to understand whether or not there were differences in the adaptive skills of children who lived with bipolar siblings from children who did not live with bipolar siblings. A one-way multivariate analysis of variance was run to determine the effect of pediatric bipolar disorder on the non bipolar children who live in the home. Three measures were assessed: internalization, externalization and adaptive skills. Children were from two types of families: children with bipolar siblings and children without bipolar siblings. The study found that children who live with bipolar siblings showed difficulty in the areas of internalization (anxiety, depression, and somatization) and externalization (conduct problems, aggression and hyperactivity). The study found that children of siblings with bipolar disorder did not differ from children of siblings without bipolar disorder in the areas of adaptive skills (adaptability, social skills, leadership, activities of daily living, and functional communication).

These findings were consistent with the family systems theory which forms the theoretical foundation for this study. Recognizing the complexity that one's emotions have on each family member as they interact with one another (Bowen, 1978), members of the family impact one another through the way that they react to one another's emotional and physical needs (Miklowitz, 2000). Family systems theorists identify that the each family member effects other members both individually and as a unit (Johnson, 1998). This study identified that the reactivity issues of a bipolar child have an emotional effect on the emotional dysregulation (anxiety, depression, somatization, conduct, aggression and hyperactivity) of sibling children within the home, whereas there were no significant effects on their adaptive skills (adaptability, social skills, leadership, activities of daily living, and functional communication). This simply

means that these children have typical social skills, functional communication, and daily living skills a]but that emotional state and behaviors that are related to emotions are markedly affected.

Limitations of the Study

Although this is a matched sample, there are limitations that should be noted. Understanding the limitations of the study is important to generalizability. This sample was English speaking. There were no participants within the study who spoke English as a second language. The sample for this study was taken from social media groups that might be considered "helping" types of groups. This is a limitation, as those without Internet access were not privy to the study. Furthermore, those who were not a part of the "helping" groups may have not known about the study. This study was completed from a parents perspective as opposed to the sibling directly. This study can be generalized to those who are in an income bracket over $75,000.00 and who are Caucasian. Recommendations to address these issues further might be to include research facilities, teaching hospitals and community based mental health centers in the recruitment of participants and to include face-to-face data gathering in addition to online data gatherings. Doing so might reduce the limitations with regards to ethnicity and income.

Recommendations for Further Research

This study has provided insight and knowledge that may help guide other researchers who are interested in studying siblings of bipolar children. My study indicates that children who have a bipolar sibling are more inclined to have difficulty with emotional dysregulation, specifically symptoms of anxiety, aggression, hyperactivity, somatization and conduct issues. Siblings of bipolar children are often overlooked by family members in terms of services due to the reactive symptoms of the bipolar child in the home unintentionally taking priority (Papolos & Papolos, (2006). Due to the limitations identified in the current study there is a need for further

research within this population. Furthermore, due to the types of symptoms that siblings of bipolar children are exhibiting (Findling et al., 2003; Gellar, Kai, et al., 1995; Papolos & Papolos, 2002, Weckerly, 2002; Wozniak et al.,1995) there is a need to develop research based treatments to help address the clinical, social and academic practice needs of this population. Lastly, in order to better generalize the findings of this study, the study should be conducted with a larger sample that is diverse in terms of ethnicity and socioeconomic status.

Impact and Implications for Social Change

The findings of this study have implications in many domains that impact the siblings of bipolar children. The findings indicate that children with bipolar siblings present with more emotional dysregulation that children without bipolar siblings, which can potentially affect a child not only at home, but at school, and in their social settings as well. When children are diagnosed with bipolar disorder, clinicians can begin to inform parents or even assess the possibility of emotional dysregulation in the siblings that live in the home. Clinical and family psychologists can begin to understand the effects that bipolar disorder has upon all the children in a family and the way symptomology is individually presented, thus developing treatments for the siblings of children with bipolar disorder. Pediatricians can begin to screen specifically for emotional dysregulation in their patients when there is a bipolar sibling in the home, leading to early intervention and treatment for these children. Support groups and specialized treatment can begin to be developed for children with bipolar siblings that targets emotional regulation.

The findings of this study provide a new family based view that highlights potentially overlooked difficulties for children of bipolar siblings. Children of bipolar siblings have unique negative family experiences that could benefit from treatment. The results of the study revealed that children with bipolar siblings have emotional dysregulation symptoms consisting of anxiety,

depression, somatization, conduct and hyperactivity. These symptoms in themselves can be individually diagnosed and treated. However, when clinicians understand why these children present with these symptoms in their totality, even potentially as bipolar sibling syndrome, clinicians then have a unique prospective to develop proactive family based treatments for these children.

The current study is meaningful to the literature and to the potential social change for family members when one of the children has bipolar disorder. This study is a gateway to additional studies for children with bipolar siblings and the development of potential treatments to help reduce the symptoms that these children manifest. Additional studies could investigate the effectiveness of safety plans in the home (plans that reduce or eliminate danger to the sibling children in high risk situations), proactive crisis prevention plans for the entire family to participate in, and the real lived experiences of these children from their perspective.

While there are many different types of difficulties that families live with and overcome, one of the more challenging situations is living with a bipolar child. The wellness of a family is important for everyone to harmoniously live and succeed in their life. Counseling, safety plans and proactivity on the part of the family can help the siblings of bipolar children cope with high levels of emotional dysregulation and potentially live happily with all members of the family.

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Appendix A: Consent Form for Parents of Study Group

(Parents of Study Group)

You are invited to take part in a research study being conducted by Nikki Woller, LCSW. The researcher is looking to discover whether or not there are effects in a child's ability to control their emotions or their adaptive skills when they are living in the home with a bipolar sibling. The researcher is inviting parents who have a child diagnosed with bipolar disorder who have non bipolar sibling children living in the home to participate in this study.

This study is being conducted by a researcher named Nikki Woller, LCSW , who is a doctoral student at Walden University.

Background Information: The researcher has an interest in the relationship between bipolar children and their siblings.

Procedures: If you agree to be in this study, you will be asked to:

Complete a demographic questionnaire (5 minutes)

Complete a child/adolescent rating scale (the BASC-2) on one sibling child within the home. The researcher will select the child.(10 min)

Here are some sample questions:

Complains when they are not sick……Never Sometimes Often Always

Has hearing difficulties …… Never Sometimes Often Always

Fears creating errors …… Never Sometimes Often Always

Has weird thoughts …… Never Sometimes Often Always

Voluntary Nature of the Study: This study is voluntary. Everyone will respect your decision of whether or not you choose to be in the study. No one at Walden University will treat you differently if you decide not to be in the study. If you decide to join the study now, you can still

change your mind later. You may stop at any time. There will be penalties or negative consequences for stopping.

Risks and Benefits of Being in the Study: There has not been research based evidence that has found that filling out the BASC-2 questionnaire would pose risk to your safety or wellbeing. The potential benefits of the study include creating programs and services for the siblings of bipolar children.

Payment: There is no reimbursement for this study.

Privacy: Any information you provide will be kept confidential. All personal and/or identifying information will be removed from all of the forms used in this study. The researcher will not use your personal information for any purposes outside of this research project. Also, the researcher will not include your name or anything else that could identify you in the study reports. Data will be kept secure by keeping all research data in a locked filing cabinet located in the file room within the researcher's private office. Data will be kept for a period of at least 5 years, as required by the university.

Contacts and Questions: If you have questions, you may contact the researcher, Nikki Woller, via 561-706-1004 or nikki.woller@waldenu.edu. If you want to talk privately about your rights as a participant, you can call Dr. Leilani Endicott. She is the Walden University representative who can discuss this with you. Her phone number is 612-312-1210 Walden University's approval number for this study is **IRB will enter approval number here** and it expires on **IRB will enter expiration date.**
Please print or save this consent form for your records.

Statement of Consent:
I have read the above information and I feel I understand the study well enough to make a decision about my involvement. By signing below, clicking the link below, returning a completed survey, or replying to this email with the words, "I consent" , I understand that I am agreeing to the terms described above.

Only include the signature section below if using paper consent forms.

Printed Name of Participant _____

Date of consent	_____
Participant's Signature	_____
Researcher's Signature	_____

Appendix B: Consent Form for Parents of Comparison Group

(Parents of Comparison Group)

You are invited to take part in a research study being conducted by Nikki Woller, LCSW. The researcher is looking to discover whether or not there are effects in a child's ability to control their emotions or their adaptive skills when they are living in the home with a bipolar sibling. The researcher is inviting parents who have a child diagnosed with bipolar disorder who have non bipolar sibling children living in the home to participate in this study.

This study is being conducted by a researcher named Nikki Woller, LCSW , who is a doctoral student at Walden University.

Background Information: The researcher has an interest in the relationship between bipolar children and their siblings.

Procedures: If you agree to be in this study, you will be asked to:

Complete a demographic questionnaire (5 minutes)

Complete a child/adolescent rating scale (the BASC-2) on one sibling child within the home. The researcher will select the child.(10 min)

Here are some sample questions:

Complains when they are not sick……Never Sometimes Often Always

Has hearing difficulties …… Never Sometimes Often Always

Fears creating errors …… Never Sometimes Often Always

Has weird thoughts …… Never Sometimes Often Always

Voluntary Nature of the Study: This study is voluntary. Everyone will respect your decision of whether or not you choose to be in the study. No one at Walden University will treat you differently if you decide not to be in the study. If you decide to join the study now, you can still change your mind later. You may stop at any time. There will be penalties or negative consequences for stopping.

Risks and Benefits of Being in the Study: There has not been research based evidence that has found that filling out the BASC-2 questionnaire would pose risk to your safety or wellbeing. The potential benefits of the study include creating programs and services for the siblings of bipolar children.

Payment: There is no reimbursement for this study.

Privacy: Any information you provide will be kept confidential. All personal and/or identifying information will be removed from all of the forms used in this study. The researcher will not use your personal information for any purposes outside of this research project. Also, the researcher will not include your name or anything else that could identify you in the study reports. Data will be kept secure by keeping all research data in a locked filing cabinet located in the file room within the researcher's private office. Data will be kept for a period of at least 5 years, as required by the university.

Contacts and Questions: If you have questions, you may contact the researcher, Nikki Woller, via 561-706-1004 or nikki.woller@waldenu.edu. If you want to talk privately about your rights as a participant, you can call Dr. Leilani Endicott. She is the Walden University representative who can discuss this with you. Her phone number is 612-312-1210 Walden University's approval number for this study is **IRB will enter approval number here** and it expires on **IRB will enter expiration date.**

Please print or save this consent form for your records.

Statement of Consent:

I have read the above information and I feel I understand the study well enough to make a decision about my involvement. By signing below, clicking the link below, returning a completed survey, or replying to this email with the words, "I consent" , I understand that I am agreeing to the terms described above.

Only include the signature section below if using paper consent forms.

Printed Name of Participant _____

Date of consent _____

Participant's Signature _____

Researcher's Signature _____

Appendix C: Demographic Form

DEMOGRAPHIC FORM
Emotional dysregulation and adaptive skills among non bipolar siblings of early-onset bipolar children: A comparative study

Name: _____ Study ID Number: _____
Email Address: _____ Phone Number: _____
Fax Number: _____
How many children under the age of 18 do you have living within your home? _____
Yearly family income?
$0-$25,000 $25,001 - $50,000 $50,0001 - $75,000 $75,001 +
How would you describe your geographic location? Urban Suburban Rural
Describe the household where the children live (select one):

Two Parent Home	One Parent Home
____ 2 biological parents	____ Biological father only
____ 2 adoptive parents	____ Biological mother only
____ Biological mother with stepfather	____ Biological father with stepmother
____ Other _____	

BIPOLAR CHILD INFORMATION
Do you have a child diagnosed with bipolar disorder? Y / N
Who diagnosed your bipolar child? Pediatrician Psychiatrist Psychologist Therapist Other
Age of bipolar child? ____ Grade of bipolar child? _____
Gender of your bipolar child: Male / Female
Ethnicity of your bipolar child? African American American Eskimo Asian Biracial Caucasian Indian Hispanic Native American Other
Is this child receiving services for bipolar disorder? Y / N
If yes, which type of services is this child receiving? (choose all that apply) Medication management Psychotherapy Family therapy Other

SIBLING CHILD
Does this child live in the home full time with the bipolar child? Y / N
Has this child been diagnosed with bipolar disorder? Y / N
Has this child been diagnosed with any other medical or mental health condition? Y / N
If yes, please write in the condition _____
Age of this sibling child? ____ Grade of sibling child? _____
How is this sibling child related to the bipolar child?
Full blooded sibling (same mother and father) _____
Half sibling (same mother, different father or same father, different mother)
Step siblings (related by marriage only)
Foster siblings (not related, but living together full time)
Gender of this sibling child: Male / Female
Ethnicity of this sibling child? African American American Eskimo Asian Biracial Caucasian Indian Hispanic Native American Other

Appendix D: Volunteer Request for Study Group

RESEARCH STUDY – VOLUNTEERS NEEDED
Research Investigator: Nikki Woller, LCSW
Walden University Doctor in Psychology Student

VOLUNTEERS NEEDED
For a research study on children who have siblings diagnosed with bipolar disorder.

Participants must be

Parents of a child who is diagnosed with bipolar disorder and who also have at least one other child without a bipolar diagnosis.

Identified children must be younger than seventeen years old.

Bipolar child must have a diagnosis from a licensed clinical professional

Children in the home must live together full time.

Participants of this study will be asked to fill out a questionnaire about their non bipolar children. Participants will not receive reimbursement for this study.

Contact Information:
Nikki Woller, LCSW
561-706-1004 or nikki.woller@waldenu.edu

Appendix E: Volunteers Request for Volunteer Group

RESEARCH STUDY – VOLUNTEERS NEEDED
Research Investigator: Nikki Woller, LCSW
Walden University Doctor in Psychology Student

VOLUNTEERS NEEDED
For a research study regarding the relationship between sibling children.

Participants must be

Parents of children who have a more than one child in the home.

Identified children must be younger than seventeen years old.

Children in the home must live together full time.

Participants of this study will be asked to fill out a questionnaire about one of the sibling children in the home. Participants will not receive reimbursement for this study.

Contact Information:
Nikki Woller, LCSW
561-706-1004 or nikki.woller@waldenu.edu